

UNITED STATES DEPARTMENT OF AGRICULTURE

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STAKEHOLDER WORKSHOP ON COEXISTENCE

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THURSDAY
MARCH 12, 2015

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The Workshop was held in Duke Energy Hall, North Carolina State University James B. Hunt Jr. Library, 1070 Partner's Way, Raleigh, North Carolina, at 8:30 a.m., Abby Dilley, Vice President of Program Development, RESOLVE, facilitating.

SPEAKERS

TOM VILSACK, Secretary of Agriculture
 LYNN CLARKSON, President, Clarkson Grain Company
 DAN GLICKMAN, Former Secretary of Agriculture
 MICHAEL GREGOIRE, USDA Animal and Plant Health
 Inspection Service
 JACK HOUSENGER, US Environmental Protection
 Agency, Office of Pesticide Programs
 RUTH MACDONALD, Professor, Food Science & Human
 Nutrition, Iowa State University
 PETER RAVEN, President Emeritus, Missouri
 Botanical Garden
 RUSSELL REDDING, AC21 Chair, Acting Pennsylvania
 Secretary of Agriculture
 MICHAEL SCHECHTMAN, USDA Agricultural Research
 Service
 JILL SCHROEDER, USDA Agricultural Research
 Service
 ERROL SCHWEIZER, Executive Global Grocery
 Coordinator, Whole Foods Market
 CINDY SMITH, USDA Animal and Plant Health
 Inspection Service
 CATHERINE WOTEKI, USDA Under Secretary for
 Research Education and Economics

PANELISTS

LAURA BATCHA, Organic Trade Association

PETER BRETTING, National Program Leader, USDA

**NICHOLAS KALAITZANDONAKES, University of
Missouri**

ANDREW LAVIGNE, American Seed Trade Association

**RON MOORE, Illinois Soybean Association and
American Soybean Association**

LOGAN PETERMAN, Organic Valley/CROPP Cooperative

BETSY RAKOLA, National Organic Program, USDA

**ANNE MARIE THRO, Office of the Chief Scientist,
USDA**

BRANDON WILLIS, Risk Management Agency, USDA

JIM ZIMMERMAN, National Corn Growers Association

ALSO PRESENT

ABBY DILLEY, Facilitator, RESOLVE

**WARWICK ARDEN, Provost and Executive Vice
Chancellor, NCSU**

**CATHERINE GREENE, Panel Moderator, Senior
Agricultural Economist, USDA Economic
Research Service**

**JENNIFER KUZMA, Professor, School of Public &
International Affairs, Co-Director GES
Center, NCSU**

C O N T E N T S

SESSION 1: Coexistence Current State Of Affairs	
Greeting and Welcoming Remarks	5
Dr. Jennifer Kuzma	
Opening Remarks.23
Secretary Tom Vilsack	
Overview of AC21 Committee	
Recommendations.40
Mr. Russell Redding	
Presentations on the Science, Safety	
And Diversity of Biotech Crops	
- Environmental Safety76
Dr. Peter Raven	
- Food Safety.	116
Dr. Ruth MacDonald	
Market Demand for Organic and Non-GE	
Products	143
Mr. Errol Schweizer	
Coexistence in Practice with Identity-	
Preserved Products	180
Lynn Clarkson	
Lunch Break and Presentation by:	
Dan Glickman	204
Panel Discussion on Economic	
Perspectives On Coexistence:	
What is known and not known about the kinds	
of economic implications associated with	
coexistence strategies	242
Ron Moore	
Jim Zimmerman	
Nicholas Kalaitzandonakes	
Laura Batcha	
Andrew LaVigne	
Logan Peterman	

SESSION 2: Coexistence - The challenges and knowledge Gaps we face and USDA's responses to the AC21 recommendations

Discussion on new U.S. government actions
To address herbicide resistance in
Weeds. 316
Jill Schroeder
Jack Housenger

USDA Coexistence knowledge gaps and Context
for USDA's initial responses 336
Michael Schechtman
Michael Gregoire

Description of USDA actions already
Taken in response to AC21

Coexistence recommendations. 352

Catherine Woleki

- Brandon Willis

- Betsy Rakola

- Anne Marie Thro

- Peter Bretting

- Michael Schechtman

Homework Assignment: Consideration of

USDA products already developed. 388

Abby Dilley

Adjourn

P R O C E E D I N G S

1
2 DR. KUZMA: Good morning. I'd like to
3 invite everybody to take their seats fairly
4 quickly, we have a tight agenda today. So if you
5 can grab your last little drop of coffee or
6 whatever and take your seats that would be
7 fabulous.

8 (Brief pause.)

9 SESSION 1: COEXISTENCE CURRENT STATE OF AFFAIRS

10 DR. KUZMA: All right. You guys
11 listen well, thank you.

12 We have a very important and exciting
13 event today so thank you very much for being
14 here.

15 It's really my pleasure to welcome you
16 to North Carolina State University today. My
17 name is Jennifer Kuzma and I'm a professor in the
18 School of Public and International Affairs here
19 at NC State and I'm also co-director of the
20 Genetic Engineering and Society Center. And the
21 Center is really very pleased to help USDA host
22 this important workshop which is designed to

1 advance an understanding of agricultural
2 coexistence and discuss opportunities for making
3 coexistence work for all stakeholders.

4 And I have the pleasure of introducing
5 our Provost today who will then introduce the
6 Secretary. But before that I'd like to take a
7 minute or two to tell you about the Genetic
8 Engineering and Society Center and set perhaps
9 the context for this meeting.

10 The GS Center is the collection of
11 faculty, staff and students coming from multiple
12 disciplines, colleges and perspectives and we all
13 have a commitment to engage scholarship, inter-
14 disciplinary research and analysis and inclusive
15 dialog surrounding the opportunities and
16 challenges associated with genetic engineering,
17 synthetic biology and advanced biotechnologies
18 and their societal context. We believe that we
19 are unique in our blending of the natural
20 sciences, social sciences and humanities.

21 As a center we've been in existence
22 for about a year and in that time we have

1 launched several new translational research
2 projects. And by translational I mean research
3 that serves the needs of practitioners and
4 bridges the gap between academic work and the
5 needs of practice. In this time we have
6 developed tools for analysis hosted over half a
7 dozen public and stakeholder engagement events
8 and partnered with key local, national and
9 international organizations.

10 In the interest of time I can't tell
11 you more about these efforts but suffice it to
12 say we had a very productive year and we're very
13 proud of the path that we started on. There is a
14 need, I believe, in society for the type of work
15 that we do and the balanced and engaged approach
16 that we are trying to achieve. More about the
17 Center can be found in your packet, there are
18 brochures and there's a website. And then you
19 can listen to the video about the Center that
20 we'll play during one of the breaks.

21 But I think it is worth time taking --
22 worth taking the time to highlight perhaps one of

1 the projects of our students as an example. We
2 also have an academic interdisciplinary program
3 here in genetic engineering and society that's in
4 part supported by the NSF, National Science
5 Foundation interdisciplinary graduate education,
6 research and training grant. In this program
7 where students come from diverse academic
8 disciplines, colleges and departments, and for
9 example one group participated in the
10 international genetically engineered machines
11 competition this fall and won the policy and
12 practices division.

13 In this work they developed a values
14 mapping tool for better understanding the choices
15 and the ethical dimensions underlying decisions
16 about genetically engineered organisms. With the
17 idea that researchers, developers, policymakers
18 and other stakeholders can benefit from more
19 deeply examining their choices and understanding
20 the values behind their choices as well as the
21 choices of others. So we're quite proud of that
22 group of students. And other groups have done

1 some other amazing things but that just serves as
2 one example of how we are training the next
3 generation of scholars who can blend natural and
4 social sciences and humanities work.

5 So in the GS program we work in inter
6 and multidisciplinary teams and most often -- and
7 I would say almost always -- as a team. As a
8 group of faculty, staff and students we represent
9 a range of voices but we do not always agree yet
10 we all share a commitment to open inquiry and
11 learning from each other to better understand
12 multiple points of view, arguments on different
13 sides of the debates and diverse ways of
14 collecting, using and interpreting evidence.

15 It is in this context that we are very
16 pleased to have assisted USDA in this important
17 workshop on coexistence and we really commend
18 USDA and the Secretary for hosting this critical
19 dialog. We envision that in the next two days we
20 can each individually and collectively embody the
21 spirit of the GS Center, what we are trying to
22 do, by embarking on open and respectful

1 conversation with the goals to learn from each
2 other and to achieve a better understanding of
3 each other's viewpoints.

4 So on behalf of my co-director,
5 Professor Fred Gould and myself, I want thank the
6 USDA for choosing NC State as the venue for this
7 meeting. I want to thank the staff at USDA,
8 Doctors Michael Schechtman, Kim Ogle, Michael
9 Tadle and many others, USDA staff for having the
10 courage to work with us and host this meeting.
11 And I also want to thank the NCSU GS Center
12 staff, Alison Wynn who is the deputy director,
13 and Sharon Stauffer, the program assistant, for
14 working hard with USDA to make this workshop
15 possible. So again, I'm very pleased to be here
16 and very pleased to be a part of this.

17 Finally I am now very pleased to
18 introduce our Provost. Provost Warwick Arden is
19 Provost and Executive Vice Chancellor of NC State
20 and this is a position he's held since 2010.
21 This past year he also became the senior vice
22 president for academic affairs for the whole 17

1 campus UNC system, so he's a very busy guy.
2 Prior to this position he was Dean of the College
3 of Veterinary Medicine at NC State from 2004 to
4 2010 and prior to that he was professor and head
5 of the department of veterinary clinical medicine
6 at the University of Illinois at Urbana-
7 Champaigne.

8 Provost Arden has degrees in the
9 veterinary sciences from the University of
10 Sydney, a masters in physiology from Michigan
11 State University and a Ph.D. in physiology and
12 biophysics from the University of Kentucky. And
13 in the past few years the Provost and his office,
14 including key faculty members such as Laura
15 Severin and Duane Larick have championed and
16 executed the Chancellor's Faculty Excellence
17 Interdisciplinary Cluster Program at NC State.
18 This program and the Provost's efforts have
19 greatly enriched the scholarly environment here
20 and they're also responsible for recruiting our
21 core GS faculty, myself to NC State, Jason
22 Delborne and Zack Brown, and making this Center

1 and making our program possible. So I want to
2 thank him for his support and please join me in
3 welcoming him to the podium.

4 (Applause.)

5 PROVOST ARDEN: Thank you, Jennifer.

6 Good morning everyone.

7 (Audience response.)

8 PROVOST ARDEN: It's great to see you
9 here this morning and it's certainly a great
10 honor for us to welcome Secretary Vilsack. Thank
11 you so much for being here this morning and all
12 of you for attending today. Chancellor Woodson
13 sends his regrets that he's not able to attend
14 this morning.

15 Thank you to the Genetic Engineering
16 Society Center, Fred and Jennifer, for working
17 with USDA to host this meeting.

18 So the problem of how to enable the
19 coexistence of conventionally-bred crops and
20 genetically engineered species of these crops is
21 very challenging. And I'm pleased to see such a
22 diverse group come to NC State to really wrestle

1 with this problem. I know that there are many,
2 many different perspectives both across this
3 country and indeed around the world but often the
4 problem is so many of those who have these
5 perspectives only share those with others who
6 also have the same perspectives. So it's great
7 to have a forum where we can come together and
8 truly share diverse opinions. I applaud all of
9 you for stepping up on this important two-day
10 conversation and for focusing on the goal of
11 moving forward. I hope the liberation will serve
12 as a moral for others who are concerned with this
13 issue.

14 Your meeting offers a perfect example
15 of the kind of conversations that we try to
16 encourage here at Land Grant Universities. Now
17 whether the issue is agriculture or internet
18 security or global warming, a university must
19 serve as a meeting place for a thoughtful dialog
20 that can lead to new solutions. NC State's a
21 leader in new genetic engineering technologies as
22 well as in alternative agriculture. Our Center

1 for Environmental Farming has just celebrated its
2 20th anniversary and today the Center flourishes
3 as one of the nation's most important programs in
4 research, extension and education for sustainable
5 agriculture and community based food systems.

6 Genomics research in crops as diverse
7 as corn, casava and sweet potato has also
8 flourished at NC State and these programs are
9 funded both by federal agencies and by the Gates
10 Foundation as well as by private industry. Of
11 course our Genetic Engineering and Society Center
12 is another example of how the university promotes
13 thoughtful and respectful dialog around these
14 issues. This Center is just over a year old but
15 already has moved quickly to pull together NC
16 State faculty in diverse disciplines to address
17 questions about genetic engineering. It's also
18 done a job, and I was having a great conversation
19 with Secretary Vilsack earlier about the need to
20 reach out beyond the walls of academia and
21 stimulate and have this conversation with the
22 citizens of our state and of the nation and,

1 indeed, around the world.

2 Our reach at NC State is global but
3 our roots are local. Some of the North Carolina
4 farming communities that we serve rely on
5 genetically engineered crops. Other North
6 Carolina farming groups need seed and produce
7 that is free of engineered DNA and we strive to
8 address the problems of all of our stakeholders
9 so that our entire agricultural economy can
10 thrive. Therefore the work that you are doing
11 today is extraordinarily relevant to us here at
12 NC State and in North Carolina.

13 Your success in the next two days is
14 important to NC State, our farmers and worldwide
15 agriculture and I'm pleased that the secretary
16 has arranged for this meeting. I'd also like to
17 thank the Secretary's staff and the staff here at
18 NC State for working closely together to make
19 this possible.

20 Now it's time for me introduce Cindy
21 Smith from USDA APHIS who will give an overview
22 of today's agenda and introduce Secretary

1 Vilsack. Thank you so much for spending time
2 with us here today.

3 (Applause.)

4 MS. SMITH: Good morning. My name is
5 Cindy Smith and on behalf of the United States
6 Department of Agriculture welcome to our
7 stakeholder workshop on coexistence.

8 We are so very pleased that you have
9 agreed to join us either here in person or via
10 web cast or audio cast for what I promise will be
11 two days of very informative, interesting and
12 challenging discussion. We are here to advance
13 the discussion on agricultural coexistence which
14 we define as the concurrent cultivation of
15 conventional organic identity preserved and
16 genetically engineered crops consistent with
17 producer choices and consumer preferences.

18 So what does this really mean? It
19 means that Secretary Tom Vilsack feels
20 passionately that every American farmer should be
21 able to grow whatever crops he or she chooses to,
22 whatever crops meet consumer and market demands

1 and whatever crops address national and global
2 needs and challenges. Secretary Vilsack has an
3 unshakeable belief that no problem is so big or
4 complex that it cannot be solved by having
5 reasonable people around the table with their
6 sleeves rolled up and working together to find a
7 solution. He demonstrated this when he convened
8 the AC21 committee and charged them with facing
9 the challenge of coexistence head-on. And under
10 Russell Redding's leadership they proved him
11 right and reached a remarkable level of consensus
12 providing numerous recommendations for USDA.

13 Since then multiple agencies and more
14 than a dozen inter-agency task groups have been
15 working collaboratively across the department
16 carrying out as many of these recommendations as
17 possible, advancing 18 initiatives or proposals.
18 And this is where you come in. Once again the
19 Secretary wants the right men and women in the
20 room and around these tables. We believe that we
21 have invited the right people to help us gather
22 as much input as possible who will

1 collaboratively develop new ideas and who will
2 take full advantage of the diversity of
3 perspectives and expertise in this room and
4 across agriculture by participating in proactive
5 problem solving discussions.

6 Before we hear from the secretary I
7 want to give you an idea of what to expect during
8 these two days. You will hear directly from the
9 Secretary as well as from other high-level
10 members of his team, USDA's perspective on
11 coexistence. You will learn about the
12 deliberations and the recommendations of the
13 AC21. USDA will share openly what information we
14 know and what we don't know regarding
15 coexistence. You will learn how identity-
16 preserve practices can achieve coexistence and
17 what are our limitations. You will hear the
18 science that assures us that biotech crops which
19 have completed the scientific reviews of our
20 regulatory agencies are as safe as other
21 products.

22 That said, you will hear about the

1 market demand for organic and non-GE products.
2 We will also speak honestly about our less than
3 successful effort to obtain a variety of
4 information particularly relevant to coexistence
5 outreach and education through a federal register
6 notice. Additionally you will hear from a
7 variety of industry, commodity and academic
8 perspectives on what is known and not known
9 regarding economic implications of coexistence.
10 We will speak honestly about what we can do and
11 where we have limitations.

12 USDA and EPA will share federal
13 actions to address herbicide resistance in weeds,
14 an issue which sometimes identified as a
15 coexistence issue but is really a much broader
16 agricultural issue worthy of broader attention.
17 While there are various issues beyond coexistence
18 that could be addressed through an update of
19 APHIS's biotechnology regulations, with the
20 recall of the APHIS draft revised biotechnology
21 regulation USDA can now engage in a discussion
22 regarding what we can and what we cannot do from

1 a regulatory authority perspective. And if all
2 that isn't enough information to set the stage
3 for some great discussions we are very fortunate
4 to have a former Secretary of Agriculture and a
5 World Food Prize Laureate as lunch keynote
6 speakers for additional perspectives and
7 insights.

8 Our closing poster session this
9 afternoon that you will not want to miss will
10 feature industry, stake and academia, academic
11 initiatives as well as local food and drink. You
12 won't want to miss the local food and drink.

13 Tomorrow we will spend the better part
14 of the day in smaller group discussions with
15 three objectives. We will provide an opportunity
16 for each workshop participant to discuss each of
17 the 18 projects we will roll out today and
18 tomorrow. We will also ask you to identify other
19 steps USDA and other entities -- that means you -
20 - might take to bolster coexistence.

21 And finally, we will ask you to
22 consider how local coexistence conflict

1 resolution activities might be conducted when
2 they are needed and who might be best placed to
3 conduct this work.

4 It is our hope that these breakout
5 sessions will enjoy the benefit of proactive
6 problem solving. You will notice that while the
7 general sessions of this workshop are being web
8 cast the breakout sessions will only be
9 summarized by a recorder. We hope this will
10 foster an environment where people can feel free
11 to be creative and collaborative. We recognize
12 that most of our discussion will be challenging
13 so to assist we have engaged Abby Dilley, a
14 seasoned facilitator, to ensure our success.
15 Abby Dilley is Vice President for Programs of
16 Resolve. She has a long history of working with
17 diverse stakeholders on agricultural policy
18 including facilitating previous USDA AC21
19 discussions on coexistence. She will help keep
20 the workshop on time and focused and address and
21 process all your questions.

22 Unfortunately while Abby was due to

1 arrive yesterday an unbelievable series of
2 mishaps has her plane just about landing right
3 now at Raleigh-Durham airport. So she will join
4 us later in the morning.

5 When we adjourn at the end of this
6 workshop we hope the following will be
7 accomplished. We will have had very robust
8 engaged discussion focusing on fostering
9 coexistence and associated strategies, and that
10 USDA and all of us have lots of information,
11 insights and ideas to encourage coexistence
12 including specific feedback on activities and
13 efforts currently underway and new ideas for
14 additional activities and efforts for USDA and
15 for other stakeholders to take up and pursue or
16 champion.

17 And now it is my great pleasure to
18 introduce a man who cares deeply about ensuring
19 the opportunity for every farmer to successfully
20 grow the crops of their choice. Secretary Tom
21 Vilsack.

22 (Applause.)

1 SECRETARY VILSACK: Cindy, thank you
2 very much. And a welcome to everyone here.

3 Let me begin by extending an
4 incredible thank you to North Carolina State for
5 allowing us this wonderful venue and this
6 opportunity to collaborate and come together. We
7 appreciate the work that North Carolina State
8 does on this conference but also what it does for
9 all of agriculture. And Provost, I appreciate
10 your welcome.

11 I do want to thank our team from USDA,
12 Cindy Smith and Doug McKalip, Michael Schechtman
13 for the hard work that those three individuals in
14 particular have been doing to get this conference
15 scheduled. I certainly want to acknowledge my
16 good friend and I hope a colleague, soon-to-be
17 Secretary of Agriculture for the great state of
18 Pennsylvania, Russell Redding who chaired the
19 AC21 committee and really appreciate him being
20 here, especially at this point in time in his
21 life when he's going through a nomination
22 process. I understand how rigorous that can be.

1 So Russell, thank you for your leadership and
2 best of luck in your new opportunity.

3 (Applause.)

4 SECRETARY VILSACK: Yeah, please give
5 him --

6 I want to thank Secretary Glickman who
7 is a good friend who you'll be hearing from
8 later, as well as World Food Prize Laureate Pedro
9 Sanchez. I also want to acknowledge Cathy Woteki
10 who is here from -- who heads our research effort
11 at USDA who has also been intimately involved in
12 all of this. And I want to most of all thank all
13 of you because I know many of you have come from
14 significant distance to be here and anyone who
15 spends a couple of days talking about critical
16 issues deserves our thanks and acknowledgement.

17 And I think we're here because we all
18 care very deeply about the future of farming and
19 agriculture in this country. We have a shared
20 responsibility to that future, we recognize that
21 agriculture must provide for the needs of
22 American consumers and billions of consumers

1 around the world. We recognize the
2 responsibility that we have in agriculture to
3 care for the land and the water and the air that
4 serve all of us so well. We also have that
5 responsibility to build up and invigorate our
6 rural communities to respond to evolving consumer
7 needs and tastes in the shadow of increasingly
8 taxed natural resources. In short, we have the
9 responsibility to enhance and expand opportunity
10 in agriculture.

11 In the six years I've been honored to
12 be Secretary of Agriculture I think we have all
13 seen a vigorous and robust expansion of our
14 agricultural sector. You know, the world's
15 population is growing at a net rate of six
16 million more people per month. Now to put that
17 in a perspective that I can understand as the
18 former governor of Iowa, that's roughly twice the
19 population of my home state increasing every
20 single month. And farmers must rise to the
21 challenge of feeding those people two or three
22 times a day and at the same time provide

1 additional product for record exports that
2 support jobs in the American economy.

3 There are few people who can say that
4 their work touches every single person every
5 single day on this planet but farmers can and do
6 say that. And I would say that no one else is
7 better at it than America's farmers, ranchers and
8 producers. Now they have significant influence
9 but it also comes with a number of challenges.
10 Feeding all of us in a changing climate with more
11 intense weather patterns is a significant
12 challenge that must be addressed. And I think it
13 underscores the importance of the conversation
14 we're about to take -- that's about to take place
15 here about the future of agriculture, one that I
16 believe must center on the diversity of
17 production methods as well as the diversity of
18 producers.

19 Farmers are also increasingly
20 accountable to a nation and a world of non-
21 farmers. Today's consumer is constantly asking
22 to rate their experience, from YELP to Amazon to

1 Netflix. They're invited to give feedback. They
2 expect responsive changes and adjustments from
3 companies that receive their business. Consumers
4 are motivated, they're engaged, they're
5 conscientious and they have access to more
6 information about everything including their food
7 than ever before. I don't see this as a bad
8 thing. Consumers can and should be our partners.
9 Consumers have a stake in what happens on our
10 farms and ranches. They're interested. They
11 have a right to know about their food, where it's
12 grown, the impact of its production on the land,
13 how it will impact their health and how it was
14 cultivated.

15 Consumers can also expect a wide
16 variety of affordable choices and they are
17 bombarded with information that helps them make
18 those selections. From health claims to
19 ingredients listed on the side of a package to
20 labels to price tags, consumers rightfully expect
21 that the product they choose to purchase matches
22 their expectations. And American agriculture has

1 a unique responsibility to meet those
2 expectations. That's why we're restarting this
3 conversation about coexistence and choice. I
4 believe it's so important. There is a diversity
5 of opinions and motivations on coexistence and
6 choice issues, as there should be.

7 Unfortunately in my view, both sides
8 of the debate have failed often to speak truly
9 about these issues in a way to advance the
10 conversation. It's confusing, it does little to
11 advance the interest of either side and it may
12 negatively impact consumer confidence in our
13 farmers, ranchers and producers. It's also
14 unfortunate that this sort of debating is also
15 going on within agriculture. I'll give you an
16 example. Cindy alluded to this earlier.

17 In November of 2013, to help gather
18 information on how best to spearhead an outreach
19 and education effort, which was one of the
20 recommendations from the AC21 committee, USDA
21 published a notice requesting input from an
22 engaged public on a number of topics. We were

1 interested in soliciting the brightest and best
2 ideas. Our hope was to get substantive comments
3 where farmers and others laid out the challenges
4 that they faced, and suggested ways in which USDA
5 could help.

6 Unfortunately in the vast majority of
7 those comments, and in much of the ongoing public
8 dialog about these issues, the conversation about
9 coexistence and choice appears to have backslid
10 towards more inflexible and strident and
11 contrasting positions. It devolved back into the
12 bitter rhetoric of what is good and bad, right or
13 wrong. And in my experience in life, very rarely
14 is the world so black and white, and agriculture
15 is certainly no exception. Both sides and all
16 sides of the issue have fought one another for
17 the last five years and I asked the question,
18 what has it achieved? I say very little in the
19 way of progress. And while that time was spent
20 battling opportunities have been missed.

21 This infighting has impacted consumer
22 confidence and trust in GE products with the risk

1 that it will bleed over into organic and non-GE
2 products as well. And I'm personally concerned
3 that this attention and controversy will well
4 increase cost of product development and
5 ultimately deprive all farmers of the tools they
6 need to remain competitive. I think this lack of
7 common ground also increases the likelihood and
8 risk of litigation, litigation that potentially
9 leads to courts deciding who gets to farm and
10 exactly how they farm. I don't believe we can
11 continue to go down this path as a divided
12 industry. It's not sustainable and it's bad for
13 business.

14 American agriculture will fail to
15 reach its fullest potential if we don't move past
16 the heated rhetoric and focus on developing real
17 solutions. Coexistence and choice have to be
18 more than buzzwords. They have to be the only
19 viable option. And that's why it's time to move
20 beyond this idea of one side winning and one side
21 losing. I believe, and I hope you do as well,
22 that there's a better way, a solution that

1 acknowledges agriculture's complexity while
2 celebrating and promoting its diversity.

3 Each of you in this room have skin in
4 this game and in this conversation. And today we
5 hope we are kickstarting a more stable, measured
6 conversation about how to move forward and to
7 discuss how USDA can help make coexistence more
8 achievable and become a basic and routine
9 consideration for all stakeholders.

10 Our purpose at USDA first and foremost
11 is to support all farmers, and I emphasize "all
12 farmers." To give them the tools and the
13 technologies they need to success. We support
14 farmer choice. Organic, conventional, biotech,
15 they all should be viable options for producers.
16 All three types of agriculture are important for
17 consumers, for farmers and for the health of
18 rural communities. From USDA's perspective those
19 GE products on the market today that have
20 completed a stringent review by several
21 government regulatory agencies are safe and as
22 safe as any other product out there. We'll have

1 some conversations about those conclusions today
2 and around some of the concerns about the GE
3 products. But ultimately this meeting ought not
4 to be about a conversation as to whether or not
5 these crops are safe.

6 We've proved GE crops are safe for
7 many farmers and those who wish to plant them
8 should have the freedom to do so. Equally
9 important, those who wish to produce valuable
10 organic and non-GE products for market and for
11 their consumers should also be free and
12 encouraged to do so as well. Organic farmers and
13 farmers growing identity-preserved non-GE crops
14 express the concern that the presence of nearby
15 GE crops have made it difficult for them to
16 produce products that meet their consumers'
17 specifications. They've even experienced
18 shipment rejections because of unintended GE
19 presence at a testing destination. They have
20 expressed a desire to us for more active
21 collaboration with their GE crop growing
22 neighbors to help enable them to meet their

1 customers' needs or, failing that, for more
2 government involvement to mandate such actions.

3 We recognize at USDA the incredible
4 challenges that all farmers face and the
5 practical challenges of producing products that
6 are being scrutinized ever more coarsely by
7 policymakers and lawmakers and by the public.
8 Those are at the core challenges that all farmers
9 share no matter their production method. And
10 they have a responsibility to consumers and to
11 one another to be a good neighbor. It's just
12 good policy and it's good business. Today USDA
13 will present the activities and tools that we've
14 been working on but ultimately we cannot solve
15 this problem alone. It will indeed depend on the
16 cooperation across all forms of agriculture.

17 In 2011 I brought back USDA's advisory
18 committee on biotechnology in the 21st century
19 agriculture known as AC21. To take a shot at
20 addressing the frictions that have been reflected
21 at the farm level, when neighboring producers are
22 trying to market different products to meet

1 different market demand. A number of the members
2 of that body are in attendance today but this is
3 not an AC21 meeting. We've brought a wider group
4 of stakeholders together to convene this public
5 dialog.

6 I'd like to take a moment, though, to
7 touch on some of the work that USDA has done to
8 follow up on the AC21 recommendations because I
9 think it has a bearing on your conversation
10 today. Through the extraordinary leadership and
11 work of Russell Redding and the AC21 committee,
12 you'll hear from Russell in a few minutes. They
13 produced a near-consensus report and, trust me,
14 that was not an easy task. It contained a
15 balanced package of recommendations in the areas
16 of risk management, stewardship, outreach,
17 research and seed quality. When I received the
18 report from Russell and the committee I committed
19 to him and to the committee that USDA would
20 implement the recommendations where we were able
21 to do so.

22 At this meeting we'll describe our

1 progress in doing so and some of the challenges
2 that we still face. Frankly achieving some of
3 the recommendations will require more time and a
4 longer-term commitment and others may indeed
5 require additional authority from Congress. But
6 overall USDA has made progress on each of the
7 main recommendations in the report. We recognize
8 that the ability to produce crops and products
9 starts with access to high quality locally
10 adapted seed that fits the appropriate production
11 method.

12 So we have restarted the National
13 Genetic Resources Advisory Council to help us
14 work on and guarantee seed availability. In the
15 area of risk management we have created new crop
16 insurance options for organic farmers and we're
17 beginning through a survey process to gather data
18 on the economic losses associated with unintended
19 GE presence. Our research and regulatory efforts
20 will continue to support the development of new
21 technologies, both GE and non-GE, that will meet
22 diverse needs. Now that's a start and it's what

1 we can do within our limited authority.

2 But today is about restarting a
3 broader conversation about what mutual success
4 looks like. For conventional and biotech
5 interests that means acknowledging the promise
6 and the importance of new technology while also
7 acknowledging that there is an economic issue
8 that some farmers face and experience because of
9 unintended presence. For non-GE and organic
10 interests, while acknowledging the importance of
11 your products to fulfilling consumer demand and
12 biodiversity means acknowledging that there's
13 room in the marketplace and in agricultural
14 production for both biotechnology derived crops
15 and non-biotech crops.

16 Anything less, messages of all or
17 nothing campaigns or fear of this product or
18 that, in my view are counterproductive and will
19 not bring out a viable solution. Websites and
20 organizations that exist solely to discredit one
21 another and spread partisanship increase the cost
22 of doing business on both sides, increase the

1 public's distrust of all agriculture and increase
2 consumer uncertainty about the safety of our food
3 supply. When farmers target each other we're
4 actually making all of agriculture a target and
5 that's simply bad business. So it's imperative
6 for all of us to find common ground on
7 coexistence and choice issues. To do so we
8 obviously have to listen hard and we have to
9 listen to one another.

10 We have to think big picture about how
11 to advance a diverse agriculture in this great
12 country of ours that's ready to meet the
13 challenges of the future of meeting and feeding
14 an ever-expanding world population and doing so
15 in a sustainable way. Accordingly USDA's here
16 today to share information, to listen to
17 constructive feedback and to make commitments to
18 further action. In short, we're here today to
19 chart the path forward.

20 Now I am fully aware, very aware of
21 the difficulties some of you have faced in even
22 coming to this meeting. You're likely under

1 pressure to adopt certain positions and not to
2 compromise. Appreciate you've made the choice to
3 be here, to attend this meeting, to participate.
4 And I hope that everyone is here with an open
5 mind and a willingness to look at and to envision
6 future compromises. In the long term we need
7 farmers and stakeholders to be forthright and
8 forthcoming about the problems agriculture faces
9 and how together we can fix those problems in a
10 way that respects the needs of everyone involved
11 and ensures that all forms of agriculture thrive
12 so that our food in the U.S. and across the globe
13 can remain abundant, affordable and safe.

14 Today I'm here to recognize a simple
15 fact and that is that we need diversity in
16 agriculture and I mean diversity in production
17 methods, in crops produced, in size of farming
18 operations and in the farming community and
19 producer community itself. Failing to recognize
20 and act on that fact will indeed compromise
21 agriculture's future and the future of our entire
22 country.

1 Let me close with just a personal
2 note. I've been in Washington, D.C. now for a
3 little over six years. I came from a state as a
4 governor where I dealt with a Republican
5 legislature for the entire eight years that I was
6 governor, the last two year I had a tied senate.
7 But we got things done even though we had
8 disagreements. And I for one, as an American
9 watching the discussion and discourse today on a
10 variety of issues, have become exceedingly tired
11 with the divisive nature of our conversations in
12 America today. It is all about division, it's
13 all about conflict, it's all about my way or the
14 highway.

15 So I think this conversation is
16 equally important beyond the significance to
17 agriculture and the important issues that
18 agriculture faces as potentially an example for
19 the rest of the country. That you can take
20 things that you feel passionately about, that you
21 care deeply about, that you can listen to those
22 who feel passionately and deeply on the other

1 side of an issue and that you can be challenged
2 to find that elusive center, that creative
3 solution that speaks to the needs and respects
4 the concerns of all.

5 As a country we've got to get back in
6 that business because not only do the people in
7 this country and future generations in this
8 country depend on this conversation but literally
9 the future of the world depends on this
10 conversation of being able to feed a growing
11 population in a sustainable and resilient way in
12 the face of a changing climate. We need you
13 engaged in this conversation and I'm confident as
14 I was in AC21 that, indeed, as Cindy indicated,
15 if you put reasonable, smart people in a room and
16 you challenge them to listen, to learn and then
17 to solve, there is no problem that is too big or
18 too complex or too difficult that can't be
19 solved.

20 Thank you very much.

21 (Applause.)

22 MR. REDDING: I have to read my

1 instructions.

2 SECRETARY VILSACK: Russell, come on
3 up here.

4 I just want to take this opportunity
5 again to introduce Russell Redding. This is a
6 man who has had extraordinary career in
7 agriculture and is somebody who cares deeply
8 about the future of agriculture. I've had a
9 number of conversations with him during the AC21
10 conversation and candidly I think he's one of the
11 best people I have met in this line of work that
12 I've been engaged in the last seven years. I
13 have a tremendous amount of confidence in him.

14 And I'm very appreciative of Governor
15 Wolf in Pennsylvania reaching out to Russell and
16 asking him to take on the responsibility of being
17 the Secretary of Agriculture in that great
18 commonwealth. I will say that he understands and
19 appreciates the partnership between the federal
20 government and the state governments not just in
21 terms of agriculture but in terms of the entire
22 rural economy and the rural landscape. He is

1 passionate, he is thoughtful, he is creative and
2 we have been blessed by his work at AC21 and I'm
3 sure we'll be well served today. And the people
4 of Pennsylvania are going to have a very, very
5 great secretary.

6 Russell Redding.

7 (Applause.)

8 MR. REDDING: Mr. Secretary, thank
9 you.

10 Good morning, everybody, it's good to
11 see you. Thank you for being here. A special
12 thanks to the Secretary, I appreciate very much,
13 as all of us in agriculture do, your leadership
14 in agriculture, your public service, your
15 understanding of what it takes to run both a
16 state and all the complexities of our larger
17 government that you just spoke to. Thank you for
18 that. And for recognizing that agriculture is at
19 the intersection of many of those contemporary
20 issues that we are dealing with as a society.

21 We also appreciate your reconvening
22 AC21 and for selecting an exceptional group of

1 passionate folks who wanted to be, wanted to
2 serve on the AC21. Each one of them great
3 perspective, as I have shared with some of you I
4 thought I understood agriculture until I accepted
5 this task, right? I thought I did. And for all
6 of us, it really was a revelation in that this is
7 an incredibly vibrant industry, it is incredibly
8 important to us. It is amazing where people
9 connect to food and agriculture in their daily
10 lives but also in this topic.

11 I also want to say thanks to the
12 Secretary for staying engaged in the
13 conversation. Certainly reengaging here today in
14 this critical conversation. Like most things
15 that you care about, it requires a lot of
16 conversations and more than sometimes we prefer,
17 but it is required for this issue of coexistence
18 because it embodies so many of the fundamentals
19 of agriculture. Choice, science, marketing,
20 management, our neighbors, the consumers,
21 responsibility and change. Leading change is
22 difficult. As stakeholders and thought leaders

1 we are entrusted with this responsibility.
2 Change is often painful, it means leaving things
3 behind, it means changing habits and
4 expectations. It means stress and some level of
5 uncertainty.

6 But my experience at Delaware Valley
7 College as Dean was people will willingly put up
8 with this pain only if going forward is a more
9 attractive option than staying in the same place.
10 On a college campus, you understand, right?
11 Having watched that with students and faculty,
12 that was very important. They had to understand
13 going forward was less painful. I believe this
14 is where we are with coexistence.

15 So today let me outline just a couple
16 of objectives. Is that going to be run from the
17 little black thing in the case? Yes. All right.

18 (Brief pause.)

19 MR. REDDING: So there will be three
20 objectives to this presentation. One is
21 providing some background and context for the
22 AC21 and the role of AC21 for the USDA.

1 Secondly, looking at the process of our
2 committee, some of the challenges, the
3 controversies that were part of our discussions
4 as well as the consensus or almost consensus,
5 near consensus, and the impacts and implications
6 as well.

7 Looking at objective one, I won't
8 spend a lot of time on this but it's worth
9 repeating that there is a charter that governs
10 the AC21. And it's not something I understood
11 well until I stepped into this conversation, that
12 it actually has some structure to it. It's not a
13 routine sort of committee, it really is set forth
14 that had guided the AC21 work over several
15 administrations and several committees. But what
16 it does, it really recognizes the multiple and
17 repeating responsibilities and expectations that
18 we have as an industry and certainly as consumers
19 of the USDA. It embodies all of those issues and
20 technology, farm programs, economic development,
21 food safety. So the charter became important as
22 we looked at our work and our charge from the

1 Secretary.

2 The bylaws -- it also has bylaws so it
3 really sets forth the long-term, looking at the
4 long-term impacts of biotechnology and provide,
5 really provide guidance to the USDA. And that's
6 what today's stakeholder workshop is about. It
7 also builds on previous work and as we step into
8 this conversation there were some members on the
9 committee who had been involved previously, but
10 it was helpful to sort of look back, right,
11 because the -- both in understanding the charge
12 from the Secretary but also how the conversation
13 has evolved over time, is that we weren't going
14 to look back, we're trying to take that as a
15 foundation and look forward. It was important to
16 recognize that there has been a lot of good work
17 done by previous committees that we were the
18 beneficiary of.

19 Our charge from the Secretary, sort of
20 three part charge, one was looking at the type of
21 compensation, if any, clause in there, and I'll
22 come back to that in just a moment. What would

1 be necessary to implement such a compensation
2 mechanism and then looking at other items. So
3 when we look at the report that we had produced
4 for the Secretary there was an overarching issue
5 in here of how do we enhance coexistence between
6 different forms of agriculture understanding that
7 it is growing both in complexity and diversity?
8 And for somebody who thought they understood
9 agriculture, my initial thinking was this is
10 between sort of organic and genetically
11 engineered.

12 As the conversation evolved it was
13 quickly apparent that it was not one dimensional
14 by any measure, right? And what we thought would
15 be sort of, you know, two parties in that
16 conversation are multiple parties in that
17 conversation, even within the production
18 community. And this conversation, as we went
19 through the exercise it became evident that it
20 was also a conversation between GE and GE with
21 any number of traits that wanted to be protected
22 and needed to be protected. That again was one

1 of those issues that I just hadn't focused on as
2 a producer and somebody in agriculture but that's
3 where the conversation went. It also made our
4 conversation much more lively, much more
5 complicated because everyone then understood
6 that, while they didn't think they were going to
7 be impacted potentially by this coexistence
8 discussion, they were.

9 So that report, I just ask that as you
10 look at the report is to read the section on
11 background and context. It is important and it
12 was important for the committee because in that
13 section we captured a lot of the concerns and
14 beliefs that committee members had. We tried to
15 embody that in the front side of that report.
16 And I've looked at it again, read it last night
17 just to refresh my memory, and then went back and
18 read the letters, the signing letters that are
19 part of that document. And it was really
20 critical to get us to the near consensus that we
21 did. So take a look at that.

22 But the package of recommendations

1 that went to the Secretary, there were five worth
2 repeating. Certainly education was important,
3 tools and incentives through the USDA, some
4 research components looking at the quality and
5 diversity of the U.S. seed and germplasm as well
6 as the framework for a system of compensation.
7 And those points will be discussed further at
8 this workshop as well.

9 So what are the impacts and
10 implications of our report? What does it mean to
11 U.S. agriculture? I think the Secretary laid
12 that out well in his comments but just to
13 reiterate, certainly the conversation, keeping
14 that conversation open, looking at the
15 relationship that we have between and among
16 neighbors, looking at the importance of putting
17 our collective energies as an industry into the
18 things that are going to advance the industry
19 versus sort of pull us back. And looking at the
20 incentives, I mean, how do we continue what we're
21 doing? It spawns creative policy discussions, it
22 addresses this issue of integrity, it

1 demonstrates coexistence as a shared
2 responsibility on a core principle of production
3 agriculture.

4 Let's touch just briefly on the
5 challenges and controversies. And I had a hard
6 time sort of getting this on to one page.

7 (Laughter.)

8 MR. REDDING: I'll be very honest
9 about it. I am certainly a better Secretary of
10 Agriculture for having had the experience of an
11 AC21 chair, I will tell you. And I hope that
12 shows just because of what it means.

13 But the issue of this recognition, is
14 there a problem? You know, I again sort of
15 assumed that folks who came to the table, and
16 understand that there here to solve a problem,
17 right? What became apparent is there wasn't sort
18 of a collective appreciation that there was a
19 problem. And some solid, some maybe solid but,
20 you know, there just wasn't that sort of
21 unanimous consent that there actually was a
22 problem so you had to sort of restart that

1 conversation.

2 Again I think, read those signing
3 statements will help you.

4 But we had to -- we started with some
5 skepticism and it took a little while I think to
6 sort of bring that along. I realized as we went
7 through the process that some of it was based on
8 the charge in that the charge is predicated on
9 certain information that would be available or an
10 assumption of that information being available.

11 But there wasn't a full recognition that this
12 issue of coexistence had great potential to
13 exacerbate the tensions at the fence rows between
14 neighbors, that we had the potential for market
15 disruption, and we really needed to see that
16 there were actually document losses, right? So
17 we needed to see that. So part of that led to a
18 little bit of a challenge to get folks looking at
19 the problem.

20 There was also this cultural divide
21 and the question of this moral obligation. What
22 does that mean? So do neighbors and industry

1 have a moral obligation to manage their
2 production practice differently when a problem is
3 identified, even if everything they are using and
4 doing is legal? Right? Doing everything right
5 and you still have a problem, what do you do
6 about that? So there's a question in there
7 whether I have an obligation as a producer or
8 neighbor to address that.

9 We had limited data and folks, I would
10 say for the first meeting or two, even to the end
11 if you read the signing statements again, there
12 was some level of is this really a problem,
13 right? They wanted confirmation by -- of the
14 problem, they wanted to see the data that
15 supported that. What was the scope of the
16 problem? Was the response that we were working
17 on fitting of the problem, right? And that was
18 an issue.

19 There was also this undertow concern
20 about the government's involvement in the issue.
21 How do you manage this? I mean, if you have a
22 compensation mechanism, how does that get managed

1 in terms of using the crop insurance, risk
2 management system that we have knowing that
3 you've got to set, you know, triggers and
4 protocols and due diligence that's going to lead
5 to somebody making a determination of loss. How
6 does that work in this system? So some concern
7 about that.

8 And as I mentioned at the outset, this
9 clause that the Secretary put in the first point
10 of the charge, you know, two little words, "if
11 any," right? And it really was challenging
12 because what it did was it raised this question
13 that -- of doubt. And I think I understand what
14 the Secretary was doing by putting it there. It
15 wasn't prejudging it, it was just saying,
16 committee, look at this, okay, and you determine
17 "if any." And what it did was it provided a
18 great conversation among the committee about the
19 data point for sure, but I think it was one of
20 those times when your words are important, those
21 two little words. But take a look at the signing
22 statement.

1 of coexistence but it was going to move this
2 conversation forward considerably from where it
3 was. And in that process what we recognized that
4 was important to have individual members who felt
5 very passionately about different areas of this
6 charge but also coexistence, is to allow them in
7 the report, what we call sort of the signing
8 statement. And I appreciate the Secretary's
9 willingness to include that as one of the really
10 principles of the report. And to Dr.
11 Schechtman's sort of really good work trying to
12 bump and steer these things.

13 But I would say to each of the
14 committee members, this was the piece where they
15 were allowed and encouraged to really express the
16 issues as they saw them over the course of a
17 couple years and qualify their support. And
18 that's okay, right? Because to the Secretary's
19 point, this was about sort of transparency, this
20 is really digging into this issue so we
21 appreciated that. And in the signing statements
22 what I found really helpful, the technical points

1 of concern by the committee.

2 But every single person said how much
3 they appreciated being in the conversation. And
4 again, it was one of those things sort of you can
5 run by that pretty quickly but you understand the
6 significance of what you're doing when people say
7 "I appreciate being at the table," right? And we
8 can disagree, we had some very spirited debates
9 and discussions but the end result was we
10 produced a report that had five recommendations
11 that advanced back to this, the bylaws of AC21,
12 advanced the conversation, advised the Secretary.

13 So with that I would just say in
14 summary, coexistence is about finding solutions
15 and not differences. And it's probably not a bad
16 motto for public service, right? But ag
17 production is complex, it's growing more complex,
18 you know, to believe somehow that we can just
19 sort of stay where we are, that is not where
20 agriculture has been for 300 years. We've been
21 on the path of change for 300 years and the one
22 thing we've proven is perseverance, that we can

1 take all kinds of obstacles and at the end of the
2 day have people appreciate what we do in food
3 systems, in the environment, in so many ways. So
4 as the Secretary said, well, that diversity is
5 our strength but we need to stay engaged. I
6 mean, I would just say that, and that's the
7 purpose of today.

8 So I'll end where I began with a
9 simple thank you to the Secretary and to the
10 committee, to Dr. Schechtman and the USDA team
11 for an exceptional job. And I look forward to,
12 both in my capacity as chair but certainly as
13 Secretary of Pennsylvania, staying involved.
14 Thank you.

15 (Applause.)

16 MS. SMITH: Thank you, Russell, for
17 your remarks and for the remarkable leadership
18 you've demonstrated through this process.

19 Now that we've had the foundation laid
20 for the work that was done by the AC21 we have
21 microphones set up on both sides of the room and
22 I think we have people that are eager to ask some

1 questions of the Secretary. So Mr. Secretary,
2 can I ask you to come back up, please, and
3 entertain questions?

4 SECRETARY VILSACK: I may not be as
5 eager to answer them, but --

6 (Laughter.)

7 DR. GOULD: Well, I'm not that eager
8 to ask you the first one. But as the co-director
9 of the Genetic Engineering and Society Center I
10 was asked to get things started --

11 SECRETARY VILSACK: Okay.

12 DR. GOULD: -- with a question to you.
13 But first I really want to thank you and Russell
14 Redding for getting this conversation started
15 this morning and really thank you for organizing
16 and getting this happening. You know, I heard
17 from your staff how interested you were in having
18 this kind of open conversation and that is so
19 critical. And I would say that this idea of
20 having a respectful conversation is something
21 that, in the Genetic Engineering Society Center
22 is also very important to us and I have been

1 involved in some of these kinds of conversations
2 where it's kind of hard to keep everything
3 respectful. I've actually been asked to watchdog
4 this thing a little bit and make sure that the
5 conversation stays very respectful. And I will
6 make some comment in that way, if necessary. I
7 hope not.

8 But I do want to ask you a question.
9 Russell brought up the fact that this is not just
10 a question of genetic engineering and
11 conventional crops, it's also GE and GE. And as
12 somebody involved in some of this I see the
13 technology moving ahead very quickly. And you
14 know, years ago USDA was regulating just about
15 every product that came out that would be
16 considered genetically engineered but today there
17 are more and more products that don't fall under
18 USDA regulatory authority. And I see a point at
19 which some of the new technologies with
20 CRISPR/Cas9 systems and such will allow genetic
21 engineers to make changes that won't be apparent.
22 It will be difficult to even notice.

1 And so I'm wondering in terms of the
2 definition of genetic engineering, are we
3 including only things that are under regulatory
4 authority of USDA or other things that need to be
5 governed because some people consider it
6 genetically engineered?

7 SECRETARY VILSACK: Well, I'd answer
8 it this way. This is about the path forward and
9 to the extent that science seems to be able to
10 move at warp speed and government regulatory
11 processes are sort of moving at prehistoric age
12 speed. And we have made an effort to try to
13 better align the speed of regulatory decision
14 making. So it is important for us to know what
15 is indeed the current state of play and what is
16 likely to be the current state of play in the
17 future. And as we essentially withdrew our
18 regulation that we were considering, it was
19 really designed to open up a conversation so that
20 we would get input because a lot has changed over
21 the several years since we initially proposed the
22 regulatory changes on 340. So it's going to be

1 important for us to know what the state of play
2 is.

3 It's also going to be -- we're
4 inviting folks to come to us because we want to -
5 - we have a responsibility to put together
6 regulation and that regulation should be timely.
7 It is also, I think, important for us to be able
8 to make recommendations to Congress if there
9 needs to be a change based on this science, in
10 terms of what we are to regulate and how we are
11 to regulate it. So this is part of the
12 conversation. And that's why, you know, you
13 start -- as Russell found out, you start
14 unwinding this it gets pretty complex. But I
15 would certainly encourage you to educate us on
16 the current state of the science and allow us to
17 understand how the regulatory system should
18 reflect that current state. We don't want to be
19 behind.

20 I think frankly we have been behind in
21 this particular area. One of the frustrations
22 for folks who are strongly concerned about the

1 future of GE in terms of our current regulatory
2 system is the belief that we have this massive
3 regulatory capacity to say "no" to an item that
4 some folks are concerned about.

5 The reality is, and you'll learn I
6 think throughout the course of this discussion,
7 that our capacity and our authority is really
8 narrow in terms of what we are to look at when we
9 deregulate a particular product. And it may very
10 well be that people would like it to be broader
11 but it currently is not. And so it would be
12 helpful to have those suggestions and directions.
13 And then it will be a question of what we can
14 legally do under the current statutory framework
15 and what Congress might consider in the future in
16 terms of enlarging or changing that statutory
17 framework.

18 Yes, sir?

19 DR. SEDEROFF: So USDA has always
20 argued that the decisions about evaluations are
21 science based but that's not true. In the
22 beginning it was strongly recommended by at least

1 the National Academy, and others, that
2 evaluations be product based rather than process
3 based. That puts everyone in a logical quandary
4 because you have products that are essentially
5 equivalent but are subject to completely
6 different kinds of regulation. So there should
7 be no question that the goals and the term
8 "finding common ground" is more profound than
9 amusing, which we must do in terms of nutrition
10 and in terms of safety, in terms of the
11 environment.

12 But can we get to a situation where we
13 evaluate things based on product not based on
14 process?

15 SECRETARY VILSACK: Help me understand
16 that question better. Give me sort of a
17 hypothetical example of what the difference would
18 be, in your view?

19 DR. SEDEROFF: You create an organism
20 by two different technologies; one by
21 conventional means, for example by spontaneous
22 mutation, and the other by genetic engineering.

1 They're created by two different processes but
2 the product is identical. Yet one is subject to
3 regulations that have been unprecedented in
4 agriculture and the other is unregulated
5 completely. It should not be a question of how
6 you got to a product, it should be a question of
7 evaluating the product itself based on its
8 nutrition, its safety, its impact. That than
9 saying because it was created in a particular
10 way, it is intrinsically legal or intrinsically
11 wonderful where the products are the same.

12 SECRETARY VILSACK: That's -- you
13 know, that's a very significant observation and I
14 think it does point out the fundamental challenge
15 with the regulatory system as it exists today
16 because it is based on our understanding of what
17 Congress directed us to do. It is very process
18 oriented and not product oriented. So that is
19 the kind of thing that, if you all come back to
20 us and say, hey, this process orientation is not
21 the way that is consistent with what you
22 ultimately want to get done, that's the kind of

1 thing that we can go back to Congress and say,
2 look, you all need to take a look at how you
3 structured this thing 15, 20, 25 years ago
4 because a lot has changed as we know a lot more.

5 I would say that it is a challenge to
6 use the concept of science because, you know, I
7 wish science were as certain as some people would
8 like to think it is. What I do know about
9 science is it is evolving and so our systems have
10 to have that -- have to take that into
11 consideration and I don't think they do very
12 well. I think our systems basically create a
13 situation where we examine something at a
14 specific point in time based on science as we
15 know it and it's very rigid, in my view. And
16 it's not as flexible as the, I think,
17 government's going to need to be in the future.

18 DR. SEDEROFF: One aspect of it is
19 that we scientists frequently forget that we --
20 that science exists in a political context.

21 SECRETARY VILSACK: Oh, my.

22 (Laughter.)

1 SECRETARY VILSACK: Truer words were
2 never spoken there. You know, Cathy Woteki, if
3 she had a dollar for every time I had kind of
4 made that point she'd be wealthier than she
5 already is, if she is wealthy. And I would make
6 a further point, look, what science does and what
7 scientists do is absolutely phenomenal. It's
8 inspiring, it's overwhelming, it's been so
9 impressive.

10 The problem is you don't know how to
11 talk to the rest of us. You don't market it.
12 And so we fuss and fight with limited resources
13 to get money into research and we try to convey
14 to folks how great this stuff is but you have to
15 help us convey that message. Because with open
16 data and with big data we're going to see an
17 accelerated pace of change here. You all are
18 going to come up with a million different new
19 ideas and we have got to have regulatory systems
20 and structures and a government that's capable of
21 dealing with that. I don't think we have that
22 today and I think that's one of the big issues

1 that this country has to confront.

2 DR. SEDEROFF: If you've had the
3 scientists feel that Congress doesn't listen and
4 it's been more than 150 years since we
5 recommended that the country adopt the French
6 Metric system.

7 SECRETARY VILSACK: I get that
8 Congress not listening thing.

9 (Laughter.)

10 SECRETARY VILSACK: Yes?

11 MR. KEMPER: (Inaudible comments.)

12 SECRETARY VILSACK: Geez, I can't
13 believe you started with corn, Alan.

14 MR. KEMPER: Are we okay, Mr.
15 Secretary?

16 SECRETARY VILSACK: Yeah.

17 MR. KEMPER: Yes. Thank you, Mr.
18 Secretary.

19 SECRETARY VILSACK: I would have
20 thought you'd started with soy beans. Okay. Go
21 ahead.

22 MR. KEMPER: Our farm's been around

1 since 1888. We think the coexistence discussion
2 today is something new. I want to give you three
3 little things about it.

4 Back years ago farmers had coexistence
5 discussion over a fence when certain neighbors
6 all got out and changed the genetics of the new
7 calves being born and the cows. A few decades
8 later over the small country elevator over a soda
9 we talked about coexistence when maybe spray
10 drift happened from one neighbor to the other.
11 Today with the help of expansion and coffee shops
12 and things we still talk about coexistence on the
13 farms, maybe it's genetics or drift or what have
14 you.

15 My point is on this -- and I have a
16 question. But my point is that coexistence
17 discussions happen locally and are addressed in
18 the discussions locally with the help of
19 expansion and others that help facilitate that.

20 Mr. Secretary, you talked about the
21 right to know a little bit ago and about the
22 consumers' right to know. It's also my right to

1 know. And so I think maybe you have some
2 thoughts on maybe Q code readers and some things
3 in the supermarkets that maybe we all can work on
4 together to help coexistence and to help the
5 right to know of everybody.

6 Thank you, Mr. Secretary. Any
7 comments?

8 SECRETARY VILSACK: Alan, thanks.

9 Well, so I sit in my office and I have
10 -- I have friends on all sides of these issues,
11 close friends, good friends. I practiced law in
12 a small town starting 1975 during the farm crisis
13 in the '80s and I got to know farmers. And I
14 will tell you there's just no greater group of
15 people in my view in terms of how passionate and
16 caring they are about their community, their
17 country, their family.

18 I also have entrepreneurs and folks
19 who started businesses who have grown into really
20 large businesses who have been extraordinarily
21 successful who believe just to their very core
22 the power of organics. And so I sit there and I

1 watch these friends of mine fussing and spending
2 hundreds of millions of dollars fussing on the
3 issue of labeling. And I say to myself, this is
4 a tough issue because it's hard for any
5 businessperson to make the case that a consumer
6 doesn't have the right to know something. The
7 consumer does have the right to know.

8 On the other hand, traditionally and
9 historically in this country labeling is done for
10 primarily two reasons. One, to let you know the
11 nutritional value of a particular product, how
12 many calories, what the sodium content is, fat
13 content and so forth, so you can make an informed
14 decision in that respect. Or two, to warn you or
15 to give you notice that there may be something
16 about this product that may potentially be
17 harmful to you because you've got an allergy and
18 this product may contain peanuts, for example.
19 So nutritional value, warning.

20 The labeling discussion today with
21 reference to GE products and GMO products is
22 basically the consumer's right to know versus the

1 ability to convey that information in a way that
2 doesn't necessarily send a misconception or
3 misimpression about the safety of the product.

4 Because many folks will interpret the label "does
5 contain GMO," "may contain GMO" as a warning of
6 sorts which is, from my perspective anyway, a
7 difficult one because I don't know that there's
8 any scientific proof that there is any known
9 hazard or danger associated with consuming these
10 products. Some people may disagree with that but
11 I think the science, at least as far as I know,
12 is fairly clear about that.

13 But there is this consumer right to
14 know. So how do you basically balance it? Well,
15 it seems to me that that conversation is stuck in
16 the 20th century when we're now dealing and
17 living in the 21st century, and virtually as I
18 drive to work every day I'm able to watch from my
19 perch in the back seat of the car how many people
20 have devices and how frequently they use devices.
21 It is incredible how connected we are to these
22 dog gone things, and how much capacity they have.

1
2 So I thought, why can't that be the
3 answer? Why can't the consumer have the right to
4 know by essentially creating something on the
5 package, an extended bar code or whatever you
6 want, those little QR code deals, that a consumer
7 who's genuinely interested and wants to know
8 about whatever is in the product will have the
9 capacity to get to understand and know everything
10 about that product. Smart phone. Some people
11 say well, what if you don't have a smart phone?
12 Fair enough.

13 Scanners in grocery stores, USDA
14 should be in a position to help grocery stores
15 meet that need just in the same way we met the
16 need with EPT card readers for our SNAP program.
17 Because it's important to agriculture and it's
18 important to the country. So the consumer would
19 have the right to know. On the other hand, you
20 wouldn't necessarily convey the misimpression
21 about the product. That seems to me to be a way
22 of listening to both sides and trying to find

1 that elusive middle ground. And there may be
2 better ideas, I'm sure there are. But that seems
3 to me to be how folks ought to be focused on
4 this.

5 The reality of what's happening is
6 there are state legislatures and their
7 referendums, millions of dollars being spent on
8 lobbyists, ad guys, political consultants and so
9 forth. You're not going to have -- this I'm very
10 confident, you're not going to have 50 different
11 sets of regulations. You're just not going to
12 have every state decide what they want to do for
13 themselves. That is not ultimately going to be
14 upheld by some court, it's going to be struck
15 down because you cannot have 50. Because if you
16 do you have massive confusion in the marketplace.

17 At the same time I think it is a
18 fool's errand to think that in this Congress that
19 you'll be able to get something that sort of
20 sticks it to one side or the other through a
21 federal piece of legislation. There needs to be
22 some piece of legislation that people is an

1 appropriate compromise. This may be it where
2 USDA, FDA are directed to create this system,
3 help to fund the scanners for the grocery stores,
4 help to create the template for what information
5 would be available. The industry comes in and
6 provides the information, consumer groups work to
7 make sure it's user friendly, grocers embrace it.
8 Now all of a sudden you've got information that's
9 being provided.

10 Because here's the reality, as testing
11 equipment becomes more sophisticated it's going
12 to be really, really easy for somebody to find
13 one part per trillion of something in a product.
14 And we've got to have a conversation about what
15 that means. And that's science getting ahead of
16 government. And what I'm trying to do is I'm
17 trying to play catch-up here because I can see
18 all these issues. And then this is a huge trade
19 issue. It's a huge trade issue. We have an
20 opportunity to have the largest trade agreement
21 in the history of mankind in the trans-Atlantic
22 partnership discussions, but there are several

1 issues and one of them is this whole issue of
2 Europe's view about GMOs and our view about it
3 that have to be worked out. And what Europe has
4 now decided is they're going to give every
5 country the right to make that decision for
6 themselves. That's going to create some very
7 interesting dynamics in Europe when that
8 ultimately happens.

9 But that still -- we're going to have
10 to figure out how we define what is GMO free, is
11 it 100 percent free or is it 99.999999 percent
12 free or, you know, what -- that's a conversation
13 that needs to take place. You can't take -- you
14 can't have that conversation if it's winner take
15 all. You've got to figure out how to come to the
16 middle on this issue. It's not easy, I'm not
17 suggesting it's easy at all. But Alan's question
18 is a good one and there needs to be that kind of
19 thought process, I think.

20 MR. KEMPER: Thank you, Mr. Secretary.
21 We stand with you on QR code readers.

22 SECRETARY VILSACK: Yes?

1 MS. RAVEN: It is common knowledge
2 that GE enzymes are used regularly in beer
3 manufacturing and cheese making, that GE yeasts
4 are used for common purposes in bakery products
5 and that GE is important in medicine for the
6 production of insulin, possible cures or
7 treatments for Ebola and HIV. Why is it that
8 plant products and plants themselves are being
9 held to a different set of standards than these
10 other commercially-acceptable products?

11 SECRETARY VILSACK: I have this great
12 temptation to be a bit flippant about the
13 response. Look, beer, you know, why wouldn't you
14 like beer and cheese? But in that flippant
15 response there is the kernel of truth about this
16 which is it's how you begin the conversation.
17 And meaning no disrespect to the folks who
18 developed this science who thought, golly, this
19 is fabulous, this is going to expand production,
20 it's going to allow us to use less chemicals and
21 pesticides and we'll be able to feed a hungry
22 world and, boy, everyone's just going to love us

1 for doing this.

2 So all we have to go out to Alan there
3 and convince Alan, he's going to be a little bit
4 skeptical because he'll have to pay a little bit
5 more for this but he's going to see his
6 neighbors' yields go up and he's going to want to
7 know what the heck's going on. So they sold it
8 to Alan. They didn't sell it to consumer Cathy
9 over here. They didn't -- they just assumed
10 Cathy would be fine with it. That was a big
11 mistake. Big mistake.

12 If you're selling something from a
13 medicine standpoint what you're saying to that
14 person is, take this and you will feel better.
15 Take this and your disease will be cured. Take
16 this and you won't get a severe heart attack,
17 whatever, right? It's a direct benefit to the
18 consumer. It's pretty easy to sell this.

19 Drink this beer and, you know, at
20 least for a while you'll feel pretty good.

21 (Laughter.)

22 SECRETARY VILSACK: You know? But

1 they didn't do that. They didn't sell it to the
2 consumer. And now after 20 years, someone's
3 figured out, geez, maybe we ought to figure this
4 out. So now there is an effort to try to educate
5 people on what this science is, what it actually
6 means, what the benefits are and they're playing
7 catch-up.

8 So part of it is really how the
9 conversation starts. And you know -- and it's
10 also part of agriculture's challenge. I mean, I
11 sort of hammered scientists, now I'm going to
12 hammer farmers a little bit. You know, farmers,
13 golly, they love talking to each other and they
14 have forgotten that they represent one-tenth of
15 the one percent of the population and the other
16 ninety-nine percent is, what, two, three, four,
17 five generations removed from the farm. They
18 have no clue what goes on in a farm. They have
19 no clue about the financial risk of farming, they
20 have no clue about hard physical labor. They
21 have no clue about the dangers inherent in using
22 some of that large expensive equipment. They

1 have no idea how caring farmers generally are
2 about the soil because that's their -- you know,
3 that's their livelihood, right? They don't have
4 a deep understanding of how sincere farmers are
5 about water quality because it's their families
6 who are drinking that water as well.

7 We need to talk to people. We need to
8 convey to people the message of agriculture.
9 Every single -- how many farmers are in this
10 room? Raise -- people who are farmers.

11 (Audience response.)

12 SECRETARY VILSACK: All right. The
13 vast majority of people in this room are not
14 farmers. Have you ever thought about why you're
15 not a farmer?

16 (Laughter.)

17 SECRETARY VILSACK: You're not a
18 farmer in part because you delegated a
19 responsibility of feeding your family and
20 yourself to these folks who just raised their
21 hand. I mean, you didn't maybe make a conscious
22 decision about that but in reality that's what

1 you did. And you were able to do that because
2 these guys have been just extraordinarily
3 productive.

4 And you're able to walk in a grocery
5 store and you're able to walk out that grocery
6 store and you've got more money in your pocket
7 than virtually anybody else in the world after
8 you've bought your food because of how good these
9 guys are. That is a powerful message that
10 agriculture, I think, needs to convey to people.
11 Say hey, the reason why Tom Vilsack, you're lucky
12 enough to be a lawyer and that gave you an
13 opportunity to be a mayor and a state senator and
14 a governor is because you didn't even think about
15 feeding your family. You let Alan feed your
16 family.

17 And you know, every once in a while we
18 stop our kids and, you know, we say a prayer
19 before meals and we say, you know, thanks for the
20 farmer. But we don't really consciously
21 understand how significant agriculture has been.
22 In my lifetime these guys have become 12 times

1 more efficient and productive, just in my
2 lifetime. Twelve times. Show me virtually any
3 other industry in this country that has had a 12-
4 fold increase in productivity? You're going to
5 have a hard time. I just saw statistics recently
6 that shows that the overall productivity of our
7 economy in my lifetime is like 82 percent. I
8 don't know -- what's 12 times? Okay, is that
9 1200 percent? What percent is that? It's a lot.
10 Okay? It's a lot more than the overall economy.

11 And the reason we have the economy we
12 have, the reason why you're able to have the jobs
13 you have, the reason you're able to go to all the
14 shops that -- all the malls that I drove by here
15 getting to this place is because we don't spend
16 as much on food as a lot of other people do. And
17 so that has spurred the ability to have a
18 consumer-oriented economy which in turn has
19 created lots of jobs.

20 So part of it is the conversation that
21 needs to take place. Part of it is science is
22 talking to ordinary folks about the importance of

1 science. Part of it's having more young people
2 getting into the sciences so that we have a
3 broader societal understanding of science. You
4 know, right now everything thinks science is all
5 criminal investigation based on TV. There's a
6 lot of great work being done on this campus by
7 great people.

8 But you know, the sad reality is, if
9 I went out there on the street and asked folks
10 who scored more points for North Carolina State
11 last night when they beat Pitt, I'll bet you that
12 most people could answer that. If I asked them
13 who their top-notch scientists are in genetic
14 engineering, they may be able to answer it,
15 probably not. Why is that? Why is that that we
16 know more about a kid who scores 20 points in a
17 basketball game than we know about a scientist
18 who's making life better and safer for all of us?
19 Why is that? I would like to know why. And I'd
20 like to be able to do something about it because
21 I think if we did we'd be having a much different
22 conversation than you all are going to have for

1 the next day and a half about this because it's
2 how you start the conversation.

3 (Applause.)

4 MR. DILLON: Secretary Vilsack, do you
5 have time for one more question?

6 SECRETARY VILSACK: Sure.

7 MR. DILLON: Thank you.

8 Matthew Dillon, I'm a director of
9 agriculture policy and programs for Clif Bar and
10 Company. I also serve on the National Genetic
11 Resource Advisory Council. I want to ask you a
12 question about genetic diversity. But before I
13 do just one comment on the Q code. I live in
14 Oakland, California and if you try to photograph
15 every single piece of product you want to buy off
16 the shelves you're more likely to end up in the
17 hospital before you can get your cart filled. I
18 mean, crowded supermarkets, people photographing
19 every single item, I'm not sure that's actually a
20 solution in today's very busy urban supermarket.
21 So something to think about, I'm not sure that's
22 as efficient of a solution as we all might think.

1 But on the question of genetic
2 diversity, you mentioned the diversity of
3 producers, diversity of agriculture, and we need
4 seed for all of them. We need solutions for all
5 forms of agriculture, conventional, biotech,
6 organic, when it comes to genetic diversity. One
7 of the questions I have regarding genetic
8 diversity for you is that we are seeing an
9 increase in crop epidemics globally. In the U.S.
10 Goss's wilt has gone from being a disease that
11 was only in a few counties in Wyoming and
12 Nebraska, it's now spreading throughout the upper
13 midwest.

14 On the National Genetic Research
15 Advisory Council, all of us on the council are
16 talking about our concerns that we are vulnerable
17 genetically when it comes to our key crops, corn
18 and soy, that the base, the foundation parents of
19 our key crops are too narrow and that makes all
20 producers, all stripes vulnerable to crop
21 epidemics.

22 So we've asked ourselves this

1 question, what can we do about it? What do we
2 know? What data do we actually have going
3 forward, do we have good science to address that
4 issue of the crop genetic diversity and
5 vulnerability of our crops? And what we've
6 realized is that we can't actually get the
7 baseline data that we need, that intellectual
8 property restrictions and patents and ownership
9 of genetic resources makes it so that the
10 scientists who even want that information on
11 genetic vulnerability or diversity, if diversity
12 is what we have, can't get that information.

13 Now I've talked to colleagues at
14 Pioneer who are saying, hey, we can get through
15 this. Some of us as individuals, we want to
16 share this information. I met with Robert Fraley
17 from Monsanto in November and he says, we want to
18 collaborate on these issues. There's a lot of
19 talk but really we need the USDA to lean in and
20 say this is essential for the security of
21 American agriculture, for the success of American
22 farmers that we have baseline information on crop

1 genetic diversity and vulnerability.

2 So I want to put you on the spot and
3 ask, will the USDA lean in on this issue and work
4 with industry to develop methodology to assess
5 our crop genetic diversity or vulnerability and
6 move forward into more a secure genetically
7 diverse future for our key crops?

8 SECRETARY VILSACK: Let me respond to
9 your first comment by suggesting that I think the
10 growing trend in grocery shopping isn't going to
11 be crowded grocery stores. With Amazon and home
12 delivery I think there's going to be a lot of
13 activity that you're going to see a change in the
14 way retail operates in this country. So it may
15 not be quite as problematic as you are
16 suggesting.

17 Look, I'm happy to lean in but I have
18 to know what I'm leaning in to and I have to know
19 precisely what you're asking. In other words,
20 that's why we put the council together, that's
21 why -- you know, that's why we're having this
22 conversation. I'm happy to lead the charge, I

1 just need to know what I'm charging with and for.
2 I'm not a scientist and so it's going to be
3 important for me to get recommendations from this
4 group, get recommendations from the council, get
5 recommendations from Cathy and her team, get
6 recommendations from farm organizations and
7 groups, a variety of recommendations. And I need
8 to figure out how do we press forward, where do
9 we press this issue, how do we explain it?

10 One of the challenges of this job as
11 the United States Department of Agriculture
12 Secretary is that nobody understands my job.
13 Nobody understands how diverse this department
14 is. You know, I'll go tomorrow and talk to the
15 forestry people and then they'll say, why aren't
16 you talking more about forest health and forest
17 fires? And then I'll go down and talk at a
18 housing conference and they'll say, why aren't
19 you talking more about low-income housing? I'll
20 go to a nutrition conference and they'll say,
21 geez, we really need you to be forward leaning on
22 SNAP and child nutrition. And then I'll go to a

1 world development conference and they'll say, why
2 aren't you focused on expanding broadband and why
3 can't you then, at the Renewable Fuel Association
4 speech, why aren't you forward leaning on
5 renewable fuels? And then I go to the Food
6 Safety Consumer Federation of American speech and
7 say why aren't you doing more about E. coli? And
8 then I'll go to the Chamber of Commerce and
9 they'll say, you know, you really need to press
10 forward on trade. That is my life, okay?

11 I'm happy to press forward on stuff but I
12 have to have a concrete set of proposals. I have
13 to know why we're pressing forward, I have to
14 know what the end of result of pressing forward
15 is. This coexistence and choice conversation is
16 one that I pretty much generated myself based on
17 the fact that we were faced with a series of
18 applications for deregulation of products that
19 were generating -- crops that were generating a
20 lot of controversy and there didn't seem to be
21 any kind of outlet for the folks who were
22 concerned about all this. And our regulatory

1 system was so constrained and it was hard for
2 anybody to understand how constrained it was,
3 everybody assumed that we could say "yes" or "no"
4 easily. That wasn't the case.

5 So we needed to have some opportunity
6 for conversation. You all came back in AC21 with
7 a set of recommendations and I can tell that, you
8 know, we've created a whole farm policy for crop
9 insurance, we've reduced the price election of
10 organic, we've expanded crop insurance
11 protection. And it's not quite the compensation
12 mechanism but it's an indication of our
13 sensitivity to it. We're including questions in
14 our survey to find out precisely how often this
15 contamination issue crops up, how often there is
16 unintended presence, how -- is it real, is it not
17 real? We'll find out from information that we
18 get.

19 We put the council together in order
20 to begin the process of ensuring that we actually
21 do have diversity. This is extraordinarily
22 important and frankly, as we deal with a changing

1 climate I think crop diversity is going to become
2 even more important. And I think a lot of
3 producers are already -- we're already beginning
4 to see the trend. There's an increase in cover
5 crops, there's an increase in double-cropping,
6 there's an increase in agroforestry. I mean,
7 these folks on the farm are paying attention to
8 all this stuff.

9 But I'm happy to do this, but I have
10 to have a specific set of concrete
11 recommendations and I've got to know why I'm
12 pressing forward. And then I'll figure out how
13 we message this in a way that doesn't create
14 division. I mean, I'm telling you folks, the one
15 thing I am really tired of is division. I mean,
16 I got -- you know, I got no time for it. I mean,
17 I'm 65 years old, I'm thinking, you know, I've
18 only got a few more ticks on the clock here and
19 I've got to deal with people who don't want to
20 get along. I see this in Congress all the time.

21 We got a farm bill in part because I
22 just kept pounding the table forcing people to

1 think. And then there was a big problem in dairy
2 and I picked up the phone and I called my
3 Republican friend Frank Lucas and I said, Frank,
4 here's the solution to your problem. You take
5 and run with it. It's not my idea, it's your
6 idea. I didn't care who got the credit, I just
7 wanted a farm bill. And I'll tell you, there are
8 a lot of people better off today because we have
9 that farm bill. So that's what I'm trying to
10 press here. I'm trying to say, look, we got
11 problems, everybody can -- you know, they're very
12 complex. You have to help us. You have to give
13 us a path forward. You have to tell us what's
14 the most important thing we need to be
15 addressing? What's the priority? Because we --
16 you know, I got two years left in this job
17 probably -- shoot, I may only have one day, the
18 President -- I serve at the pleasure of the
19 President.

20 (Laughter.)

21 SECRETARY VILSACK: He may not be
22 happy tomorrow. So you know, we got limited time

1 here so we need a set of recommendations. But
2 leaning forward, shoot, if I were afraid of
3 leaning forward I wouldn't be standing here
4 today, I'll tell you that. There are a million
5 places otherwise I'd be.

6 Other questions?

7 (No response.)

8 SECRETARY VILSACK: Okay. Thank you
9 all very much.

10 (Applause.)

11 MS. SMITH: Thank you again, Mr.
12 Secretary.

13 I think what we've heard this morning
14 from the Secretary and from Russ Redding provides
15 us a good backdrop for the discussions that we'll
16 continue this afternoon. There will be much
17 information between now and lunch and then after
18 lunch that will -- I'm really excited about how
19 well I think these discussions are going to go
20 based on the questions that we had here.

21 We're asking everyone to come
22 together, respect each other's views. And while

1 we want to be respectful we also have to be
2 honest in order to make some progress here. We
3 have to be comfortable in asking the tough
4 questions and it's clear we have a group that's
5 willing to do that.

6 So with that I'll just make one
7 reference, as we have more speakers start after
8 the break, one of the decisions we made was to
9 try to be a little green for this meeting and so
10 we are not sending everyone home with a full
11 notebook of everyone's presentations. That said,
12 for those of us that still like to have that
13 information, either digitally or on paper, all of
14 the presentations will be loaded on our meeting
15 website, they're probably there now, so you'll be
16 able to access them during the meeting if you
17 have an iPad. Or after the meeting you can go
18 home and take a look at them.

19 We also, though, for those of us that
20 are a little older, we do have a stack of all the
21 presentations in the back of the room for those
22 that would like to go ahead and grab papers

1 without the downside of that big notebook.

2 So with that, why don't we take a
3 break and we will come back at 10:25.

4 (A brief recess was taken.)

5 FACILITATOR DILLEY: So good morning.
6 As people are filtering back into the room I just
7 want to say good morning. And I'm your travel-
8 challenged facilitator so I'm really, really
9 happy to be here after 24 hours of trying to get
10 here.

11 As you're taking your seats I know
12 there was a bit of background just for context of
13 the series of panel presentations we're going to
14 have before lunch and then after lunch to help
15 set up for some of the discussions tomorrow. And
16 some of these, the topics for each of these
17 panels are identified through a background or
18 context for some of those deliberations and
19 reflecting on products underway that you USDA has
20 and some other initiatives that they're
21 contemplating. But also from public comment,
22 when they provided some opportunity for questions

1 and public comment. And the next couple of panel
2 presentations will help provide some backdrop to
3 that.

4 This next one on science safety and
5 diversity of biotech crops, and we have Dr. Peter
6 Raven who's the President Emeritus from the
7 Missouri Botanical Garden. And then also Dr.
8 Ruth MacDonald who's a professor of food science
9 and human nutrition from Iowa State University.
10 So we'll begin with Dr. Raven. They will give
11 their presentations and then we'll have a little
12 bit of time for some questions. So with that I
13 will turn it over to Dr. Raven.

14 DR. RAVEN: Thank you very much. It's
15 great to be here today and be able to talk with
16 you about some of the background material
17 concerned with this discussion that we're having
18 about coexistence.

19 I want to say that I've spent my whole
20 career in botany, plant evolution, plant ecology
21 and so forth, and since the mid-'60s have been
22 deeply concerned with conservation of plants and

1 animals around the world. So I look on it as --
2 I look on this in that context and that might be
3 a somewhat different point of view from the one
4 that you're coming here with yourself, which is
5 the whole point of the discussion. Considering
6 that both land devoted to the cultivation of GE
7 crops and land devoted to the cultivation of
8 organic crops is growing in the United States,
9 and they're both popular and they are believed to
10 come in competition with one another, this kind
11 of ecological background I hope will be useful.

12 First I want to make a few remarks
13 about the process itself of producing these
14 plants and then about food safety, which is just
15 a little whisker of what you'll get in a minute
16 from my colleague. The first thing that many
17 people don't understand is that the transfer of
18 genes between unrelated species and organisms is
19 exceedingly common in nature and people like
20 Nobel Laureate Werner Arber of Switzerland has
21 demonstrated that over and over again. One of
22 the ways of demonstrating it is just to point out

1 that three percent of our genes are actually
2 derived from viruses and if you look on it that
3 way then you begin to understand that this is not
4 some really bizarre process that's outside the
5 scope of nature.

6 Also a kind of a fallacy that people
7 have is that genes have a little label on them
8 which says "I came from a pig" or "I came from a
9 duck" or "I came from a goldfish" whereas
10 actually genes are simply something like parts of
11 the music score that you play on the piano.
12 They're instructions for the cell to manufacture
13 through the complex and modulated process that we
14 have a certain kind of protein.

15 When the first genes from an unrelated
16 species of organism, namely *Escherichia coli* were
17 transferred into another one, namely the African
18 clawed frog in 1983 by Boyer and Cohen, people
19 got very upset. Scientists got very upset and as
20 a result they called a conference in Asilomar two
21 years later, in 1975. And at that conference
22 they set up a number of standards for protecting

1 everyone from the possible outcomes that these
2 combinations might have when put into play in
3 nature. They set up very protected laboratory
4 situations and other methods of watching out for
5 consequences and eventually, as no consequences
6 were found, lost interest in the process.

7 It's common in nature, there's nothing
8 intrinsic about the process that can cause
9 problems. And that's why so many of us have
10 come, as one of the questioners asked earlier, to
11 the point of view that it's the product not the
12 process that we need to be concerned about.

13 What about food safety? Well, the
14 first thing we can say about food safety is that,
15 in the United States we've been consuming for
16 about 18 years, hundreds of millions of people
17 have been consuming foods produced from GM
18 organisms and billions of farm animals have been
19 consuming foods produced from GM organisms, and
20 there's not a single case of sickness or illness
21 reported in any one of those hundreds of millions
22 of human beings or billions of farm animals.

1 When you add to that what one of the
2 questioners brought up earlier, that beer,
3 cheese, white bread, medicines, insulin, the
4 proposed cures for Ebola, the proposed cures for
5 greening disease of citrus and all of those
6 things are derived, involve the products derived
7 from genetically modified organisms and modified
8 by transferring genes into them. Then you begin
9 to understand why it is that every single academy
10 of sciences around the world, most leading
11 scientific organizations all that have made a
12 point of -- a statement on this, and have come to
13 the conclusion following the scientific process
14 that there's no intrinsic difficulty with the
15 process itself that's unusual in nature and that
16 there's no true risk of food safety from the
17 process itself, as such.

18 Now obviously you can make a poisonous
19 tomato, you can make a poisonous tomato by
20 conventional breeding as well as by genetic
21 engineering. But hopefully nobody would choose
22 to do that. So the controversy -- I mean, the

1 ridiculous nature of the controversy is
2 illustrated by the argument going on now about
3 non-browning apples when there's nothing wrong
4 with the process as viewed by scientific bodies
5 throughout the world, when there's nothing wrong
6 with the product, that is the apple not browning,
7 you know, where's the beef?

8 That's why, you know, if you put all
9 this together, that's why in the March issue of
10 "National Geographic Magazine," which is on the
11 newsstands right now, it talks about the war on
12 science which we engage on in many fronts. And
13 among the war on science this is a staged moon
14 landing with people taking photographs of it.
15 There's still a substantial percentage of people
16 in the United States who do not believe that we
17 landed on the moon.

18 Climate change does not exist, and
19 incidentally the scientific evidence and
20 consensus on climate change is exactly the same
21 in degree and nature as the scientific consensus
22 that I just pointed out to you on GM foods. It's

1 studied by the same bodies, committees of the
2 same bodies, the same people, and they've come to
3 the same conclusion.

4 So it always seems strange is that
5 scientists have the one thing, global climate
6 change, accept it and say that all scientists
7 agree on this and have the other thing rejected
8 saying the scientists don't all agree on it.
9 When, if you actually go to the scientific bodies
10 concerned you find the same answer. Evolution
11 never happened, the moon landing was fake,
12 vaccinations can lead to autism and genetically
13 modified food is evil. These are the scientific
14 myths that the "National Geographic" has just
15 discussed for its eight million readers and is an
16 idea of where the state of the science actually
17 is now as opposed to the state of belief.

18 Now in -- a few years ago, Perry
19 Gustafson, a professor at the University of
20 Missouri, Norm Borlaug, just before his death,
21 and I collaborated on a scientific paper on
22 agriculture and feeding the world. And we

1 outlined seven ways in which scientists produce
2 more productive crops, tissue culture, anthro
3 culture, mutagen technology, just shooting random
4 mutations into them, utilization of marker
5 assisted selection, the application of genome-
6 side selection, whole genome sequencing and plant
7 transformation technology, which is what we call
8 GE or GM technology. Now in the last year it's
9 gotten even more complicated than that with gene
10 editing and which tells us, which shows us that
11 in remarkable ways we can alter the genes of
12 organisms and the products produced from them
13 that were completely unknown and very
14 complicated, very flexible and very interesting.
15 The same way epigenetics, the methylation of
16 parts of the DNA which can come about as a result
17 of experience and change and produce heritable
18 characteristics in organisms.

19 All of those things have come together
20 and they take us back to the original truth which
21 is still as true today as it was when we at the
22 National Academy of Sciences pretty well agreed

1 on it in the 1970s, and that is that the
2 characteristics of crops are what are important
3 to judge the characteristics of the foods rather
4 than how you got them. None of the ways that you
5 can get them are intrinsically evil.

6 Now worldwide the domestication of
7 crops led to them changing very rapidly. Human
8 beings have now been, we believe, around about
9 2.8 million years but it's only about 10,000
10 years ago that products of crops became a
11 substantial part of our diet that supported what
12 first were villages and then were towns and then
13 were cities and then were states for the last
14 10,000 years. Most of what we consider
15 civilization originated within the last 10,000
16 years as these group of people came together and
17 could specialize in a way that their hunter-
18 gatherer precursors could not. Writing was
19 invented about 5000 years ago and that changed
20 the nature of human progress profoundly.

21 Now 10,000 years ago there were about
22 one million people in the entire world, as well

1 as we can estimate. There were about 100,000 in
2 Europe. Just 10,000 years ago, about 2.8 million
3 years of human history. But now the population
4 has exploded to the point where we have 7.2
5 billion people, 800 million of whom are
6 malnourished, about 100 million of whom are on
7 the verge of starvation or near to the verge of
8 starvation at any given time. If you haven't
9 consulted it look up FootprintNetwork.org on your
10 website, the global footprint network which
11 estimates that where, in 1970 we were using about
12 70 percent of global sustainability, today we're
13 using about 156 percent of global sustainability.
14 In other words, far beyond the capacity of the
15 earth but still leaving 800 million people
16 malnourished. Half people malnourished if you
17 take into account nutrients.

18 What about ecological damage from GE
19 crops? What's special about them? Well, the
20 first thing to observe is that, since we have 11
21 percent of the world cultivated in crops, 11
22 percent of our land surface, and another 20

1 percent devoted to pasture, about a third of the
2 world is already very vastly changed from what it
3 was to begin with. And we can be certain, when
4 we're talking about extinction that the expansion
5 of agriculture over a third of the world's land
6 surface drove to extinction hundreds of thousands
7 if not millions of biological species over the
8 course of the last 100,000 years.

9 So when we're talking now about
10 different agricultural processes continuing to
11 have a negative effect on the system, we have to
12 take into account the fact that the area devoted
13 to agriculture is fairly stable now and those
14 negative effects have to be seen at the end of
15 what has always been regarded as perfectly
16 acceptable extinction for the purpose of
17 agriculture in the past.

18 As crops were domesticated they began
19 to be changed in their characteristics. People
20 growing those first crops would have selected
21 them for better yield, better productivity, more
22 years on them, everything else, so that any crop

1 and -- well, 200 years ago in England people
2 actually began to do this starting with wheat on
3 a more meticulous scientific basis. So any crop
4 that we're growing has been changed drastically
5 genetically over the course of the years and
6 there is no rationale to look back on what we
7 were growing in 1880, for example, and say that
8 it's more pristine or wonderful than what we're
9 growing in 2015. It's already highly altered.
10 And of course, the easiest way to demonstrate
11 that is by pointing out that there's no such
12 thing as wild corn, native corn, there's no such
13 thing as wild hexaploid wheat, bread wheat, and
14 those are entirely the products of cultivation
15 and, of course, vastly changed.

16 So the question that strikes many of
17 us is, why if we've been changing those crops all
18 those years, do the last, among the nine more
19 modern forms of changing crops that are used in
20 schools of agronomy and programs like that around
21 the world, have we selected one for particular
22 scrutiny and worry when there's no scientific

1 evidence to support that?

2 Now there are two different kinds of
3 biological diversity that we can talk of in terms
4 of crops. The first is diversity of the
5 individual crops. Modern agriculture, as soon as
6 it spread out over large areas, began to get more
7 uniform crops and began to drive the genetic
8 diversity that would have been characteristic
9 earlier downward. So if you think about hybrid
10 corn spreading in the midwest starting in the
11 late 1930s you had a great reduction in genetic
12 diversity of corn going along with a great
13 increase in the productivity of corn.

14 Genetic diversity related to crops is
15 very important but it's relatively difficult to
16 preserve. To give you kind of a counter-example
17 there's something like 500 varieties of soy beans
18 grown in the United States and every one of them
19 has been individually genetically engineered
20 since they grow in particular places to allow
21 them to survive in those particular places to
22 suit them for growing in particular places. So

1 in that sense it has no net effect on diversity
2 at all.

3 Massive industrial scale agriculture
4 has an effect on diversity but that's
5 independently of whether the plants that are
6 massively grown in uniform fields were produced
7 by genetic enhancement, by the transfer of genes
8 or by one of the many other methods that are
9 available to change their characteristics. When
10 crop varieties are grown in places where they're
11 native we speak of land races.

12 But we need to remember in speaking of
13 land races is that plants have hybridization as a
14 regular part of their adaptive system and those
15 land races are continually hybridizing with one
16 another and with more modern strains of the same
17 plants that are grown in the vicinity so that
18 they keep changing like a kaleidoscope and are
19 never really the same from year to year. So you
20 can't go down and freeze the land races of corn
21 in Mexico, for example, because those are the
22 products of the last years of selection as

1 farmers have moved on in different directions
2 depending on the variability they had to work
3 with.

4 Now there's quite a discussion about
5 what happens if some transgenes escape into
6 nature. As usual that depends on the nature of
7 the gene. The two commonest -- the three
8 commonest genes that are used are, of course,
9 producing Bt toxin in the plant, making the plant
10 resistant to glyphosate or another herbicide or
11 resisting viruses. If plants that produce Bt
12 toxin, that trait goes into wild relatives
13 they'll be better protected from their predators,
14 from the things that are actually eating them
15 than those wild relatives would be if they didn't
16 have those genes.

17 If glyphosate resistance becomes
18 characteristic of natural systems it will last in
19 the population as a geneticist only if there's
20 continued selection by pouring glyphosate on the
21 natural populations. If not it will be bred out
22 of the populations soon. Ditto for viral

1 resistance. There's no real way that any of
2 those genes can be established in nature except
3 if they confer a selective advantage on the
4 plants that have them.

5 If we talk about the appearance of
6 weeds resistant to herbicides, that comes about
7 as a result of bad agricultural practices. When
8 I was writing the first edition of my General
9 Botany book in the late 1960s, which was well
10 before any of this was even thought of, I was
11 talking about weed resistance to herbicides
12 because herbicides were sprayed around too
13 broadly. If somebody grows a genetically
14 modified plant or any other kind of plant crop in
15 a huge field and sprays herbicide all over it and
16 widely, weed resistance will develop. It's
17 exactly analogous to antibiotic resistance in
18 human beings and needs to be treated in somewhat
19 the same way.

20 Collectively the environmental risks
21 posed by different GE varieties are the same as
22 those posed by non-GE varieties and they can

1 certainly be managed in similar ways and need to
2 be managed in similar ways. Bad agricultural
3 practice, bad agricultural layout is agricultural
4 practice whether it's dealing with GE crops or
5 not and it needs to be made into good
6 agricultural practice. And what that is needs to
7 be found out the same way that antibiotic
8 resistance is in human beings, for example, needs
9 to be countered.

10 Now what about the preservation of
11 biodiversity generally away from the crops?
12 Well, one obvious point, if you can stand hearing
13 this, is that of course all the genes and the
14 individual genetic products of all the plants in
15 the world or all the organisms in the world can
16 be used to adapt our crops with the methods that
17 we have now to the rapidly changing conditions
18 that have been brought about by climate change
19 and by habitat destruction and all the other
20 things. We do depend on plants directly for --
21 or indirectly for all of our food. Two-thirds of
22 the people in the world depend on them for

1 medicines. And even for those of us who buy our
2 medicines in drug stores, a quarter of those
3 medicines come from wild plants. And that says
4 nothing about ecosystems serves as retarding
5 erosion, beauty or any other major
6 characteristics.

7 Many of us believe, and I have
8 devoted most of my life to this, that preserving
9 wild biological diversity, any biological
10 diversity is very important and therefore we
11 should do whatever we can to do it, remembering
12 that we only reached a billion people, less than
13 the current population of Indochina, in
14 Napoleonic times and that the world population
15 has tripled since the time that I was born in the
16 '30s and that we're adding 100,000 people net per
17 day. If you think about all of those things,
18 agriculture has the potential of destroying
19 everything if improperly managed.

20 It seems to me an obvious conclusion
21 of this that practicing agriculture well and
22 productively on the lands that are already

1 cultivated is an absolute necessity. The native
2 Mayans who were in the highlands of Chiapas in
3 southern Mexico grow corn but they have a yield
4 of something like one bushel per hectare. And as
5 a result Mexico is importing one-third of its
6 corn from us, competing with its use as biofuels
7 to get something even more controversial into the
8 picture.

9 Low-grade agriculture is very
10 destructive to biodiversity. High-grade
11 agriculture, by being concentrated, can be much
12 less destructive to biodiversity but we can't
13 expect it to do all things, for example, destroy
14 the Monarch butterfly spraying the plants with
15 glyphosate drove out the milkweeds that were
16 weeds in the fields. Well, duh. I mean, what
17 college of agriculture would say you didn't want
18 to drive out the weeds that were in your fields?
19 If we want more Monarchs and more milkweeds we've
20 got to find other places to plant them and build
21 up their numbers. And many of us are engaged in
22 that at the present time.

1 Now when GE -- now we get closer to
2 the subject for today. When trans-genes are
3 transferred by natural hybridization from a wild
4 or weedy relative of a crop to that -- the other
5 way around, from the crop to a wilder weedy
6 relative we have some cases that where the weeds
7 can become resistant to the treatments for the
8 crops. In other words, herbicide resistant or
9 something, and two major cases of that are beets
10 and sunflowers, where the wild ones could become
11 weeds and the cultivated ones. But then again
12 that needs to be treated. It's not an example of
13 how you got that herbicide resistance which
14 proves that GE is bad in some mysterious way,
15 it's an example of what the characteristics of
16 those particular plants are.

17 Then there's always the bugaboo of new
18 kinds of weeds. Well, there are about 20,000
19 kinds of weeds classified in the world, sometimes
20 30,000 depending on who you follow. There's one
21 of them -- there are only two of them known to me
22 that were produced by hybridization between

1 cultivated plants and their wild relatives. One
2 is red rice which is a bad weed in rice, and the
3 other is Johnson grass which is a really bad weed
4 in the U.S. But again, GE crops had nothing to
5 do with any of that. They're totally pre-GE.

6 Among the 20,000 plants of the world,
7 plant species of the world, which is about five
8 percent of the total number of species that are
9 weeds. We haven't really got the possibility
10 particularly of producing more through any of the
11 modern genetic methods than we could without
12 them, and they will have to be managed in the
13 same way. In fact, that's the takeover -- that's
14 the take-home lesson for everything that I've had
15 to say.

16 On the balance it's come to seem clear
17 to me as an environmentalist and conservationist
18 that there are no unique problems associated with
19 any of the modern methods of plant breeding. And
20 by improving the productivity of agriculture in
21 areas that are already cultivated, they do, in
22 fact, have the potential of lessening the

1 pressure on areas that are not currently
2 cultivated and hence protecting more species into
3 the future.

4 Judging crops on their characteristics
5 would give us an agreeable new standard which we
6 can do, and which farmers do all the time anyway,
7 to let us know where the problems are, try to
8 evolve agricultural practices that will deal with
9 them and manage them in ways that are well known.

10 Thank you very much. I think
11 questions will wait until after both of us have
12 spoken.

13 MS. DILLEY: Yes. Thank you.

14 (Applause.)

15 DR. MacDONALD: Thank you. It's a
16 pleasure to be here today.

17 My role at Iowa State is to be the
18 Chair of the Department of Food Science and Human
19 Nutrition. And so I live in the world of food
20 and human health and the connections between the
21 two. And as you can hear from this -- every
22 speaker this morning has already brought up the

1 issue of food safety. And it's almost impossible
2 in consumers' minds to separate genetic modified
3 organisms and their food and their food safety
4 and the safety of their children and their
5 families.

6 So I've spent a great deal of time in
7 the last several years talking to stakeholders.
8 I come from the state of Iowa, we're a major
9 producer of grain and so I've talked to consumer
10 groups, I've talked to farmers, talked to seed
11 producers and then I also teach a class on campus
12 where I get to hear from students about food
13 systems and their concerns. And so there's a
14 huge input about this topic and there's a huge
15 dialog going on in the consumer world about what
16 we should do about this. So this is a very
17 important topic and something that you can't
18 separate it all from the issue of genetically
19 modified organisms in agriculture.

20 So my presentation today is a lot of
21 background information, just to kind of cover the
22 waterfront and give a perspective of where food

1 safety issues are. It's really hard to kind of
2 see that slide from here. But so where is it in
3 the food supply? First question I get when I
4 talk to consumers in particular is, like you
5 know, they hear like 70, 80 percent of their food
6 is containing GMO. And so where is it in the
7 food supply? It's in the corn, the soybeans,
8 it's in the canola oil, it's in the sugar that we
9 get from sugar beets. And so the majority of
10 those crops end up in some way in our food
11 supply, whether it be in corn oil or soybean
12 flour or in the sugar or any of the other
13 derivatives from corn such as lecithin or some of
14 the enzymes that we derive from corn and soybean
15 ingredients.

16 It isn't in the produce aisle,
17 particularly. There are a couple of crops that
18 are approved, Papaya, squash and sweet corn, but
19 other than that most consumers don't have the
20 sense that -- they see all the beautiful fruits
21 and vegetables in their produce aisle and they
22 think they're all genetically modified.

1 The other aspect of genetically
2 modified ingredients is the indirectness of that.
3 So we get a lot of food from animal, food
4 animals, and we know that the majority of those
5 food animals are eating genetically modified
6 grain at some point in their production. So from
7 those animal sources we have, of course, meat,
8 milk, eggs and all the derivatives of those so
9 that any product that contains any of those would
10 indirectly have come from a genetically modified
11 source. In some people's minds this is of
12 concern. So when you think about baked goods,
13 you think about prepared meals, you think about
14 any of the desserts that are made from milk or
15 eggs, you in some way have an indirect link back
16 to genetically modified grain and that what was
17 fed to the animals.

18 So just to put it into some timeline
19 perspective, this all really got started in the
20 '90s with the introduction of this technology,
21 FDA policy in 1992 first defined how we were
22 going to deal with foods that contained

1 genetically modified traits. The first
2 introduction of tomatoes and squash in 1994, the
3 tomato didn't survive very well in the market for
4 a couple of technical reasons but soon after
5 that, of course, the corn, soybeans and canola
6 introduction really took off in a big way. And
7 you can see from the graph that in a very short
8 amount of time, the amount of -- the percentage
9 of the crops that we grow in the United States in
10 corn and soybeans have become increasingly
11 genetically modified.

12 The papaya story is classic, the
13 example of saving a crop in Hawaii that was on
14 the verge of becoming unsustainable because of a
15 virus. And so I think about 30 percent of the
16 papaya that's marketed today coming from Hawaii
17 would be genetically modified. And then we're
18 all probably aware of the more recent struggles
19 with sugar beets and getting that approved and
20 some newer traits coming along in soybeans.

21 And just to put it all into great
22 perspective as well, I don't think a lot of

1 consumers are aware of the vast amount of
2 research that's involved in genetically modified
3 traits and crops. And here is just a snapshot of
4 APHIS data of what actually is in the pipeline,
5 what's actually been approved. Thousands of new
6 traits have been approved for study and for
7 testing in field trials which have the potential
8 to enter the food supply. So this is a vast
9 number of traits, a lot of things that have
10 potential to benefit farmers, production and then
11 ultimately end up in food.

12 So to put the FDA perspective on this,
13 the 1986 coordinated framework, regulation of
14 biotechnology that the Secretary already spoke
15 about identified the product not the -- the
16 process -- the product and not the process. And
17 so trying to understand the equivalency of the
18 food and understanding that it was not different
19 from a consumer perspective, not nutritionally
20 different, not chemically different, not
21 structurally different and therefore should be
22 treated the same as a regular food.

1 So the -- looking at safety, questions
2 I get from consumers a lot is, where is the data?
3 Where is the safety testing? Who's testing this
4 stuff? Is it just the companies that are making
5 the seeds and they're totally responsible for
6 making sure this is safe? And the answer is
7 there's a lot of testing that goes on that isn't
8 necessarily as readily accessible to the
9 consumer, however, so understanding that's very
10 complicated. So the levels of testing that have
11 to be demonstrated are toxicity, that there isn't
12 a known toxicity from either the gene or from the
13 protein that's being expressed as related to any
14 other known toxin or chemical that would be
15 causing a toxicity or an illness.

16 Adverse nutritional changes, so there
17 isn't anything in the product that would inhibit
18 the absorption or the availability of another
19 nutrient or cause any kind of a biochemical
20 imbalance in the nutritional assessment.

21 And then allergenicity, trying to
22 assure that the proteins that are being expressed

1 will not create an allergic response.

2 And then the issue of horizontal gene
3 transfer, about what would happen with the
4 exchange of the genes in that plant.

5 So the testing approaches include a
6 variety of different techniques one of which is
7 very readily available in today's scientific
8 world. There's the bioinformatics world to try
9 and look at plant -- protein sequences or gene
10 sequences and map them to other known -- the
11 databases of other comparable proteins or DNA and
12 try to understand and verify that they would not
13 be similar to any known toxin or compound that
14 would be dangerous to health.

15 It's also important to demonstrate
16 that a compound is digestible and degrades and
17 this can be done in vitro using the pure
18 compound. It also can be done in vitro using
19 animal models to demonstrate that the natural
20 digestive process is adequate to destroy the
21 compound, either the DNA or the protein.

22 And then looking at the metabolomics

1 both in the plant and in the animal that might be
2 fed the product, to look at protein expression to
3 see that there isn't any abnormal or any
4 inadvertent expression of proteins from the gene
5 transfer of the gene that's in the plant or the
6 response in the animal.

7 Feeding trials are both acute and
8 chronic. These are done both by the company and
9 also by independent scientists to show that the
10 traits are not harmful to health. And then, of
11 course, field trials.

12 So looking at what some of the
13 concepts around the safety testing also included
14 within this discussion is the idea of trying to
15 identify potential hazards that would be --
16 before the trait is actually being considered to
17 be developed looking at the history of safe use.
18 An example of this could be the Bt toxin. The Bt
19 toxin had been approved as a pesticide since the
20 1800s and had been widely used in agriculture.
21 To assume that that would have been a long
22 history of use of safety and being part of the

1 food supply was fairly obvious. So connecting
2 that then to a genetically, you know, produced
3 trait was a logical step from the history of use.

4 I already mentioned bioinformatic
5 analysis, to try to identify traits and to look
6 for the database of information that we have on
7 proteins. And then to look at the mode of action
8 and specificity of whatever is being expressed to
9 be sure that it does what it does and doesn't do
10 something else. Digestibility and liability we
11 already mentioned, as far as the enzyme
12 degradation in the GI tract, pH of the stomach,
13 all of that having the ability to destroy the
14 compound.

15 And then also looking at what would be
16 the expected level of exposure. Where would that
17 end up in the food supply, what would be the
18 average amount of consumption and how would that
19 relate to potential toxicity? So this is all
20 done in a lot of ways and a lot of studies have
21 been done to try to assure that these products
22 are safe and have no risk for human health.

1 One aspect that I hear a lot about in
2 consumers' concerns is that these are newly
3 expressed proteins that we don't know anything
4 about. They tend to link GMO with allergies, we
5 see a lot more talk about allergies in children,
6 much more common to have allergies. And so
7 consumers are very worried about this. Example,
8 of course, is gluten sensitivity. A lot of
9 people are worried about gluten, we hear a lot
10 more about that, and they make the assumption
11 that we have more GMO in the foods we eat today
12 therefore we're seeing these more allergic
13 reactions. Those of us in the room already know
14 that wheat is not a GMO crop at this point in the
15 U.S. so linking that doesn't make a lot of sense.
16 But consumers don't know that and they don't
17 understand all of the complication around
18 allergenicity, they don't understand all the
19 different nuances of even how we digest foods.

20 There is a limited number of known
21 proteins that are toxins and that are known
22 allergens and so to link that to the GMO

1 expression and make sure that those are not in
2 the same category is very important and is -- has
3 been done for the crops that are being -- that
4 are released now.

5 And there hasn't been any documented
6 evidence of a allergic response in a human to a
7 GMO crop that I could find, and I've tried to ask
8 a lot of people that question and there's no
9 evidence that anyone can verify an allergic
10 response to a genetically modified trait even
11 though a lot of people think that they have had
12 an allergic response. And so that's a little
13 complication of the fact that we all eat food
14 every day and we all have reactions to food and
15 we don't always know where they come from.

16 So some of the evidence to support the
17 safety of the -- or the fact that we think that
18 these are safe, Dr. Raven already mentioned
19 studies that have been done using animals. This
20 is a -- I always say this is one of the most
21 long-term studies that could ever have been done.
22 We track livestock, we track animal health

1 probably more than we track human health in a lot
2 of ways. Agricultural production knows when
3 animals are born, they know what they weigh, if
4 they got sick, what drugs they were treated with
5 and all that can be -- data can be tracked and
6 accessed.

7 So the group from UC Davis took that
8 data and looked back before animals were fed
9 genetically modified grain and after they were
10 fed genetically modified grain and they -- over
11 100 billion animals in a very short amount of
12 time were included in these studies. So it's a
13 huge study that never could really be funded to
14 be done but fortunately the data was there and
15 allowed this analysis to be done. No difference
16 in the composition of the food, no difference in
17 the animal health outcome, and this graph just
18 shows weight as an example of health and you can
19 see that over the time period from before
20 genetically modified foods were -- or grains were
21 introduced back in the 1980s all the way through
22 2011, there was actually an increase in animal

1 efficiency, animal growth rate, no evidence of
2 any major diseases, no evidence of increased
3 illnesses, you know, weakened immune systems or
4 any evidence of any harm in animals that were fed
5 genetically modified grain for their life cycle
6 and that of their prodigy.

7 So the other studies that have been
8 done in animals to show that there's no transfer
9 of the genetically modified trait through the
10 good system, this is another concern that
11 consumers often express, is that the DNA lives on
12 in the animal food whether it's in the meat or
13 whether it's in the eggs or in the milk coming
14 from animals. And as Dr. Raven eloquently
15 expressed that the transfer of DNA is very low
16 and there isn't any evidence that DNA from a
17 genetically modified trait is passed through
18 animal foods or that it can be persistent in the
19 human body.

20 Also among consumers' interest right
21 now is the idea of the gut microflora. There's a
22 lot of interest now in what is happening in our

1 guts so colon health and GI health is a major
2 discussion among consumers. And there's a lot of
3 belief that the GMO traits are surviving in the
4 food supply and ending up in the colon and then
5 they're messing around with the microflora that
6 we have down there and that they're creating
7 illnesses and creating mutant bacteria that are
8 somehow having negative influences on our health.

9 We link this sometimes to obesity.

10 There's some substantial data that can -- that's
11 talking about whether microflora in the gut lead
12 to obesity and how that can be linked. So the
13 natural kind of link next to it is to say, okay,
14 well now we've got these GMO foods and now these
15 gut micro -- is that all coming together and
16 causing obesity? The evidence is pretty weak in
17 this regard to show that there is any transfer of
18 DNA into microflora and just the technical
19 aspects of making that happen in a way that would
20 actually change the structure of the
21 microorganisms is pretty unlikely to be a
22 problem.

1 So the genetic stability is the other
2 issue that the consumers are worried about. They
3 feel that there's going to be some mutations that
4 are arising in the food and that the crops, and
5 that this somehow is going to lead to abnormal
6 expression of other things that then will have
7 negative consequences. And the evidence is
8 pretty weak in that regard, too, that there isn't
9 any evidence that that is happening in a
10 widespread way.

11 So coming back to human health and how
12 do we know? The question that is the hardest to
13 answer sometimes when I talk to consumer group
14 is, show me the long-term study that humans have
15 been eating this stuff and there isn't any risk?
16 And of course, we can't do those kinds of
17 studies, it would be prohibitively expensive, it
18 would also be a little bit just challenging
19 technically to figure out what you would feed
20 people over their life span. We do have some
21 other ways to look at that, though, as far as
22 epidemiological data, comparing different

1 cultures and different groups of people. And
2 again there isn't any evidence that consumption
3 of genetically modified foods over a period of
4 almost 20 years now has led to any examples of
5 correlations with risks in human health.

6 We know that the foods that we are
7 consuming, the grains, corn, soybean typically
8 are processed and a lot of the traits that we're
9 worried about, the proteins, the DNA don't end up
10 even in the oil or the corn starch fractions or
11 the sweeteners that we produce from those so
12 there really isn't any traits in the foods that
13 we're eating. So the exposure rate is very low.
14 Heat treatments happen, processing of food
15 happens, so all of these factor also limit the
16 amount of exposure. But even with all of that
17 there isn't any evidence that human health has
18 been impacted negatively.

19 But there is this always coming back
20 to the evidence that we are exposed to every day
21 that Americans have chronic diseases associated
22 with our food supply, that obesity is becoming

1 epidemic. People worry about cancer, we hear all
2 stories all the time about friends and relatives
3 who have acquired cancers. Food allergens I
4 already mentioned. There is also a daily story I
5 think on autism and ADHD and how that's linked to
6 our food supply. We see more people acquiring
7 Alzheimer's disease, depression, heart disease
8 continues to be a concern.

9 So when you put all of that together,
10 you look at what we're eating and our food
11 supply, it's natural for consumers to want to
12 make correlations between those. But we all know
13 as nutritionists and food scientists, we all know
14 that these are complicated diseases and there
15 isn't probably one factor that's a causative
16 agent. Certainly there are links between our
17 food supply but none of these at this point have
18 been linked to genetically modified organisms or
19 the consumption of foods.

20 One of the things that I try to point
21 out sometimes when I look at consumer groups,
22 talk to consumer groups is cancer rates, for

1 example, have gone down since we started
2 introducing genetically modified traits into our
3 food supply except for liver cancer. Liver
4 cancer has gone up a little bit and a lot of
5 people correlate that with our increased obesity
6 risk because there's a link between obesity and
7 liver cancer. But colorectal, stomach cancer
8 where you kind of make the consumption -- the
9 link with food have actually declined.

10 We also see a decrease in heart
11 disease. Of course, that increased pretty
12 dramatically up until about the 1970s and then
13 has come down. So that's a lot of factors, I'm
14 not saying that it's because of GMO food that
15 that's happened but of course there is the
16 assumption that, you know, if it goes up then it
17 must be linked. So if it goes down then it can't
18 be linked.

19 We do, of course, have other diseases
20 that are on the rise and this includes ADHD and
21 it includes Alzheimer's and it includes obesity.
22 And so it's difficult for consumers to sort this

1 all out in their minds. They hear that these
2 foods that we're eating have a link to this, that
3 they're complicated. They're concerned
4 especially when it comes to their children.
5 Allergies and responses to foods is something
6 that everyone takes very seriously. But at this
7 point there isn't any evidence to link any of
8 these, even though there are a number of studies
9 that come out on a regular basis that show the
10 opposite.

11 And another piece of this whole story
12 is trying to explain science to consumers. As
13 the Secretary mentioned scientists aren't good at
14 that. We don't like to get out of our
15 laboratories and talk to people and it makes us
16 uncomfortable. But when we do go out and talk to
17 consumers and try to explain this they do value
18 that input and they do want to hear from us. So
19 scientific -- science is not neat, it's not
20 clean, we have other studies that get published,
21 even those studies get published that show rats
22 with big tumors or, you know, links between --

1 you know, correlations between Alzheimer's and
2 GMO foods. Even though those are refuted by the
3 scientific community they live on in cyberspace
4 and have a life of their own.

5 So there's a lot of confusion also
6 when it comes to food safety. If you read some
7 of the stories in the paper or on the web about
8 GMO food, they can't separate out GMO technology
9 and the fact that this is DNA and protein from
10 the fact that we're spraying glyphosate all over
11 the United States. So in a lot of people's mind
12 they're intimately linked. And so it's the
13 glyphosate, is it the GMO traits, is it the
14 technology? Consumers can't sort that out and
15 trying to help them work through that is very
16 important to understand. And at this point
17 glyphosate is probably one of the safer
18 pesticides that we have at our disposal. And so
19 trying to convey that to consumers in a way that
20 they understand is very challenging.

21 So as was mentioned already today, the
22 scientific evidence is strong for the safety of

1 genetically modified foods. Even the Center for
2 Science and the Public Interest has taken a
3 position that there's no reason to think that
4 these are unsafe. Most of the medical
5 associations in the U.S. and in Europe have also
6 stated publicly that this is a safe technology
7 and that there shouldn't be a concern. But yet
8 we have consumers that don't want to believe
9 that, consumers that are concerned, and our
10 challenge is try to figure out to convey that
11 information.

12 Sending more scientists out to talk is
13 one step, of course, but I think we all have to
14 do a better job of trying to be transparent about
15 what we are doing, how these tests are done,
16 trying to use technology in a way that allows
17 consumers access to it in a place where they are
18 willing to accept that information. And then
19 also to be aware of the fact that the technology
20 is not standing still. As Dr. Raven mentioned
21 new technologies are coming along all the time
22 and how are we going to communicate those

1 technologies to consumers to allay their fears?

2 So that is the end of my presentation.

3 MS. DILLEY: Thank you very much.

4 (Applause.)

5 MS. DILLEY: So we do have a bit of
6 time for a couple of brief questions before our
7 next panelists. Should people use mics or hand
8 them out or -- oh, there it is. Good. It's
9 resting.

10 DR. KUZMA: Hello. Thank you both for
11 your presentations. These are both subjects that
12 I'm very interested in and have spent some time
13 thinking about.

14 I wanted to ask a little bit about
15 this issue of correlation arguments and what that
16 means in the context of GM foods. And so I
17 appreciated your remarks on the correlation
18 between, you know, human allergenicity and ADHD
19 and such and that you cannot necessarily
20 attribute that to GM foods.

21 I was wondering about the livestock
22 study, though, if you could explain a bit more to

1 -- it's really the one kind of long-term feeding
2 study we have on GM foods and kind of a natural
3 context, if you go on livestock in the U.S. over
4 20 years, which is commendable. Could you
5 comment a bit on how the correlations were teased
6 out of that study and whether weight gain was the
7 only end point? And whether weight gain in
8 itself is a health issue. And it could be
9 compounded with three-D, you know, better animal
10 breeding, selection, other nutrition science that
11 has gone into how we feed livestock.

12 And then second, what was the life
13 span of the animals? Because usually they're
14 killed, you know, at a very early age in order
15 to, you know, reap a profit. You don't want to
16 keep these animals around too long -- you know,
17 alive too long. So I just wanted to know more
18 about your perspective on the life span issues
19 associated with that study, the correlation
20 arguments and the weight gain as a health end
21 point, and what other end points.

22 DR. MacDONALD: Perhaps I didn't

1 explain that clearly. This was not a research
2 study, this was analysis of data collected on
3 animals in the food sector. So it was including
4 dairy cattle, beef cattle, hogs, poultry, laying
5 hens. All the animals that have been fed
6 genetically modified grain in the production
7 system. So this was not an isolated study that
8 someone did. So basically it was the life span
9 of the animals in their production system.

10 DR. KUZMA: Which is pretty young for
11 animals that have been slaughtered.

12 DR. MacDONALD: Well, it depends on
13 the animal. But most -- yeah, most of them are
14 dairy cattle that live longer than some of the
15 others but, yeah. But reproductive life, of
16 course, was taken into consideration because it
17 was -- it's generations beyond just one. And
18 then that -- weight was not the only measure that
19 was studied in that. And weight is an indication
20 of health and efficiency and production and it
21 does include a whole variety of other factors
22 besides what they're eating, of course. The fact

1 of the presentation, the paper was to show no
2 negative consequences, that there wasn't any
3 evidence that animals that had transitioned from
4 conventionally grown hybrid corn and soybean to
5 genetically modified corn and soybean had some
6 rare evidence of increased numbers of cancers or
7 early deaths or, you know, rates of illness. So
8 there was a whole spectrum of data that was
9 looked at to show that there wasn't any negative
10 influences of that change of diet. So weight was
11 just one factor.

12 MS. DILLEY: Do you know a reference?
13 Maybe that would be helpful, too.

14 DR. MacDONALD: The reference is on
15 the slide.

16 MS. DILLEY: It is on the slide?

17 DR. MacDONALD: Yes.

18 MS. DILLEY: Okay. Thank you.

19 DR. RAVEN: I just wanted to add -- go
20 back to what I said in the very beginning. DNA
21 is only a set of instructions to produce RNA and
22 to produce certain proteins. There's no pig DNA,

1 eagle DNA or corn DNA and if you change those
2 genes around, you're basically just changing the
3 instructions. And that's, of course, why the
4 argument falls apart scientifically that GM
5 products are dangerous because GM products by
6 definition involve a whole variety of different
7 kinds of genetic instructions transferred into a
8 whole variety of individual kinds of organisms.
9 And not only is the process not harmful, not only
10 does the process not have a collective negative
11 affect on food but there's no conceivable
12 scientific theory that would give the transfer
13 different parts of instructions into different
14 parts of organisms anything in common that could
15 possibly make them all dangerous. There's
16 absolutely nothing in common.

17 MS. DILLEY: Okay. Other questions?
18 We have time for maybe one more.

19 (No response.)

20 MS. DILLEY: All right. It not then
21 thank you very much.

22 (Applause.)

1 MS. DILLEY: So our next panel is
2 shifting gears, it's on market managed organic
3 and non-GE products and Errol Schweizer, who is
4 the Executive Global Grocery Coordinator for
5 Whole Foods Market is our next presenter. I turn
6 it over to you.

7 MR. SCHWEIZER: Good morning. My name
8 is Errol Schweizer, the Executive Global Grocery
9 Coordinator for Whole Foods Market. I am
10 responsible for about 30 percent of our company's
11 sales, grocery being dry goods, packaged foods,
12 dairy, bulk, frozen items. So I'm intimately
13 familiar with this concern since it's primarily
14 related to what we sell every day. I've been
15 with Whole Foods about 13 years selling natural
16 foods for about 20 at this point. So I really
17 appreciate the USDA for hosting this and for
18 inviting us.

19 So Whole Foods Market has always been
20 a trend leader in terms of establishing standards
21 so I just want to give a little context to my
22 presentation here. Since our inception in 1980

1 we've usually been a few steps ahead of policy as
2 well as even consumers in establishing trends on
3 products. And I'm actually going to walk over
4 here so I can see my slides, too, because I do
5 not have them memorized.

6 So among the first standards that we
7 established in 1980 was no artificial
8 preservatives, flavors, something we've held to
9 through the years. 2002, no antibiotics in meat,
10 a certain fast food chain, looks like they're
11 trying to do the same thing. They're also adding
12 kale to their menus. That's McDonald's, by the
13 way.

14 2003, no hydrogenated oils, 2012 no
15 red-rated seafood and 2013 -- that's why we were
16 asked to come here -- we were the first national
17 grocery chain to set a deadline for GMO
18 transparency for all products that we sell. And
19 how we're going to do that is working in
20 collaboration with all of our suppliers, not only
21 on sourcing non-GMO ingredients and verifying
22 non-GMO claims but really assessing what's in

1 supply chain. We sell at least 100,000 items
2 alone in my department from thousands of
3 suppliers.

4 So I'll skip this because this was
5 actually covered but as everybody knows GMO crops
6 are hegemonic in certain commodities, 94 percent
7 of soybeans or 90 percent of corn, cotton, as
8 well as other crops making it quite a challenge
9 to source non-GMO and organic. So this
10 prevalence of GMOs in our supply chain as well as
11 the absence of any sort of federal mandatory
12 labeling makes it very difficult for grocery
13 stores such as ourselves to source non-GMO and
14 for consumers to source non-GMO. Yet we know
15 firsthand that our consumers are passionately
16 seeking non-GMO products.

17 We have over 7 million transactions a
18 week, just about everybody who's shopping our
19 stores is buying organic and non-GMO. Our stores
20 are primarily located in middle to high-income
21 areas although we are looking at food deserts now
22 and moving into lower income areas. But

1 primarily we have a very highly educated customer
2 base, folks who read a lot, folks how want to
3 know what they're eating. So as we know, the
4 U.S. and Canada still have no real labeling laws
5 while more than 60 countries do.

6 So our policy covers all food products
7 we sell. This includes plant-based processed
8 foods where there is heavy GMO concern, as well
9 as animal-derived ingredients in prepared foods.
10 It includes GMO transparency for animal feed. We
11 actually sell several varieties of eggs from
12 suppliers who are using non-GMO feed. Not only
13 has it not affected our organic sales it's
14 actually one of our top growth trends. And as
15 one of the lead buyers at Whole Foods, that's my
16 job, to find new growth trends and amplify them.

17 At this time Whole Foods recognizes
18 independent third party non-GMO verification
19 including the USDA Organic Standard as well as
20 the Non-GMO Project. So it's a commitment of our
21 -- it's actually an example of our commitment to
22 transparency and a way to create a deeper

1 conversation about food, where it comes from, how
2 it's produced, and it's consistent with our other
3 standards including sustainable seafood, animal
4 compassion, household cleaning products, et
5 cetera. And if you read food publications, food
6 news, we see other folks coming onboard. Once
7 again, McDonald's making statements, Campbells
8 recently, Chipotle is a leader in this space.

9 The context of this is that
10 transparency is trending. I did hear it
11 mentioned earlier and I appreciate that.
12 Customers want to know what they're eating. They
13 want to know what's in the ingredient list, how
14 it was made, where it was stored and whether or
15 not it's safe. Accentuating what's not in a
16 product is as important as accentuating what is.
17 As we know the market for "free from" goods is
18 growing rapidly, we have been a leader in the
19 gluten free space now for well over a decade.

20 And then we want folks to prove their
21 commitment to product safety by enforcing and
22 publicizing their standards and their

1 transparency. I mentioned Campbell's before,
2 Denise Morrison, CEO of Campbell's -- I don't
3 work for Campbell's, I work for Whole Foods, but
4 when I read this I thought this came from one of
5 our folks. We are consenting with what I've
6 previously characterized as seismic social shifts
7 that are redefining the fundamental framework in
8 our relationships with customers and consumers
9 and along with this has come a mounting distrust
10 of so-called big food. The large food companies
11 and legacy brands on which millions of consumers
12 have relied on for so long. It's profound that
13 we're hearing about this from a major CPG.

14 GMO transparency is trending very
15 strongly. Consumer awareness with the term has
16 increased 12 points, it's over 54 percent. The
17 greatest awareness growth are among folks a
18 little younger than me, the millennials. The
19 uses of non-GMO foods is up 16 points across the
20 general populous led by mostly younger people.
21 GMO concerns are trending, over 40 percent of
22 consumers are avoiding or reducing GMOs in their

1 diet, mostly young folks as well as parents of
2 children under eight. Over 60 percent of
3 respondents in some of the largest countries in
4 the world, 49 percent are also concerned.

5 And a bit of a segue to what I do for
6 a living, food launches with organic and GMO-free
7 claims have increased. Organic claims are more
8 prevalent on new items in 2011-2012 but that was
9 actually surpassed by products with GMO-free
10 claims, huge jump up to 45 percent in 2012 to
11 2013. Organic claims also jumped admirably. No
12 large percentage of snack launches, 34 percent
13 and 10 percent of dairy launches in the last
14 three years of GMO-free claims. Huge growth in
15 GMO-free product launches in both the EU and the
16 U.S., 145 percent. That's over 1350 in this
17 timeframe, over 350 percent growth since 2008.
18 The EU is a little ahead of us, 460 percent, but
19 we'll catch up.

20 How do we recognize GMO-free claims?
21 We actually don't. We recognize non-GMO claims.
22 There's really no such thing as GMO-free, guys.

1 So we're talking about coexistence but what we're
2 actually talking about is protecting the organic
3 integrity of our food, protecting non-GMO crops.
4 And non-GMO verified we estimate was about 22,000
5 products in the market, this is outside of and
6 inclusive of Whole Foods, over 1500 companies.
7 Over eight and a half billion, with a "B" in
8 sales, and this is 2014. So assume this is over
9 10 billion by the end of 2015.

10 Well, what does it mean? The cost of
11 GMOs is so prevalent it requires ongoing testing
12 of all that risk ingredients. We use an action
13 threshold the same as the European Union does, .9
14 percent, so it's a little over 1 percent. So
15 when you see a non-GMO claim it's not a GMO-free
16 claim. So this notion of coexistence has some
17 concern because, even if you're attempting to buy
18 non-GMO you may still be consuming GMOs. And
19 that's a big concern as I've shown.

20 The absence of all GMOs is the target
21 for the standard and it requires rigorous
22 traceability and segregation so it drives up our

1 costs. It's a lot of work to do but it's
2 working. It's up 16 percent this year, it's our
3 fastest dollar growth trend at Whole Foods
4 Market. We have nearly 10,000 items which has
5 more than doubled since our transparency
6 announcement in 2013. Hundreds of leading brands
7 led by our own store brand "365," large national
8 food brands such as Pacific Foods, Hain
9 Celestial, a publicly traded company, 99 percent
10 of what Hain Celestial does is organic and/or
11 non-GMO. And then smaller brands.

12 Just a question, anybody here shop at
13 Whole Foods Market?

14 (Audience response.)

15 MR. SCHWEIZER: Anybody buy any of
16 these brands?

17 (Audience response.)

18 MR. SCHWEIZER: Well, this is what the
19 growth trend looks like, 426 growth since the
20 advent of non-GMO verification since 2010. This
21 is not the same growth trend that the U.S.
22 economy is having. This is in a sense one of the

1 fastest dollar and rate growth trends we see in
2 food. And it has not taken away from organic, in
3 fact it's amplified organic. It's helped clarify
4 organic. Organic is our largest product trend
5 and product segment at Whole Foods. It's up over
6 10 percent which is faster than our store growth.
7 Organic sales have doubled in the last five
8 years, probably double again in the next five so
9 we've got a little supply work to do.

10 We have at last 15,000 items in my
11 department, probably close to 30,000 across the
12 store. And I can't emphasize this enough, the
13 sales growth is constrained by supply,
14 particularly in grains and dairy. We have a
15 supply problem. The demand's there. You know
16 how we know? All our competitors are coming
17 after it. Last year Wal-Mart announced, Target
18 said they wanted to double organic sales, Kroger
19 wants to sell more organic than Whole Foods,
20 Costco is doubling down on organics, and I
21 welcome them all to the party but I wish they
22 would make it a potluck and they'd bring their

1 own supply with them because that's what we all
2 need. So organic sales in the last few years, up
3 77 percent and growing.

4 As some of us are aware of the USDA
5 NOP prohibits GMOs, it's an excluded method. Not
6 allowed in organic food production and, as we
7 also know, organic is non-GMO plus many, many
8 other desirable attributes for our customers.
9 It's really the gold standard, it's the golden
10 child of
11 American food production. Non-GMO sourcing is a
12 way to protect the heritage and biodiversity of
13 crops but we're also utilizing it as a bridge to
14 organic. And we have quite a few suppliers who
15 are doing this so not just stopping at non-GMO
16 but using it so they can build their supply so
17 they can take an additional added value for the
18 product in that three-year transition program.
19 When they are organic we can't sell it as such.
20 So non-GMO is a bridge to organic, they're
21 complimentary and mutually beneficial. And
22 there's a great potential to grow the supply, as

1 I said.

2 So Whole Foods Market transparency is
3 our growth engine. As the world's leading
4 retailer, natural foods retailer we see other
5 folks jumping on the bandwagon so it's exceeded
6 overall store growth in the last few years by 54
7 percent. This is what our customers want so
8 that's what the growth curve looks like. So this
9 is the change relative to our department sales.
10 So it's exceeded our own growth, non-GMO and
11 organic. It's also a greater percentage of our
12 own sales, 60 percent, which in itself is up 10
13 percent. Organic is close to half of what we
14 well, non-GMO is close to a third, and that's
15 only in the last five years.

16 We have categories that are nearly 90
17 percent transparent already so we're only two
18 years into this commitment. Consumers are voting
19 in greater and greater droves. And for those of
20 you who don't know what Kombucha is, it's a fizzy
21 beverage. Our customers drink it like it's soda.
22 They may bathe in it, they buy so much of it, for

1 all I know.

2 Frozen vegetables, non-dairy beverages
3 like almond and soy milk, non-GMO and organic,
4 over 20 categories are greater than 70 percent
5 transparency including eggs, and that includes
6 the non-GMO fed as well as organic, pasture
7 raised.

8 And then acquisition categories -- so
9 if you're in retail you know what that means,
10 it's like baby food. You want to get those baby
11 food customers. Almost all the baby food we sell
12 is organic.

13 Whole Foods' position is that federal
14 mandatory GMO labeling is needed for consistency.
15 It's what consumers are demanding proving that
16 they want this. They want this information
17 inside Whole Foods and outside Whole Foods. They
18 don't have this transparency and protection when
19 they're not in our stores and it's our hope that
20 we can eventually get to this place as a country
21 and as an industry. And as I pointed out on that
22 first slide, Whole Foods tends to be a little

1 ahead of trends so just consider me a visitor
2 from the future.

3 I also want to say that, as a organic
4 procurement, non-GMO procurement we need more
5 science on the organic and non-GMO side,
6 especially organic. We need more organic seed
7 research. Actually, I'm a biologist, I'm a
8 scientist. We need organic seed research and
9 organic production systems so that it's
10 comparable and it's relevant to the types of
11 crops, types of conditions, types of locales that
12 we need. Most of the organic products that we
13 now sell have been developed in conventional
14 systems and that puts the whole industry at a
15 competitive disadvantage because we're not
16 focused on yield and productivity and
17 efficiencies, taste, flavor. One of the biggest
18 transparency trends that we're actually seeing in
19 food are more customers demanding products, bread
20 for those attributes such as taste, flavor. And
21 farmers wanting yield and efficiencies. Organic
22 farmers, farmers who are focused on non-GMO.

1 I'll hold for questions.

2 (Applause.)

3 MS. DILLEY: Thank you.

4 So some questions?

5 DR. SEDEROFF: So you talked to us a
6 great deal about how popular organic food is. I
7 shop at Whole Foods but I don't like it.

8 (Laughter.)

9 DR. SEDEROFF: Because of your
10 attitude towards GMO food. But so what I want to
11 ask you is your opinion based on the evidence you
12 know, whether you think GMO food is really a
13 hazard or not, or is it just really a matter of
14 marketing which is most of what you've told us
15 about? And if you're not convinced that it's
16 safe, what would convince you?

17 Now I want to just give you an
18 example. No one talks about radiation induced
19 changes to crops and a considerable number of our
20 crops have been modified by radiation induced
21 mutation. There's nothing said about it, it's
22 actually quite undefined. There are lots of

1 genetic changes that occur, it's not regulated as
2 far as I know at all. And why is that safe as
3 opposed to the changes we talk about? Would you
4 market a radiation -- you are marketing radiation
5 induced food and I for one am shocked that you do
6 so.

7 So could you please comment?

8 MR. SCHWEIZER: Sir, our policy is
9 transparency. So customers have a right to know
10 and our company mandate that if a customer asks
11 us a question it's our responsibility as a
12 retailer to give that -- to give them an answer
13 and to give them a choice. So whatever the
14 assumed attitude is, I'll just clarify that we
15 are pro-GMO transparency, we want our suppliers
16 to label what they're selling. That enables our
17 customers to have a choice in what they're
18 buying.

19 And so all the other information, I
20 know there's going to be a lot of debate here,
21 there's a lot of back and forth on that, and
22 ultimately our customers want non-GMO and organic

1 products. And as a retailer, as a publicly-
2 traded company, it's our mandate to respond to
3 those trends.

4 In terms of irradiation, I think the
5 only thing I'm aware of in irradiation is that we
6 do not source a lot of our spices that
7 irradiated. Our private label spices are -- go
8 through a food safety process of steam
9 sterilization.

10 Thank you for your business as well,
11 appreciate it.

12 (Laughter.)

13 DR. KALAITZANDONAKES: Nicholas
14 Kalaitzandonakes from the University of Missouri.

15 Thank you very much for all the
16 numbers that you provided. I had two questions
17 that are related.

18 One, the source of the data. And let
19 me qualify my question. For example, you
20 mentioned eight and a half billion dollars of
21 non-GMO sales. I would like to know where that
22 number comes from.

1 And a lot of the growth numbers that
2 you were talking about, I worked with non-GMO
3 consumer data for about two years now. And as a
4 researcher -- I'm an economist by training -- it
5 must be one of those frustrating data sets that
6 I've dealt with. The reason is, it's very
7 difficult to basically tell what's growth, in
8 essence. And by that I mean if I had an SBU that
9 today is conventional and then exactly the same
10 SBU tomorrow becomes non-GMO because somebody put
11 a label on it, how do you quantify that? Let me
12 make an example.

13 I like, for example, peanuts that
14 there's no GMO counterpart and I buy them from
15 Target. And one day they became non-GMO
16 overnight. So is this a growth in sales or is
17 this a growth in a number of the products? Do
18 you count it as such? Or is it the same SKU only
19 with a label with similar sales as before?

20 So I would like to know, what goes
21 into your calculations as you are putting these
22 numbers and then the sources of the numbers.

1 Thank you.

2 MR. SCHWEIZER: Sure, good question.
3 Appreciate it. It would be a lot easier for us
4 to track the sales if it was all labeled
5 accurately. As what we have done internally as
6 well as through market data collected from the
7 Natural Food and actually all the food industry.
8 So my sales data were from internal Whole Foods
9 metrics. I was actually not allowed to put our
10 actual dollar values but we are able to share the
11 rough metrics. The \$8.5 billion number is
12 estimated from the Non-GMO Project, from the
13 Organic and Non-GMO Report and from my own
14 conversations and compilations with about 1200
15 suppliers who are currently verified.

16 In terms of your other question, I
17 think one of the main reasons why we're seeing so
18 much move on non-GMO is that the vast amount of
19 acreage for GMOs in this country are patented
20 pesticide delivery systems. So those customers
21 who have a perception that they want to avoid
22 additional pesticide use, whether it's Bt in the

1 corn or Roundup resistant trait, which you know,
2 obviously the American farming community has
3 embraced, consumers are rejecting that and that's
4 what we're seeing. A lot of consumers are
5 rejecting pesticides and they see non-GMO as one
6 way to do that.

7 Obviously organic is the gold standard
8 for doing that, but in terms of non-GMO, that it
9 doesn't contain a Bt corn, it doesn't contain an
10 oil derived from a Roundup resistant canola or
11 Roundup resistant soy. That's primarily why
12 you're seeing that label spread through so many
13 products as well as the fact that it's being
14 spread in multi-ingredient products, not just the
15 share commodities.

16 MS. DILLEY: There are two more
17 questions. Dr. Raven?

18 DR. RAVEN: Well, it would obviously
19 be possible to take any one of the sort of non-
20 modern ways of plant breeding that were not
21 practiced in Edwardian times and put a label on
22 it and then keep hyping it to the point where

1 people began to believe that it was more
2 important than some other thing. And obviously
3 the big publicity campaigns around this are
4 really what are driving the sales, not any real
5 intrinsic knowledge about the science.

6 Now scientists worldwide, in all
7 academies, health organizations, individual labs
8 agree that there is not only no general danger to
9 GMO foods but there is no theory that could
10 possibly account for them having anything in
11 common that would make them dangerous as a class
12 because they're not really a class. So when you
13 say you're transparent do you want to give the
14 entire pedigree of all the plants you sell for
15 the last 10,000 years or will you just go on
16 hyping this one particular easy to remember GM,
17 non-GM bad -- argh -- stuff and drive sales up?
18 Because obviously as people found by posting
19 pictures of people drinking beer, surrounded by
20 sexy individuals of the opposite sex or anything
21 like that, we have an advertising system that
22 will allow you to hype anything to where you get

1 good sales for it.

2 Are you really interested in all the
3 other ways that plants are bred and what their
4 characteristics are? Or the fact that there is a
5 general scientific consensus that there's no
6 basis for the fear that is being spread by these
7 campaigns or not?

8 MR. SCHWEITZER: Great. We're hoping
9 that you folks start labeling the products.

10 DR. RAVEN: Ha ha.

11 MR. SCHWEITZER: That way the consumer
12 can just make the choice. In terms of --

13 DR. RAVEN: We'd rather label them if
14 they're radiated or if they're gene edited or if
15 they're --

16 MR. SCHWEITZER: I think you already
17 had a chance here.

18 DR. RAVEN: -- I mean, you can't --

19 MR. SCHWEITZER: I actually do want to
20 make one quick correction on --

21 DR. RAVEN: -- label every single way
22 that we breed plants. It's just nonsensical and

1 this is a championship example of that.

2 MS. DILLEY: He's trying to respond to
3 the question.

4 MR. SCHWEITZER: I appreciate your
5 passion on the subject.

6 So it's our position as a retailer
7 that we're going to label products. It's the
8 national food industry's position that we're --
9 for federally mandated labeling of GMOs and we're
10 going to let the customers decide. And for those
11 of you who studied science and, like I said, I
12 actually am a scientist as well, know that
13 science evolves in paradigms. There was a theory
14 of gradualism in geology for years started by
15 Charles Lyell in the 19th century, and I think we
16 all know that geologists don't consider
17 gradualism as the current theory of geology. I
18 believe spontaneous equilibrium and evolution and
19 similar behaviors in geological systems, and
20 we're assuming that biotechnology and genetic
21 modification, as is, is a current scientific
22 paradigm that will evolve, as you said. And so

1 in the meantime we're going to label foods that
2 contain GMOs.

3 MS. DILLEY: Okay. We have question
4 over here.

5 DR. SANCHEZ: Yes, please. I'm Pedro
6 Sanchez from Columbia University.

7 I wonder if you have statistics of
8 what happened to organic sales in the States
9 during the great recession, this 2008-2009 thing?
10 There are numbers saying that -- what I hear is
11 that organic sales dropped down during that time.
12 My question is, is that true? And by how much?

13 MR. SCHWEIZER: No. In fact, my
14 grocery sales continued to grow during the so-
15 called great recession. We continued to account
16 positively and our growth trends were led by
17 organic primarily, and organic dairy and
18 commodities. So organic continued not only to
19 exceed store growth but was well positive in the
20 double digits during the so-called great
21 recession. Consumers who buy organic are
22 dedicated to it, there's a whole host of

1 attributes of why folks are buying it and we
2 didn't see any downturn. In fact, the numbers
3 that I shared are inclusive of that timeframe.

4 DR. SANCHEZ: But that's in your
5 stores. But overall?

6 MS. DILLEY: Oh, you're asking
7 generally?

8 DR. SANCHEZ: Overall.

9 MR. SCHWEIZER: I don't have that with
10 me and so I don't want to misquote.

11 MS. DILLEY: Somebody from ADS may be
12 able to answer that.

13 DR. SANCHEZ: They did go down. If
14 you go to --

15 MR. SCHWEIZER: If you know the answer
16 you shouldn't probably be asking the question.

17 VOICE: They did not go down, they
18 just slowed.

19 MR. SCHWEIZER: That sounds accurate.

20 DR. SANCHEZ: Overall. Okay, thank
21 you.

22 MS. DILLEY: Here.

1 MS. OLSEN: Hi, my name is Angela
2 Olsen, I shop at Whole Foods every weekend but
3 not for GMO reasons. And so I was curious, you
4 clearly are driven by data and I know Whole Foods
5 is and that's a great thing. I was curious
6 whether you had gone deeper into doing some
7 additional survey data? Again, I'm there every
8 weekend, I like the seafood you sell, I don't
9 like fillers in my food, I don't like artificial
10 colors, there's a variety of reasons why shop
11 there none of which are GMO related.

12 And so I was curious whether you have
13 done an additional survey or whether Whole Foods
14 plans to do such a survey to determine why people
15 are buying certain products? A lot of my
16 cupboards have the non-GMO project over the last
17 couple of years but that's not why I'm buying it.
18 I'm buying it for a very different reason. But
19 it just so turns out that Annie's or, you know, a
20 lot of the products that you put up there, you
21 know, also are involved in the GMO discussion.
22 So just curious whether you also had done an

1 additional survey about why are people buying the
2 products? Because again, for me, and for a lot
3 of my colleagues and demographic, the folks that
4 are in my demographic, we're not buying them for
5 GMO reasons. So I was just curious about that.

6 MR. SCHWEIZER: Sorry, I'm in
7 procurement. I look at what customers do not
8 what they say, and I give them more of what they
9 want.

10 (Laughter.)

11 MR. SCHWEIZER: So you could probably
12 get a whole hose of SPINS data, IRI, Nielsen
13 HomeScan, Natural Marketing Institute, Hartman,
14 they've all done studies on this and they all
15 have information related to your question that
16 you can access publicly. In fact, the Hartman
17 study is online, you can download the PDF, and I
18 think that's probably the most valid and
19 thorough. But as my job as lead category manager
20 for the company's largest department, it's my job
21 to find trends and amplify them and be
22 accountable to our P&L.

1 MS. OLSEN: Right. I was just
2 wondering if perhaps those trends aren't really
3 related to GMOs. They may be, I haven't seen the
4 data.

5 MR. SCHWEIZER: They're definitely
6 related to GMOs.

7 MS. OLSEN: Thank you.

8 MR. SCHWEIZER: So the one study I
9 referenced was the Hartman Group, you should
10 definitely check that out. NMI and Nielsen all
11 have information on this. So this is well
12 outside of just Whole Foods Market.

13 And I also want to point out that our
14 largest competitors, including Wal-Mart, Target,
15 Kroger are not only increasing the number of
16 organic and non-GMO items that they sell in their
17 stores but moving of store brands into that same
18 space. So that's profound.

19 MS. DILLEY: So we just have a minute
20 or two for one more questions.

21 MR. SCHWEIZER: I've got one over
22 here.

1 DR. ZILBERMAN: Okay. David
2 Zilberman, Berkeley.

3 First, congratulations for having a
4 great business and basically taking over a nice
5 slice of customers.

6 You spoke about -- do you really
7 believe that you'll be able globally to feed the
8 nine billion people with organics since it's a
9 gold standard and that everyone goes to gold
10 standards?

11 MR. SCHWEIZER: Yes.

12 DR. ZILBERMAN: And how do you seek to
13 tackle or take advantage of new discoveries in
14 biology and new knowledge in genetic, do you try
15 to incorporate it or you try to ignore it
16 altogether so you'll stay pure?

17 MR. SCHWEIZER: Like I said, it's my
18 job to give customers in our stores what they
19 want. I think there are starting to be more
20 studies showing about the yield and efficiency in
21 organic systems, including the Rodale Institute's
22 farming systems trial which is a 30-year crop

1 study comparing conventional GMO and organic
2 systems. That is a scientific study, you may
3 want to check it out. And it does show that
4 organic improves yield with lower costs and
5 higher profit.

6 And I did say before and I want to
7 emphasize, we need more research, we need more
8 information. There is SRI rice systems that are
9 being developed in India as well as Southeast
10 Asia showing that you have higher yield, lower
11 water usage, high efficiency systems are growing
12 rice, especially in drought conditions that are
13 non-GMO systems. So there is some data. And as
14 a scientist, but also as a retailer I'm looking
15 forward to seeing more.

16 MS. DILLEY: And we have a question
17 over here.

18 MS. BATCHA: Thanks, Errol, for
19 sharing with us. Laura Batcha.

20 I have two quick comments and then a
21 question for you. I think just to corroborate
22 the question about organic sales during the

1 recession, it never dipped below negative. It
2 went below double digits which has been our trend
3 over the last ten, fifteen years, but it went
4 down to about five percent growth during the
5 height of the recession. So to clarify that.

6 Second clarification, irradiation is
7 also an excluded method in the organic standards
8 so it's not allowed in the organic production
9 systems. And I'm not an expert outside of
10 organic but my understanding is products that are
11 irradiated also require labeling for
12 communication to the consumer.

13 So I want to try to bring us back to
14 the discussion that we're here to have based on
15 coexistence. And as the secretary laid out, I
16 hope that we don't get too bogged down all day
17 long on debates that are outside of this idea of
18 farmer choice and consumer preferences because I
19 think there's a lot of experts in the room and
20 other areas, and I just -- you know, I call on
21 all of us in the room to sort of stay with our
22 task here and talk about that.

1 So I'm wondering, Errol, if you can
2 share with us in your move to try to meet your
3 mandate in 2018 where you're having challenges in
4 terms of sourcing ingredients and supply chain
5 issues and some of the nitty gritty of what you
6 have to work through to meet that preference?

7 MR. SCHWEIZER: Yeah, it's like
8 pushing a rope uphill.

9 So I actually just want to respond to
10 a statement earlier today about the U.S.
11 importing corn to Mexico. I'm actually importing
12 corn from Mexico, Heirloom corn because we can't
13 get farmers here to grow enough non-GMO
14 varieties. We're having to import organic and
15 non-GMO crops. It's, I feel, a huge issue and I
16 think we need a lot more farmers in the United
17 States to really get with the market. There's
18 not honest market signals for organic and non-
19 GMO. They're not traded as futures on the CME.
20 Most farmers are not aware of it unless they have
21 a Whole Foods or Kroger or some retailer in their
22 area.

1 So I think there's not enough market
2 signal to show that the consumer in the United
3 States is demanding organic products and the
4 supply is not keeping up. We had 50 percent out-
5 of-stocks in our organic butter during the
6 holidays for a couple weeks. It was really
7 scary. And that's because the supply is
8 constrained, there's not enough organic grain and
9 obviously our customers are drinking a lot more
10 whole milk so there's not enough skim to make
11 butter fat. So we need more organic grain
12 production in the United States and we need more
13 research on organic dairy production to make it
14 higher yield and more efficient.

15 So I think that's the major issue
16 we're having right now with organics. And demand
17 in those growth charts, those growth numbers I
18 showed you guys would be a lot higher this year
19 if we'd actually been able to keep in stock of
20 all the products that we sell that are organic.
21 And I think that's the major thing I want to get
22 across here, not only is organic the gold

1 standard for agriculture, organic is the future
2 of American agriculture. You don't see growth
3 trends like this in any other attribute in the
4 food industry. Customers want organic so we need
5 to produce more organic.

6 MS. OLSEN: Thanks.

7 MR. SCHWEIZER: We got time for one
8 more?

9 MS. DILLEY: It has to be brief
10 because we --

11 MR. L'ETOLLE: It will be brief.

12 I'm a farmer from Massachusetts, we
13 grow identity preserved grains, a variety of
14 them, corn, wheat and many others. We struggle a
15 lot with this idea of coexistence and making sure
16 that we're giving the customers what they want
17 and one of our biggest customer demands is, in
18 fact, GMO-free which is really easy on something
19 like wheat. It's hard on corn. But we grow it,
20 we process it, we sell it ourselves, we self-
21 distribute so that does make it easier.

22 What we struggle with is making sure

1 that we're not trying to create a market for a
2 particular thing the consumers are looking for
3 and not getting in trying to boost that. You
4 made a comment earlier that Whole Foods not only
5 meets the customer demands but they lead the
6 trends. How do you make sure you're not creating
7 those trends that are missing and therefore being
8 able to meet them, and that is something that
9 divides agriculture? I think selling identity-
10 preserved or GMO-free grains does not divide
11 agriculture, does not hurt coexistence but
12 creating those trends yourself does. And what do
13 you do to prevent that from happening?

14 MR. SCHWEIZER: Yeah, sure. As
15 category manager I review dozens of categories
16 every month as well as many different product
17 attributes. For instance, gluten-free is no
18 longer growing at Whole Foods Market. It seems
19 that the allergen-free community is either
20 finding it elsewhere or it's not as popular.
21 We're finding that other product attributes such
22 as cleaning standards are not as big a growth

1 trend. It's not as attractive to have a
2 transparently labeled dish soap or laundry soap -
3 - which by the way, we're the first retailer to
4 ever do as well.

5 So when we find a product trend with
6 not only this annual, year-over-year growth but
7 the compound annual growth, it's profound, and
8 it's showing us that there's a consumer behavior.
9 And the fact that our suppliers drove this for
10 us, we didn't drive our suppliers into this,
11 suppliers were beginning -- becoming non-GMO
12 verified in 2010 and 2011, their product sales
13 shot up once they put that logo, including
14 organic items, because the consumer, we're
15 assuming, is seeing it as an additional level of
16 assurance and a way to validate that it's organic
17 and non-GMO.

18 So because I'm able to review -- I
19 mean, I have 90-plus categories in grocery, each
20 category has, you know, one to two dozen product
21 attributes. Some categories, classes -- I'm a
22 data jockey, like I look at this stuff and some

1 stuff doesn't work. But when you have something
2 like this it's a big deal. And I think that the
3 USDA needs to respond, I think, like I said, we
4 want to see a federal mandate of labeling and
5 it's obvious the consumer's ahead of trend at
6 Whole Foods.

7 And by the way, we do sell a lot of
8 identity preserved and heirloom crops as well.
9 And in some cases those sell really well and in
10 some cases the consumer actually doesn't care.

11 MS. DILLEY: Thank you again.

12 (Applause.)

13 MS. DILLEY: So an identity-preserved
14 question was a great segue into the next panel.
15 We have Lynn Clarkson who is president of
16 Clarkson Grain Company and he's going to talk
17 about coexistence and practice with identity
18 preserved products. I do -- as you're making
19 your way up here, I just want to reinforce what
20 was said. I was going to invoke the Secretary's
21 comments earlier but it was very articulately
22 said by the woman, I didn't catch your name --

1 sorry, there you are -- thank you. Of just
2 really staying focused on it's not about one's
3 better than the other, it's really about choice
4 and supporting coexistence and really trying to
5 stay focused on that.

6 So with that, Lynn, I know you'll stay
7 focused on that. We'll turn it over to you.

8 MR. CLARKSON: We have a pretty long
9 food chain in this world and we all see different
10 links in that chain. The chain that I work with
11 on a daily basis connects the farmer to the
12 markets. So we segregate corn and soy for GMO
13 sensitive markets. We've been segregating corn
14 and soy for 100 years, that's not new. This
15 particular distinction is new.

16 Now we have a smiling lady up there.
17 I'm willing to assume she bought a product that
18 she liked. That's what I care about. I don't
19 tell her what her values should be, I ask her
20 what she wants then I try to feed it.

21 I've given you some pictures of some
22 tools of the trade. Down at the bottom you have

1 a green elevator with 120 10,000 bushel silos.
2 Why? For segregation. The best you can do. You
3 can see a stack of containers there, that's what
4 links most of our IP markets to the international
5 markets. Japan, increasingly China, and up the
6 top, if you want to know who's doing IP in China
7 you stop by a warehouse in Yokohama and you walk
8 through. So these will be climate controlled
9 warehouses where the Japanese buyer pays as much
10 per month as you would pay a U.S. elevator to
11 store something for a year.

12 Now my goal, a happy client. What's
13 the purpose? The purpose is to provide an
14 advantage. If you just want corn you buy a
15 commodity. If you care about protein levels,
16 process characteristics, flavor, color, aural
17 characteristics, the quickness with which it
18 absorbs water, the amount of energy used, you go
19 IP. How do we get it? We can't buy it on the
20 open market, we have to contract with farmers
21 before they plant it. And we ship by container
22 truck and all the normal attributes, including

1 ocean-going ships that carry about 2 million
2 bushels per. And we secure growers by paying
3 them a premium. And it's too expensive to ride
4 the learning curve every year with new people so
5 the premium has to be high enough people come
6 back.

7 Down at the bottom you've got a picture
8 of a IP corn, which is the dark blue corn. It's
9 even being turned into bourbons these days. Now
10 we make distinctions on a daily basis between
11 organic, conventional which is GMO, and non-GMO,
12 and within the GMO sector we make distinctions as
13 well. Not just between GMO and non-GMO. Our
14 buyers range from food processors to industrial
15 processors to feeders to cosmetics companies.
16 Evolution, go back about 1994 and our biggest
17 challenge was keeping corn out of soybeans or
18 soybeans out of corn. 1994 you 1996 the
19 distinctions became invisible without testing at
20 very small levels and created an entire new
21 constraint for us.

22 As of today in our IP world, for

1 almost everyone that does identity preservation,
2 the single biggest difficulty is contamination
3 through adventitious presence, unwanted presence,
4 unintended presence, and our ability to keep that
5 within tolerance levels. We are not biased
6 against any technology, we do have a bias against
7 crops that are raised in such a way that they
8 determine what the neighbor can do. We want him
9 to be able to hit his markets, too.

10 Purity is really what we're going
11 after in these things. The first part of any of
12 our discussion with a client, the first part of
13 the discussion here is "define what you mean by
14 non-GMO." And we have lots of definitions out
15 there contending. People call you and they want
16 zero GMO, which is a standard first question, at
17 which point we offer to have a drink and part
18 friends because we can't do business. It's just
19 not possible. We have folks that want five
20 percent but my problem is who's going to buy it?
21 I don't have a client anywhere in the world that
22 will accept five percent GMO.

1 Now Leon will rush to tell me that the
2 official Japanese standard is five percent. I
3 don't know anybody in Japan other than government
4 that accepts five percent. I know a few people
5 that are willing to accept three percent but when
6 you get into the food and feed it's the same
7 thing as the Europeans, 0.9 percent. Now you
8 need to know that there's a flex factor in Japan.
9 If they see that you're trying hard, and most of
10 your deliveries are within tolerance, they will
11 grant you a tad of out-of-tolerance so I can't
12 say they've got a really rigid limit. But the
13 one that I have to deal with is .9. It means the
14 new labeling standards, reasonably consistent.
15 U.S. and Canada, what's emerging for my industry
16 is 0.9. In soybeans that's still pretty easy.
17 In corn it's becoming seriously difficult.

18 Now the positions in play on tolerance
19 levels range greatly and some people believe in a
20 static tolerance level and other people want a
21 changing tolerance level. They want the level to
22 go down to zero after a while. Very difficult to

1 get people to invest in doing things for you when
2 they don't know what the rules are going to be
3 next year or the year after. That's a problem.
4 Crop protection traits, I call those cultural
5 distinctions, and the 0.9 provides the tolerance
6 level for that fine.

7 But we now have functional traits out
8 here. This is irrelevant really, whether it's
9 GMO or non-GMO, we have functional traits in the
10 field that will change the process
11 characteristics in the nature of any other corn
12 at one part in ten thousand. That's enormous.
13 My company would not want to buy within one mile
14 of you if you were raising that corn. And if
15 that corn's in Iowa and it's so low I can't test
16 it, what would my company do? We won't buy from
17 Iowa. This leads to private zoning and this is a
18 serious issue for our community in agriculture
19 and the food system to decide how to grapple
20 with.

21 Then who defines these tolerance
22 levels? Are these done by private entities?

1 Are they done by federal government, state
2 governments or others? There's a research study
3 done by the University of Illinois back in -- I
4 think it was 2005 that concluded that people have
5 more confidence in the government than anybody
6 else. And if we have several privates making up
7 tolerance levels it's sort of organic before we
8 defined what organic meant. We might have 15
9 churches and they're all closer to God than the
10 next one. So this is a problem.

11 Now how do we get the things? We
12 contract production. We have to establish the
13 standards when we're talking to a farmer. He's
14 got to know that he can meet those standards
15 before he agrees to organize resources. We lay
16 out the segregation protocols, we establish
17 verification methods and we incentivize the
18 purity issue.

19 So what are the corn incentives? Over
20 the last two years we have paid a premium for
21 non-GMO corn going from 15 to 75 cents, depends
22 on the vagaries of the market what you get,

1 timing. If your corn were -- let's say today in
2 central Illinois we're paying 3.75 for corn,
3 we're probably paying a little over \$4.00 a
4 bushel for non-GMO corn. If that corn were non-
5 GMO and organic we're paying between \$12.50 and
6 \$13.00. That's a significant incentive.

7 On soybeans, last year the standard
8 for non-GMO soybeans was \$2.00 to \$2.50 a bushel,
9 this year it's probably \$1.50 to \$2.00 a bushel.
10 If your soybeans are organic compared to
11 conventional, conventional I'm guessing we're
12 around 9.50, 9.50 today, okay? So we'll be
13 paying \$11.00 for non-GMO bean. If that same
14 bean carried an organic certification we would
15 pay you \$30.00. Enormous difference. So we're
16 trying to get you the supplies that you need.

17 How do we verify? With documentation,
18 a lot of it, which farmers hate by the way. But
19 some of them can do it pretty well. We have
20 testing challenges. How do we get a
21 representative sample? A lot of MBAs think that
22 out here we can just play with the widgets and

1 get a representative sample. It is
2 extraordinarily difficult to get a representative
3 sample of a commodity like corn or soybeans
4 especially if we're looking down into parts per
5 thousand.

6 We really would like government's
7 intervention here. If we got a buyer, he could
8 be domestic or international, we want the same
9 test results all along the chain. Most of our
10 companies will say, dear buyer, you pick the test
11 that you want, you pick the testing agency that
12 you want. We're willing to settle for anything
13 but please, let's accept the test result prior to
14 engaging in shipping, whether it's across an
15 ocean or across the country. So if we had a
16 government lab that we could go to and have
17 acknowledgement, or a private, we don't care, but
18 we would like to put that efficiency in the
19 system.

20 Contamination vectors, seed, up until
21 about two years ago, in watching the products of
22 hundreds of farmers we could see the GMO content

1 start high on the edge of a field and drop as you
2 moved into the center of the field. And
3 typically it would blend in so it was less than
4 0.9. Starting about two years ago we saw an
5 increase in problems coming from seed
6 contamination. Too much GMO in the seed. And I
7 think that's becoming a worse problem. What
8 we're seeing is, if the hybrids have been out for
9 six or seven years in commercial, every year it
10 picks up a little bit. You can't get rid of it
11 but you can pick it up. So after about six or
12 seven years a hybrid is pushing the limits of
13 acceptance.

14 Now on seed, what do we do? We test
15 for it. Typically when you as the seed company,
16 you're selling me non-GMO seed, what does that
17 mean? The answers get a little shaky. We don't
18 know. Or our average is under .5 but our range
19 might be zero to five or six percent. Now who
20 gets the six and who gets the non-detectable?
21 Are there messages on bags that tell you how
22 much? And seed companies, I understand why they

1 don't want to do that, there's a whole bunch of
2 liability that comes with that.

3 Do we test on the stuff that arrives
4 on the farm? Or do we start buying our seed in
5 places where there's no GMO seed raised, like in
6 Eastern Europe? And it's my understanding,
7 subject to challenge here, that some of the major
8 seed companies in the United States are no longer
9 producing their GMO seeds in Eastern Europe,
10 they've gone to all traditionally-bred seeds. So
11 for those of us who are concerned about our
12 tolerance levels, may we buy seed from that
13 source? Unanswered questions.

14 When you get to the field it's all
15 about clean equipment and not having field
16 contamination. We have third parties that test,
17 farmers are pretty good about this, the seed
18 industry itself has shown people how to do this
19 and do this well year after year. We have
20 buffers. The EU has done some real good studies
21 on buffer needs to hit different levels of
22 purity. And for 0.9 percent on corn we need

1 maybe 70 to 100 feet of horizontal separation,
2 normally. You can drive an extreme argument that
3 troubles all these things. But for soybeans, 12
4 feet probably does it. So it's not a terrible
5 burden there.

6 Post-harvest it's all about
7 cleanliness and making sure you don't contaminate
8 with something else. We test every load as it
9 comes in to the first receiving point. We test
10 every load as it leaves the first receiving
11 point. And some end users test when it arrives
12 at their processing plant. Now the tests that we
13 have handy that work in the agricultural world,
14 which is fast-paced at harvest, tend to be tests
15 for protein levels, ELISA tests. They cost us
16 along with the labor and materials about \$25 to
17 \$30 a test. I don't care whether a truck's
18 carrying 50 bushels or 1000 bushels. So on
19 average we're probably spending five, ten cents a
20 bushel just to run tests on corn.

21 Now the benefit, these things are
22 relatively inexpensive and they take about 15

1 minutes to do. So if you're a farmer sitting
2 there with a truck, I'm not keeping your capital
3 asset just sitting there burning diesel fuel for
4 hours. But the sensitivity only goes down to
5 about one part in four hundred. PCR tests are
6 the more serious test but the cost goes up to
7 hundreds of dollars per test and the time needed
8 to get results out in the field is a long time.
9 It takes two, three days for us to get the
10 results back on that. And at several hundred
11 dollars per test, if we were testing trucks in
12 and out, we could easily rack up \$1.00, \$2.00 a
13 bushel just on PCR testing.

14 Now if I'm worried about a functional
15 trait and I'm worried at a level of one in ten
16 thousand, there is no strip test that goes that
17 low today. In fact, that is so low I won't know
18 I have a problem until a problem happens in a
19 processing plant, so it's something that will no
20 longer process the way it was anticipated by the
21 buyer. This is a serious problem. Cultural
22 standards, 0.9. You get to the functional

1 standards, the functional standards are going to
2 depend on things way out, way beyond this
3 conversation.

4 The reality for GMO farmers here, is
5 organic products free of GMO? In the process
6 they are. That's the rule as I understand it.

7 In reality there is some GMO in almost all
8 organic products. But it's a process definition
9 so how can the organic farmer be hurt by this?

10 Well, here's how he gets hurt. Crops can be
11 certified organic and still not merchantable. I
12 can't sell it. Now if a farmer comes in with
13 more than 0.9 and he's done everything right for
14 the organic it's organic, but I can't buy it
15 because I don't have a place to sell it. So
16 what's he lose? I was going to pay him \$30.00
17 but it's going to go into the commodity market
18 and now I'm going to pay him -- excuse me, on
19 soybeans it's \$30.00. But in the commodity
20 market I'm going to pay him 9.50. If it's corn I
21 was going to pay him \$13.00 and now it's going
22 into a market at \$3.50. This gets his attention.

1 This hurts.

2 So vision of U.S. agriculture, I'd
3 like to see us support farmer choice and protect
4 the farmer from being dominated by his neighbor
5 in choice of his market. I'd like to support
6 buyer choice and I'd like to support more
7 continuing technical and market improvement in
8 corn and soybeans. Now how we balance those
9 things, the conflict of those issues brings us
10 here today. We don't have really ready answers.
11 But I want to offer you some suggestions.

12 I think we need to acknowledge that a
13 significant percentage of our community wants to
14 know whether they're eating GMOs or not, or got
15 them in their life. I think we need labeling.
16 Now my change on this is somewhat different than
17 you heard. I know the Europeans label it if it
18 has GMO in it. I would label it if it didn't. I
19 think that involves a lot less expense in the
20 system and I think the critical nature -- the
21 critical question here is I want to know. Well,
22 it tells you what you want to know if you do

1 that.

2 I think we should agree to federal
3 non-GMO labeling. We've got to define the
4 meaning of non-GMO. So that's going to be a long
5 discussion, what it is. And it's a complex
6 discussion because it's not the same definition
7 for functional traits as it is for protective or
8 cultural traits. And it may change over time. I
9 think we should enforce labeling through either
10 the FTC or the USDA and not create a new
11 regulatory structure. I think there's
12 credibility to be gained from a government
13 service doing this. Right now you've got a
14 private service that's dominating the market,
15 that's growing so quickly that it gives mixed
16 messages. So we see some processors being asked
17 to meet a .9 standard and somebody else producing
18 exactly the same product being asked to meet a .5
19 standard.

20 The organic analogy here is, until
21 about the year 2000, 1999, we didn't have a
22 definition of what organic was. So we had a

1 group, several groups of people saying, I'm more
2 organic that you are. It didn't inspire
3 confidence on the consumer's part. We defined
4 organic, and I think the market acceptance just
5 took off. And I think that's important to have a
6 community definition. I think a similar thing
7 would happen in non-GMO.

8 Now GIPSA, the Grain Inspection,
9 Packers and Stockyard Act defines what corn is,
10 defines what soybeans is, and sets up some
11 standards for testing. GIPSA could be involved
12 in this. I'm not sure they'd want to, I think
13 they like to stay out of these controversies, but
14 they would be an appropriate player.

15 Then I think there has to be an
16 acknowledged agreement that farmers don't have
17 the right to damage their neighbors. If that
18 means a horizontal segregation, for cultural
19 traits, I'm telling you for corn, which is the
20 one I'm most seriously worried about, it's only
21 about 100 feet. Fences were paid for for a long
22 time, 50 percent by each neighbor, even though

1 the one that didn't have the cattle was paying
2 for half the fence. I think each neighbor should
3 do half of the 100 feet. Now that's not going to
4 please anybody but my perception.

5 Seed approval, right now we're just
6 considering safety. And I've heard a number of
7 you folks talk passionately about the safety
8 argument, you can't understand why that consumer
9 may not agree with you or may have other values
10 other than safety. I'm involved in this from the
11 market standpoint and market disruption is
12 extremely critical factor. And right now we
13 don't have regulatory authority to consider
14 market disruption unless we sort of pervert the
15 argument about weeds or a couple other issues.
16 But I think we need to take a look at market
17 disruption. Are we going to manage this
18 technology or are we just going to throw it in
19 our gene pool and say, let's see what happens?

20 For less disruptive traits, the one
21 with the 0.9, I think we could get by with some
22 segregation buffers. For the ones that can do

1 functional damage to the neighbors for a
2 significant distance, I think to be permitted
3 those should have markers in them. Now many of
4 us in the IP world run the latest generation of
5 optical scanners. We can scan with multiple
6 wavelengths and are fully computerized. And if
7 you can't articulate what you want you can freeze
8 frame a passage of a kernel and draw a circle
9 around it and say, I want more of these or I
10 don't want any of these. So if we could have a
11 color distinction or maybe even a distinction you
12 don't even see that allows us to get about 99.5
13 percent purity.

14 I think appropriate segregation
15 requirements should be included in the contract
16 between the seed provider and the farmer. And I
17 think some of these seed companies are moving to
18 do that right now. I think one of the seed
19 representatives here today showed me that as a
20 new contract protocol. Such policy moves could,
21 I think, start reducing the cost we see going
22 into this. We're seeing a couple class action

1 suits that have got the entire farm community
2 involved at some level, and it will probably be
3 going for a billion dollars or so. We've got
4 other people saying the suits won't go anywhere.
5 But they're happening and they're extraordinarily
6 expensive and disruptive.

7 I think it would be -- ease the
8 controversy over introducing new traits if we
9 thought those traits would be managed well and
10 not be left out there to disrupt the markets. I
11 think this would satisfy many who want to label -
12 - it wouldn't satisfy everybody but I think it
13 would satisfy a lot. I think it would support
14 the U.S. farmer no matter whether he was
15 conventional, GMO, non-GMO, organic as being a
16 go-to place. My company works on several
17 continents and we have buyers that are shying
18 away from the United States because they don't
19 think we manage our traits well. They're worried
20 about what we're dropping into the system and
21 they look at things like StarLink and say,
22 "failure."

1 So that's a list of the organizations
2 that I spend time with so I want you to know what
3 my biases might be.

4 Other than that, thanks for your
5 attention.

6 (Applause.)

7 MS. DILLEY: So unfortunately we've
8 run out of time. But are you here after lunch?

9 MR. CLARKSON: Yes, ma'am.

10 MS. DILLEY: So perhaps before we get
11 started with this afternoon's panel we could take
12 some questions because I think you've laid out
13 some really great ideas and suggestions for
14 discussion, and I'm sure there are questions. We
15 just can't do it justice right now.

16 What we want to do is get you fed. I
17 know it doesn't say that on the agenda but as you
18 can smell from the nice aroma, and probably your
19 growling stomachs, that it's time for lunch. I'm
20 going to have Sharon come up here and give you a
21 little information on the lunches. Then what we
22 thought we'd do is maybe take down this line,

1 half of you to come up for your food in just a
2 minute, and then do the other half. And we'd
3 like to get you seated so that we have former
4 Secretary Dan Glickman who's going to provide
5 some comments over lunch. So we want to do that
6 at the appropriate time.

7 So with that, Sharon.

8 MS. STAUFFER: Thank you.

9 I just want to give you some brief
10 information on our lunch today. First of all we
11 have a few that have special dietary needs and
12 we've created special lunches for you. So if you
13 would kindly raise your hand when I say your name
14 we'll bring that lunch to you.

15 Mr. Dillon, Matt Dillon? Right here,
16 okay, thank you.

17 And Ms. Hughes, Melissa Hughes is
18 there.

19 And finally Ms. Sonnabend, Zea. Am I
20 saying that right, Zea? Okay. Excellent, thank
21 you.

22 So we have three different offerings

1 for you this afternoon. We have at the far table
2 closest to the doors is our GMO offerings that
3 includes a grilled breast of chicken with papaya
4 corn salsa and roasted sugar beets. The next
5 table up is the vegetarian table and that
6 includes stuffed Portabellos with fresh spinach,
7 a sauteed vegetable medley as well as desserts.
8 And finally, the table up here at the front is
9 the organic menu that includes free-range bone-in
10 chicken and wild rice pilaf as well as salad.

11 So thank you very much. I am going to
12 ask that the further half of the group, you come
13 on and get your meals first and once the line
14 thins out just a little bit then we'll take this
15 half and go ahead and get your food.

16 So thank you very much.

17 (Lunch break was taken.)
18
19
20
21
22

1 MR. GLICKMAN: Thank you.

2 Sometimes when my bio is read it says
3 I'm with the Aspen Institute program which is to
4 promote civility among members of Congress. And
5 I have done a fabulous job the last six years.

6 (Laughter.)

7 MR. GLICKMAN: We've changed the
8 world.

9 Anyway, I thank you very much for
10 being here. I see my friend Cathy Woteki here
11 who is a great public servant and a great
12 scientist in her own right. Tom Vilsack who
13 asked me to come here and then left, but it's
14 okay. You know, I was going to say that he was -
15 - I usually say that he is one of the two
16 greatest Secretary Of Agricultures in the history
17 of America. But to be honest with you he has
18 done such an amazing job in so many complicated
19 areas, including this one, and I'm proud to be
20 his friend and I think the fact that he's tackled
21 -- is tackling this issue is certainly a benefit
22 to him as well.

1 Nancy Creamer is here, where is she?

2 Raise your hand? Okay. So I'm -- at least for
3 the time being, the Secretary has asked me to be
4 the chairman of the new Foundation for Food and
5 Agriculture Research, FAR or it was called F-FAR
6 but we changed it to FAR. But Nancy's on the
7 board with me and she represents NC State and
8 other issues. And so I'm glad that she's here as
9 well.

10 A lot of experts in this room that
11 know much more about this than I do. I used to
12 tell the story when I was at USDA about the two
13 dairy cows that were grazing along the side of
14 the road and all of a sudden a milk truck drives
15 by. And on the side of the milk truck is written
16 in big red letters, "Pasteurized, Homogenized,
17 Vitamin Enriched, Good For You." And one dairy
18 cow looks at the other dairy cow and says, "kind
19 of makes you feel inadequate, doesn't it?"

20 (Laughter.)

21 MR. GLICKMAN: So you've got a lot of
22 experts in this room that know much more about

1 this issue than I do, although I was present at
2 the beginning of the organic issue, at least. I
3 was a Congressman in 1990 when we passed the
4 Organic Standards Act and I was Secretary, I
5 think in 2000 -- I'm sorry, 1998 or 1999 when we
6 did the rule, we promulgated the final rule. Any
7 USDA people were here with me at the time of that
8 final rule? Or it may be former USDA people.

9 And I remember when the rule, initial
10 rule went out and we didn't close the door on
11 GMOs being part of the definition of organic.
12 And we had the largest -- and back then, you
13 know, this is before social media. But we had
14 the largest mail-in campaign, I was told at the
15 time in the history of the United States
16 government, opposing some of our proposed rule.
17 So we pivoted quite quickly, which I was known to
18 do a lot. And anyway, that rule was promulgated
19 with the help of Senator Patrick Leahy, Kathleen
20 Merrigan who, of course, became Deputy Secretary,
21 and others. And I think was a very important
22 rule.

1 We're here to talk a little bit about
2 this issue of coexistence. I don't know who came
3 up with that word, I've been in the world of
4 foreign policy a lot and, of course, I remember
5 coexistence being an issue between the Israelis
6 and the Palestinians, an issue between the
7 Soviets and the United States. These definitions
8 are difficult -- remember the old Potter Stewart
9 was a Justice of the Supreme Court and he had
10 that famous line, when he was asked to define
11 pornography in a famous Supreme Court decision,
12 he says, "well, I can't define it but I know it
13 when I see it." And I think coexistence is even
14 a more difficult term to both define and to know
15 when you see it.

16 There are a couple of quotations that
17 struck me, Bertram Russell said, "it's
18 coexistence or no existence." But a Chinese
19 compatriot of Mao Tze Tung said, "there cannot be
20 peaceful coexistence in the ideological realm.
21 Peaceful coexistence corrupts." So the question
22 is, where are we in this? Are we in the

1 ideological realm? Do we believe that our
2 positions are somehow Biblical and close to God?
3 Or do we believe that these are more practical
4 decisions to be dealt with for the larger good?
5 And that's a question that folks, not only in
6 this room but around the country, have to answer.
7 What is this coexistence about? Who is it with?

8 Just drawing you back to another
9 subject, back when I was in the Congress I was
10 the House author of the legislation which led to
11 the creation of something called the U.S.
12 Institute of Peace. Any of you been in
13 Washington, you've seen this big building behind
14 the State Department with the big angel wings
15 over it? And this was enacted in 1987 as a way
16 to train people and teach people conflict
17 resolution techniques because there is a science
18 of resolving conflicts. And the institute was
19 largely geared towards resolving international
20 conflicts.

21 They became very involved in the truth
22 and reconciliation process in South Africa after

1 Apartheid ended and they helped design the
2 programs on which South Africa dealt with people
3 who were engaged in the Apartheid government.
4 And as you recall, Mandela and others engaged in
5 a kind of a policy which was based on forgiveness
6 and which a lot of people found difficulty with.
7 But that was, in part, based on conflict
8 resolution techniques. And sometimes I think
9 maybe this is an issue that requires some
10 scientific conflict resolution techniques to
11 resolve.

12 I was listening to the speaker before
13 who I thought did an excellent job of
14 decomplexifying an issue in terms of practical
15 things that, you know, can be done. But I only
16 mention this U.S. Institute of Peace because
17 there are an awful lot of people whose
18 livelihoods are based on how to resolve these
19 serious conflicts when you have people of
20 seemingly irreconcilable differences, especially
21 if they are based on some ideology. And so I
22 urge you to maybe give that a little bit of

1 thought as we talk about these issues.

2 So I thought I just might mention just
3 a couple of things that strike me about this.
4 One is, let's look at this whole issue from a
5 30,000 foot level. What are some of the
6 principles and themes out there that kind of
7 governing agriculture generally, not just the
8 issue of coexistence or organic or not organic or
9 GMO or non-GMO? One is, of course, the concept
10 that we were moving much more into the arena of
11 different strokes for different folks. That one
12 size fits all agriculture is fine when we had
13 basically just purely commodity driven
14 agriculture. But it's much different today with
15 diet and nutrition and with all the
16 entrepreneurial techniques that are out there in
17 the private sector. And I think that's an
18 important thing to remember.

19 Some of you remember the movie "Field
20 of Dreams," in Iowa, Kevin Costner. And in there
21 the famous line was, "if we build it they will
22 come." That was true in agriculture for a long

1 time. If we grow it or if we raise it they will
2 buy it. But today the -- probably the more
3 guiding principle is, if they want it we will
4 grow it. And so that's a changing trend and it's
5 not universal because we still need row crop
6 agriculture and we still need large-scale
7 agriculture. But the demands of consumers out
8 there are just -- provide a whole different
9 scenario to the business of agriculture and food
10 and farming than they used to be in.

11 And that relates to the second issue
12 which is that there is a deveoping high-value,
13 consumer-driven agriculture which can produce a
14 higher rate of return, higher income for a lot of
15 people in the field of agriculture so that there
16 is obviously a mass produced agriculture in the
17 commodities but there's also high value
18 agriculture, both in the grains and especially in
19 livestocks and especially in fruits and
20 vegetables, where people can make a lot more
21 money if it's segregated, if it's targeted and if
22 it's part of a marketing plan. And that's

1 certainly different than it used to be.

2 Third is the science is changing so
3 rapidly and the -- with the mapping of the human
4 genome and people's views on diet and nutrition,
5 things that were applicable 30 years may not be
6 applicable today. And therefore the regulatory
7 system that even we developed in the '90s on the
8 Organic Standards Act may not be as relevant
9 today as it was 20 and 30 and 40 years ago, with
10 the science changing so rapidly.

11 As I mentioned before, the commerce of
12 agriculture is changing so rapidly, I see that --
13 I think it's McDonald's that's going to offer
14 kale salads. I mean, I don't know who would want
15 to buy it but, you know, McDonald's and Burger
16 King and Wal-Mart and the entire business of
17 commercial agriculture is changing rapidly and on
18 a dime as it relates to consumer taste. So it's
19 just different than it used to be. And I say
20 that the regulatory system is -- has to deal with
21 that in some way.

22 And also the relationship between

1 farmers and seed companies, and our last speaker
2 talked a little bit about that. That is and will
3 be changing in the years to come, clearly to face
4 the challenges that he pointed out. Now this
5 whole issue of how we relate organic and non-
6 organic and GMO and non-GMO has been a difficult
7 subject. So in my post-USDA life I've been
8 involved in something called "AGree" I don't
9 know if any -- how many of you are aware of
10 "AGree?"

11 So AGree is an effort put together by
12 the largest foundations in the United States,
13 Gates, Ford, Rockefeller, Packard, McArthur, et
14 cetera, to try to see if we could bring different
15 stakeholders together to talk about a variety of
16 things in agriculture, not just this subject but
17 nutrition, rural development, how to bring more
18 small farmers into agriculture, how to encourage
19 entrepreneurial agriculture. But it's to
20 challenge and connect leaders from diverse
21 communities to build consensus, catalyze action
22 and elevate food and agriculture as a national

1 priority. Because we believe that for a long
2 time in the public policy arena, agriculture has
3 not been at the top of our national priorities
4 list. It's been a secondary issue. I sense that
5 is really beginning to change, hopefully.

6 So we've had a lot of dialog on issues
7 like how do we move beyond arguments about small
8 scale agriculture versus large scale agriculture?
9 Organic versus conventional? Low-tech versus
10 high-tech? And instead focusing on embracing the
11 diversity of systems that will allow us to
12 maintain productive and profitable farms, healthy
13 working lands and ecosystems and consistent
14 production of affordable, safe and nutritious
15 food?

16 We met together with a broad range of
17 stakeholders from the seed companies to the major
18 retailers to small scale farmers to advocates to
19 NGO community and just common citizens to talk
20 about the GMO issue and talk about biotechnology
21 and contentious issues and challenges, potential
22 actions, research questions that are unanswered.

1 And there's no question that genetic engineering
2 and production of GMOs represent a high-tech tool
3 in our agriculture toolbox that will help us
4 weather unforeseen challenges, what I call the
5 asteroids of the future. Drought, extreme
6 weather events, agriculture disease outbreaks and
7 serious nutritional challenges. And to think
8 that these can be done without new technologies,
9 including genetic engineering, is very short-
10 sighted. It just will not happen.

11 We find changes happening in science
12 all the time. They're happening in the medical
13 field and they're going to happen in the food and
14 agriculture fields. But at the same time there
15 is no question that there are environmental,
16 social and economic challenges and opportunities
17 to all of these things as well. Questions about
18 the use, safety and future of the technology
19 abound. One emerging question lies in how we as
20 a society evaluate the risks associated with GMO
21 crops and then how we communicate those risks to
22 farmers and to the public as a whole.

1 There's no question that the
2 technology implores us to challenge our current
3 understanding of risk assessment, it also
4 requires us to understand that there is no risk-
5 free work in this world. I'm flying back today,
6 I presume that US Air airplane is going to do it
7 okay and the engines are working. But like most
8 fliers I'm not 100 percent sure. I'm 99.9999999
9 percent sure. So we've got to realize that you
10 cannot operate a society on a totally risk-free
11 orientation.

12 At the same time, there are potential
13 risks to GMO crops. The gentleman was talking
14 about this today in terms of contamination, in
15 terms of marketing, and there may be other
16 challenges as well that we can't be afraid to
17 ask, to talk about. Because if we don't,
18 consumers will, and I guarantee you, marketers
19 and retailers like Wal-Mart will respond to those
20 concerns. It's just going to happen.

21 As we examine the potential costs and
22 benefits of GMO crops, including increases in

1 yields, impacts on pesticide and herbicide use,
2 the development of resistance among weeds and
3 pests and potential health impacts, which risks
4 are most reasonable and unreasonable. That's
5 something that the experts need to decide in a
6 non-ideological way, without saying none exists
7 or the whole thing is fraught with problems and
8 we shouldn't go down this road.

9 The next generation of GE crops may
10 involve nutrient enrichment, bio-fortification,
11 healthier oil content and reduced allergenicity.
12 Maybe they'll help men grow hair, too. I've said
13 that would be a positive -- personally that would
14 be something I would appreciate. But how would
15 these widespread health benefits stack up against
16 potential social, economic and environmental
17 risks? We have the capability with modern
18 science to answer all these questions, if we're
19 open about it and we're reasonable about it.

20 So there are a whole bunch of other
21 issues involved with this -- these technologies.
22 I note that the pharmaceutical industry does not

1 face the same level of public scrutiny for using
2 biotech and genetic engineering to create
3 medicines and drug therapies. People are
4 accepting of drugs made through biotechnology to
5 treat cancer, diabetes, arthritis and a myriad of
6 health ailments. Why is this? Do you think that
7 the FDA's process is so good that we think that
8 it shouldn't be challenged? Or is it that there
9 is a perceived benefit that outweighs any of the
10 negative implications for this kind of stuff?
11 What lessons are there for seed technology and
12 agriculture biotechnology that we can learn from
13 the pharmaceutical industry about risk
14 assessment, about transparency and about
15 communication?

16 There is one other emerging challenge
17 to which I'd like to draw your attention. For
18 the past few years, instances of domestic and
19 international cyber security breaches have been
20 on the rise. Although GMO crop patents are
21 proprietary information they may be less secure
22 than we realize. How can we transparently use

1 genetic engineering technology risks while
2 adequately protecting patents? So to address
3 these concerns, risk assessment, transparency and
4 cyber security, further social, economic and
5 environmental questions will arise as up and
6 coming GE technologies, such as synthetic
7 biology, gene editing and induced gene mutations
8 are increasingly developed and utilized.

9 Along with robust science, respectful
10 dialog leaving dogma at the door, and
11 partnerships are needed now more than every to
12 confront legislative and regulatory challenges
13 and opportunities. Can we develop a strategy
14 collectively to make substantive progress on GMO
15 issues? My tenure on the Hill at USDA, as co-
16 chair of AGree and now as chair and member of the
17 FAR, the Foundation, have shown me time and time
18 again that a collaborative approach among
19 producers, the supply chain, researchers, health
20 professionals, consumers and other key
21 stakeholders is critical to creating the future
22 we would all like to see if we want it there.

1 So my -- I guess my main point here is
2 on the issue of coexistence, if we want it to
3 work it can work. If we don't want it to work
4 and want to fight then it's a losing battle and
5 probably the marketplace will fill in the gaps as
6 consumers make choices and as the retailers
7 decide what's in their best interest and what
8 consumers will buy. But I don't think these are
9 impossible problems to deal with, myself. And I
10 think the longer we wait the more the science is
11 going to -- and marketing issues are going to
12 leapfrog us. And the rules and regs that we have
13 on the books in the past are going to be less and
14 less relevant to deal with these issues.

15 Now I want to mention one other issue
16 because Kathleen Merrigan and I did a joint op-ed
17 almost a year ago in the "Los Angeles Times" on
18 the issue of GMO labeling. And it's -- I'm not a
19 fan of mandatory labeling but there is no
20 question that, when we created the Organic
21 Standards Act we did, for process purposes, said
22 that organic products were GMO-free. I recognize

1 that, as we analyze these crops, it will be
2 harder and harder, and they can't be 100 percent
3 free in the purest sense of the word, but we try
4 to make them as free as possible.

5 Many Americans would like to know more
6 about what they eat, including whether the food
7 they purchase contains genetically modified
8 organisms or GMOs even though by and large they
9 do not relate to the health and safety of the
10 products, in my view. On the other hand, people
11 still like to know what's in their product, in
12 their food, much more than they like to know
13 what's in their Lipitor or in their other
14 medicines that they're taking. Because that's
15 kind of the simplicit stuff that, if the doctor
16 gives it to you, then it's good for you. And
17 consumers' choice on food is cultural, it's
18 historically much different than that.

19 So you see these valid initiatives all
20 over the country, bitter fights, should be label,
21 should we not label. And I understand the
22 concern that's out there, but there is a way

1 already to ensure the foods they purchase are
2 free of GMOs. Now I'm not saying it's a perfect
3 way. During the Clinton Administration we were
4 responsible for implementing the Organic Food
5 Production Act. One of the implementation
6 decisions that had to be made about the law after
7 its passage was whether GMOs could be used in
8 organic food. After receiving nearly 300,000
9 public comments during the rulemaking process,
10 and after kind of a jerky start to this whole
11 thing, we said "no." That means that food
12 certified as organic are also GMO-free.

13 So why aren't consumers aware of this?

14 Some are. But it's certainly not on the package
15 in most cases, because producers of organic food
16 are effectively banned from letting them know
17 right now. Personally, and I can't speak totally
18 for Kathleen, although she's left the department,
19 I don't want this labeling issue to be used as a
20 ruse to prevent GMOs and the science of genetic
21 engineering from going forward because that would
22 be a serious mistake. But the public through

1 their letters and the Congress made it clear that
2 organisms that belong in food with an organic
3 label should be not -- have no GMOs in them.

4 For more than a decade organic
5 farmers, ranchers and food processors have been
6 subject to rigorous annual inspection to ensure
7 they are in compliance with national organic
8 standards. The scrutiny is carried out by agents
9 accredited by USDA but responsibility for
10 overseeing food labeling lies with another part
11 of USDA, along with the FDA. And they have, for
12 the most part, although Secretary Vilsack has
13 opened the door to all of this in a very dramatic
14 way and a positive way, but there has been a
15 rejection of petitions by organic food producers
16 who want to label their products as GMO-free or
17 produced without the use of GMOs. Now again,
18 it's required to be certified as organic.

19 Okay. So absent something along this
20 line we continue to have these really high
21 expensive fights on labeling that I -- you know,
22 I personally think it's unproductive but I

1 understand why it's taking place. I personally
2 believe that some of the energy around GMO food
3 labeling would dissipate if the federal
4 government honored the original deal we struck on
5 organic food and allow producers to label their
6 products as GMO-free. I recognize that the
7 definition of GMO-free and contamination of
8 products may make this somewhat complicated. On
9 the other hand, it's still the rule.

10 And resistance by the government to
11 this seems somewhat inconsistent given that one
12 branch of the agency enforces the organic rule,
13 including the GMO prohibition, while down the
14 hall another rejects labels submitted by organic
15 companies. For many years the agency said this
16 was because it had no way to verify such claims.
17 Thanks to Secretary Vilsack who issued a
18 memorandum earlier this year directing all USDA
19 agencies to recognize the department's organic
20 standards, the verification objections are dying
21 down. But now, of course, there's a debate about
22 what the label should say, who ultimately should

1 do it, whether it should be a non-GE label versus
2 a GMO-free label, and I'm not smart enough to
3 tell you exactly how this will happen.

4 But this seems to be an area where
5 industry and government can work together to find
6 ways to get something like this done, ways to
7 either both prevent cross-contamination of
8 product, of crops, and at the same time provide a
9 justification so that a GMO-free label, or
10 something equivalent can be put on organic food
11 so it will quell, in some degree, this massive
12 push for national labeling of all foods, which I
13 personally think is a mistake. Mandatory GMO
14 labeling of all food will arouse passions on both
15 sides of the issues and it's not a subject for
16 coexistence, I can tell you right now.

17 While it may not satisfy all GMO
18 labeling advocates nor be welcome by all leaders
19 in the biotech industry, allowing a GMO-free
20 label provides more choice in the marketplace for
21 -- GMO-free organic label provides more choice in
22 the marketplace in response to the demands of

1 millions of American consumers in a practical and
2 common sense way. I think the trick on all of
3 this stuff is to recognize that we've got --
4 there's more than one way to skin a cat here.
5 And that the public has an increasing demand for
6 organic foods but we're not going to feed the
7 world with organic foods, you know. It's a
8 subset of the population. And we don't want the
9 tail to wag the dog unnecessarily in this regard,
10 either.

11 So can we come up with some kinds of
12 solutions that make sense, that don't require
13 either side, so to speak, to capitulate and can
14 move our regulatory process along? What I think
15 is going to happen is, if nothing happens in the
16 regulatory process, I think the market will just
17 pass this by. The science and the market will
18 make the regulatory systems less relevant. And
19 so in that -- it may or probably won't protect
20 consumers very well in the process.

21 So I end with those thoughts.

22 Fortunately I'm out of government, I don't have

1 to make any of these decisions myself. I'm not
2 getting paid for this speech, I want you to know
3 that, so -- as you can see, nobody would pay me
4 for this speech anyway because I haven't made
5 anybody happy in this process.

6 (Laughter.)

7 MR. GLICKMAN:

8 But you know, my theory of government is
9 the same as Tom Vilsack's theory of government, I
10 think. We want this thing to work. We want --
11 and we want a growing marketplace for farmers and
12 ranchers and producers and retailers to grow
13 their business. And you know, when you look at -
14 - I think Tom may have talked about this, when
15 you look at the aging of the farm population and
16 when you look at the entrepreneurial
17 opportunities, as I started my remarks, there
18 really are different strokes for different folks
19 and we ought to be encouraging that.

20 So with that I thank you very much for
21 listening to me, and delighted I'm back with some
22 of my friends in the agricultural world. Thank

1 I think the labeling genie is out of the box.
2 And what that means is that labeling will not be
3 restricted to something that just says "not GMO."
4 Then I expect there will be labeling that says
5 "virus free," "fungus free," "fungicide free,"
6 "pesticide free," "hemolytic E. coli free,"
7 "Anthrax free," "botulism free," "no animal
8 manure used on this product," "no migrant labor,"
9 "no student labor," and "no animals have been
10 harmed in the production of this crop."

11 MS. DILLEY: Did you have a question?

12 MR. GLICKMAN: I think that's his
13 question, that labeling leads to all different
14 variations on the theme, is what you're saying.

15 I think an intelligent population and
16 hopefully an intelligent government and
17 regulatory system can draw lines, however. I
18 don't think that we're necessarily obligated to
19 do all those things that you're talking about.
20 I've heard that argument before, it's the old
21 "New York, New York" argument, if you can do it
22 here, you can do it everywhere, so to speak. And

1 I just don't buy that myself.

2 DR. SEDEROFF: We shall see.

3 MR. GLICKMAN: We shall see. Thank
4 you very much.

5 DR. KUZMA: Yeah, hi, I just wanted to
6 comment on the last point about labeling and how,
7 if we label -- I mean, I honestly don't know
8 where I fall on the issue of mandatory labeling,
9 so that's my bias. But I have thought about it
10 and we did do a survey with consumers -- this
11 isn't published yet -- but where we asked the
12 question a little bit differently. Instead of
13 asking them do they want labeling or not, we gave
14 them a list of the twenty things and said choose
15 three that you want to see on a label. And I was
16 surprised at the results that GM actually rose
17 to, I think it was the second or third, and I can
18 go look at that, behind pesticides, was the first
19 one. So I think the policy argument that we
20 cannot label for everything therefore we
21 shouldn't label for something like GM foods, I'm
22 not sure if it's the best counter-argument to the

1 labeling debate.

2 So I just wanted your -- you know,
3 just to follow up to this point. I just wanted,
4 you know, your thoughts on that.

5 MR. GLICKMAN: I agree with you more
6 than I agree with him. But I would say this,
7 that the problem with mandatory -- anything
8 that's mandatorily labeled has to be something
9 that's, in my judgment, the evidence is quite
10 substantial or a preponderance that it impacts
11 consumers' health or safety or is otherwise
12 critical to their livelihoods. And that's why a
13 lot of these things he said, they're nice,
14 they're interesting, and you can have companies
15 that produce crops that don't use labor that's
16 uncompensated or that kind of stuff. But as a
17 general proposition you have to make some choices
18 in life and the choices have to be ones that
19 impact, I think, health and safety of a consumer.
20 And nutritional labeling we've decided impacts
21 their health. So I would say, you know, it's a
22 policy issue.

1 DR. KUZMA: Yeah.

2 MR. GLICKMAN: What's going to happen
3 to this issue is that, if consumers demand it,
4 then the Wal-Mart's of this world will start
5 requiring it. And if the Wal-Mart's require it,
6 it will become a standard because they sell 23
7 percent of the food in the United States. I
8 don't think that they're going to go to that
9 point unless there is just a massive groundswell
10 and I don't see that happening certainly right
11 now.

12 DR. KUZMA: But I appreciated your
13 comments. I just thought I'd add that bit of
14 information.

15 MR. GLICKMAN: Sure.

16 MS. DILLEY: Make it one more quick
17 question.

18 MR. GLICKMAN: Yes, sir.

19 DR. ZILBERMAN: I think that one of
20 the things that we have is that there is this
21 assumption that there is a very strong consumer
22 awareness about what's going on. Recently about

1 80 percent of the consumer wanted that we would
2 label foods that contains DNA. So to some extent
3 I think we really have recognize about some
4 criteria that we have to use beyond the consumer
5 because people use the consumer in order to
6 further their own interest.

7 Obviously we have several camps that
8 want differentiated products. From the
9 perspective of -- it's great if rich people pay
10 more for an organic product even if there is no
11 scientific base for it. But the question is, how
12 can the government develop some sort of standard
13 that allow poor people who don't care about all
14 this stuff to buy McDonald's without feeling
15 guilt about it? To me the key element of their
16 coexistence is not between organic but between
17 rich and poor. And now satisfying the rich would
18 make the --

19 MR. GLICKMAN: Well, maybe the ideal
20 of the coexistence is the gap between Democrats
21 and Republicans. But you know, Cathy is here and
22 Cathy is obviously very keen to answer this

1 stuff. You know, I mean, I suppose ultimately in
2 the United States the ultimate arbiter of this
3 would be the United States Congress. They
4 ultimately make the decisions to pass the laws,
5 to decide issues like do you need something
6 labeled or not, and in the past they've done it
7 on fairly narrow circumstances. Nutrition
8 labeling was one of them, and they've also
9 provided authority to the FDA and USDA and
10 regulatory agencies in limited authorities. So
11 the Congress is not going to go down this road if
12 they don't think that there is a scientific basis
13 for it, and there is strong political support
14 across ideological spectrums. That's the great
15 protector of this issue.

16 The trick is in the future, because
17 notwithstanding Congress, I still have confidence
18 that on a lot of these issues they will step up
19 to the plate on this. The real trick is that, is
20 the science moving so rapidly and is consumer
21 demands and is the use of these things moving so
22 rapidly, and information moving so rapidly that

1 the regulatory process can't cope with it at all?
2 In which case you get 1000 flowers to bloom but a
3 lot of those flowers may stink and not be very
4 good. And that's why you do still need I think
5 effective regulatory authorities by the agencies.
6 And by and large, I think they do a good job,
7 given the circumstances of what they have to deal
8 with.

9 MS. DILLEY: Thank you very much.

10 MR. GLICKMAN: I think that's it.

11 Thank you all very much. Appreciate being here.

12 (Applause.)

13 MS. DILLEY: So Lynn, do you want to
14 take just a couple of questions? And as Lynn is
15 responding to maybe a couple of questions, if we
16 could have the panel members for the next panel
17 come up, and then I'll turn it over to Catherine
18 Greene who will be moderating that panel. But
19 any -- again I think there are lots of
20 suggestions that you put forward in terms of
21 fostering coexistence and reducing market
22 disruption.

1 MR. CLARKSON: Thank you.

2 MS. DILLEY: And food for thought, and
3 we have a question.

4 MR. DILLON: Well Lynn, first of all,
5 great presentation. A lot of really good
6 information in there, and points, and I think
7 looking at things from a -- you know, you stand
8 in a place where you really are seeing the
9 multiple markets and the multiple types of
10 producers, so I really appreciate your
11 perspective as always.

12 I do have a question, though, on your
13 recommendation that in terms of labeling, we have
14 the USDA or some federal agency oversee a non-GMO
15 labeling process. My question for you is, as a
16 food producer, let's say I work for General Mills
17 actually, instead of working for Clif Bar. Let's
18 say I work for General Mills and I'm moving some
19 of my cereals that General Mills has into non-
20 GMO. And the federal government is testing,
21 let's say that they are requiring me to test to
22 0.9 percent.

1 What happens when we have a
2 particularly bad year with corn pollination where
3 it's a cooler season and the pollination period
4 lasts longer and isolation via timing doesn't
5 work quite so well, and suddenly we have an
6 increase in adventitious presence of GMO traits
7 in non-GMO corn. What happens when I can't buy
8 enough non-GMO corn in the marketplace and now
9 suddenly I can't change my packaging, I don't
10 want to do that every 12 or 18 months, what do I
11 do with my product line? Do I simply not put
12 SKUs on the shelf? I mean, do you have any
13 thoughts on how that type of a process would work
14 given that there are bound to be times when
15 there's a bottleneck in the supply because of
16 biological events in the field?

17 MR. CLARKSON: You bring the answer
18 back to a favorite word of lawyers, "reasonable."

19 MS. DILLEY: Favorite what?

20 MR. CLARKSON: Favorite word of
21 lawyers, keeps them busy for many years. It's
22 defining the word "reasonable."

1 So if you had a rule that said, under
2 the following situation when an entire industry
3 is impacted rather than just a particular company
4 then we will flex the rule. Now you have to have
5 a body of people, or it built into the rule, what
6 kind of determination you have on how much
7 flexing you will allow. But you bring up a
8 problem right now with a hard and fast rule
9 conceptually, you'd be out. I know that the non-
10 GMO project has tried to put in a flex standard
11 if the entire industry was affected, I think
12 that's probably a reasonable way to go.

13 MR. DILLON: Yeah, as a private label,
14 the non-GMO has been able to do that. But if it
15 was a government label wouldn't consumers have
16 cause to say, well this is a government label and
17 I'm expecting this 0.9 percent and now you're
18 selling me products that are not 0.9 and the
19 consumers would lose confidence in that
20 government label, if not sue to --

21 MR. CLARKSON: The one study I've seen
22 on this which was done by a couple professors at

1 food institutes in the midwest came down on
2 private labels satisfying many of the concerns
3 but government labels satisfy more of the
4 concerns and are more trustworthy. When I
5 pointed out to you that currently on the private
6 label standard we see that one of the leading
7 groups growing so rapidly, they're passing out
8 confused messages. That's a little hard to
9 correct. I would think that the government would
10 not be so apt to provide mixed messages. I could
11 be wrong, but the studies I've seen would give
12 the nod to the government over private for
13 consumer confidence. The government, too, could
14 build in some flex, I suspect.

15 MS. DILLEY: If we could take one more
16 quick question from Nick and then we'll move on.

17 MR. CLARKSON: Hi, Nick.

18 DR. KALAITZANDONAKES: Yes, hi, Lynn.
19 Thanks for all of this.

20 But I think I want to really follow up
21 a comment that I think Errol made a little bit
22 earlier, and the question that was just being

1 asked. So if I am a buyer of non-GMO products
2 and come to you and I say I would like to
3 increase my purchases by say 300,000 acres, and I
4 want to do over the next two years, three years,
5 would you not be able to do it?

6 MR. CLARKSON: No, we would be able to
7 do it but the answers come from several
8 perspectives. I would have to ask you where do
9 you want your stuff originated? Do you mind
10 foreign sourcing or do you want all domestic
11 sourcing? I would be keenly interested in what
12 your tolerance level was to do that. Right now I
13 think there's probably enough seed available,
14 there are niche market seed companies coming in
15 that focus strictly on the GMO issue, they're
16 doing a pretty good job with controlling
17 tolerance levels in their material. So I think
18 there's enough room there for a 300 or 500,000 or
19 even a million or acre flexibility.

20 DR. KALAITZANDONAKES: I mean, I was
21 asking exactly that question. Okay, thank you
22 very much.

1 MR. CLARKSON: You're welcome.

2 MS. DILLEY: So Catherine -- there you
3 are. I'm looking -- every time I look toward the
4 light I can't see anything. Maybe that's a
5 metaphor for something, I don't know. But I'm
6 going to turn it over to you.

7 MS. GREENE: Hi, Cathy Greene from
8 USDA's economic research service. We have a
9 great panel here today. Obviously a lot of
10 different views and we're going to go fast. Each
11 speaker is going to have eight minutes to present
12 some ideas and then we're going to have hopefully
13 a half an hour to discuss with the audience.

14 And the first person up is going to be
15 Ron Moore with the American Soybean Association.
16 He grows conventional and biotech crops and I'm
17 sure has a lot of interesting things to say for
18 us.

19 MR. MOORE: Well, thank you. It's a
20 great opportunity to be here. I thank USDA for
21 inviting me here.

22 Again, I'm Ron Moore. I'm a farmer in

1 western Illinois, I grow soybeans, corn and
2 alfalfa and I've been involved in the agriculture
3 industry for several years. Former chairman of
4 Illinois Soybean Association currently serving as
5 the Secretary of the American Soybean Association
6 board of directors and have worked in -- on the
7 Illinois Council for Best Management Practices
8 trying to promote good stewardship of the land
9 through farmers in Illinois.

10 I've been asked to talk a little bit
11 about biotech and why we use biotech for weeds
12 and pests, weather stress, yield and
13 profitability. And one thing that I've worked on
14 quite often in the last decade is sustainability.
15 Oops, let me get my pages right here.

16 Weeds and pests on our farm, we've had
17 lots of issues with resistant weeds ever since I
18 started farming in 1977. When I started farming
19 we moldboard plowed every acre, buried the
20 residue and turned the soil black. With the
21 advent of no-till we left more residue on top of
22 the ground and it did help suppress some of the

1 weeds but we ended up in the 1995 having a weed
2 that we couldn't control with conventional
3 herbicides. It was called tall water hemp. And
4 so when the Roundup ready system became available
5 we put 100 acres in that field that was -- we had
6 the resistant weed and then it controlled that
7 weed. So the next year we put in 300 acres,
8 Roundup soybeans, and then we also after that
9 we're all 100 percent Roundup soybeans or
10 glyphosate resistant.

11 We had a pest in our corn that when
12 they came out was a rootworm, and I used to out
13 insecticide on every acre. If I planted -- back
14 in late 1990s, if I had planted the same number
15 of acres then that I do now I would have had to
16 handle 15,000 pounds of an insecticide to control
17 the rootworm. If you don't control those pests
18 they chew on the roots, eat the roots and it
19 reduces the ability to the plant to take up
20 nutrients, water and nutrients.

21 We try to keep the plant as stress
22 free as possible. Some of the things that also

1 are weather stresses, they're developing some
2 drought-tolerant herbicides now. Some of them
3 are through the GM process, some are through the
4 conventional breeding process. When we put the -
5 - use the rootworm gene in the transgenic corn it
6 increased our yields 12 bushels to the acre. Now
7 that may not seem like a lot but it was a
8 significant amount that we continued to use those
9 traits.

10 We do talk about sustainability
11 briefly. As I said, we moldboard plowed
12 everything when I started farming. When I was in
13 high school my father and I and my brother put in
14 a tile drain or tile outlet to drain a seepy spot
15 on a hillside. I was there when the contractor
16 put the drain in. Five years later we had a
17 problem with that tile line, needed to dig it up
18 and repair it. We couldn't find the outlet that
19 outletted into the stream. I know it was there,
20 I saw it get put in, I saw the guy out running
21 the backhoe cover the dirt up. We finally had to
22 get him to come in and dig across the tile

1 outlet, we found it three feet below where it was
2 originally placed.

3 Because the hillside had eroded to the
4 point where it had -- the grass waterway had
5 captured the silt but it was three feet deeper
6 than it should have been. So using biotechnology
7 derived crops has allowed us to use no-till to
8 preserve our natural resources, which is the soil
9 and the nutrients that I've applied on it to
10 continue to be profitable.

11 Just a -- this slide is just a recap
12 of what I talked about. But we do have
13 challenges with biotech. We have weed
14 resistance, we're currently having some issues
15 with Palmer amaranth and some mare's tail and
16 giant ragweed that are resistant to the
17 glyphosate, or they -- the glyphosate doesn't do
18 as well as it used to. And so we've had to go
19 through different modes of action and to control
20 those weeds because if we go back to no-till --
21 go back to moldboard plowing we'll end up with
22 more soil erosion, more nutrients into the water

1 systems of the United States.

2 But the problems that we come up with
3 also include some of the regulatory issues and
4 approvals for both international and domestic
5 approvals. China's approval process has become
6 less transparent and we're just challenged always
7 to make sure that our seed that the tech
8 providing companies are producing meets the
9 requirements that those countries have. And so
10 timely approvals is extremely important for a
11 whole multitude of either new traits that are
12 being put out or traits that you have multiple
13 stack genes on top of another gene, where you
14 have herbicide tolerant gene versus an insect
15 resistant gene.

16 And we've worked very strong -- very
17 closely with the American Seed Trade Association
18 in trying to make sure that the commercialization
19 of these new traits is in a timely manner and not
20 before they're approved overseas. And again,
21 there's an issue of the global market acceptance
22 of biotech. We heard a lot about it today and I

1 want to make sure that we continue to have that
2 conversation and dialog with consumers here in
3 the United States and also overseas.

4 We talked a little bit about anti-GM
5 and I'm stepping out on a limb here. For
6 retailers to talk about one production system
7 over another as being the gold standard
8 disparages the production system that I use. And
9 I don't think that's a -- conducive to having a
10 conversation about coexistence. When we do have
11 that conversation about coexistence, farmers are
12 using technologies to reduce our drift so we
13 don't go having our herbicides sprayed on another
14 and be off-target, offsite. We use precision
15 agriculture tools to make -- to ensure that.

16 I mentioned about the working with the
17 American Seed Trade Association. The American
18 Soybean Association is supportive of voluntary
19 labeling, we think that's -- that the consumers,
20 if they would like to know what's in their food
21 they have that ability to find that information
22 through a voluntary label. We're very much in

1 favor of consumer's choice.

2 I'm a businessman, I make my decisions
3 based on what I can -- the income that I can earn
4 off my farm. I've all got bills to pay, I've got
5 a mortgage to pay. If the market says that they
6 want non-GM corn and soybeans and farmers will
7 respond to that market signal. But until those
8 signals are put in place why we'll continue to
9 use the biotech traits that we have.

10 I look forward to your questions.

11 (Applause.)

12 MS. GREENE: Thank you, Ron.

13 Our next panelist -- and again we're
14 holding questions until all six speakers have
15 gone and then we'll have Q&A with you all.

16 Our next speaker is Jim Zimmerman. He
17 is also a farmer with the -- in Rosendale,
18 Wisconsin and he's with the National Corn Growers
19 Association, on the Corn Board. So thank you.

20 MR. ZIMMERMAN: Thank you.

21 Thank you for allowing me to
22 participate in this panel here today. And yeah,

1 my name is Jim Zimmerman, I'm from Rosendale,
2 Wisconsin and it's there where, you know, we grow
3 corn, soybeans and wheat on a multi-generational
4 family farm. And we also do some grain
5 merchandising, too. And also, I'm a member of,
6 of course, National Corn Growers Association.

7 And when we're talking about
8 coexistence we know it isn't something that's
9 new, it's been around for a long time, right
10 since when the land was plotted and the fences
11 went up. So it's been working for a very long
12 time. But it requires, you know, a solid
13 foundation on communication and that has to
14 happen between the neighbors there. And of
15 course, the fence line is the key and land owners
16 and growers, you know, have to be on the same
17 page with that. And one of the central tenets is
18 that grower producing the value-added product has
19 a responsibility to maintain that value.

20 Now before corn planted was -- before
21 it became 93 percent of the crop GE, you know, a
22 few years back, NCGA developed a identity-

1 preserved cost calculator and that was done so
2 that -- to develop a business model for growers
3 so that they could better understand what the
4 cost structures were to obtaining and maintaining
5 certain purity levels. But one of the things
6 that come out of that is that, you know, that it
7 -- to maintain these different levels, if it's
8 easy the value was going to go away and it wasn't
9 going to amount to much. So you know, in looking
10 at those costs you can identify with how hard
11 some of those practices are or we're going to be
12 relative to what it would mean for our value or
13 what you would need for our value to properly
14 manage that.

15 When we look at the economics of
16 different coexisting strategies -- and again,
17 communication is the key and we know that it has
18 minimal impacts if we have very good
19 communication. Now I have a neighbor that grows
20 organic sweet corn and he didn't start that
21 lightly or easily but the first thing he did was
22 communicate with his neighbors. And the first

1 thing I did is get in touch with him and give him
2 an idea what our rotation would be and give him
3 some backup plans, things he could do to adjust
4 for what we were doing on our side of the fence.

5 When we look at physical buffers we
6 know that they have very straightforward impacts
7 as far as the economics go. You know, the grain
8 that's grown in those buffers usually goes as
9 commodity grain and not a value add. But it
10 should be well understood that that should be
11 part of the original business plan and that
12 should be calculated in.

13 When we look at temporal buffers it
14 depends on geographies as far as their economic
15 impact, temporal buffers work very well when
16 there is a longer growing season and that
17 maturities for different species of crop or corn
18 that you're growing wouldn't be affected. Now
19 you get into northern growing regions that
20 they'll have a different economic impact. And
21 also, too, when we look at rotation there's
22 variable impacts with that in regards to that.

1 If the neighbors do see a point where they can go
2 to their second crop some of those impacts will
3 be variable in case by case.

4 When we look at contract thresholds
5 that also, you know, looking at it on a case-by-
6 case scenario, we know that that can lead to
7 unknowns. And that happens particularly when you
8 have an oversupply of production or of a value-
9 added product likewise. And it's where buys can
10 then become more choosy about what they want.

11 We look at some of the gray areas with
12 coexistence. We know that in these contract
13 thresholds that the grower needs to know
14 precisely, you know, what it's going to take to
15 produce 100 percent of purity or every level from
16 that. And also, you know, the idea of
17 standardization, is there an opportunity to have
18 a certain level out there that's known, that's
19 workable for a certain level of purity? And when
20 we look at different geographies, we know with
21 the diverse agriculture that we have, we know
22 that there is many more different value-add or

1 different production systems that go on in
2 certain areas. And so when you look at those
3 areas compared to others it's going to be a
4 geographical difference or an effect on those
5 different production systems.

6 What I mean by that is, there are
7 certain areas around the midwest or the country
8 in which there might be four or five or six
9 different types of value-add systems going on.
10 It might even be as simple as a launch zone for a
11 new product introduction versus, you know, a zone
12 where it's a non-launch for that. So there is
13 competition for different value added production
14 systems.

15 When we look at a gray area here for
16 testing we know that market conditions can make
17 for some differences there, too, in regards to
18 some rejections and that's largely comes from the
19 fact that, you know, we can't predict the weather
20 and we can't predict the size and quality of the
21 crop that's being produced. And this is
22 something that I learned a long time ago, you

1 know, in regards to producing a value-added crop,
2 did that on a smaller level.

3 And as we were delivering this value-
4 add, and it was a distance to travel to make this
5 happen, but the one frequency that I noticed --
6 or that we noticed, I should say, is that as the
7 vessels or containers got full the rejections
8 seemed to increase. And you'd say, well, if that
9 just happened one time maybe you've got a problem
10 in your bin. But when you recognize -- see it
11 happen, the pattern repeat itself you'd say,
12 well, I don't -- you draw your own conclusions.
13 But what it told me was is that somebody who was
14 closer to that actual destination point had a
15 competitive advantage and they could identify
16 when was a better time to deliver in that
17 delivery timeframe. And somebody being 150 miles
18 away doesn't have that. So there are
19 differences, there are gray areas as far as
20 coexistence goes.

21 And that's all I have. Thank you.

22 (Applause.)

1 MS. GREENE: Our next speaker is Dr.
2 Kalaitzandonakes -- mispronunciation alert.

3 (Laughter.)

4 MS. GREENE: So he's going to give us
5 some really interesting survey research that he's
6 done at the University of Missouri. He's been
7 doing this research on biotech and coexistence
8 for at least a dozen years because that's how
9 long I've been reading his papers.

10 DR. KALAITZANDONAKES: Thank you.

11 Thank you very much, first of all, for
12 including me in this gathering. And I certainly
13 appreciate the opportunity.

14 The chairman of AC21 earlier this
15 morning talked about lack of data and I would
16 want to use my eight minutes to kind of give you
17 some data points that might be useful for our
18 discussion in this panel. I will do it very
19 quickly, I will flash a number of tables and
20 graphs in front of you. There is a printout, we
21 have a lot more data that we'll show you but I
22 hope that at least will generate some points of

1 discussion. As Cathy said, this all has come out
2 of our latest three surveys that have been done
3 in the last 18 months and everything is
4 nationally representative sample.

5 So very quickly, who is known GMO
6 grower? And we have looked at the number of
7 demographic factors and farm characteristics to
8 kind of understand if there are significant
9 differences. I will show you only a couple of
10 tables but the bottom line result is that really
11 there are no significant demographic or farm
12 characteristic differences between known GMO
13 farmers, other IP farmers and IP -- I mean,
14 identity preserved specialty crop and commodity
15 farmers. They are not larger or smaller, they
16 are not younger or older, they are not more
17 leveraged or less leveraged. They are not more
18 educated or less education than commodity
19 growers. As a matter of fact, one of the most
20 interesting aspects is that most of them, most of
21 the known GMO growers are commodity growers in
22 that they have some of their acres into known GMO

1 production. They also have in some cases some of
2 their acres in other specialty crops, but they
3 also produce commodity crops themselves. And so
4 the key takeaway out of all of this is that known
5 GMO growers actually manage to coexist first and
6 foremost within their own farms.

7 This table is a little busy and we
8 have lots of information about what defines a
9 farm to be well suited for known GMO and IP
10 production. But the bottom line is you wouldn't
11 be surprised that known GMO self-select
12 themselves to be such because they feel that
13 their farms are well suited. What is more
14 surprising, however, in this table is that many
15 commodity growers also think that their farms are
16 well suited for production. And I'm using this
17 to drive the point that there is actually a lot
18 of latent supply in as long as premiums are high
19 enough. And that's why I posed the question
20 before to Lynn to some of these numbers. In
21 other words, how much flexibility is there in the
22 system if we want to bring additional acreage in

1 production as market demand picks up.

2 Okay. Now let's move to an issue
3 about perceived constraints on growth. So the
4 questions that we have asked relate to if you're
5 already a known GMO grower and we want you to
6 increase your acreage, your known GMO acreage a
7 lot to a very large number, how many constraints,
8 what kind of constraints do you face? If you are
9 a commodity grower what type of constraints do
10 you face?

11 And again, a busy table, but what I
12 want to point out out of this table is that there
13 is not a single factor that jumps out on you that
14 says this is the factor to, in essence, remedy.
15 And this has important implications both for
16 market initiatives but also policy. In other
17 words, if you are going to target something what
18 it is that you're going to target and what kind
19 of efficiency you're going to have in terms of
20 the outcome. Because there are a lot of
21 different factors that influence a lot of
22 different farmers very differently. And that's

1 important to remember.

2 Okay. We talked a lot about
3 coordination and communication over the fence and
4 we asked both IP growers and known GMO growers
5 how much they talk to their neighbors, in what
6 ways they talk to their neighbors, what kind of
7 information they exchange. As you can see there
8 is a lot of that kind of coordination that does
9 take place and many of the factors relate, of
10 course, to what is being planted, when it's being
11 planted and so on. And so there is quite a bit
12 of that happening. If you look at the difference
13 between known GMO growers and other IP growers
14 you can see that very little is different except
15 in the case of when the neighbor plants, which
16 speaks to the issue of temporal isolation as a
17 coexistence strategy.

18 Now the next issue I want to touch is
19 a bit on the cost of known GMO programs. And as
20 Cathy said, we have gone around this issue for a
21 number of years and we have gone around this
22 issue with a number of different methodologies.

1 We've done simulations, we've used market
2 evidence, we have done budgeting approaches.
3 What this approach does is basically, there's a
4 little bit of what you just heard from the two
5 growers that spoke ahead of me. We use in
6 essence a methodology called choice experiments
7 to ask, in essence to find out what it is that
8 you need to pay growers for what kind of
9 activities in order to participate and therefore
10 get a sense of what goes into the cost of known
11 GMO programs.

12 And what I want to point out is that
13 such things as delivery and storage, distance to
14 the delivery point and tolerance levels alone,
15 those factors account for about 70 percent of the
16 premiums that are being paid. And so back to the
17 issue that the growers brought up, these are pure
18 costs, they have to do with the cost of doing
19 business and it's very difficult to work
20 irrespective of what kind of coexistence policy
21 you have because this has just purely to do with
22 how you do business in this particular market.

1 Now there is a lot of discussion about
2 how often do we have product failures? How often
3 do we have rejections? And there has been very
4 little or no existing evidence on this. We have
5 asked some, in our surveys some questions around
6 this. We also have done some work with known GMO
7 programs around the country using their testing
8 programs to kind of buck up some of the numbers
9 that I will show you. But in the surveys we
10 asked known GMO growers and other IP growers how
11 often have you delivered something and it has
12 been rejected by your buyers over the last five
13 years? And the numbers that you see there is
14 what they declared.

15 Then we asked them why were you
16 rejected? And so there are a number of factors
17 that might go in, quality, you know, whatever
18 other factors except non-GMO. Non-GMO accounted
19 for about 25 percent of the cases. And the
20 producers had the opportunity to put in whatever
21 those factors were. So when you actually look at
22 the numbers, what that basically says is about

1 ten percent of all the growers over a five-year
2 period had at last once been rejected by a
3 supplier. So if you take that and you average,
4 per year is about two percent. So two percent
5 incidence is what we think is this survey said.

6 This is actually fairly consistent
7 with the type of numbers we have received from
8 known GMO programs around the country which vary
9 between one and three percent. But Lynn runs a
10 very successful one and so, you know, we hope
11 that you can provide some additional information
12 on this. So that's with respect to incidence of
13 rejection.

14 Now let me show you my last slide.
15 And we use a number of sophisticated statistical
16 methods that go into the estimation of a supply
17 function like this. Basically you can look at
18 this as just a -- how much flexibility there is
19 into the market in terms of increasing acreage,
20 known GMO acreage if you increase or decrease
21 that premium that you pay. And so you can see
22 the premium that farmers receive and you can see

1 the number of acres or share of acres, how that
2 values. And what I want to point out is that,
3 from an economist's perspective this is a very
4 elastic market. That means it responds pretty
5 quickly to increases in premiums. As a matter of
6 fact, what you see is with 50 percent increase on
7 the premium I get double the acres. So from my
8 perspective this kind of market isn't indicative
9 of a particularly restricted market. The -- I
10 would say the opposite.

11 So let me leave you with these
12 thoughts. I hope I didn't go over my eight
13 minutes. I want to acknowledge the funding, the
14 United Soybean Board and U.S. Soybean Farmers
15 funded these studies and so I want to appreciate
16 that.

17 Thank you.

18 (Applause.)

19 MS. GREENE: Thank you.

20 Our next speaker is going to be Laura
21 Batcha and she's been at the helm of the Organic
22 Trade Association for a number of years now. OTA

1 has also done some really good work on the
2 coexistence issue.

3 MS. BATCHA: Thanks, Cathy. And I'm
4 going to try this from here. I think if I reach
5 over I can see where I am on my slides and we'll
6 give this a try.

7 I'm Laura Batcha with the Organic
8 Trade Association and we represent about 7000
9 certified organic operators across the entire
10 supply chain, everything from single owner-
11 operator growers to distributors and retailers
12 and publicly traded companies. So the whole
13 gamut in the organic space. So while I would try
14 to address some questions around the economic
15 impacts of coexistence at large, my area of focus
16 and expertise is specifically on the organic
17 sector.

18 So I think I just want to ground in
19 sort of the definition of coexistence from the
20 Department of Agriculture that brought us here.
21 And again, it's about market preferences and
22 farmer choices and I'm going to try to address

1 this topic from that perspective. I do want to
2 sort of just make a clarifying point about the
3 elasticity in the market, additional constraints
4 for organic with three-year transition. We're in
5 a marketplace that doesn't respond that quickly
6 because we have unique regulatory requirements.
7 So just sort of keep that in mind in terms of
8 attributing data around identity-preserved non-
9 GMO crops to the organic space.

10 So what I've done here is tried to
11 identify some of the zones of conflict and some
12 of this is a redo from all those discussions we
13 had at the AC21. And Russell, our chair, did a
14 great job recapping those discussions. But
15 really one of the things that I think we came to
16 as a committee in our discussions is, it's not
17 just about organic and identity preserved crops
18 coexisting with biotech crops, it's also biotech
19 crops coexisting with biotech crops. And then
20 the dynamic between domestic and international
21 markets.

22 So as it relates to organic and

1 identity preserved crops and their coexistence
2 with biotechnology, oftentimes we see
3 particularly in the documentation on
4 commercialization of new GE traits or in this
5 debate itself, the recognition that the organic
6 standards are process space standard without a
7 threshold. So adventitious presence of genetic
8 material in and of itself doesn't disqualify you
9 from certification for the crop. But the reality
10 is what we're talking about in coexistence is
11 market preference and there is a default
12 threshold in the marketplace regardless of how
13 any of us feel about that. I think Lynn
14 articulated it, if you have to pick a number it's
15 .9 percent. And so that's a function of
16 international requirements, private standards in
17 the United States, and it has become the point at
18 which people trade, quite frankly, and it's
19 there. And that applies to organic in the supply
20 chain in most cases.

21 In terms of the discussions on the
22 conflicts between biotech and biotech, a number

1 of folks have discussed that a little bit. But I
2 think in our early conversations at AC21 we
3 started to get at this discussion and I think
4 Lynn Clarkson was sort of one of the
5 foreshadowers of what will happen in regards to
6 functional trades and asynchronous approvals and
7 acceptance in foreign markets. And I think we're
8 seeing through the courts and class action suits
9 that that's a real zone of conflict. How that
10 resolves itself, that's not my area of expertise
11 or particular concern from my stakeholder
12 perspective. But it is, I think, not to be
13 disregarded in this conversation in terms of
14 economic implications and how we manage
15 concurrent cultivation for preferences.

16 And on the domestic and international,
17 outside of the approvals and a lot of the work
18 going on there, I just want to say that as far as
19 it relates to the organic market we have just
20 begun to track the flow of goods in and out of
21 the country through a limited set of harmonized
22 system trade codes that have been established.

1 And one of the things that we're finding year
2 over year right now is these pressures of
3 coexistence continue to exist in the marketplace
4 without real movement towards solutions, are that
5 we're seeing increasing imports for organic
6 soybeans and corn coming into this country.
7 We're in supply shortages here, I think Errol
8 from Whole Foods spoke about that. But this year
9 alone we're seeing a 60 percent increase in
10 organic soybeans coming into this country. So
11 when you talk about that price differential at
12 \$30.00-plus a bushel for food grade soy, what's
13 the non-organic price, Lynn? Twelve?

14 (Off-mic response by Mr.

15 Clarkson.)

16 MS. BATCHA: Nine-fifty. Okay,
17 thanks.

18 So that's a differential premium that
19 is becoming really outsourced at this point in
20 organic production. And you know, we'd like to
21 see U.S. farmers take advantage of that value-add
22 here and find a way, while this discussion we're

1 having right now is not the only factor, I think
2 we know that for sure, it's definitely a co-
3 factor in a host of policy issues and production
4 issues related to it. So it's a zone of
5 conflict, at least from where my stakeholders
6 sit.

7 I'm going to talk about some of the
8 types of economic implications in the current
9 system and that's the title for our panel so I'm
10 going to try to stick to that a little bit. We
11 went around this at AC21. I think there's good
12 aggregated data out there that Cathy referred to
13 that the Trade Association brought forward a
14 number of years ago that's really about the
15 presence of GE traits in organic and IP crops and
16 the percent of times at which that exceeds this
17 .9 percent threshold and how that falls out. In
18 our AC21 discussions it kind of broke down, okay,
19 well it's there, but how do we know that there's
20 a consequence to the presence in the marketplace?

21 So I'm trying to walk us through sort
22 of the continuum of cost that might, you know,

1 accumulate through the production system related
2 to coexistence. One of them is production and
3 segregation costs. And we've talked about
4 buffers and delayed plantings and the costs
5 associated with that. And at least for organic
6 producers, the standards have requirements there.
7 And to date, the mandatory requirement for
8 absorbing those costs has been on the organic
9 producers in terms of their establishment of
10 buffers and maintaining the segregation through
11 the supply chain so that there's not comingling.

12 I'm going to refer to some data that
13 was compiled in a survey with some good work from
14 the Organic Farmers Agency for Relationship
15 Marketing, and John Bobbe's here with us in the
16 audience. If you have specific questions around
17 the survey itself I think we can do some follow-
18 up there, done in conjunction with Food and Water
19 Watch. But it was a survey of farmers done
20 across 17 states with 1500 farmers surveyed and a
21 19 percent response rate. And the farmers and
22 their surveyor identified the average cost of

1 those buffer strips to be about \$2500 in terms of
2 production value per year and delayed planting,
3 in terms of loss of yield, between \$3000 and
4 \$5300 per farm responding.

5 The next area is testing. And again,
6 Lynn talked a lot about this but again that
7 requirement about .9 percent in marketplace, if
8 you're just relying on the regulatory requirement
9 organic you run the risk of not having visibility
10 about whether or not your product's going to be
11 accepted when it gets to the elevator or to the
12 foreign port or wherever it's going, or to the
13 buyer and food maker. So there's testing going
14 on in the system and those tests can run the
15 gamut, Lynn identified that from the ELISA strip
16 tests which are much more affordable to the PCR
17 tests that get more expensive. In the O farm
18 survey the growers themselves identified about
19 \$200 on average in terms of tests.

20 And I'll just point out that, at least
21 for organic, because we're a full-value chain
22 process-based certification system, a finished

1 food product can have five, six, ten, twelve
2 testing points by the time that product gets
3 brought to market because there's multiple
4 ingredients coming from multiple sources
5 continuing to test down the line. And that's a
6 lot of requirement, a lot of verification going
7 on along the way.

8 In terms of price loss, I think this
9 is the area that some of the most important
10 discussion has happened. And there are
11 absolutely recorded incidences of these
12 rejections. And if you calculate out the size of
13 a truckload or the half size shipping container
14 that you fill with organic corn and soy and you
15 talk about the price differential between organic
16 corn in the marketplace and conventional corn in
17 the marketplace, one load rejected can, for corn,
18 cost a farmer between \$3000 and \$5000 and that
19 number is much higher for soybeans when you look
20 at those differentials. You're talking over
21 \$9000 in lost value in the rejection of one
22 shipment, in one load. That's one truckload or

1 one 20-foot container of soybeans. So those are
2 real costs.

3 And I appreciate that there's a value
4 out in the marketplace but I think it's important
5 to understand that one of the major reasons why
6 there's a value-add is because this is a hard way
7 of farming, to produce corn and soybeans without
8 herbicides. I think people shouldn't
9 underestimate actually how hard that is to do.

10 A couple more areas just quickly,
11 brand equity cost. This is where you become
12 associated with a zone that's hot, for example, a
13 geographic region where a lot of loads are coming
14 in over the shipment, and what does that do to
15 your business as a farmer, and your choices as a
16 farmer, as well as your reputation. And then
17 again, this is not my area but the economic
18 implications of what happens when trade starts
19 happening and approvals haven't cleared in other
20 countries.

21 So how do we prevent economic loss?
22 Because that's what I think we're here to

1 discuss. There's a lot of discussions going on
2 and USDA has put efforts behind this idea that it
3 happens farmer to farmer over the fencerow. And
4 I'll share my perspective on this, certainly not
5 to be disrespectful of these conversations that
6 do happen across the country but in many ways
7 it's an outdated concept. Number one, we have
8 very complex land ownership agreements and lease
9 agreements with multiple partners and it's not
10 always meeting at the coffee shop in town that
11 these issues can be resolved.

12 I think second, there are things that
13 farmers to farmers can't resolve if they don't
14 have transparency in the marketplace. How do two
15 farmers negotiate their delayed planting when the
16 root cause may be the level of seed purity that
17 any one of them is working off of to begin with?
18 You may not stand a chance, it may not have to do
19 with your delayed Planting, it may not have to do
20 with your buffer zones. It may have to do with
21 the quality of your seed that you're planting and
22 that may not be visible to the farmer and it may

1 not be something you can resolve with your
2 neighbors. So I want to sort of underscore the
3 limitations of that as an approach.

4 It looks like I've lost -- is that me
5 that's done that? I can carry on while they try
6 to figure that out.

7 The other area is voluntary versus
8 mandatory requirements. And I have a quote here
9 from USDA's ARS Stephanie Greene's work that she
10 did, and this is from a piece that was put out in
11 2011. "Since the first deregulation of GE
12 alfalfa, industry has been testing to
13 conventional seed lots for adventitious presence
14 of GE traits and has been detecting low level AP.
15 Levels as high as two percent have been reported.
16 This suggests that early proposed best management
17 practices may be insufficient to support
18 coexistence. Across the board the industry has
19 emphasized the need for further research and
20 refining strategies."

21 So this is an ongoing challenge we
22 have and we have to understand what's actually

1 happening in terms of gene flow. We have to get
2 to a point where we can put some parameters on
3 this because otherwise people are going to find
4 out when they have a problem later, we're losing
5 markets, we're losing zones, we're losing
6 reputation and incurring costs along the way. So
7 I think understanding the science of what's
8 happening is so critically important but we
9 really believe we can't get there unless we get
10 to a place where there are some mandatory
11 constraints. And that goes to my last area which
12 is the rewrite of Part 340.

13 And from our perspective as a trade
14 association we really think this is an
15 underpinning of all of this. Unless we can get
16 to a place where can apply good science to what
17 those stewardship practices need to be and the
18 Department of Agriculture uses its fullest
19 authority to condition approvals on those
20 stewardship practices, we're going to continue
21 going around and around on this. And we need to
22 get to a place -- I'll quote Lynn again -- where,

1 you know, let's strive for 50/50 on
2 responsibility on this. And I think looking at
3 Part 340 and the way that that can be used to
4 encourage and require non-GMO refuges, buffers,
5 isolation zones, protection of seed purity,
6 address some herbicide tolerance issues.

7 I know that's probably not a great
8 well-received in this room entirely but we really
9 think it's critical that there has to be
10 authority. There's so many times when we see the
11 commercialization of crops come out that says we
12 understand a lot about this science and we
13 understand how the genes are going to flow but
14 our hands are tied because we can only address
15 this from the perspective of plant pest.

16 So let me see if I can get there.
17 Sort of to wrap it up, what's changed since we
18 had our AC21 conversation? And I'm going to talk
19 about the non-browning apple, not from a health
20 perspective or anything like that but I want to
21 quote from the environmental assessment that was
22 released on that.

1 "Requiring isolation distances would
2 be inconsistent with the statutory authority
3 under the Plant Pest provisions of the PPA and
4 regulations of 7 CFR Part 340." So this is the
5 limitation of the presumed authority by the
6 Department of Agriculture. It goes on to say
7 that "individuals might choose on their own to
8 geographically isolate their non-GE apple
9 production systems or to use isolation distances
10 and management practices."

11 So just to see this in writing, the
12 idea that you might move your organic orchard
13 someplace because somebody else made a production
14 choice next to you is almost unfathomable, right?
15 And then it goes on to say that "organic growers
16 who wish to reduce the likelihood of pollination
17 from GD743 of GS784 may need to discuss their
18 needs with their neighboring orchards,
19 incorporate pollination control strategies and
20 the primary strategies would include sufficient
21 isolation distance, the use of border rows and
22 restricted use of commercial beehives." So the

1 recommendation is actually that organic growers
2 restrict the use of commercial beehives for
3 pollination of the orchards. So that's kind of
4 onerous.

5 So I think again, as we move beyond
6 corn and soy and some of the crops where we have
7 widespread adoption we're going to come into new
8 crop types, this paradigm of fencing in and
9 fencing out may not apply if we're talking about
10 new cropping types. The debate around labeling
11 might not apply. As a representative of an
12 industry that's built on absence claims the
13 organic program, this certain appeal to say let's
14 go with a non-GMO label but we can't possibly
15 mean label every market -- every apple in the
16 marketplace in order to provide information to
17 consumers. So some of these contexts and
18 paradigms that we're working on start to break
19 down as we move forward with different crop
20 types.

21 So those are my ideas to share and I
22 look forward to questions.

1 (Applause.)

2 MS. GREENE: Thank you, Laura. You
3 brought up so many issues only one of which, but
4 a really important one, is the issue of seed and
5 seed purity. And Andrew LaVigne -- close -- is
6 going to -- American Seed Trade Association is
7 going to share some ideas with us on that.

8 MR. LaVIGNE: Thanks, Cathy, and I
9 appreciate the opportunity to be here on behalf
10 of the American Seed industry.

11 I will say right out of the bag it's
12 great to be here. I congratulate the Secretary
13 and the Department of Agriculture and Russell for
14 having this conversation. Because I think at the
15 end of the day, what the Secretary said this
16 morning, is finding a resolution. If we're going
17 to sit here and fight and say organic is better
18 or GMO is not this or that we're not going to
19 find a resolution.

20 I think what we're looking at is the
21 evolution of agriculture and the evolution of the
22 food system. And thank God we live in a country

1 where we can have that conversation. And so I
2 say that because I heard the Secretary say that
3 last week at the Commodity Classic. That's the
4 benefit of what we have. So let's think about it
5 that way. And I have a whole new respect for
6 where AC21 was trying to go when this started
7 because, I'll tell you from our industry, we
8 weren't real comfortable with phraseology that
9 was coming out around AC21 when it rolled out.

10 And I'm really happy that we're in the
11 spotlight. Not just these three here but the fact
12 that either we don't have good quality seed or
13 it's not pure or we are the solution to the
14 future because of the evolution of breeding
15 techniques. We're excited about that so we want
16 to talk a little bit about where we're going.

17 A couple other factors that you have
18 to remember is we're all dealing with a
19 biological system. If you're processing food you
20 have parts per bug that you can have in your
21 food. All of those factors that we know are part
22 of this. Corn is a biological system. We tried

1 it before, you all know what the name of the
2 product was where pollination didn't happen with
3 corn and it was canned because the consumer
4 didn't want it. And now we want it back. How do
5 we get there?

6 So when we look at it from the seed
7 industry we operate from a coexistence
8 standpoint. We have long before biotech came
9 into play. And whether it's producing vegetables
10 or whether -- next to each other and vegetable
11 seed next to each other, whether it's producing
12 soybeans or different types of corn, we have
13 systems in place that deal with a lot of these
14 factors as things evolve. There are some
15 challenges and we have percents acceptable, you
16 know, in some of those and that's why we label
17 those because they're required under federal law.
18 Those are things obviously that we can look at
19 but also we get into that issue of safety versus,
20 you know, what science says versus what the
21 market demands and how do you deal with that.

22 I put I my document that is in the

1 information for the meeting, we've got a guide to
2 seed quality management practices and it talks
3 about that across the board. We have members
4 from alfalfa to zucchini and every crop in
5 between. Anything planted for agriculture we
6 represent; organic, conventional and biotech.
7 And I think the Secretary was saying, it's a line
8 I use often is, no matter who the crowd is, don't
9 ask me to pick my favorite child. We represent
10 all three of them the same because in our mind we
11 produce seed for production. The grower chooses
12 how he wants to produce, the seed company decides
13 whether they want to put a seed treatment on it
14 to make it biotech or make it organic. But
15 that's what we do in the industry. We produce
16 good sound varieties for the marketplace and we
17 continue to. We're evolving and that's where we
18 are in this place right now with respect to non-
19 GE and organic, especially in feed.

20 Growers do the same, and you've heard
21 this from Lynn and others, when a grower sees an
22 opportunity to get -- produce an identity-

1 preserved product and get a premium they're going
2 to look to see if it fits his operation or her
3 operation. I don't care whether it's seedless
4 watermelons or whether it's corn or whether it's
5 sweet corn. I have a good friend who sells sweet
6 corn outside of Asheville. It's -- how does he
7 label it -- "pesticide free." It's one of our
8 large companies' biotech sweet corn. It's
9 beautiful sweet corn. You don't have to break
10 the end off or anything else. But it depends on
11 the market, it depends on your farm and it
12 depends on a lot of factors that come into play
13 there. So identity-preserve is not a foreign
14 concept in agriculture.

15 Coexistence is the same, again, across
16 the board. We use pinning in a lot of counties
17 and production areas for seed across the country.
18 You go into your extension office, you put up on
19 the wall I'm going to plant this at this time,
20 please don't plant rhubarb or don't plant kale --
21 although I do like the purple kale from Whole
22 Foods so I'll keep buying it. So there are

1 practices in place that will continue to evolve
2 to help deal with these situations.

3 We also will continue to work to
4 educate our seed companies and grower community
5 about seed production practices, about identity
6 preserve because there is a demand. The market's
7 evolving. Fifteen or twenty years ago when Whole
8 Foods was just a small little company some of
9 these issues didn't exist there. You know, the
10 food market has evolved and it's continuing to
11 evolve. So how do we move with it? The
12 agriculture community, or at least the seed side
13 and research is not -- we're not rapid movers
14 because of the research requirements.

15 Four years ago, I believe it was, in
16 working with the organic seed alliance in AOSCA,
17 the Association of Official Seed Certifying
18 Agencies -- Chet Boruff is in the room, he's
19 their executive -- we created the organic seed
20 finder database. It's out there. We need people
21 to use it. We have a lot of people -- we have
22 some of our members that aren't using it but we

1 also know that there's a lot of organic seed
2 companies that are not using it, either. How
3 else do we communicate to the growers what's
4 there and how they can get it and what's
5 available, and what the demand is? Right now
6 there's -- it's just listing organic varieties so
7 if there's a variety that's produced
8 conventionally untreated it's not going to be on
9 that list if a grower doesn't have -- can't find
10 the variety that they need and can use that
11 loophole to produce conventionally. Right now
12 there's 13 vendors, 281 ag row crop listings and
13 1900 fruit, vegetable, flower and herb listings.

14 I do what to clarify, and I guess we
15 are probably a little sensitive in this area,
16 that what we're talking about principally -- I'm
17 just saying principally -- in the coexistence
18 arena is in the feed area or -- excuse me, the
19 row crop biotech area. We have a pretty
20 extensive vegetable business out there and we
21 have more and more companies producing to the
22 organic vegetable marketplace or other areas

1 there that fit the organic arena. So I do want
2 to make it clear, and I've had to do this in
3 several situations, it's not all across the
4 board. Those big beautiful red strawberries you
5 get out there, they're not biotech, they're
6 conventionally bred through selection. So eat
7 them, lots of them.

8 We need to continue support for the
9 organic seed finder from seed companies and from
10 USDA. As we work through issues with NOP I think
11 that's a key area that we have to deal with. And
12 also over the last three years with the
13 Institution or reinstitution, constitution of
14 AC21 we started a few practices or we've started
15 a few projects and asked to look at some of the
16 issues out there. We wanted to really define
17 what is that concept that kept coming up, free --
18 excuse me, "clean seed," excuse me. How do you
19 deal with clean seed or what is clean seed? And
20 what we determined is it's that ability to find
21 either non-GE or organic seed for the feed market
22 or the process milled market, principally with

1 corn and soybeans.

2 And so as we are looking at that arena

3 we're trying to determine how many acres is it?

4 Well, I've surveyed our guys and they estimate

5 somewhere in the range of a million acres. And I

6 talked to some other people and they estimated in

7 the range of ten million acres. How do you plan

8 as a seed producer to produce for that market?

9 Unless the growers talking to you a year or in

10 advance in order for you to produce that, it's

11 tough. You have to have seed systems around you

12 to produce it, you've got to find if it's organic

13 or organic acres to produce it on.

14 If a farmer's already getting a

15 premium to sell to Lynn why does he want to --

16 you know, are you going to give him that much

17 more of a premium to produce seed that's going to

18 take a lot more maintenance, like dealing with no

19 use of herbicides? So there's a lot of factors

20 that come in this. You can't just start growing

21 organic seed tomorrow because you talked to

22 somebody today. So those issues come into play

1 and it would be interesting to better understand
2 what are those acres of demand so that we could
3 try to produce to it. We have a lot of companies
4 that want to do that.

5 We started an organic seed committee,
6 we've had a lot of participation both on the
7 vegetable side as well as the row crop side. And
8 a lot of that is how do we get information from
9 NOP and others to better determine demand? We're
10 currently trying to survey our companies that
11 produce for the non-GE organic market to see
12 what's out there, what's that availability. And
13 then we're also looking at developing a process
14 where seed companies that do have elite lines can
15 make a deposit into a foundation seed company or
16 seed association in the state and those varieties
17 can be user for multiplication or further
18 breeding.

19 There would be licensing, it's not
20 free, a lot of money went into developing those
21 varieties. It would also be -- you know, we're
22 talking about deposited with X -- you know, no

1 detect and X amount but then, you know, the next
2 person has to take the liability from there and
3 the next person has to take the liability from
4 there. So there's some things that we can do
5 there and there's some of that going on now, we
6 just weren't talking about because to some extent
7 we didn't know about it.

8 So I go back to, it is imperative that
9 the growers talk to each other. Whether you
10 mandate it, I don't know how you'd do that. It's
11 got to be over the fence, it's got to be more
12 open, there's got to be an encouragement of it.
13 Seed companies will produce for the non-GE and
14 the organic market. We have the opportunity out
15 there. But I will tell you, as was also
16 mentioned earlier, it is a challenge. It's a
17 biological system, we have no control of Mother
18 Nature. This year was a longer pollinating
19 window. What does that mean, if you offset those
20 kind of things? Two years ago it was a drought.

21 And if you weren't counter-seasonally
22 producing in Chile you probably didn't have

1 enough conventional organic on you because it was
2 -- you weren't producing down there and our guys
3 got hit really bad. So there's a lot of factors
4 that come into it. We can't just say you come in
5 to see me in March, I want to plant next month,
6 and expect for us to have 500 acres of organic
7 corn seed. It doesn't work that way. Growers
8 have to talk to the seed companies. In our
9 organic situations I'd say it's two years in
10 advance.

11 There are some companies out there
12 that are doing this. If you go online and look
13 at Blue River Hybrids they're producing a
14 PuraMaize variety. PuraMaize is somewhat like
15 Terminator, naturally -- conventionally bred but
16 it doesn't allow acceptance of pollen from other
17 varieties. Try it, it's out there.

18 And then I would just say the
19 education channels at the state and local level
20 have to continue to provide that tailored
21 opportunity. If it's one million acres or it's
22 ten million acres, seed companies are only going

1 to produce to what the growers in the area want.
2 And if 95 percent of them want biotech corn then
3 they're going to produce to that. How do you get
4 to that other five percent? You've got to have
5 a relationship with that seed company or go a
6 little further out to get that. What that
7 expectation is, whether it comes from USDA, we
8 would have a little bit of a challenge out there
9 because I think the seed industry is creative and
10 we're looking at ways to deal with those.

11 Lastly, it's the politics of
12 agriculture and I encourage and would reiterate
13 the Secretary's words this morning, is we can
14 find a solution to this because America's farmers
15 find solutions to their production challenges
16 daily. So I hope that we can continue to push
17 this forward and I look forward to any questions.

18 (Applause.)

19 MS. GREENE: Thanks, Andrew.

20 Our final speaker in our short amount
21 of time left is Logan Peterman, he's with Organic
22 Valley, it's a marketing cooperative. Probably

1 most of you here have had Organic Valley milk.

2 I'm going to let him give you his ideas.

3 MR. PETERMAN: Thanks, Catherine.

4 Thank you everybody.

5 Good afternoon. I'm the last word, I
6 feel pretty fortunate here.

7 For anyone that's not familiar,
8 Organic Valley is a marketing cooperative based
9 out of southwest Wisconsin and at this point
10 represents over 1800 farmers across the country,
11 all certified organic operations and the
12 cooperative market's a broad range of food
13 products, again all certified organic,
14 predominantly dairy.

15 My role within the cooperative and in
16 my interaction with this space has, because of
17 that dairy focus, generally been all about feed.
18 And before I get into the details of that aspect
19 I want to frame a little bit of the why of the
20 cooperative being very involved with seed issues
21 and with organic integrity. At the co-op, about
22 50 percent of our gross annual sales are branded

1 products. We've got a pretty broad portfolio of
2 different offerings, some of them bulk, some of
3 them ingredient sales. But that branded
4 offering, the Organic Valley brand is very much
5 the bulk of the business. And protecting that
6 brand as a result is a huge, huge focus for staff
7 and farmers alike.

8 We know our customers very well.
9 We're very fortunate because they tend to be very
10 proactive and they tend to communicate with us
11 very openly. And as a result we've gotten to
12 understand where -- what niche we occupy in their
13 lives. And to explain exactly how that looks I
14 just want to invoke a little mental image for
15 you. About ten years ago I worked and lived in
16 the back country of northwest Montana. And in
17 the lower United States had the highest per-
18 square mile population of Grizzly Bears anywhere,
19 so you learn very quickly how to interact with
20 these bears. And you hear all kinds of advice on
21 what to do and what not to do.

22 And you know, as with most things,

1 people disagree a great deal, there's a lot of
2 interpretation. But there was one rule, there
3 was one thing that you never, ever, ever did, and
4 that was to get in between a mother Grizzly and
5 her cub. And it occurred to me when I was
6 thinking about this and I was thinking about the
7 economic implications and I was thinking about
8 our interaction with the market that that is the
9 niche that we occupy. We sit in between the mom
10 and her child, our predominant market by far are
11 young mothers, they're feeding our products to
12 their children. It's our milk, it's our cheese,
13 it's our eggs, it's everything sitting on the
14 breakfast table. And that has some distinct
15 advantages because if she trusts your brand and
16 if she feels you're credible she can be an
17 extraordinarily strong ally, she can be
18 evangelical about your methods, she can be your
19 best marketing force.

20 But much like the Grizzly Bear, if you
21 lose that trust she's probably going to rip your
22 face off. So as a framing for the why, this is

1 why we spend so much time working on these issues
2 that may seem like fringe ideas, they may be
3 emerging in the market. We will fix on them, we
4 will find out where the grain of truth is there
5 and we will pursue it. And then we will do our
6 absolute best to communicate that to our
7 customers. Because that is our only shot at
8 credibility. In an age where information is as
9 ubiquitous, video is everywhere, our only hope is
10 to be completely open with our consumers about
11 what we're doing, where we're coming from.

12 So to step back to the knowns and
13 unknowns of the economics in this discussion,
14 with regard to feed, with regard to feed purity,
15 there are a lot of unknowns in the supply chain
16 and that makes it very difficult for an
17 organization like ours where we're interacting
18 with farmers from the point of purchase seed all
19 the way through to end of the line consumers
20 buying our milk. They've got a lot of questions
21 and frankly we've had a lot of questions. So I
22 think one of the most interesting known economic

1 drains, I would say, in regard to this issue is
2 the testing load.

3 Now I can only speak for the
4 cooperative but my role at the cooperative has
5 been to oversee testing of corn, soybeans and in
6 some limited cases alfalfa in our supply chain
7 simply because the executive management was
8 extremely and acutely interested to understand
9 what was actually there, right? Enough of the
10 speculation, enough of the vagary, let's see
11 what's actually there, because they are being
12 questioned very, very acutely in public
13 circumstance.

14 Now I can't tell you any of what is
15 there. I can tell you we've been somewhat
16 discouraged but this is one of the really
17 interesting things about the landscape right now.
18 There are many companies, there are many
19 organizations out there that have tested
20 throughout the supply chain. And as I think you
21 all know, the agricultural supply chain for many
22 products, livestock included, is complex. It's

1 long, there's a lot of different entities,
2 there's a lot of different ins and outs in terms
3 of these inputs. But the difficulty is whether
4 you're talking about Andy and the seeds men,
5 whether you're talking about the farmers growing
6 the crops, whether you're talking about a
7 cooperative like ours, we cannot dependably
8 release information in the organic sphere without
9 fearing that we will lose that brand equity.

10 And I think that that speaks to a role
11 for some sort of governmental intervention in
12 terms of quelling the speculation and to some
13 degree quelling the hysteria by actually
14 measuring in an anonymous fashion that won't
15 differentially damage any of the particular
16 players in saying this is what's here, this is
17 what we have. Is it still a problem? Because I
18 think that's one of the great unknowns with our
19 consumer base as well. We recognize, as Errol
20 has mentioned, that they are buying on the basis
21 of non-GMO labeling, that this is changing
22 people's decisions.

1 But one of the questions is how
2 extreme is that belief structure? Is it the EU
3 standard that they will only accept? Is it .9?
4 Is it 1.25? Is it 2? Is it .1? We don't know.
5 But on an agronomic scale it has massive
6 implications. So we have this strange kind of
7 imbalance right now, in between the agronomic
8 realities for organic producers and organic see
9 companies, and juxtaposed with it we have very
10 little information about the actual detail of
11 consumer choice.

12 Another unknown that I wanted to
13 mention, and this comes out of a lot of
14 conversation that I've had with our primarily
15 corn seed providers, and that is to say these
16 folks market seed to our members, the co-op
17 itself does not purchase corn seed. But in
18 working with these companies to understand how
19 adventitious presence in organic and conventional
20 untreated lines of corn can be managed and
21 ultimately tracked or reduced, if need be, we've
22 found that there is some level of impediment to

1 the development of lines among these organic seed
2 companies because of their internal standards,
3 because of market pressures that they feel are
4 being exerted on them. And I think that the
5 amount of impediment to this burgeoning organic
6 seed market is a real question mark at this
7 point, and probably very difficult again to
8 quantify because we're in this sort of "don't
9 ask, don't tell" landscape.

10 Now whether or not the government has
11 a place to step in and mediate that conversation,
12 try to quantify some of those difficulties I'm
13 not yet certain. But in these conversations it
14 does continually come up, that there may be
15 substantial loss to these producers, especially
16 in the case that they provide only organic
17 product. If a seed company has the opportunity
18 to sell both conventional and organic they can
19 obviously mitigate some of their loss in the case
20 that a field has an event, has higher
21 adventitious presence for some reason, they can
22 channel that into one of their other outlets.

1 But for those companies that are only organic,
2 I've recognized that there is a real liability
3 there.

4 The testing program that I mentioned
5 earlier, and the burden of that testing program
6 is one that I can speak to in terms of the co-op,
7 number somewhere in the range of \$50,000 a year.
8 Now how that circulates out over the entire
9 industry is another question. How many other
10 companies are investing that kind of money on an
11 annual basis to test their supply chains because
12 of that speculation would be another open
13 economic question.

14 Cathy's giving me time. Thank you
15 very much.

16 (Applause.)

17 MS. GREENE: I think that we did get
18 started a little late on this session so I'm not
19 sure exactly how many minutes we're going to have
20 for questions. But likely there are some
21 questions so let's go for a while.

22 MR. KEMPER: Thank you, I appreciate

1 all your comments and particularly Laura on
2 coexistence and such. But Logan, I think it is,
3 I would like to ask you, do have now in your co-
4 ops -- and I really appreciate the co-op aspect.
5 Do you have any forums or any discussion on
6 coexistence with any of your members or the dairy
7 producers or ag producers, or do you see that in
8 the future? I mean, is there a dialog going on?
9 Thank you.

10 MR. PETERMAN: Certainly. Yeah, it's
11 a good question. And to answer directly, yes, we
12 do. We spend most of our time actually
13 transitioning farmers to organic so there is a
14 very, very deep culture in the co-op of working
15 with the whole farming community and doing our
16 absolute best not to draw distinctions with us
17 and them. Because there's this deep
18 understanding that, you know, the conventional
19 farmer of today may be our hot prospect the next
20 day. So we do spend a lot of time looking at
21 buffers, looking at different ways to manage
22 between farms in a real and neighborly fashion.

1 MS. GREENE: Let's go back and forth.
2 So let's take one from over here.

3 DR. ZILBERMAN: Two quick questions.
4 The first question is sometimes seeing that they
5 look terrible, in the past they may not look that
6 bad, what do you see in the concept of something
7 like the Terminator gene only with a different
8 name, because that name was terrible, some sort
9 of thing using a system that will reduce the
10 likelihood of spinoff by controlling it.

11 But secondly, the .9 percent is a nice
12 number, it's not scientific, it was designed by -
13 - did anyone in the USDA study what would be the
14 cost if you moved to Dukustan, or five percent?
15 When I do a test, a statistical analysis I use
16 five percent significant. Is any scientific base
17 to the .9 percent? It's not given by Moses in
18 the Ten Commandments. So that's something we
19 have to study.

20 MS. BATCHA: I can try, and I'd love
21 to hear from my colleagues.

22 You know, I would agree with you that

1 the .9 percent is the .9 percent, so -- but I
2 think you also have to sort of not, in a sense,
3 fight against gravity because it may not have
4 sort of a scientific underpinning but it is what
5 it is and it's what people trade on, so we can't
6 ignore that at the same time. So I'm not sure
7 that a government action or any action can say
8 we're going to snap our fingers and we're going
9 to make that number something else because there
10 is all types of actors on either side of the
11 buying and selling relationship that have to go
12 along with that.

13 So and I think, you know, Logan's
14 talking about the co-op, you know, asking those
15 questions about where's the -- you know, where's
16 the true inelasticity and the consumer
17 expectation there? But we all live in a world
18 where people buy and sell things and that's
19 predominantly what they're buying and selling
20 them on.

21 On your question about seed
22 developments that block gene flow, I think -- you

1 know, I caution against any belief that there's a
2 silver bullet for all of this. You know, there's
3 going to be a whole host of strategies that might
4 get us there.

5 DR. KALAITZANDONAKES: I have no
6 comment for obviously the Terminator issue but I
7 do have on the thresholds. And my comments are
8 two-fold. One that today's market actually
9 trades more than .9 percent. There are active
10 known GMO programs that sell to 3 percent
11 thresholds, they sell to 2 percent thresholds,
12 they sell to .9 percent thresholds, they also
13 sell to .1 percent thresholds, depending on the
14 buyer. So the market is more than segmented than
15 what we are trying to make it sound sometimes.

16 In addition to that the issue of
17 thresholds from an economic perspective, in my
18 mind, is probably the most important discussion
19 that we should have because the economics are
20 very strongly affected. In the sense that based
21 on the research that we have done, both from a
22 simulation perspective, from a survey market

1 analysis perspective, we find the same result
2 over and over again, which is that the cost
3 associated with thresholds are nonlinear. That
4 means that, as you push lower and lower those
5 thresholds the cost increase exponentially. And
6 so the choice of number is not immaterial. And
7 so it is really important that lots of
8 consideration goes into it.

9 But today's market actually does trade
10 thresholds at differential costs and the premiums
11 do reflect the kinds of markets that are being
12 targeted. And I'm sure Lynn might have more
13 thoughts on this because I'm sure some of that he
14 does already.

15 MS. GREENE: Thank you.

16 MR. BOBBE: We had an organic producer
17 yesterday, to bring a little reality to this
18 whole thing, that shipped four loads of food
19 grade corn yesterday, every one of them got
20 rejected. That producer lost \$5000 yesterday
21 alone. This is a farm I've been on, complies
22 with all of the organic regulations and so on.

1 And to finish the story from this morning about
2 the bull getting over the fence and doing the
3 damage and putting the bull back, in the old days
4 the owner of the bull paid for the damages.

5 Now what is the incentive for that
6 producer to continue to produce organic when
7 everybody's saying there's a need for it yet
8 taking a \$5000 hit in one day? And if it had
9 been the price differential that had been more
10 between where that grain went, ended up going and
11 not, it could have been \$10,000.

12 MS. GREENE: I'm not sure there's a
13 question there but it's certainly important
14 information.

15 DR. SANCHEZ: I'm new to these debates
16 and my background is more scientific. But it
17 seems to me that the main problem that you're all
18 hovering around is this business of the GMO
19 content of an organic product. How about if you
20 separate that? Go back to the original and say,
21 don't worry about GMOs and all that, organic is
22 organic. Maybe it will make life a lot simpler

1 to a lot of people. It's just a naïve idea but I
2 thought I would throw it out.

3 MS. GREENE: Again, that's more
4 commentary but --

5 MR. PETERMAN: I would respond by
6 saying that, to a degree we don't have a choice
7 in the matter. You know, as I was trying to
8 describe in terms of our customers and the
9 influence that our customers have on us, they are
10 coming to us asking what the level is in the
11 food. Is it -- and the first question that was
12 brought up earlier, and I think it may have been
13 Lynn that brought it up and I very much
14 appreciate it, the first question always is, "is
15 it zero?" And you kind of close your eyes and
16 shake your head. And then you have to start the
17 educational process from there.

18 So I think that, at this point, my
19 commentary would be that we effectively don't
20 have a choice. That genie is out of the bottle.

21 MS. BATCHA: And I think that somebody
22 in the room can help verify or fact correct me

1 but on the original proposed rule on organic that
2 Secretary Glickman referred to that received
3 300,000 comments, that was before the Federal
4 Register was online. So that was like mailed-in
5 comments. So I think there's a public element of
6 that that's not to be understated.

7 MS. GREENE: Thank you for both
8 responses.

9 MS. KUSTIN: Hi, Mary-Ellen Kustin,
10 EWG.

11 I really appreciate Andy's example of
12 the Blue River Hybrid and thinking that, you
13 know, it doesn't accept pollen from other
14 varieties. And I'm wondering if you could speak
15 to, or anyone could speak to the need, the
16 perceived need, the overabundance perhaps, of
17 research and science and dollars associated with
18 those for non-GE seeds and production?

19 MR. LaVIGNE: Well, I think this is
20 probably where there's some disagreement in the
21 room as well. But there is more, I would say
22 more production of non-GE organic of regional or

1 small seed companies today than there has been in
2 many years. They -- a lot of people have, I
3 would say, left companies as they've merged and
4 consolidated and started their own operation.
5 There's a couple people here in the room that can
6 speak to that. You know, there's challenges to
7 that, obviously, but they also can make a good
8 living in doing that locally.

9 We have currently Illinois Foundation
10 Seed licenses a lot of seed to seed companies and
11 it's organic seed, no detect in 3000. So there
12 are markets out there, it's getting the message
13 out. And I think it's having the conversation
14 because oftentimes I don't think the conventional
15 seed company or industry, which I would say is
16 all of us, was not talking to the organic
17 community. And that demand was limited, I think
18 a lot of people probably even through the '90s as
19 they were feeding to livestock, they were feeding
20 on farm.

21 They were getting seed either from,
22 you know, local seed producer, conventional

1 untreated, or they were, you know, saving their
2 seed. They were doing something to deal with
3 that process and it's changed dramatically,
4 obviously, with GMO, with the additional
5 invention or passage of the organic law and
6 having labels. And so that's evolved over that
7 time, too. It just wasn't flipped overnight.

8 So we have a lot of seed companies, I
9 did say in my presentation, that produce seed and
10 they've got it on the shelf. The challenge is
11 they also have customers that they know are
12 buying conventional untreated instead of organic
13 or vice versa. And so how do we deal with that
14 communication? Part of it is communication,
15 that's why we work with the Organic Seed Alliance
16 and AOSCA to help the organic seed finder, use
17 this as a database. We've got to do some more
18 work there but I think that there is a lot of
19 money and a lot of research going into developing
20 varieties and looking at seed varieties across
21 the board, not just in the grains space.

22 MS. GREENE: Okay. One more response.

1 DR. KALAITZANDONAKES: I just have a
2 short comment which is, it's important for the
3 demand for organic seed to really strengthen and
4 the supply of it to be there -- I'm sorry, let me
5 rephrase.

6 For the supply to be there and
7 strengthen, the demand also has to be there. And
8 I'm saying this because in the early 2000 we had,
9 especially in Europe, a very negative experience
10 in the seeding industry where a lot of organic
11 seed was being produced that was not being
12 purchased. And so the demand was very weak
13 exactly for what Andy was discussing, that
14 organic growers would basically choose to buy
15 conventional seed because it was much cheaper.
16 So the supply for organic seed in Europe actually
17 started to decline mostly because it was not
18 being bought. And so it's both sides of the
19 market that has to move together for this to
20 happen effectively.

21 MS. GREENE: I believe we're over on
22 this side.

1 MR. BUSHUE: I appreciate USDA putting
2 this together and I do appreciate the discussion
3 about GMO and the various seed types. But I want
4 to expand the paradigm just a little bit if I
5 can. I raise about 150 different cultivars,
6 varieties of about 25 different crops. We sell
7 all of them directly off the farm to people that
8 come out. We are not GE, we are not organic, so
9 I guess our farm is not the gold standard but our
10 2500 customers seem to enjoy us.

11 My question really goes beyond the
12 whole concept of coexistence with just seed. On
13 our farm we've had issues with downy mildew,
14 glassy-winged sharpshooters, *Drosophila suzukii*,
15 sudden oak death syndrome, weed infestations from
16 neighbors who refuse to control their weed
17 population. All of those things are an example
18 of coexistence. They're all things. And if we
19 continue to talk here about mandates and
20 government intervening with the things that I do
21 on my farm and the relationships I have with my
22 neighbors, where does that end? So I guess I'm

1 asking, do we just stop at seed then? Do we
2 start -- you know, when you're a farmer, as
3 somebody said earlier, it's a biological system.
4 That's exactly what it is. There is risk, there
5 is loss, there is damage. You make a business
6 assessment.

7 I want to know how you're going to
8 address some of those business assessments and
9 some of those losses. Are we going to have the
10 government or somebody responsible pay for every
11 single one of our economic losses? I don't think
12 so.

13 MS. GREENE: All right. So I think --
14 I've been given the word that we are out of time.
15 I don't know if there is a burning response here,
16 that seemed largely more commentary. If there's
17 not a burning response I'm going to just have to
18 cut it off right now. And --

19 MR. DILLON: I have a question for
20 Jim, just super quick. Super easy question to
21 Jim. I promise. Super easy.

22 MS. GREENE: We're out of time. We

1 will have -- I'm sure these people will be here
2 for quite a while.

3 (Applause.)

4 MS. GREENE: Please, thank you to
5 everyone.

6 MS. DILLEY: Thanks. It's always hard
7 to cut off a good discussion but that's what -- I
8 think the point that was just raised is what the
9 whole workshop is trying to wrestle with. Where
10 is it appropriate for government to have a role
11 and where not? So we'll continue that
12 discussion.

13 What we want to do is make a slight
14 modification to the schedule given that we're
15 running a little bit overtime. And we're going
16 to take the next panel, Jill Schroeder of USDA
17 ARS and Jack Housenger from U.S. EPA pesticide
18 programs to talk about some of the government
19 actions to address herbicide resistance and weeds
20 and then we're going to take a short break.
21 We're going to truncate that a little bit to ten
22 minutes, and then come back and finish out the

1 panel presentations before you get to the poster
2 session.

3 And a lot of this is to set up some of
4 the background context of -- yeah, come on up,
5 Jill and Jack -- is to provide some context to
6 then, at the -- almost the conclusion of the day
7 Dr. Woteki will come up and talk about what USDA,
8 what actions are underway based on the USDA AC21
9 recommendations. And then there's a poster
10 session to look at other complimentary activities
11 related to supporting coexistence. So we'll set
12 up for that and talk a little bit about what we
13 want you to think about as you take a break for
14 the evening and go to the poster session and
15 prepare for tomorrow.

16 So with that I'm going turn it over to
17 Jill Schroeder of USDA.

18 SESSION 2: COEXISTENCE - THE CHALLENGES AND
19 KNOWLEDGE GAPS WE FACE AND USDA'S RESPONSES TO
20 THE AC21 RECOMMENDATIONS

21 MS. SCHROEDER: Hopefully I can work
22 this.

1 Good afternoon. I really appreciate
2 the opportunity to be here and I've been very
3 impressed with what I've heard about weed science
4 and weed resistance to this point in the
5 workshop. And what I'd like to do first of all
6 is to put the issue of herbicide resistance into
7 a little bit broader context of weed management.
8 To do that my topics today are going to be brief
9 but I'm going to talk a little bit about weed
10 persistence, selection pressures that affect weed
11 populations, evolution for herbicide resistance,
12 the concern about herbicide resistance in
13 genetically modified crops and then, finally, the
14 USDA activities in this area.

15 So to begin with, I just want to
16 emphasize that weeds are a problem that farmers
17 have had to address since they've been
18 cultivating crops. Weeds compete with the
19 desirable vegetation for resources including
20 water and nutrients. When we don't control them
21 they negatively impact yield and quality of the
22 crops. And once weeds have invaded and

1 established in a field, regardless of what your
2 management practices are, your production
3 practices, the species can persist. And the
4 reason they can do that is because they've got
5 very high reproductive potential, excellent
6 dispersal capabilities and to the fact that the
7 seeds in the crop yields can -- do not all
8 germinate at the same time. So once they're in a
9 field a good portion of those seeds can persist
10 for many years and continue to dominate that
11 field so this ensures their long-term survival of
12 that species at that location.

13 So to then move on a little bit, many
14 weed species of concern are highly genetically
15 variable and very adaptive to many diverse
16 environments. So what you're looking at here is
17 indication of some -- how some of these plants
18 can be successful. They're going to survive and
19 reproduce if they're successful and it's going to
20 increase their populations in that environment.
21 So when managers impose weed control tactics in a
22 field they're going to select for those plants or

1 species that can survive that treatment, whether
2 that treatment's mechanical, whether it's
3 biological, whether it's cultural or whether it's
4 chemical. So weeds are highly adaptive, they're
5 part of a biological system and selection of that
6 best adapted species is -- or populations are
7 going to affect both organic and conventional
8 systems.

9 So what this slide is doing is it's
10 illustrating a few examples of how weeds have
11 adapted over time to individual production
12 practices. On the top left is a dandelion, our
13 old friend in lawns and landscapes. They've
14 evolved over time to have a shortened scape and
15 so more prostrate growth habit so they survive
16 repeated mowing. And if that's the only
17 production practice you use the dandelions are
18 going to become dominant in that field.

19 On the bottom left is barnyard grass.
20 Barnyard grass has evolved over the centuries to
21 be very, very successful in rice production
22 systems and there is a particular ecotype of

1 barnyard grass that's actually evolved
2 characteristics, it looks almost exactly like
3 rice does. And so if you go through the field
4 and hand weed you're going to miss many of these
5 plants and they're going to survive and populate
6 that field.

7 In the center is an example of rush
8 skeletonweed which is a major weed problem in
9 rangeland and pastures. Many years ago USDA
10 developed a bio control agent that was very, very
11 successful in controlling rush skeletonweed
12 except for there were a few ecotypes of that
13 skeletonweed that were resistant to that
14 biological control agent, they survived and
15 became the dominant species in that population.

16 And then finally on the right is an
17 example of Palmer amaranth, our friend that has
18 evolved resistance to repeated herbicide use in
19 many of our corn and soybean production systems.
20 Over the last ten years we've talked and heard a
21 great deal about weeds like Palmer amaranth that
22 have evolved resistance to herbicides and

1 unfortunately this problem of weeds evolving
2 resistance to selection pressure posed by
3 herbicide use is not a new problem. On the X
4 axis of this graph it shows the number of
5 resistant species -- or it shows years on the X
6 axis and on the Y axis it shows the number of
7 species that are resistant to a particular
8 herbicide group.

9 As a reference, please note that crops
10 that have been genetically modified to tolerate
11 the herbicide glyphosate were introduced in 1996
12 and what you see, the top -- the blue line on
13 this graph, it shows the number of weeds that are
14 resistant to herbicides that inhibit
15 photosynthesis in plants, in sensitive plants.
16 We began seeing an increase in resistance to
17 these herbicide families in the mid-1970s.

18 There was another group of herbicides
19 that inhibit the synthesis of essential amino
20 acids in sensitive plants and they were
21 introduced in the early 1980s. We very quickly
22 selected for plants that could resist these

1 particular herbicides and they became very
2 dominant in the population very, very quickly and
3 that's shown with the red line on the graph.

4 The total number of species that have
5 evolved resistance to these herbicides is far
6 greater than the number of species that are
7 resistant to the herbicide glyphosate which is
8 the light blue line on this graph. As a matter
9 of fact, the introduction of the glyphosate
10 resistant crops and the increased use of
11 glyphosate was -- very much helped us resolve
12 some of the problems of herbicide resistance that
13 we were seeing in the '80s and the early '90s.

14 So as you can see the problems
15 continue to increase. Any time we use a single
16 management strategy we wind up with a problem
17 like this. And so what it indicates that we need
18 different tactics in order to address the problem
19 of resistance.

20 Another concern that we've debated a
21 great deal is whether or not the occurrence of
22 resistant weed populations is due to the

1 introduction of crops that have been genetically
2 modified to allow the use of glyphosate for weed
3 control. And what this graph shows you is the
4 number of herbicide resistant species that have
5 been documented in different crops. On the Y
6 axis you see the crop or the cropping situation
7 and on the X axis is the number of herbicide
8 resistant weed species that have been documented
9 in that crop. And as you can see the top five
10 crops on that graph, three of them are wheat,
11 rice and roadsides and none of these situations
12 involve genetically modified crops. So herbicide
13 resistance is a much broader issue than what we
14 talked about in terms of genetically modified
15 crops.

16 The problem with herbicide resistance
17 occurs when herbicides are used exclusively to
18 control susceptible weed species that are highly
19 genetically variable. And so individual plants
20 that survive the treatment and reproduce will
21 begin to dominate the population and become a
22 bigger problem.

1 So just to recap, selection occurs
2 when the best adapted plants leave more
3 offsprings than others that are less adapted to
4 that herbicide tactic or that management tactic.
5 Weed control, regardless of the type of weed
6 control, is going to select for those weeds that
7 are best adapted to survive that control method.
8 So when herbicides are used repeatedly plants
9 that are either resistant or were never affected
10 by that herbicide will survive and reproduce. So
11 the bottom line is overall, thinking about this
12 system biologically the best approach for weed
13 management is to manage the selection pressure.
14 And the only way to accomplish this is by
15 diversifying tactics.

16 It's easy to say this and it's easy to
17 say that growers just need to diversify
18 practices, however as you've already heard many
19 times today, implementing this change becomes
20 very complicated when you consider the economic
21 issues, the conservation issues and all the other
22 issues that affect growers and their management

1 decisions.

2 So last fall Secretary Vilsack
3 announced steps that the agency is taking to help
4 farmers address the increase of herbicide
5 resistant weeds in our agricultural systems. The
6 press release provided background on the issue
7 and it included the fact that additional
8 herbicide tools alone are not going to solve the
9 problem. USDA is going to work in collaboration
10 with EPA and the weed science professionals to
11 identify ways to encourage growers to adopt more
12 diverse tactics for weed management in addition
13 to herbicide control.

14 So among these tactics that were
15 identified in this press release includes actions
16 by NRCS, first of all to make their EQIP programs
17 for increasing use of IPM practices for weed
18 management more of a national program, or
19 available more nationally. And secondly, to
20 include programs that address herbicide resistant
21 weeds and their conservation innovation grant
22 program to help identify programs that growers

1 can adopt more successfully to manage herbicide
2 resistant weeds.

3 APHIS is promoting the use of best
4 management practices in all their design
5 protocols for regulated trials of genetically
6 modified crops. Other agencies in the department
7 are very active as well. The Agricultural Weed
8 Research Service weed scientists are conducting
9 research to identify the basis for resistance and
10 to develop management strategies to reduce the
11 impact of herbicide resistance. And the National
12 Institute for Food and Agriculture grant
13 proposals solicit proposals that fund basic and
14 applied research in weeds to address the
15 herbicide resistance as well as to address some
16 of the social and economic issues that are faced
17 by growers as they deal with this increasing
18 problem.

19 USDA is partnering with the Weed
20 Science Society of America to develop educational
21 materials for stakeholders who impact -- who are
22 impacted by herbicide resistant weeds and to

1 conduct work to address the impediments that
2 farmers face when deciding how to adopt diverse
3 weed management tactics.

4 So to conclude weeds are an ever-
5 present problem. And no matter what we do they
6 aren't going to go away, we have to learn how to
7 manage them. However, reliance on a single
8 tactic to control weeds is going to result in
9 selection for species or populations that can
10 survive that practice. Evolution of resistance
11 is not a new problem, unfortunately, and it's not
12 unique to genetically modified crops. If we're
13 going to be successful management has to include
14 a diversification of management tactics and new
15 approaches to weed management, some that we may
16 not have thought of yet. USDA agencies are
17 taking measures in cooperation with the EPA to
18 help growers diversify their weed management
19 practices.

20 So with that, I thank you very much
21 for your attention and I'll turn it over to Jack.

22 (Applause.)

1 MR. HOUSENGER: Thanks, Jill. If
2 you'll notice, they put Jack and Jill together?

3 (Laughter.)

4 MR. HOUSENGER: You know, as I sat
5 here and listened to the perils of having people
6 believe that GMO food is safe I was thinking,
7 what about GMO food with pesticide residues on
8 it? If that -- if one is difficult the other
9 one's impossible. So today I was asked to talk
10 about EPA's perspective on weed resistance -- on
11 herbicide resistance and weeds. Jill talked a
12 little bit about Palmer amaranth. I just wanted
13 to say that if no one's seen this it can grow
14 like two inches a day and produce I think a
15 million seeds. So it's really a problem and it's
16 become resistant to glyphosate. So that's why
17 it's always pictured.

18 I'm going to talk about the law under
19 which we regulate pesticides and then kind of
20 where we are in managing resistance issues. So
21 we have a law called FIFRA, Federal Insecticide,
22 Fungicide, Rodenticide Act. If you notice it

1 doesn't include herbicides. It doesn't include
2 antimicrobials and it doesn't include
3 biopesticides or biotech which we also regulate.
4 Maybe the acronym was too much with all those.
5 But it is a risk-benefit statute, we can consider
6 the benefits that pesticides provide and weight
7 those against eco-effects and worker-effects.
8 Any food risks are just solely risk based, it has
9 to be safe under the Federal Food, Drug and
10 Cosmetic Act. But we consider resistance to be
11 part of that risk-benefit equation.

12 Certainly something that we're
13 registering straight out of the box isn't going
14 to have resistance issues but as it goes through
15 reevaluation we can consider it. We register
16 pesticides both on conventionally bred and
17 genetically modified crops but we don't control
18 the deregulation of the genetically modified
19 crop, that's done by USDA. So once it makes --
20 once USDA makes its decision we're free to make a
21 decision on the pesticide use.

22 So our goal is to delay resistance as

1 long as we can. And until very recently we
2 really haven't focused that much on resistance,
3 we've done things around the edges. One of the
4 things that we're trying to stress is the
5 flexibility to growers. And as you'll see in the
6 example I'm going to talk about a lot of the
7 burden falls on the growers but mainly on the
8 registrant who holds the registration. Some
9 registrants have put some advisory language on
10 their labels about not treating consecutively,
11 using different modes of action but those are
12 usually just advisories.

13 Obviously when glyphosate was
14 registered it was a miracle herbicide. People
15 used it quite often and over the years it
16 developed resistance. For a long time there were
17 no new herbicides coming on the market because
18 glyphosate did everything. And then when
19 glyphosate resistance became a big issue we
20 started to get -- last year we got our first
21 genetically modified registration that was
22 tolerant to 2.4-D so we got a combination

1 product, the 2.4-D and glyphosate, called Enlist
2 Duo on corn and soybeans. And it basically
3 allows you to make a later application of 2.4-D
4 over the top of corn and soybeans when it's like
5 48 inches high versus when it's smaller. So you
6 get weed control a little later.

7 Some of the approaches that we're
8 using are label directions, training and
9 educational information, early identification and
10 remediation. Reporting by the registrant so we
11 know what's going out in the field, and then an
12 opportunity after five years of use of this
13 product for us and the registrant to kind of look
14 back and say, what's happening resistance-wise
15 and make modifications, if necessary, to the
16 label.

17 Hard to see.

18 So some of the requirements for the
19 label is that it has to include the mechanism of
20 action. A lot of our labels now include that.
21 Some registrants are reluctant to put it on there
22 or they don't see if the value of it but a lot of

1 the main registrants include this.

2 Generally included best management
3 practices, I'll talk a little more about that
4 later. And then because early identification of
5 the problem is critical we want people to scout
6 before, scout after and report performance and
7 likely resistance to the registrant.

8 We put the BMPs on the label. These
9 were developed by the Weed Science Society of
10 America, largely Jill at the time, who was with
11 them at the time, and working with EPA and also
12 with USDA. Most of the elements describe
13 cultural-mechanical practices to slow the rate of
14 resistance. And this is -- this slide just gives
15 -- I think it does -- some of the examples of the
16 BMPs. Again, you know, use multiple mechanisms
17 of action, mechanical practices, cultural
18 practices, but most importantly scout and monitor
19 the fields and report the problems.

20 When we registered Enlist Duo there's
21 a problem in being the first one where an issue
22 has come up like resistance and we want to do

1 something about it. And Dow happened to be the
2 first one out of the chute. They developed a
3 stewardship program, training materials, on the
4 label it requires, you know, to investigate cases
5 of non-performance and this isn't -- this got
6 into a little area of does that mean Dow goes
7 into the farmer's field and does it? Or -- and
8 again, we gave flexibility there that Dow would
9 provide assistance in remediating the problem if
10 the farmer required it. But we wanted to make
11 sure that, if resistant weeds were identified, or
12 likely resistant weeds were identified, that they
13 were taken care of.

14 They also are required to annual
15 report likely and confirmed resistance.
16 Obviously if a weed isn't controlled it's a
17 candidate for resistance but you're not going to
18 know that for some time. So they would work on a
19 diagnostic system and work for identifying that
20 earlier and then reporting to us and
21 stakeholders.

22 Like I said, this first weed

1 management plan, resistance management plan was
2 something that we imposed on Enlist Duo but as we
3 go through our reevaluation, which happens every
4 15 years, we're going to be looking at other
5 pesticides as well. This -- I think it's this
6 June we're going to take -- put out a draft risk
7 assessment of glyphosate and we'll be looking to
8 do something similar. Obviously with glyphosate,
9 a lot of the resistance issues are there so it's
10 going to be a little different resistance
11 management plan.

12 But that's kind of how we're looking
13 at things right now, and thank you for your
14 attention.

15 (Applause.)

16 MS. DILLEY: We do have a couple of
17 minutes for questions before we take a break. So
18 questions for Jack or Jill, Jill or Jack, Jack
19 and Jill? Please.

20 MR. MATLOCK: Jack -- this is a
21 question for Jack. I'm Marty Matlock, University
22 of Arkansas.

1 (Applause.)

2 MS. DILLEY: So I have just a little
3 before ten after, if we could come back at 20
4 after, so a ten-minute break. And then I'll take
5 the last couple of panels' comments and then move
6 into discussion of your homework and the poster
7 session. So ten-minute break.

8 (A short break was taken.)

9 MS. DILLEY: If you'll take your seats
10 we'll get started.

11 (Brief pause.)

12 MS. DILLEY: So we have two more
13 panels this afternoon the first of which are two
14 USDA representatives, Michael Schechtman who is
15 ARS and Michael Gregoire who is with APHIS. And
16 they are going to talk about USDA coexistence
17 knowledge gaps and context for USDA's initial
18 responses. So with that, as you take your seats
19 and are ready to listen, I'm going to turn it
20 over to Michael Schechtman.

21 MR. SCHECHTMAN: Thank you, Abby.

22 Good afternoon. Again, my name is

1 Michael Schechtman and I am biotechnology
2 coordinator for the Office of Pest Management
3 Policy in the Agricultural Research Service and
4 also the Executive Secretary of the AC21. So I'd
5 like to add my words of welcome to all of you
6 here today, greetings to Russell, of course, and
7 to those listening online as well.

8 I'm on the agenda today to continue
9 the discussion on things we know about the
10 current situation, things we don't, and to help
11 frame the later discussions on the actions USDA
12 has taken or is considering in response to the
13 AC21 recommendations.

14 So I'd like to start by elaborating a
15 bit on the federal register notice that Secretary
16 Vilsack alluded to his remarks, talking about the
17 reason for the notice, what information we hope
18 to get, what in fact we got. As Secretary
19 Vilsack noted on November 4th, 2013 we published
20 a notice in the Federal Register seeking public
21 input to help the department implement an AC21
22 recommendation that USDA foster communication and

1 collaboration to strengthen coexistence. USDA's
2 goal in publishing that notice was to gather
3 information to determine how best to foster
4 communication and collaboration among those
5 involved in diverse agricultural systems on the
6 topic of coexistence and to figure out how best
7 the department can itself collaborate and
8 communicate with all involved on the subject.

9 USDA requested input on a list of
10 topics including information needs and preferred
11 communication methods, tools for facilitating
12 farmer-to-farmer communication, currently
13 available information and tool kits available,
14 geographic information on the types of crops
15 currently planted, effective local voluntary
16 solutions and coexistence practices and a number
17 of other topics. USDA received over 4160
18 comments from a broad range of stakeholders.

19 Two large petitions were also
20 submitted signed by over 27,000 supporters in one
21 case and nearly 32,000 in the other which in
22 general terms called for stronger controls over

1 GE production, the protection of non-GE crop
2 production and seed and/or the labeling of GE
3 foods. I'm not going to give you a detailed
4 summary of the comments, USDA has provided a link
5 to the comments summary on publication of the
6 notice announcing this meeting. But I want to
7 talk about them just a little bit, a few
8 selections.

9 The majority of the comments generally
10 opposed the growing, production and marketing of
11 GE products and some favored banning GE crops.
12 Many commenters raised concerns not included in
13 the request for information, including labeling,
14 potential human and animal health effects,
15 effects of pesticide use, what we'll refer to as
16 contamination risks for conventional and heirloom
17 seed stocks, international trade, consumer rights
18 and other things.

19 Most comments that referenced the AC21
20 report opposed the premise that coexistence would
21 provide adequate protection for organic farmers
22 and consumers. In contrast other comments argued

1 that coexistence is nothing new for agriculture
2 and is generally working. Many comments
3 expressed the view that the responsibility for
4 preventing contamination of IP and organic
5 production should lie with GE growers and the GE
6 industry however most of the commenters who
7 opposed coexistence did not discuss the AC21
8 report's recommendations in any detail.

9 Very few commenters offered comments
10 that were directly responsive to the items in
11 USDA's request for information. Among the very
12 small -- relatively small number of comments that
13 were directly responsive to USDA's specific
14 requests, among those many highlighted the need
15 for additional information, whether about best
16 practices in crop production or contracting,
17 about economic damages, about seed purity, about
18 locations of neighboring plantings or other
19 topics, or a general need for increased education
20 around any of these issues or around the science
21 underlying it.

22 Some noted the value of farmer-to-

1 farmer communications and indicated that such
2 communications may take place but do not
3 guarantee particular behavior changes. Other
4 farmers, in discussing their neighbors, did not
5 express any interest in entering into dialog with
6 them. Some called for local crop-specific
7 solutions led by farmers and educators.

8 I presented just these few selections
9 of the comments to give you a flavor of the range
10 of responses we received and also of the limited
11 amount of specific usable information within
12 those comments. A more detailed summary I
13 mentioned is online. I would note, though, that
14 we're attempting to be responsive to a number of
15 the concerns raised in those comments through
16 various segments in the agenda over these two
17 days.

18 You've heard the remarks from
19 Secretary Redding about USDA's charge to the
20 committee in producing this report, its report.
21 The charge addressed potential compensation
22 mechanisms for GE related economic damages to

1 farmers, how to make such mechanisms work and
2 other steps USDA should take to bolster
3 coexistence. As Secretary Redding noted one key
4 point of controversy in the AC21 discussions was
5 that data was not available on actual GE related
6 economic damages incurred by farmers.

7 The committee did hear, and you heard
8 today, about data on shipment rejections that
9 occurred upon GE testing when a particular
10 shipment was found to be outside contractual
11 limits for GE content. Such rejections would
12 mean that the farmer or seller would need to find
13 another buyer or use for the product. Those
14 circumstances could result in selling the crop at
15 a reduced price or incurring other costs. But
16 specific data regarding actual losses has not
17 been available.

18 Now you will hear tomorrow about one
19 new effort on our part to gather some of that
20 data through an organic producer survey, at least
21 insofar as organic production is concerned. So
22 it will be at least a start in that direction.

1 In terms of other recommendations, one
2 other important thing I should note at this time,
3 relating to USDA limitations in implementing
4 recommendations is that, according to our Office
5 of General Counsel we do not currently have
6 authority to implement a compensation mechanism
7 for economic losses that may be incurred by
8 farmers as a result of unintended GE presence.
9 Nor do we currently have any clear legal
10 authority under which to implement a general
11 program for incentivizing the development of
12 joint coexistence plans between neighbors. There
13 were no provisions for the -- in the most recent
14 Farm Bill addressing these recommendations so
15 that action on these would need to await further
16 Congressional discussions.

17 One place where we had hoped to get
18 additional useful information from stakeholders
19 was on identification of best practices in crop
20 production. In IP production, vis-a-vis
21 coexistence, and indeed in the ways farmers can
22 work with their neighbors to address coexistence

1 issues. We clearly need more information about
2 these topics. What are the best practices? We
3 heard at AC21 meetings in the past general
4 discussions on these things.

5 We also need to have a better sense of
6 whether best practices are, in fact, being
7 followed. In the responses to comments in the
8 federal register notice we received only a few
9 comments directly offering potential best
10 practices, though several commenters alluded to
11 the roles of various organizations, especially
12 local ones, in helping farmers manage coexistence
13 challenges.

14 It would also be of use to us to get
15 a better understanding of what the barriers are
16 to greater cooperation among farmers to bolster
17 coexistence. Some of the issues that surfaced in
18 prior AC21 meetings were, on the one hand, that
19 some farmers felt that growing bio -- who were
20 growing biotech crops felt that the problems of
21 IP farmers and organic farmers caused by the
22 natural movement of pollen from their crops was

1 not their concern. Inasmuch as the IP producers
2 should have accounted for the costs of growing
3 their crops in the contracts they signed for
4 producing them and in the prices they charged for
5 their IP crops.

6 On the other hand, some IP producers
7 felt that the growers of biotech crops were
8 imposing external burdens and costs on their
9 operations which were sometimes unmanageable. So
10 we need to understand better the complexities of
11 making coexistence work at a farmer-to-farmer
12 level. We would welcome comments from
13 participants here about these issues as we move
14 forward, not as a vehicle for folks to complain
15 about their neighbors but as a tool to help us
16 figure out what's going to be most equitable and
17 effective in increasing efforts to bolster
18 coexistence.

19 So where has this left us? As
20 Secretary Vilsack has indicated it's USDA's view
21 that coexistence is too important for the overall
22 success of U.S. agriculture for us to stop

1 pushing forward regardless of the input we have
2 received. We have a series of items that USDA
3 has developed, either directly in response to the
4 AC21 recommendations or in the spirit of those
5 recommendations which we'll be discussing over
6 the next two days. We think these tools may
7 offer some help in promoting coexistence and we
8 would like your input on what you think of them,
9 how they might be improved, what else we might be
10 doing. We recognize, though, that coexistence
11 will ultimately happen on the ground and will
12 succeed or fail based on farmer actions and
13 interactions.

14 So with that, I'd like to turn the
15 discussion over to Michael Gregoire, APHIS
16 Associate Administrator, who will discuss the
17 USDA APHIS biotechnology regulatory program and
18 the agency's recent announcement about
19 withdrawing its 2008 proposed biotechnology rule.

20 Mike?

21 (Applause.)

22 MR. GREGOIRE: Thank you, Michael, and

1 good afternoon everybody. As Michael said, I'm
2 an Associate Administrator in the animal and
3 plant health inspection service of USDA and my
4 portfolio includes the plant side of the animal
5 and plant health inspection service. So that
6 work includes the work of the biotechnology
7 regulatory services unit, plant protection and
8 quarantine and I'm also involved in policy,
9 budget and administrative issues within the
10 agency.

11 Our mission in APHIS is really at its
12 core two-fold. One is to safeguard American
13 agriculture from the introduction and
14 dissemination of animal and plant pests and
15 diseases, and secondly, to facilitate the safe
16 trade of agricultural commodities. And since
17 APHIS became a standalone agency in 1972 we've
18 been called a lot of different things, we've been
19 characterized in a lot of different ways, we've
20 been called a trade agency, we've been called a
21 food safety agency at one time, the Food Safety
22 Inspection Service and APHIS were together.

1 We've been called a homeland security agency and
2 we are often still called a regulatory agency.

3 We would like to emphasize that we are
4 an animal and plant health agency. Regulation is
5 and always will be an important tool in our tool
6 chest but increasingly we are finding it very
7 challenging, as the Secretary mentioned this
8 morning, that the regulatory system is slow and
9 deliberate by design and so it's very difficult
10 to keep the regulatory system up with the speed
11 of science, up with the speed of business, up
12 with the speed of industry practices. So as a
13 matter of general course within APHIS we are
14 systematically looking at alternatives to
15 regulation to address emerging animal and plant
16 health and animal welfare kinds of issues.

17 Yesterday some of the APHIS leadership
18 was meeting with representatives of the U.S.
19 apple industry to talk about some of the pest and
20 disease pressures that they're dealing with,
21 their interest in being able to export more.
22 This was a tremendous year for apple production,

1 we got more apples than we know what to do with
2 and part of our role, again, is to help
3 facilitate safe trade and that's an important
4 interest for the U.S. apple industry. And we
5 also talked about biotechnology and the recent
6 approval of the non-browning apple. And one of
7 the industry representatives said APHIS is sure a
8 lightning rod for biotechnology issues. And I
9 said, well, that -- you couldn't be more accurate
10 about that.

11 Prior to the time that I was in this
12 position I served as the Deputy Administrator for
13 the Biotechnology Regulatory Services Unit in
14 APHIS for six years. And during that time I
15 think I spent as much time with attorneys in our
16 general counsel's office and in the Department of
17 Justice as I did with our scientific staff.
18 During that six-year period of time we dealt with
19 nine different lawsuits that went to a whole
20 bunch of different issues including the scope of
21 regulatory authority, whether or not we were
22 following all of the legal procedural

1 requirements that we were required to follow as a
2 federal agency, the adequacy of our analyses and
3 so on. And all of that litigation is now done,
4 it's behind us and has brought some more clarity
5 to those kinds of questions.

6 And, quite frankly, when we put out
7 proposed regulatory decisions for public input we
8 hear a lot of the kinds of issues that we've
9 talked about and heard about here today. The one
10 we hear very little about is the one our
11 regulations are designed to address and that is
12 plant health. I have not heard any concerns this
13 morning about plant health. So I am personally
14 very happy with the leadership the Secretary has
15 brought to this issue to provide a venue and an
16 opportunity to deal with all these other issues
17 that we hear about in the course of the
18 regulatory decision making that we make. And so
19 APHIS is delighted to be a part of this and to
20 bring our resources and expertise to the
21 conversation these two days. So we're very happy
22 to participate.

1 So let me talk just a little bit about
2 the current regulatory system that we administer
3 and a little bit about the announcement we made
4 withdrawing the rule we proposed, the rule
5 changes that we proposed in 2008. So since 1987
6 APHIS has regulated certain genetically
7 engineered organisms along with the Food and Drug
8 Administration and the Environmental Protection
9 Agency as part of the federal coordinated
10 framework on biotechnology.

11 Our regulatory program is designed to
12 ensure that genetically engineered organisms are
13 safe for plant health and our program is carried
14 out under the Plant Pest Provisions of the Plant
15 Protection Act which is designed to give the
16 Secretary the authority to prevent the
17 introduction and dissemination of plant pests and
18 not just weeds in the United States. The Act has
19 a very kind of long and specific definition about
20 what a plant pest is so I'll just paraphrase. It
21 includes such things as bacteria, fungi,
22 parasitic plants or insects that can cause harm,

1 damage, disease to agricultural crops or other
2 plants or plant products. So we regulate GE
3 organisms when the donor organism or the
4 recipient organism or the vector used to
5 transform the plant is a plant pest. That's the
6 regulatory trigger under our current system.

7 Regulated articles, if they're being
8 imported into the U.S. or moved interstate are
9 going to be grown in outdoor field trials require
10 a notification or a permit from APHIS. A
11 notification is basically just a simplified
12 permit. And those permit conditions are designed
13 to keep these regulated articles confined and
14 accounted for, and we have a compliance and
15 inspection program to ensure that the permit
16 conditions are being followed. A regulatory
17 system also provides a process whereby developers
18 can petition the agency for non-regulated status
19 if they can demonstrate with scientific evidence
20 that it does not post a plant pest risk. And
21 these petitions typically follow several years of
22 field trials and precede the widespread

1 commercialization of GE crops. Since our program
2 has been in place we have granted non-regulated
3 status 115 times.

4 APHIS, along with the other
5 coordinated framework agencies, operate under
6 some principles that come out of the White House
7 that guide the regulation of biotechnology and
8 emerging technologies. And I'll just talk about
9 what a few of those principles are. One,
10 decisions are based on the best reasonably
11 obtainable scientific information within the
12 boundaries of the agency's statutory authority
13 and mandates. Regulations are developed with a
14 firm commitment to fair notice and public
15 participation. The benefits of regulation should
16 justify the costs. Where possible regulatory
17 approaches should promote innovation while also
18 advancing regulatory objectives such as the
19 protection of health, the environment and safety.

20 So while our regulatory objectives in
21 APHIS aren't really coexistence I think there's a
22 few ways APHIS program contributes indirectly to

1 this, certainly for those things that are
2 regulated and in research and development. The
3 program is designed to keep them confined and
4 accounted for and out of commerce because if they
5 get into commerce that can be quite disruptive.
6 Once we've granted non-regulated status, that
7 U.S. government regulatory approval is important
8 in terms of marketability of these crops,
9 particularly in international commerce.

10 So when we are evaluating these
11 petitions for non-regulated status, in addition
12 to looking at the plant pest risk we have to
13 comply with the provisions of the National
14 Environmental Policy Act. And so to do that we
15 prepare either an environmental assessment or an
16 environmental impact statement and that statute
17 really requires us to take a hard look at the
18 environmental impacts of the proposed federal
19 action and disclose what those impacts are. That
20 statute does not give us any additional authority
21 to act on any impacts we identify so our
22 authority still goes back to the Plant Protection

1 Act.

2 Our environmental analyses do evaluate
3 some of the socioeconomic issues related to the
4 introduction of new GE crops and these analyses
5 that we have done have -- or can and have, in
6 fact, informed USDA policy and program decisions.
7 The Secretary mentioned this this morning, that
8 the reestablishment of the AC21 committee and
9 several of the coexistence measures USDA
10 announced grew out of and were informed by the
11 environmental impact statement that the agency
12 prepared on GE alfalfa. And more recently the
13 environmental impact statement we prepared for
14 the Enlist corn and soybeans helped inform
15 discussions with EPA and the actions you just
16 heard about in USDA and EPA to address resistance
17 in weeds.

18 So that's just a quick snapshot of our
19 current regulatory system in APHIS.

20 In 2008 APHIS published a proposed
21 rule to significantly revise our biotechnology
22 regulations. Those revisions were extensive and

1 included significant changes in the scope of the
2 regulations and the mechanisms of APHIS's
3 regulatory oversight. On Friday February 27th we
4 announced that we were withdrawing that rule. We
5 managed what few have ever been able to manage,
6 to get all biotech stakeholders to agree on
7 something and that is no one liked the rule we
8 published.

9 (Laughter.)

10 MR. GREGOIRE: For a lot of different
11 reasons.

12 But we received over 88,000 comments
13 on the rule in 2008 and 2009. Stakeholders were
14 particularly concerned with several key aspects
15 of the rule, especially about the lack of details
16 surrounding the proposed risk based system that
17 would determine what organisms would fall under
18 regulation and how they would be regulated.

19 So based on the scope of the comments
20 that we received and in light of the experience
21 that we've gained with now almost 30 years of
22 experience regulating GE organisms, the

1 continuing advances in the technology and simply
2 the amount of time that has elapsed since we
3 published the rule, the proposed rule in 2008, we
4 decided to withdraw the rule and begin a fresh
5 start with stakeholder engagement aimed at
6 exploring alternative policy approaches. And so
7 that engagement will begin with a series of
8 Webinars that the agency will be announcing in
9 the very near future, that will provide an
10 opportunity for stakeholders to provide some
11 initial feedback on where the agency should go
12 with this. The dates and times of those Webinars
13 have not been announced yet but that will be
14 coming out soon.

15 I know there is already a lot of
16 speculation about what this really means, that
17 the rule was withdrawn, and I just want to
18 emphasize that what it means is we're going to
19 take a fresh start and step one is that we're
20 going to listen and then we're going to take that
21 information and start to form a proposal of what
22 this should look like going forward.

1 So with that I'll conclude, and I
2 guess, Michael, we may take a few questions?

3 Okay.

4 (Applause.)

5 MS. DILLEY: So some questions for
6 Michael and Michael? Yeah. Use the mic if you
7 would so that everyone can hear?

8 DR. SEDEROFF: So what's your
9 assessment of the position with respect to CRISPR
10 technology?

11 MR. GREGOIRE: I'm sorry, the --

12 DR. SEDEROFF: CRISPR.

13 MR. GREGOIRE: Well, I don't have a
14 particular view on that specific technology. I
15 will say that one of the principles for -- that
16 the executive branch has with the regulation of
17 technology is that we don't regulate the
18 transformation process. The objective is to
19 regulate the products of the technology, not the
20 process. And one can argue if that's -- whether
21 or not that is, in fact, happening. But that's
22 one of the core principles that is in place and I

1 think that will guide our thinking.

2 In APHIS, we want to make sure we're
3 not introducing plant pests or noxious weeds into
4 the environment. And that will be the lens
5 through which we look at the products.

6 DR. SEDEROFF: That would really
7 change things a lot.

8 MS. DILLEY: Okay. Any other
9 questions?

10 (No response.)

11 MS. DILLEY: All right. Thank you
12 very much.

13 (Applause.)

14 MS. DILLEY: So we next have Dr. Cathy
15 Woteki who is Undersecretary for Research,
16 Education and Economics and also Chief Scientist,
17 and with her are going to be some subject matter
18 experts. So if you all could come up and take a
19 seat and then I will turn over to you.

20 DR. WOTEKI: Thank you so much, Abby.

21 We decided this late in the afternoon
22 we needed to mix it up a little bit. So I'm

1 going to talk a little bit, and the panel
2 members, I'm going to throw them some questions
3 and then we'll open it up for everyone.

4 So good afternoon. I'd like to start
5 by saluting the work of the advisory committee on
6 biotechnology and 21st century agriculture, or
7 what we call for short AC21. And this session is
8 really going to be focusing on what effects that
9 committee's recommendations have had on the work
10 that we're doing at USDA. So you're going to
11 hear about some things that we've completed with
12 respect to some of the recommendations and you're
13 also going to hear about some things that are
14 still ongoing but for which we've made some
15 significant progress. So to Russell Redding and
16 all the committee members I want to say thank
17 you, add my personal thanks to those of the
18 Secretary that he offered this morning.

19 I had the opportunity to participate
20 in several of the meetings that AC21 held and
21 really have a deep appreciation of the
22 thoughtfulness that went into all of their work

1 and that informed the recommendations that you're
2 going to be hearing a little bit about right now.
3 So all of us at USDA have been working hard and
4 thinking, first of all, about how to implement
5 them. And then there are a number of my
6 colleagues who have had a leadership
7 responsibility for responding and implementing
8 several of those recommendations. And they're
9 with me here today on the podium.

10 I don't know if you're seated -- no,
11 you're definitely not seated in the order in
12 which I'm going to be calling on you. So I'm
13 going to introduce everybody now and then I'm
14 going to be throwing them questions.

15 So Brandon Willis, Administrator for
16 Risk Management Agency. Betsy Rakola who's the
17 USDA's organic policy advisor. Dr. Anne Marie
18 Thro who is on detail right now to my Office of
19 the Chief Scientist where she's the senior
20 advisor for plant health and production in plant
21 products. Dr. Peter Bretting in Agricultural
22 Research Services National Program leader for

1 crop protection and production and Dr. Michael
2 Schechtman who was just on the last panel so is
3 familiar to everybody.

4 The recommendations that they've going
5 to be discussing and that I'm going to give you
6 just a brief overview on directly affect farmers'
7 access to services and to data and therefore,
8 they're very important to us at USDA. And the
9 Secretary wants all elements of our vast
10 agricultural community to have access to the
11 services and programs of the department.

12 One service is helping more farmers,
13 and to help them in the enhanced crop insurance
14 program. Crop insurance is an important bedrock
15 of the safety net for farmers as they're facing a
16 wide variety of challenges from weather, natural
17 disasters, market conditions and all the
18 uncertainties that go with farming. Crop
19 insurance provides that safety net and assistance
20 when it's needed most. So this is an especially
21 useful program for organic producers and they've
22 lapped some real key access and safety net tools

1 in the past.

2 So we've taken some steps to bolster
3 the program to make relevant provisions more
4 robust. And Brandon Willis is going to outline
5 what some of those implications are. And so
6 Brandon, what are the changes that you've made?

7 MR. WILLIS: Okay. We've tried to
8 tackle the -- I guess you'd call them the primary
9 hurdles, the primary challenges organic producers
10 face within the crop insurance program. Most of
11 these changes have taken place since 2012, the
12 last year and a half mostly. The first one is,
13 if you're organic producer you paid a five
14 percent surcharge for crop insurance compared to
15 your neighbors. We eliminated that a year ago
16 and that no longer exists.

17 Another frustration for organic
18 producers with the program was the prices. They
19 received higher prices oftentimes, they have a
20 market that reflects the organic production. The
21 crop insurance program price did not reflect
22 that. What we've done is we've tried to expand

1 the list of crops that have what we call an
2 organic price selection. It really just reflects
3 the typical market price for that crop if it's
4 grown organically. We've gone from about four
5 just a few years ago, we're in the mid-twenties
6 now and we've added nearly seventeen, eighteen
7 just in the past two and a half, three years.
8 We're actually looking to add another 20 in this
9 next year as well.

10 The other thing we've done is contract
11 price addendum. This is a fancy word to say many
12 people grow their crops, they grow them with a
13 contract. They know the price they're going to
14 receive so why are we trying to set an organic
15 price that we may not be able to find because
16 there may not be enough market so we can get a
17 good price for that? So what we created was an
18 addendum that said, for nearly 62 crops, if you
19 have a contract we will let you use that contract
20 price when you suffer a loss in the crop
21 insurance program so you'll be compensated what
22 you would have been compensated in the market

1 price in the marketplace. Last year was the
2 first year we had that available, nearly ten
3 percent of organic farmers used that. Taking all
4 these together we saw an increase in organic
5 acreage in the crop insurance program of nearly
6 ten percent.

7 Another thing we did was we created a
8 program called the Whole Farm Program. The
9 reality is we'll never be able to have an
10 individual crop-specific policy for some crops in
11 some counties, there simply isn't the
12 information. So the whole farm aggregates the
13 revenue of all the crops a farmer grows into one
14 big lump and they can ensure that revenue.
15 Actually this was a product of Russell Redding
16 and some of the work that they did that led to
17 this in the state of Pennsylvania. This is a
18 safety net option for organic farmers, and many
19 farmers actually, that didn't exist historically.

20 It's an opportunity for people who
21 have the opinion that crop insurance doesn't work
22 for me because there has not historically been a

1 policy. It works very well for people who are
2 diverse because it rewards diversity recognizing
3 that if you plant many crops, the chances of
4 losing everything goes down because one crop's
5 revenue will offset another's loss. It also
6 works well for organic producers because it looks
7 at your revenue, it looks at your actual revenue,
8 the prices you receive will be reflected in that
9 revenue. It's available in 45 states this year,
10 moving forward we'll expand it hopefully to
11 nearly the entire nation.

12 That sums up what we -- the progress
13 we've made and what we anticipate making in the
14 next year or so.

15 DR. WOTEKI: Great. Thanks, Brandon.

16 Another recommendation was to develop
17 an organic seed finder database. Farmers were
18 saying they needed easier ways to identify and
19 get access to organic seeds that would meet their
20 particular production requirements. And the AC21
21 report also asked whether similar informational
22 support for non-GE seeds suitable for producers

1 supplying GE-sensitive markets might also be
2 useful. The Agricultural Marketing Service's
3 national organic program awarded a one-year
4 contract to the Organic Seed Alliance and its
5 partner, the Association of Official Seed
6 Certifying Agencies in February of last year to
7 begin developing that database.

8 So I'd like to turn it over to Betsy
9 to tell us what the status is.

10 MS. RAKOLA: Thank you, Dr. Woteki.

11 I will say Mr. LaVigne stole a little
12 bit of my thunder in his discussion of the
13 organic seed finder earlier today but I wanted to
14 speak a bit more about the reason that USDA
15 provided some support to this effort and some
16 more details about the deliverables we're
17 expecting from this contract.

18 So the organic seed finder fills an
19 important information gap that we currently see
20 in the organic seed marketplace. By connecting
21 organic seed vendors to potential customers it
22 helps organic farmers to find seeds that are most

1 appropriate for use in organic systems. This
2 information helps to support the growing organic
3 industry and it also helps farmers to comply with
4 the USDA's requirement that they use organic seed
5 whenever it is commercially available.

6 The objective of the USDA's contract
7 award is to better understand the current state
8 of the organic seed market. We expect to have
9 several deliverables very soon such as reports
10 identifying needs for organic seed breeding,
11 outreach materials about the organic seed market
12 and targeted studies on certain seed types and
13 seed locations. This will help us at the USDA to
14 share better information on the organic seed
15 market with both organic certifiers and organic
16 producers as well as identifying specific needs
17 for seeds and breeds and varieties. And we hope
18 that that will help us to identify a path forward
19 on organic seeds.

20 DR. WOTEKI: Thanks, Betsy.

21 The next item was not one that was a
22 direct recommendation in the report but it was a

1 constant refrain through many of the meetings.
2 And that was the concern of plant breeders, that
3 there -- particularly for the non-commodity
4 crops, that we need to enhance plant breeding
5 activities. I named a plant breeding working
6 group which held a listening session and
7 published a workshop report about what the needs
8 are in plant breeding. And then in follow-up to
9 that asked that this plant breeding working group
10 within the department develop a roadmap to
11 enhance plant breeding in the United States. I'm
12 happy to tell you that earlier today we posted
13 that roadmap for plant breeding on our website,
14 USDA.gov, and it is on the website where the
15 Office of the Chief Scientist on USDA.gov. But I
16 wanted to ask Anne Marie Thro to tell you a
17 little bit more about it.

18 MS. THRO: Thank you.

19 The plant breeding roadmap sketches
20 out a vision for USDA's intramural work in plant
21 breeding over the next five or ten years and
22 beyond. Priorities are based on input from

1 stakeholders across the range of views that are
2 represented here today. They include the
3 National Plant Germplasm Systems collections,
4 development of new tools and methods for using
5 germplasm from the National Germplasm collection
6 and for using growing biological and
7 environmental knowledge in plant breeding. They
8 also include variety development in public goods
9 situations.

10 We also heard stakeholder issues that
11 are broader than USDA, in fact broader than any
12 single entity. We heard about the importance of
13 education and recruitment, for example, and that
14 ties in with something we heard from Dr. --
15 pardon me, from Secretary Vilsack earlier today
16 about the importance of teaching our fellow
17 citizens about agriculture. When they know more
18 about agriculture they'll be more excited about
19 coming into plant breeding.

20 We heard discussions about what is
21 optimal use of technology transfer methods and
22 mechanisms. What's the optimal balance between

1 public and private work in plant breeding? We
2 heard a value for the U.S. system in which we
3 have both federal and state plant breeding, we
4 use different types of funding for plant
5 breeding, core funding, capacity funding,
6 competitive funding, farmer groups and others
7 helping to fund plant breeding. And in general
8 this kind of robust characteristic or this robust
9 interaction of the different kinds of
10 arrangements, it seems to be a unique U.S.
11 genius. And we heard many stakeholder comments
12 pointing to the question of how that model can be
13 sustained in plant breeding going forward.

14 You heard from Dr. Woteki that that
15 roadmap is online now. USDA plans to continue to
16 engage with stakeholders about the roadmap so if
17 you're interested, if you have any comments or
18 questions, I will be here this evening during the
19 poster session, and tomorrow, please talk to me
20 or Dr. Woteki.

21 DR. WOTEKI: Great. Thanks Anne
22 Marie.

1 We've also heard some questions
2 earlier today about what are we doing with
3 respect to our research investment to support the
4 organic farmers of this country? We want to, in
5 this next session, really address -- or this next
6 part of this session address the research that
7 we've been sponsoring with respect to crop
8 stewardship and gene flow risk mitigation. We
9 have a Biotechnology Risk Assessment Research
10 Grants program, that acronym is BRAG. It was
11 starting in 2013 that we oriented the
12 programmatic request for applications soliciting
13 proposals from the research community to focus on
14 the issues that AC21 was considering. And the
15 BRAG request for applications has included since
16 2013 funding for assessments of the efficacy of
17 existing techniques for mitigating unintended
18 presence on a crop by crop basis, or in seed
19 production multiplication systems on a crop by
20 crop basis, and the development of novel
21 strategies to mitigate unintended presence of GE
22 traits in non-GE production systems.

1 We've funded several research
2 projects, three of them studying technologies to
3 inhibit gene flow either by developing male
4 sterility pollen confinement or plastid transgene
5 containment. Another project investigating the
6 control of seed dormancy for reducing fitness of
7 GE plants in the environment. And another
8 project studying an inexpensive in-the-field
9 detection for monitoring GE organisms in the
10 environment.

11 AC21 in its report also recommended
12 conducting research on landscape scale gene flow
13 in alfalfa. And within the Agricultural Research
14 Service there is an ongoing project examining the
15 movement of GE traits in feral and roadside
16 alfalfa populations and modeling gene flow in
17 alfalfa in the Pacific Northwest. Dr. Peter
18 Bretting is going to provide us some more
19 insights into that project. So Peter?

20 DR. BRETTING: Thank you very much,
21 Dr. Woteki. And welcome everyone.

22 Yes, I'd like to provide a little more

1 detail for this research that was funded by USDA
2 RS, by USDA NIFA and by a special allocation from
3 the Office of Secretary. The Secretary of
4 Agriculture really places a strong emphasis on
5 this.

6 So the research has four primary
7 elements. First to generate information that
8 could be useful for refining isolation distances
9 that's needed to limit adventitious presence of
10 genetically engineered traits. There are
11 industry-wide standards, longstanding efforts in
12 this that provide a really strong foundation. So
13 really the verb "refined" is appropriate here.
14 Part of that is to identify the avenues whereby
15 the genetically engineered traits would spread
16 into feral alfalfa populations or into fields so
17 that trait confinement strategies can be refined.

18
19 Part of this involves looking at
20 pollinators that are provided commercially, honey
21 bees and other bees are important for alfalfa
22 seed production. What role might they play, what

1 role might other avenues play? And as been
2 mentioned, taking a particularly strong at feral
3 alfalfa plants, do they -- are they genetically
4 engineered in terms of the traits there? And do
5 they play a role in the adventitious presence of
6 these traits? And in alfalfa right now it's
7 glyphosate resistance. I have to emphasize that
8 this research really couldn't take place without
9 very strong support and cooperation from alfalfa
10 commodity groups, the seed industry and farmers
11 who have been all too happy to help our
12 researchers in the work.

13 So, so far the researchers have
14 collected samples from thousands of plants in
15 three sites in California, in Idaho and in the
16 state of Washington. The research involves
17 testing for the presence of the glyphosate
18 resistant trait. First a simple spray with the
19 glyphosate and then what's supposed to be non-
20 genetically engineer materials. If the seedling
21 survives taking a look with biochemical molecular
22 analysis to confirm whether it's happening. And

1 then as the samples are collected the GPS
2 coordinates are taken and that's going to enable
3 geospatial modeling that will be really important
4 for addressing the goals of the research.

5 So it's well under way. There's a lot
6 more data analysis and geospatial modeling. The
7 initial results indicate that insights will be
8 forthcoming about the role of pollinators and of
9 seed that might spill off of trucks that have
10 harvested alfalfa for seed.

11 So I'll stop there and turn it back
12 over to Dr. Woteki.

13 DR. WOTEKI: Thanks, Peter.

14 We're going to go back to Anne Marie
15 Thro for the next recommendation. It relates to
16 research to control corn pollen generation. And
17 as a result of that recommendation we have both
18 intramural and extramural research projects
19 looking to develop strategies for deploying genes
20 to control pollen germination in receptive corn.

21 MS. THRO: Genes that prevent pollen

22 --

1 DR. WOTEKI: Pull the microphone up
2 closer.

3 MS. THRO: Thank you. How's that?
4 All right.

5 Gametophytic incompatibility genes as
6 they are known to those who study them, or genes
7 that prevent pollen from fertilizing the silks of
8 a different variety, these genes can limit
9 undesired out-crossing among different corn
10 market classes. And in the poster session
11 outside, which you'll see beginning shortly and
12 be able to enjoy also the North Carolina treats
13 that are already being set up out there, in that
14 poster session you'll see two examples of
15 research that USDA is funding. One example is
16 research that's being conducted right here at
17 NCSU in collaboration with USDA and with NIFA
18 funding and state funding as well. I'm sure you
19 can hear about that. And another example from
20 USDA research in the midwest that's being
21 conducted in collaboration with two or three land
22 grants and a private institute.

1 As we heard in a talk just a short
2 time ago the private sector is also working on
3 this trait and new corn hybrids that will not
4 accept GE pollen are becoming available for some
5 specialty types for organic systems. Future
6 research may include development of similar
7 systems for additional types of specialty corn as
8 well as studies to look for genetic
9 incompatibility systems that may exist in other
10 crops. And again, as you'll on the posters
11 outside, there may even be other types of genetic
12 mechanisms that can further allow plant breeding
13 to facilitate coexistence.

14 DR. WOTEKI: Great. Thanks, Anne Marie.

15 Another recommendation from the
16 committee was that we develop a plan to
17 prioritize the national plant germplasm systems
18 accessions and more closely examine their
19 trueness to type. This recommendation really is
20 a huge one. There are 569,000 accessions
21 currently in the plant germplasm system
22 representing about 14,900 different plant

1 species. So it's an enormous collection. And
2 what the group tasked with responding to this
3 recommendation has been doing is to develop a
4 plan to prioritize how they're going to approach
5 this huge project. And Peter has had a major
6 responsibility for this so I'm going to ask Peter
7 to fill you in on that.

8 MR. BRETTING: Well, thanks. And
9 thanks for the background.

10 I might mention just briefly, we're
11 using the term "trueness to type" rather than
12 "purity" because in a lot of these materials it's
13 difficult to think in terms of purity because
14 they're wild species sometimes, they're farmer
15 materials from indigenous, so-called indigenous
16 land races and they're intrinsically highly
17 variable genetically. So what we try to do is,
18 when the material comes in to the gene banks and
19 it's being conserved, is to try to maintain the
20 original genetic profile true to type. You can
21 think of it synonymous to purity but it has a
22 twist to it and a complication.

1 So Dr. Woteki talked about the
2 enormous numbers of different genetically
3 distinct samples we have. The first thing to do
4 is to look at them and just see what were most
5 relevant to the concern here. And mine's up
6 569,000 or so samples represent 14,900 species.
7 So the first way to deal with this was to say,
8 well, of those species, what are the highest
9 priority for concern? So we started with those
10 20 species for which there are authorized
11 deregulated events so it's, you know, 20 over
12 14,900 is way under 1 percent. So that made us
13 feel a little bit better. And of the 569,000,
14 what of the accessions might have been -- come
15 into the gene bank after genetic engineering
16 started being -- varieties started becoming
17 commercially available in the U.S. or were
18 regenerated or since. And that was about 30,000
19 or so over 569,000, or about 5, 6 percent, 90
20 percent of which were in three crops, maize or
21 corn, cotton and soybeans.

22 So that -- the plan then is to focus

1 on them. And I should mention here that the
2 discussion we've heard through today and we'll
3 hear tomorrow on best management practice
4 certainly is appropriate to managing gene banks
5 or our breeding programs. And we've had in place
6 for many years best management practices or
7 tutorial practices that are really very different
8 than the commodity level discussions that we
9 heard earlier. So when we regenerate materials
10 in gene banks, oftentimes the pollinations are
11 done by hand. Oftentimes the harvest is done by
12 hand, everything is strictly labeled. The seed
13 quantities are very small, sometimes they're in
14 the hundreds, all in separate packets and
15 labeled. So this is already in place.

16 But with genetically engineered traits
17 there are additional wrinkles. Off types can be
18 distinguished at very low frequencies, one in
19 three thousand with certain tests. So with new
20 detection technologies and the potential impact
21 of having genetically engineered traits where
22 they shouldn't be are causing us to look at our

1 existing best management practices and see what
2 needs to be done to upgrade them.

3 Part of this is we've conducted some
4 small pilot projects, mainly with cotton, to look
5 at what some of the key control points might be
6 in terms of testing and best management
7 practices. And we've been assisted in this by
8 industry, industry is very interested in helping
9 us.

10 So with that I'll close and turn the
11 mic back to you.

12 DR. WOTEKI: Great. Thanks, Peter.

13 And we're down to the final
14 recommendation that we're going to be covering
15 this afternoon. The committee recommended that
16 we conduct an ongoing evaluation of the pool of
17 commercially available non-GE and organic seed
18 varieties and identify market needs for producers
19 serving GE-sensitive markets. We established the
20 National Genetic Resources Advisory Council which
21 had been in a period of hiatus, so this was a
22 committee that had been functioning, had been

1 dormant and we reestablished the NGRAC, as it's
2 called, as a subcommittee of our federal advisory
3 committee to the REE mission area, the NAREEE
4 Board.

5 And among the projects that the
6 National Genetic Resources Advisory Council,
7 NGRAC, has been working on is a plan for how USDA
8 should work with industry and other stakeholders
9 to accomplish this goal. The committee has met
10 several times beginning in 2013 and through 2014,
11 and submitted its interim report to the Secretary
12 last August. It's continuing its work to
13 finalize its report and it's actually going to be
14 meeting later this month to continue that work.

15 We've had Michael Schechtman up here
16 on this panel and he's the one who's going to
17 give the report on where NGRAC stands.

18 MR. SCHECHTMAN: Thank you, Dr. Woteki.

19 So the NGRAC has labored methodically
20 on this task among the other tasks that are
21 within its larger charge around the issues of
22 protecting genetic resources within the United

1 States. The committee, as Dr. Woteki has
2 indicated, met three times in person and quite a
3 number of times via conference call and -- in
4 2013 and '14, and it would probably be
5 inappropriate for me to omit the fact for you to
6 realize that, as a subcommittee of the NAREEE
7 Board it also went into another little hiatus for
8 a little while because the NAREEE board is a
9 committee that's statutorily authorized under the
10 Farm Bill. So when the Farm Bill vanished the
11 NAREEE board and consequently the NGRAC also
12 vanished for a while until there was a new Farm
13 Bill.

14 But that having been said, the
15 committee has met a number of times, continues to
16 meet. They produced an interim report for
17 Secretary Vilsack in September of 2014 and
18 addressing again the broad scope of things that
19 the committee was working on. They recommended
20 steps for maintaining the genetic identity of
21 gene bank samples, highlighted the importance of
22 genetic resources for adapting to changing

1 agricultural conditions, identified the need for
2 educating and training early career gene bank
3 managers and breeders doing the work that Peter
4 has spoken about. Supported the ongoing
5 development of the GRIN global database on
6 accessions, recommended monitoring genetic
7 diversity of crops in the field and urged the
8 U.S. government to become a party to the FAO
9 International Treaty on Plant Genetic Resources
10 for food and agriculture.

11 So the NGRAC is in specific reference
12 to the recommendation from the AC21 that the
13 committee provide a recommendation to USDA on how
14 USDA should work with industry on these issues
15 around the availability of seed varieties for
16 these non-GE users. The NGRAC is currently
17 finalizing a report and that report is going to
18 discuss germplasm access points, various issues
19 and components, and specifically this
20 recommendation for USDA, how it should work with
21 all of the stakeholders which includes the public
22 and private seed sectors, the food and fiber

1 industry as well as tribal governments for this
2 ongoing evaluation of the pool of suitable
3 available non-GE germplasm. And this report is
4 scheduled to be delivered to the Secretary
5 sometime in the third quarter of this year.
6 Again, before a report is finalized you can never
7 quite guarantee that that's going to happen, I
8 think Russell can attest to that. But we hope
9 that that report will be completed by the third
10 quarter of this year.

11 DR. WOTEKI: Great. Thanks, Mike.

12 To sum up, what I've heard through
13 today is coexistence is important for a lot of
14 different reasons, and also it's really
15 complicated. As you've heard we've made some
16 very significant strides towards implementing the
17 recommendations that came from the AC21
18 committee. Tomorrow morning you're going to be
19 hearing about some things that are in the
20 planning stages to continue and further the work
21 that's ongoing within the department.

22 Abby, at this point should I turn it

1 back over to you to manage questions?

2 MS. DILLEY: Sure.

3 DR. WOTEKI: Okay. Great. Come on up.

4 And while she's coming up, join me in
5 thanking this panel.

6 (Applause.)

7 DR. WOTEKI: And just one final note,
8 for those who received the conference packet,
9 there's a three-page insert in the packet that
10 kind of summarizes everything that we've gone
11 over in this session. So you can refer to that,
12 you can share it, but it's a good summary of what
13 you just heard.

14 MS. DILLEY: So why don't we take --
15 if there are questions to the panel, some brief
16 questions, and then we'll talk a little bit about
17 your homework assignment, which includes having
18 some fun at the poster session.

19 So any questions? You have these all
20 committed to memory? Excellent. Please.

21 DR. GOODMAN: While it may be
22 worthwhile to survey the national germplasm

1 systems accessions for contamination by GMOs, as
2 a plant breeder -- I'm Major Goodman from NC
3 State, by the way. As a plant breeder my concern
4 is not so much a minor amount of contamination by
5 some GMO pollen, my concern is the willful state
6 of regeneration of our national collections. I
7 don't think much of anyone outside this system
8 realizes how underfunded and how overworked the
9 people in the system are. But in maize alone,
10 the last I knew they were years behind in
11 regenerating collections that needed to be
12 regenerated. They have managed to get some help
13 from industry but many of these collections need
14 specific ecological environments to be
15 regenerated. And Monsanto and Pioneer are not
16 going to furnish those, sorry.

17 MS. DILLEY: So it's overall fitness
18 and support for the germplasm program?

19 DR. GOODMAN: Right.

20 MS. DILLEY: Okay.

21 DR. GOODMAN: And it's actual action
22 on maintaining viability that I'm concerned with.

1 Not a big of contamination here and there.

2 MS. DILLEY: Peter, do you want to --
3 I know you were nodding, so --

4 MR. BRETTING: Yes. To respond to
5 that, what Professor Goodman is referring to, in
6 the last ten years or so the demand for the
7 germplasm, the national germplasm system has
8 doubled. Our budgets haven't quite moved in that
9 direction that fast so as a result you have a
10 mismatch between demand and ability to meet that
11 demand. And these materials are not inert, it's
12 not like Fort Knox, you put the gold in the bank
13 and it remains there until you're ready for it.
14 They have to be continually regenerated. And
15 with this great demand, the capacity to meet that
16 is -- is not really congruent.

17 So as we work on methods for enhancing
18 our best management practices, we have to weigh
19 this potentially additional work with the demands
20 of keeping it alive, let alone keeping it true to
21 type. So this is one reason that this is a very
22 challenging exercise and why we need your input

1 on how to do that in a best static funding
2 situation.

3 MS. DILLEY: All right. Some other
4 questions? Yeah, over here?

5 PARTICIPANT: Just to follow up on
6 Major Goodman's point, Peter, if you were to
7 think about a number in terms of percentage of
8 increase of resources needed to bring the
9 collection back up to speed and to have the kind
10 of activity that we need to ensure that that
11 collection is viable, would you say something
12 about that?

13 MR. BRETTING: That's --

14 MS. DILLEY: Maybe a little more than
15 "a lot."

16 MR. BRETTING: Yeah. Well --

17 MS. DILLEY: Yeah, get a sense.
18 Right.

19 MR. BRETTING: Right. I couldn't give
20 you an exact number. I just indicated that the
21 demand has doubled in the last ten years, so it's
22 a real challenge to do what we are trying to do

1 with a currently static budget so we do need more
2 resources. I couldn't put an exact figure on it
3 but I can tell you that our funding at the moment
4 is \$44.6 million.

5 MS. DILLEY: And that's been fairly
6 consistent or declined?

7 MR. BRETTING: It's gone up and down.
8 In terms of real dollars it's below what it was
9 in, let's say, 2010 and FY 2013, all of the
10 agencies took a considerable hit. Thankfully in
11 2014 due to Undersecretary Woteki's leadership
12 and that of others, we were able to increase
13 funding. And in 2014 as funding increases came
14 in, they were not spread across the board, they
15 were targeted. And one of the targets for
16 increased funding in 2014 and then in 2015 were
17 the gene banks and National Germplasm Systems.
18 So to the extent that we can, they're getting
19 priority for whatever additional monies can come
20 in but the demand is growing so fast that it's
21 really outstripping the capacity. So if you
22 think of \$44.6 or so million, and a figure that

1 in real-dollar terms is about 2010 or 2009, we're
2 in danger of falling further behind and going to
3 the situation that Professor Goodman mentioned.

4 DR. WOTEKI: I think, Peter, and this
5 question actually goes to the heart of a real big
6 problem for agriculture research, the plant
7 germplasm collection certainly is one of those
8 things that we look at as being a uniquely
9 federal responsibility. As the question implied,
10 this isn't the kind of thing that the private
11 sector is going to support over the long term.
12 So it is a federal responsibility and it is a
13 unique resource, not only for scientists here in
14 the U.S. but also around the world.

15 Across the board for several decades
16 now there have been no real increases in the
17 support at the federal level for agricultural
18 research. And with the economic downtime and the
19 cuts in budgets that were experienced across the
20 federal government there were some very
21 significant cuts that ARS and all of the agencies
22 in the REE mission area experienced. The

1 President's budgets recently have had some
2 significant increases. And as Peter has
3 indicated we're trying to set some priorities
4 within those budgetary requests. So we're hoping
5 that there will be a turnaround, both with the
6 respect -- within the country for investment in
7 agricultural research, and very specifically in
8 the support of the germplasm activities.

9 MS. DILLEY: Another question over
10 here.

11 DR. ZILBERMAN: I think you mentioned
12 the word demand all the time. Generally
13 speaking, from what I feel there is -- it's
14 almost natural that it was a given and increased
15 need for better understanding of biodiversity in
16 genetic material. You would need to see that
17 more research is done. Did you think about
18 element of identifying a certain amount that this
19 core mission that no one else will do, and
20 certain amount that will be paid by parties that
21 benefit from it? Each of these demand, people
22 are willing to pay for it and generally these are

1 identifiable people.

2 So if you can really say, okay, we
3 have these 45 million, and you think 30 million
4 is a reduced thing that no one else will do it,
5 we take \$15 million and then we will do it only
6 if people will add -- if there will be some sort
7 of finance. Because to me, saying there is
8 demand and not charging for it, it means that you
9 have some private interests that benefit from it
10 and they don't pay for it.

11 MS. DILLEY: So thinking through
12 prioritization. Peter, you want to respond? Or
13 Cathy?

14 DR. WOTEKI: Well, a core philosophy
15 that undergirds the approach that we've taken
16 with access to our collections is that there be
17 access free of charge. So that has been a
18 central principal for the public good.

19 MR. BRETTING: And I'd add to that
20 that over -- as an average over the years
21 consistently, two-thirds to three-quarters of the
22 requesters are in the public sector and the

1 largest single block of requesters are land grant
2 university professors and researchers. So you
3 know, if we were to charge, the burden would
4 primarily fall on public sector researchers who
5 are already struggling to do their job. So the
6 ability to recoup significant amounts of money
7 that way are really pretty limited. The demand
8 is driven primarily by the public sector,
9 especially in some crops where there isn't a
10 large private sector profile in use. Aware there
11 are crops where there is a substantial private
12 sector activity. The materials that we
13 distribute generally are long-term high-risk
14 research experimental materials that require a
15 whole bunch of investments ahead of it so --
16 before a product issues. So it's long-term high-
17 risk, it's something we provide to the
18 agricultural system as a free-of-charge access as
19 a general service.

20 Also shouldn't stop before mentioning
21 that the increases in the budget in the past,
22 there was rapid increases in the late '90s and

1 2000s where our budget went from 20 million to
2 about 40 million. One of the main drivers of
3 that was very effective advocacy by the seed
4 industry so it's not like the seed industry are
5 saying this is a free ride. They've been among
6 our strongest supporters as has been the public
7 sector.

8 MS. DILLEY: Thank you.

9 We have time for two more questions.

10 Go ahead.

11 DR. SEDEROFF: So what kind of genetic
12 marker system do you use to ensure genetic
13 identity and integrity?

14 MR. BRETTING: In plant breeding or in
15 gene banks?

16 DR. SEDEROFF: In your gene bank.

17 MR. BRETTING: It depends upon the
18 crop, Professor Sederoff. It could be
19 morphological traits if they're easily visible,
20 such as if you have an inbred line. You can tell
21 an off type morphologically. In other cases we
22 will use SSR markers and in some crops where we

1 have the funding to apply it, also SNP markers.
2 But the amount of resources available to broadly
3 apply it just aren't there.

4 DR. SEDEROFF: So what you're telling
5 me is that if there's no routine genetic marker
6 system applied then there's no estimate of what
7 proportion of the resources are actually
8 redundant or properly identified?

9 MR. BRETTING: Well, up until recent
10 years the marker systems were highly heritable
11 phenotypic traits. So and in -- with skill dyes,
12 that can get you a certain part along the way.
13 For these highly heterogeneous, heterozygous
14 materials it's a moving target, regardless of
15 what marker system you use to -- it hasn't
16 shifted significantly from one regeneration to
17 another. So it's -- we try to apply it
18 judiciously without putting too much of our
19 resources into it that would detract from key
20 regeneration and key viability screens also. So
21 it's a real balance between how we can meet all
22 these demands for trueness to type with a static

1 budget and also still meet the demand for
2 distribution. In an idea world we would be able
3 to have a genetic profile of everything, at very
4 expensive cost.

5 DR. SEDEROFF: I know it's expensive.

6 MR. BRETTING: We don't have it yet.

7 DR. SEDEROFF: I know it's expensive,
8 but there are breeding programs that I know of
9 where the lack of such kind of genetic identity
10 tests are resulted in misidentification of
11 something like 30 percent of the lines in a
12 breeding program. So knowing what you have and
13 having a way to test it turns out to be
14 remarkably valuable and well worth the money,
15 too.

16 MR. BRETTING: Thank you.

17 MS. DILLEY: Thanks.

18 All right. Last question.

19 MR. LaVIGNE: Yeah, Andy LaVigne with
20 the American Seed Trade Association.

21 We would agree on the plant genome
22 system and the importance of that and I think we

1 really do need to look at -- I hate to use the
2 phrase but a paradigm shift in this. This should
3 be in the base budget of the USDA, it should be -
4 - again, it shouldn't be 40,000, it should be
5 60,000 with an increase every year. It is the --
6 it's not just plant it is also animal so we have
7 to think of it from that perspective. If you
8 look at some of the collection centers around the
9 country some can barely turn lights on and some
10 are Taj Mahals, and it's really a challenge. And
11 it got a little too political probably in the
12 '90s and early 2000s because of line items from
13 various members of Congress. But we need to get
14 back to where that is not political and it really
15 is supported.

16 And the other thing that I would ask,
17 maybe Cathy and some of the others on the board
18 is -- or on the panel, when we look at breeding
19 as a whole, we try to look at it even as print
20 system because it's not just breeding it's
21 physiologists, it's everything across the board.
22 So the challenge that we have to look at this in

1 the big picture is the land grant system and ARS
2 have been put under pressure. It's not a simple
3 system of going and finding 100 or 300 or 1000
4 new breeders and we'll all be okay, it's a lot
5 bigger issue than that.

6 So how do you look at a Bill Tracy
7 who's really putting out some great corn breeders
8 out of Madison but, you know, he's not long for
9 retirement here and he's done a great job. But
10 who comes in behind him? And we had a time there
11 when breeding was not as sexy as it is today and
12 so a lot of breeding programs went away. We
13 don't have the financial resources or the
14 personnel to reconstitute all those breeding
15 programs. So there really is -- we need to look
16 at this again in a fundamental way that says how
17 do we do regional breeding programs? I know a
18 lot of the universities don't like to hear that
19 but there needs to be ways to do this in a more
20 thought-provoking way instead of the old
21 institution silo system that we've had in place
22 before.

1 We appreciate the recognition of that
2 and we look forward to trying work out especially
3 those two areas.

4 DR. WOTEKI: And we agree with you,
5 Andy, on the need to look at both the intramural
6 and the extramural programs as a whole and also
7 in the context of what the government role is,
8 what the private sector role is. And if you look
9 at our budget requests for this year there are
10 cross-cutting initiatives where we're calling out
11 we need this in the intramural programs, we need
12 this in agricultural statistics, we need this
13 from APHIS, for example, in order to accomplish
14 this programmatic initiative.

15 And we're also working with the NAREEE
16 board to develop a new approach for their annual
17 report to the Secretary and to the Congress on
18 the adequacy and relevance of our research
19 programs that will again cut across our research
20 programs in the mission area in plant production,
21 in animal production, in food safety and human
22 nutrition and natural resources and do this on a

1 rolling basis. So there'll be -- I think when we
2 get the NAREEE board in another year into that
3 mode that that will also help with your concern
4 about really being able to look across what we're
5 doing in ARS, what NIFA is able to support at the
6 land grant universities and within the whole
7 context of agricultural research, public and
8 private.

9 MS. DILLEY: So I thank the panel
10 again for your comments and --

11 (Applause.)

12 MS. DILLEY: I'm just going to very
13 briefly give a little bit of a preview tomorrow
14 and get you set for both the poster session and
15 some processing of all the information you've
16 received over quite a rich day from all the
17 different presentations and discussion of the
18 AC21's report and recommendations and some of the
19 actions that have been -- that are underway. And
20 as Dr. Woteki mentioned, in your packets there
21 are a couple things you can do to prepare for
22 tomorrow.

1 Tomorrow really is all about getting
2 you into smaller groups. I mean, we'll have some
3 panel presentations but the majority of tomorrow,
4 if you've looked at the agenda, is to get you
5 into smaller groups and really have conversation
6 and gather a lot of feedback, not only the USDA
7 but just generally in terms of what are some
8 other things that not only USDA can be doing and
9 get some specific reaction to the
10 recommendations, what's underway, what's
11 proposed. But also what others could be doing.
12 And that's a lot of what the poster session is
13 about. And extract as much feedback from you as
14 possible in thinking about how to move forward
15 with supporting choices for growers and meeting
16 the demand.

17 And as you've heard today, a lot of --
18 some of the -- where there's still some rubs or
19 challenges from all different parts of the food
20 production system and some ideas about how to
21 address that.

22 So a couple things, one is the

1 materials that Dr. Woteki mentioned, there's a
2 three-pager of activities that are already
3 underway, that summarizes what the panel went
4 over for you just now. There's also another
5 document in your folder that are new proposed
6 USDA activities. And this is actually how we're
7 -- this first panel tomorrow will go over that as
8 well.

9 But I think it would really help
10 prepare you for tomorrow if you look that over,
11 refreshes your memory from today's discussion and
12 then also gets you set for that first panel
13 tomorrow. That's really going to be the focus of
14 the discussions in the breakout sessions. So
15 it's really some feedback on what's underway and
16 what's proposed, what are some things that are
17 maybe missing from your perspective that not just
18 USDA can do but others could do in helping
19 support coexistence.

20 And then lastly, and Michael
21 Schechtman alluded to some of this in some of the
22 comments and some of the deliberations of the

1 AC21, there's a lot of coexistence starts at the
2 neighbor-to-neighbor level. And others have
3 noted that there are other things that could help
4 support that, that that's not always enough from
5 some people's perspective.

6 But a lot of it is trying to support
7 that. And so what mechanisms could possibly
8 support that, who could do that? It's not just
9 USDA's potential role to do that but there are
10 lots of candidates and lots of mechanisms that
11 could be contemplated to help facilitate those
12 kinds of discussions and dispute resolution
13 mechanisms where those take place or to avoid
14 disputes. So it's really to help foster that at
15 the ground level.

16 Those are going to be the big
17 questions of the working groups and we'll go over
18 this tomorrow.

19 The other piece of it, along the lines
20 of what else are we not thinking about or what
21 else is out there is what the poster session is
22 all about. So when you adjourn we'll go to the

1 poster session -- is that right outside or is
2 that downstairs? Right outside. And as somebody
3 mentioned there's some good North Carolina treats
4 out there including some fermented agricultural
5 products for you to enjoy. And that's for -- to
6 talk to people about the posters, to talk amongst
7 yourselves about today's session, and we do -- I
8 think we have to clear out of the building at
9 6:00. So you just need to be aware of that.

10 And you also should be aware that
11 tomorrow we're meeting at a different location,
12 if you didn't know that already. You should
13 definitely know that by now because we don't want
14 you to show up here. And Mike, do you want to
15 give the location? Oh, here it is. Okay.

16 So it's at the McKinnon Conference
17 Center, 1101 German -- oh, Gorman -- need
18 glasses, sorry. Gorman Street -- yeah. So do
19 you know how far or how close that is from here?
20 It's on campus.

21 MIKE: It's about maybe a mile.

22 MS. DILLEY: Okay. So you can get

1 your coordinates. Those of you who have smart
2 phones you can follow your smart phone.

3 Also just for the poster sessions,
4 we're going to start tomorrow when we come back,
5 just to warm you up, on some reflections on the
6 poster session. It's not a quiz but it is kind
7 of to process a little bit, get some reaction,
8 get some thoughts just in terms of what you're
9 seeing in the poster session and again, just to
10 get you prepared for the discussion tomorrow.

11 So any questions?

12 (No response.)

13 MS. DILLEY: Any last comments? Mike?
14 Michael? Cindy or Jim? Anything else?

15 (No response.)

16 MS. DILLEY: All right. Then with
17 that we'll adjourn for the day. Please head to
18 the poster session and thank you so much for a
19 very productive day.

20 (Whereupon, the session was adjourned
21 at 4:47 p.m.)
22

A			
\$1.00 192:12	abundant 38:13	accurately 161:5	adapted 35:10 319:6,11
\$1.50 187:9	AC21 1:16 3:5 4:2,9	achievable 31:8	324:2,3,7
\$10,000 307:11	17:8 18:13 21:18	achieve 7:16 10:2 18:16	adapting 384:22
\$11.00 187:13	23:19 28:20 33:19	achieved 29:18	adaptive 108:14 318:15
\$12.50 187:5	34:3,8,11 40:14 41:9	achieving 35:2	319:4
\$13.00 187:6 193:21	42:2,22 43:2 44:22,22	acids 321:20	add 99:1 141:19 232:13
\$15 394:5	45:10,14 50:11 56:11	acknowledge 23:15	251:9 254:4 337:5
\$2.00 187:8,9 192:12	57:20 89:6 255:14	24:9 194:12 263:13	360:17 364:8 394:6
\$2.50 187:8	265:13 267:2 269:11	acknowledged 196:16	394:19
\$200 271:19	269:18 277:18 281:6	acknowledgement	added 153:17 252:9
\$25 191:16	281:9 287:14 316:8	24:16 188:17	253:13 364:6
\$2500 271:1	316:20 337:4,13,21	acknowledges 31:1	addendum 364:11,18
\$3.50 193:22	339:19 340:7 342:4	acknowledging 36:5,7	adding 112:16 144:11
\$30 191:17	344:3,18 346:4 355:8	36:10,12	addition 305:16 325:12
\$30.00 187:15 193:16	360:7,20 366:20	acquired 133:3	354:11
193:19	372:14 373:11 385:12	acquiring 133:6	additional 20:6 22:14
\$30.00-plus 268:12	386:17 405:1	acquisition 155:8	26:1 35:5 153:17
\$3000 271:3 272:18	AC21's 402:18	acre 240:19 242:19	161:22 168:7,13
\$4.00 187:3	academia 14:20 20:10	243:13 244:6	169:1 178:15 257:22
\$44.6 391:4,22	academic 7:4 8:2,7	acreage 161:19 257:22	262:11 265:3 311:4
\$50,000 301:7	10:22 19:7 20:10	258:6,6 262:19,20	325:7 340:15 343:18
\$5000 272:18 306:20	academies 163:7	365:5	354:20 378:7 381:17
307:8	academy 63:1 99:9	acres 240:3 243:5,7,15	389:19 391:19
\$5300 271:4	102:22	256:22 257:2 263:1,1	Additionally 19:6
\$8.5 161:11	accelerated 66:17	263:7 288:3,5,7,13	address 4:3 14:16 15:8
\$9000 272:21	accentuating 147:15,16	289:2 291:6,21,22	17:1 19:13 21:20 52:8
a.m 1:8	accept 101:6 137:18	acronym 329:4 372:10	85:3 219:2 264:14,22
Abby 1:8 2:12 4:20	183:22 184:5 188:13	act 38:20 196:9 206:4	277:6,14 314:8
21:13,15,22 336:21	299:3 309:13 378:4	212:8 220:21 222:5	315:19 317:17 322:18
359:20 386:22	acceptable 105:16	328:22 329:10 335:4	325:4,20 326:14,15
ability 35:8 71:1 81:17	282:15	351:15,18 354:14,21	327:1 343:22 348:15
125:13 183:4 243:19	acceptance 189:13	355:1	350:11 355:16 372:5
247:21 287:20 389:10	196:4 246:21 267:7	Acting 1:16	372:6 403:21
395:6	291:16	action 37:18 125:7	addressed 19:18 26:12
able 12:13 16:21 34:20	accepted 43:4 271:11	150:12 198:22 213:21	68:17 341:21
40:10 60:9 61:7 71:18	accepting 218:4	245:19 267:8 304:7,7	addresses 49:22
73:19 76:21 80:1,4,5	accepts 184:4	330:11 331:20 332:17	addressing 33:20 91:15
81:12,13 82:14,20	access 27:5 35:9 93:16	343:15 354:19 388:21	343:14 376:4 384:18
93:16 95:15 161:10	137:17 169:16 362:7	actions 4:3,8 19:13	adequacy 350:2 401:18
167:12 171:7 175:19	362:10,22 366:19	33:2 214:22 315:19	adequate 123:20
177:8 178:18 183:9	385:18 394:16,17	316:8 325:15 337:11	339:21
238:14 240:5,6	395:18	346:12 355:15 402:19	adequately 219:2
348:21 356:5 364:15	accessed 128:6	active 32:20 305:9	ADHD 133:5 134:20
365:9 377:12 391:12	accessible 122:8	326:7	138:18
398:2 402:4,5	accessions 378:18,20	33:13 260:9 316:10	adjourn 4:22 22:5
abnormal 124:3 131:5	380:14 385:6 388:1	317:14 369:5 393:8	405:22 407:17
abound 215:19	accomplish 324:14	404:2,6	adjourned 407:20
absence 145:11 150:20	383:9 401:13	activity 86:13 390:10	adjust 251:3
279:12	accomplished 22:7	395:12	adjustments 27:2
absent 223:19	account 104:17 105:12	actors 304:10	administer 351:2
absolute 113:1 296:6	163:10 166:15 260:15	actual 161:10 254:14	administered 335:4
302:16	accountable 26:20	299:10 342:5,16	Administration 222:3
absolutely 66:7 142:16	169:22	366:7 388:21	351:8
272:11	accounted 261:18	acute 124:7	administrations 45:15
absorbing 270:8	345:2 352:14 354:4	acutely 297:8,12	administrative 347:9
absorbs 181:18	accredited 223:9	ad 73:8	Administrator 346:16
absorption 122:18	accumulate 270:1	adapt 111:16	347:2 349:12 361:15
	accurate 167:19 349:9		349:12 361:15
			354:11

- ado** 203:20
adopt 38:1 67:5 325:11
 326:1 327:2
adoption 279:7
ADS 167:11
advance 6:1 16:12 28:9
 28:11 37:11 49:18
 54:18 288:10 291:10
advanced 6:17 56:11
 56:12
advances 357:1
advancing 17:17
 353:18
advantage 18:2 110:3
 171:13 181:14 254:15
 268:21
advantages 295:15
advent 151:20 242:21
adventitious 183:3
 237:6 266:7 275:13
 299:19 300:21 374:9
 375:5
Adverse 122:16
advertising 163:21
advice 294:20
advised 56:12
advisor 361:17,20
advisories 330:12
advisory 33:17 35:13
 83:11 84:15 330:9
 360:5 382:20 383:2,6
advocacy 396:3
advocates 214:18
 225:18
affairs 2:19 3:2 5:9,18
 10:22
affect 142:11 317:10
 319:7 324:22 335:12
 362:6
affordable 27:16 38:13
 214:14 271:16
afraid 92:2 216:16
Africa 208:22 209:2
African 97:17
afternoon 20:9 92:16
 202:1 228:6 293:5
 317:1 336:13,22
 347:1 359:21 360:4
 382:15
afternoon's 200:11
ag 56:16 286:12 302:7
age 60:11 139:14 296:8
agencies 14:9 17:13
 18:20 31:21 224:19
 234:10 235:5 285:18
 326:6 327:16 353:5
 367:6 391:10 392:21
agency 1:14 2:7 188:11
 224:12,15 236:14
 270:14 325:3 347:10
 347:17,20,21 348:1,2
 348:4 350:2 351:9
 352:18 355:11 357:8
 357:11 361:16
agency's 346:18 353:12
agenda 5:4 15:22
 200:17 337:8 341:16
 403:4
agent 133:16 320:10,14
agents 223:8
aggregated 269:12
aggregates 365:12
aging 227:15
ago 59:14 65:3 68:4,21
 101:18 103:10,19,21
 104:2 106:1 188:21
 189:4 212:9 220:17
 253:22 269:14 285:7
 285:15 290:20 294:15
 320:9 363:15 364:5
 378:2
agree 9:9 101:7,8 163:8
 195:2 197:9 213:8,10
 213:11 219:16 228:15
 231:5,6 303:22 356:6
 398:21 401:4
agreeable 116:5
agreed 16:9 102:22
agreement 74:20
 196:16
agreements 274:8,9
agrees 186:15
agricultural 1:17,18
 2:16 6:1 15:9 16:13
 19:16 21:17 25:14
 36:13 105:10 110:7
 111:2,3,3,6 116:8
 128:2 191:13 227:22
 297:21 325:5 326:7
 335:3 337:3 338:5
 347:16 352:1 361:21
 362:10 367:2 373:13
 385:1 392:17 393:7
 395:18 401:12 402:7
 406:4
agriculture 1:1,11,12
 1:17 13:17,22 14:5
 15:15 16:6 18:4 20:4
 23:9,17 24:19,21 25:2
 25:10,12 26:15 27:22
 28:15 29:14 30:14
 31:16 33:16,19 37:1,4
 37:11 38:8,11,16
 39:17,18 41:7,8,17,21
 42:13,14,18 43:4,9,19
 47:6,9 48:2 49:11
 50:3,10 56:20 64:4
 72:17 79:8 80:10,21
 83:9 84:3,5 85:21
 87:11 101:22 105:5
 105:13,17 107:5
 108:3 112:18,21
 113:9,11,17 115:20
 117:19 124:20 176:1
 176:2 177:9,11
 185:18 194:2 203:19
 205:5 210:7,12,14,22
 211:6,7,9,13,15,16,18
 212:12,17 213:16,18
 213:19,22 214:2,8,8
 215:3,6,14 218:12
 242:2 247:15 252:21
 264:20 276:18 278:6
 280:13,21 283:5
 284:14 285:12 292:12
 326:12 340:1 345:22
 347:13 360:6 370:17
 370:18 374:4 385:10
 392:6
agriculture's 31:1
 38:21 78:10
Agricultures 204:16
agroforestry 90:6
agronomic 299:5,7
agronomy 106:20
ahead 59:13 67:21
 74:15 93:22 144:1
 149:18 156:1 179:5
 202:15 203:3 260:5
 395:15 396:10
ailments 218:6
aimed 357:5
air 25:3 216:6
airplane 216:6
airport 22:3
aisle 118:16,21
Alan 67:13 69:8 77:2,3
 77:8 80:15
Alan's 75:17
alert 255:2
alfalfa 242:2 275:12
 283:4 297:6 355:12
 373:13,16,17 374:16
 374:21 375:3,6,9
 376:10
align 60:13
alike 294:7
Alison 10:12
alive 139:17 389:20
allay 138:1
allergen-free 177:19
allergenicity 122:21
 126:18 138:18 217:11
allergens 126:22 133:3
allergic 123:1 126:12
 127:6,9,12
allergies 126:4,5,6
 135:5
allergy 70:17
alliance 285:16 311:15
 367:4
allocation 374:2
allow 55:6 59:20 61:16
 76:20 107:20 163:22
 214:11 224:5 233:13
 238:7 291:16 323:2
 378:12
allowed 55:15 128:15
 153:6 161:9 173:8
 245:7
allowing 23:5 225:19
 248:21
allows 137:16 198:12
 331:3
alluded 28:16 337:16
 344:10 404:21
ally 295:17
almond 155:3
Alpha 54:22
alter 102:11
altered 106:9
alternative 13:22 357:6
alternatives 348:14
altogether 171:16
Alzheimer's 133:7
 134:21 136:1
amaranth 245:15
 320:17,21 328:12
amazing 9:1 43:8
 204:18
Amazon 26:22 86:11
America 39:12 204:17
 326:20 332:10
America's 26:7 292:14
American 2:3,4 16:20
 24:22 26:2 27:22
 30:14 39:8 85:21,21
 88:6 153:11 162:2
 176:2 226:1 241:15
 242:5 246:17 247:17
 247:17 280:6,10
 347:12 398:20
Americans 132:21
 221:5
amino 321:19
amount 41:13 120:8,8
 121:1 125:18 128:11
 132:16 161:18 181:18
 244:8 250:9 290:1
 292:20 300:5 341:11
 357:2 388:4 393:18
 393:20 397:2

- amounts** 395:6
amplified 152:3
amplify 146:16 169:21
amusing 63:9
analogous 110:17
analogy 195:20
analyses 350:2 355:2,4
analysis 6:14 7:6 125:5
128:15 140:2 303:15
306:1 375:22 376:6
analyze 221:1
and/or 151:10 339:2
Andrew 2:3 3:21 280:5
292:19
Andy 298:4 312:13
398:19 401:5
Andy's 309:11
angel 208:14
Angela 168:1
Angeles 220:17
animal 1:12,20 119:3,7
123:19 124:1,6
127:22 128:17,22
129:1,12,18 139:9
140:13 146:10 147:3
229:7 339:14 347:2,4
347:14 348:4,15,16
399:6 401:21
animal-derived 146:9
animals 96:1 98:18,22
119:4,5,17 127:19
128:3,8,11 129:4,8,14
139:13,16 140:3,5,9
140:11 141:3 229:9
Anne 2:6 4:14 361:17
369:16 371:21 376:14
378:14
Annie's 168:19
anniversary 14:2
announced 152:17
325:3 355:10 356:4
357:13
announcement 151:6
346:18 351:3
announcing 339:6
357:8
annual 178:6,7 223:6
293:22 301:11 333:14
401:16
anonymous 298:14
another's 366:5
answer 58:5 60:7 72:3
82:12,14 101:10
122:6 131:13 158:12
167:12,15 208:6
217:18 233:22 237:17
302:11
answers 189:17 194:10
240:7
Anthrax 229:7
anthro 102:2
anti-GM 247:4
antibiotic 110:17 111:7
antibiotics 144:9
anticipate 366:13
anticipated 192:20
antimicrobials 329:2
anybody 80:7 89:2
151:12,15 184:3
186:5 197:4 227:5
anyway 71:6 116:6
204:9 206:18 227:4
AOSCA 285:16 311:16
AP 275:14
apart 142:4
Apartheid 209:1,3
APHIS 15:21 19:20
121:4 326:3 336:15
346:15,17 347:11,17
347:22 348:13,17
349:7,14 350:19
351:6 352:10 353:4
353:21,22 355:19,20
359:2 401:13
APHIS's 19:19 356:2
apparent 47:13 50:17
59:21
appeal 279:13
appearance 110:5
appears 29:9
applaud 13:8
Applause 12:4 16:3
22:22 24:3 40:21 42:7
57:15 83:3 92:10
116:14 138:4 142:22
157:2 179:12 200:6
203:8,22 228:2
235:12 248:11 254:22
263:18 280:1 292:18
301:16 315:3 327:22
334:15 336:1 346:21
358:4 359:13 387:6
402:11
apple 100:6 277:19
278:8 279:15 348:19
348:22 349:4,6
apples 100:3 349:1
applicable 212:5,6
application 102:5 331:3
335:1
applications 88:18
372:12,15
applied 245:9 326:14
335:11 397:6
applies 266:19
apply 276:16 279:9,11
397:1,3,17
appreciate 23:7,9,19
38:2 42:12,21 55:8
56:7 57:2 143:17
147:11 159:11 161:3
165:4 217:14 235:11
236:10 255:13 263:15
273:3 280:9 301:22
302:4 308:14 309:11
313:1,2 317:1 401:1
appreciated 55:21 56:3
138:17 232:12
appreciates 41:19
appreciation 50:18
360:21
appreciative 41:14
approach 7:15 219:18
260:3 275:3 324:12
379:4 394:15 401:16
approaches 123:5
260:2 327:15 331:7
353:17 357:6
appropriate 35:10 74:1
196:14 198:14 201:6
315:10 368:1 374:13
381:4
approval 197:5 246:5
349:6 354:7
approvals 246:4,5,10
267:6,17 273:19
276:19
approved 118:18
120:19 121:5,6
124:19 246:20
apt 239:10
arbiter 234:2
Arbor 96:20
Arden 2:13 10:18 11:8
12:5,8
area 35:15 61:21
105:12 174:22 225:4
253:15 264:15 267:10
271:5 272:9 273:17
275:7 276:11 286:15
286:18,19 287:11
292:1 317:14 333:6
383:3 392:22 401:20
areas 34:15 55:5 107:6
115:21 116:1 145:21
145:22 173:20 204:19
252:11 253:2,3,7
254:19 273:10 284:17
286:22 401:3
arena 210:10 214:2
286:18 287:1 288:2
argh 163:17
argue 358:20
argued 62:20 339:22
argument 100:2 142:4
191:2 197:8,15
229:20,21 230:19
arguments 9:12 138:15
139:20 214:7
arising 131:4
Arkansas 334:22
aroma 200:18
arouse 225:14
arranged 15:16
arrangements 371:10
arrive 22:1
arrives 190:3 191:11
ARS 275:9 315:17
336:15 392:21 400:1
402:5
arthritis 218:5
articles 352:7,13
articulate 198:7
articulated 266:14
articulately 179:21
artificial 144:7 168:9
Asheville 284:6
Asia 172:10
Asilomar 97:20
asked 29:17 58:10 59:3
82:9,12 84:22 98:10
144:16 195:16,18
204:13 205:3 207:10
230:11 240:1 242:10
258:4 259:4 261:5,10
261:15 287:15 328:9
366:21 369:9
asking 26:21 41:16
86:19 92:21 93:3
167:6,16 230:13
240:21 304:14 308:10
314:1
asks 158:10
aspect 65:18 119:1
126:1 293:18 302:4
aspects 130:19 256:20
356:14
Aspen 203:13,14 204:3
assess 86:4
assessing 144:22
assessment 122:20
216:3 218:14 219:3
277:21 314:6 334:7
354:15 358:9 372:9
assessments 314:8
372:16
asset 192:3
assignment 4:18
387:17
assist 21:13
assistance 333:9
362:19

- assistant** 10:13
assisted 9:16 102:5 382:7
Associate 346:16 347:2
associated 3:18 6:16 22:9 35:18 71:9 115:18 132:21 139:19 215:20 270:5 273:12 306:3 309:17
association 2:1,3,4,4,8 88:3 241:15 242:4,5 246:17 247:17,18 248:19 249:6 263:22 264:8 269:13 276:14 280:6 285:17 289:16 367:5 398:20
associations 137:5
assume 124:21 150:8 180:17
assumed 50:15 77:9 89:3 158:14
assuming 165:20 178:15
assumption 51:10 126:10 134:16 232:21
assurance 178:16
assure 122:22 125:21
assures 18:18
asteroids 215:5
asynchronous 267:6
attack 77:16
attempting 150:17 341:14
attend 12:13 38:3
attendance 34:2
attending 12:12
attention 19:16 30:3 90:7 193:22 200:5 218:17 327:21 334:14
attest 386:8
attitude 157:10 158:14
attorneys 349:15
attractive 44:9 178:1
attribute 138:20 176:3
attributes 153:8 156:20 167:1 177:17,21 178:21 181:22
attributing 265:8
audience 12:7 79:11 151:14,17 241:13 270:16
audio 16:10
August 383:12
aural 181:16
author 208:10
authorities 234:10 235:5
authority 20:1 35:5 36:1 59:18 60:4 62:7 197:13 234:9 276:19 277:10 278:2,5 343:6 343:10 349:21 351:16 353:12 354:20,22
authorized 380:10 384:9
autism 101:12 133:5
availability 35:14 122:18 289:12 385:15
available 51:9,10 74:5 108:9 123:7 240:13 243:4 286:5 325:19 338:13,13 342:5,17 365:2 366:9 368:5 378:4 380:17 382:17 386:3 397:2
avenues 374:14 375:1
average 125:18 189:18 191:19 262:3 270:22 271:19 394:20
avoid 161:21 405:13
avoiding 148:22
await 343:15
award 368:7
awarded 367:3
aware 37:20,20 120:18 121:1 137:19 153:4 159:5 174:20 213:9 222:13 395:10 406:9 406:10
awareness 148:15,17 232:22
awful 209:17
axis 321:4,6,6 323:6,7
-
- B**
- B** 1:7 150:7
baby 155:10,10,11
back 29:11 33:17 40:5 46:10,14,22 48:17 49:19 56:11 58:2 64:19 65:1 68:4 71:19 89:6 93:21 94:3,6 102:20 106:6 119:15 128:8,21 131:11 132:19 141:20 158:21 173:13 182:6,16 186:3 192:10 206:12 208:8,9 216:5 227:21 237:18 243:13 245:20 245:21 249:22 260:16 282:4 290:8 294:16 296:12 303:1 307:3 307:20 315:22 331:14 336:3 354:22 376:11 376:14 382:11 387:1 390:9 399:14 407:4
backdrop 92:15 95:2
background 44:21 48:11 94:12,17 95:16 96:11 117:21 307:16 316:4 325:6 379:9
backhoe 244:21
backslid 29:9
backup 251:3
bacteria 130:7 351:21
bad 27:7 29:12 30:12 37:5 56:15 110:7 111:2,3 114:14 115:2 115:3 163:17 237:2 291:3 303:6
bag 280:11
bags 189:21
baked 119:12
bakery 76:4
balance 71:14 115:16 194:8 370:22 397:21
balanced 7:15 34:15
bandwagon 154:5
bank 380:15 384:21 385:2 389:12 396:16
banks 379:18 381:4,10 391:17 396:15
banned 222:16
banning 339:11
bar 72:5 83:9 236:17
barely 399:9
barnyard 319:19,20 320:1
barriers 344:15
base 84:18 146:2 233:11 298:19 303:16 399:3
based 14:5 51:7 54:18 61:9 62:21 63:2,3,13 63:13 64:7,16 65:14 82:5 88:16 92:20 157:11 173:14 209:5 209:7,18,21 248:3 293:8 305:20 316:8 329:8 346:12 353:10 356:16,19 369:22
baseline 85:7,22
basic 31:8 326:13
basically 65:12 70:22 71:14 140:8 142:2 160:7 171:4 210:13 260:3 261:22 262:17 312:14 331:2 352:11
basis 106:3 135:9 164:6 180:11 182:10 234:12 298:20 301:11 326:9 372:18,20 402:1
basketball 82:17
Batcha 2:1 3:21 172:18 172:19 263:21 264:3 264:7 268:16 303:20 308:21
bathe 154:22
battle 220:4
battling 29:20
bean 187:13,14
beans 67:20 107:17
Bear 295:20
bearing 34:9
bears 294:18,20
beat 82:11
beautiful 118:20 284:9 287:4
beauty 112:5
becoming 120:14 132:22 178:11 184:17 189:7 268:19 378:4 380:16
bedrock 362:14
beef 100:7 140:4
beehives 278:22 279:2
beer 76:2,13,14 77:19 99:2 163:19
bees 374:21,21
beets 114:9 118:9 120:19 202:4
began 57:8 105:18 106:2 107:6,7 163:1 321:16
beginning 35:17 62:22 90:3 141:20 178:11 206:2 214:5 377:11 383:10
begun 267:20
behalf 10:4 16:5 280:9
behavior 178:8 341:3
behaviors 165:19
beings 98:22 103:8 110:18 111:8
belief 17:3 62:2 101:17 130:3 299:2 305:1
beliefs 48:14
believe 6:18 7:14 17:20 26:16 28:4 30:10,21 44:13 56:18 67:13 69:21 100:16 103:8 112:7 137:8 163:1 165:18 171:7 184:19 208:1,3 214:1 224:2 276:9 285:15 312:21 328:6
believed 96:9
belong 223:2
beneficial 153:21
beneficiary 46:18
benefit 8:18 21:5 77:17 121:10 191:21 204:21

218:9 281:4 393:21
394:9
benefits 78:6 216:22
217:15 329:6 353:15
Berkeley 171:2
Bertram 207:17
best 21:2 24:2 28:18
29:1 41:11 181:2
220:7 230:22 242:7
275:16 295:19 296:6
302:16 319:6 324:2,7
324:12 326:3 332:2
338:3,6 340:15
343:19 344:2,6,9
353:10 381:3,6 382:1
382:6 389:18 390:1
bet 82:11
Betsy 2:5 4:13 361:16
367:8 368:20
better 8:14 9:11 10:2
20:13 26:7 30:22 50:9
60:13 63:16 73:2
77:14 82:18 91:8
105:21,21 109:13
137:14 139:9 180:3
250:3 254:16 280:17
289:1,9 344:5,15
345:10 368:7,14
380:13 393:15
beverage 154:21
beverages 155:2
beyond 14:20 19:17
30:20 39:16 104:14
140:17 193:2 214:7
233:4 279:5 313:11
369:22
bias 183:6 230:9
biased 183:5
biases 200:3
Biblical 208:2
big 17:3 37:10 40:17
66:16,22 77:10,11
91:1 94:1 120:6
135:22 148:10 150:19
163:3 177:22 179:2
205:16 208:13,14
287:4 330:19 335:13
365:14 389:1 392:5
400:1 405:16
bigger 323:22 400:5
biggest 156:17 176:17
182:16 183:2
bill 90:21 91:7,9 343:14
384:10,10,13 400:6
billion 104:5 112:12
128:11 150:7,9
159:20 161:11 171:8
199:3

billions 24:22 98:18,22
bills 248:4
bin 254:10
bio 204:2 320:10
344:19
bio-fortification 217:10
biochemical 122:19
375:21
biodiversity 36:12
111:11 113:10,12
153:12 393:15
biofuels 113:6
bioinformatic 125:4
bioinformatics 123:8
biological 105:7 107:3
112:9,9 237:16
281:19,22 290:17
314:3 319:3,5 320:14
370:6
biologically 324:12
biologist 156:7
biology 6:17 171:14
219:7
biopesticides 329:3
biophysics 11:12
biotech 3:8 18:18 31:14
36:4 84:5 95:5 218:2
225:19 241:16 242:11
242:11 245:13 246:22
248:9 255:7 265:18
265:18,19 266:22,22
282:8 283:6,14 284:8
286:19 287:5 292:2
329:3 344:20 345:7
356:6
biotechnologies 6:17
biotechnology 19:19
19:20 33:18 36:14
46:4 121:14 165:20
214:20 218:4,12
245:6 266:2 337:1
346:17,19 347:6
349:5,8,13 351:10
353:7 355:21 360:6
372:9
bit 51:18 59:4 68:21
76:12 77:3,4 78:12
94:12 95:12 131:18
134:4 138:5,14,22
139:5 149:5 189:10
202:14 207:1 209:22
213:2 230:12 232:13
239:21 242:10 247:4
259:11,19 260:4
267:1 269:10 281:16
292:8 293:19 313:4
315:15,21 316:12
317:7,9 318:13

328:12 337:15 339:7
351:1,3 359:22 360:1
361:2 367:12,14
369:17 380:13 387:16
402:13 407:7
bitter 29:12 221:20
bizarre 97:4
black 29:14 44:17
242:20
bleed 30:1
blend 9:3 189:3
blending 6:19
bled 42:2
block 304:22 395:1
bloom 235:2
blue 182:8 291:13
309:12 321:12 322:8
BMPs 332:8,16
board 205:7 242:6
248:19 263:14 275:18
283:3 284:16 287:4
311:21 383:4 384:7,8
384:11 391:14 392:15
399:17,21 401:16
402:2
BOBBE 306:16
Bobbe's 270:15
bodies 100:4 101:1,2,9
body 34:2 129:19 238:5
bogged 173:16
bolster 20:20 342:2
344:16 345:17 363:2
bombarded 27:17
bone-in 202:9
book 110:9
books 220:13
boost 177:3
border 278:21
Borlaug 101:20
born 68:7 112:15 128:3
Boruff 285:18
Botanical 1:16 95:7
botany 95:20 110:9
bottle 308:20
bottleneck 237:15
bottom 180:22 182:7
256:10 257:10 319:19
324:11
botulism 229:7
bought 80:8 180:17
312:18
bound 237:14
boundaries 353:12
bourbons 182:9
box 229:1 329:13
boy 76:22
Boyer 97:18
BRAG 372:10,15

branch 224:12 358:16
brand 151:7 273:11
294:4,6 295:15 298:9
branded 293:22 294:3
Brandon 2:7 4:12
361:15 363:4,6
366:15
brands 148:11 151:6,8
151:11,16 170:17
breaches 218:19
bread 99:3 106:13
156:19
break 3:15 93:8 94:3
202:17 279:18 284:9
315:20 316:13 334:17
336:4,7,8
breakfast 295:14
breakout 21:4,8 404:14
breaks 7:20
breast 202:3
bred 109:21 164:3
287:6 291:15 329:16
breed 164:22
breeder 388:2,3
breeders 369:2 385:3
400:4,7
breeding 99:20 115:19
139:10 162:20 244:4
281:14 289:18 368:10
369:4,5,8,9,11,13,19
369:21 370:7,19
371:1,3,5,7,13 378:12
381:5 396:14 398:8
398:12 399:18,20
400:11,12,14,17
breeds 368:17
Bretting 2:2 4:15
361:21 373:18,20
379:8 389:4 390:13
390:16,19 391:7
394:19 396:14,17
397:9 398:6,16
bridge 153:13,20
bridges 7:4
brief 5:8 44:18 94:4
138:6 176:9,11 201:9
317:8 336:11 362:6
387:15
briefly 50:4 244:11
379:10 402:13
brightest 29:1
bring 36:19 51:6 152:22
173:13 201:14 213:14
213:17 237:17 238:7
257:22 306:17 350:20
390:8
brings 194:9
broad 214:16 293:12

294:1 338:18 384:18
broadband 88:2
broader 19:15,16 36:3
 62:10 82:3 317:7
 323:13 370:11,11
broadly 110:13 397:2
brochures 7:18
broke 269:18
brother 244:13
brought 33:17 34:3
 59:9 99:2 111:18
 116:22 260:17 264:20
 269:13 272:3 280:3
 308:12,13 350:4,15
Brown 11:22
browning 100:6
Bt 109:9,11 124:18,18
 161:22 162:9
buck 261:8
budget 347:9 391:1
 395:21 396:1 398:1
 399:3 401:9
budgetary 393:4
budgeting 260:2
budgets 389:8 392:19
 393:1
buffer 190:21 271:1
 274:20
buffers 190:20 197:22
 251:5,8,13,15 270:4
 270:10 277:4 302:21
bug 281:20
bugaboo 114:17
build 25:5 113:20
 153:16 210:21 213:21
 239:14
building 203:16 208:13
 406:8
builds 46:7
built 238:5 279:12
bulk 143:12 294:2,5
bull 307:2,3,4
bullet 305:2
bump 55:12
bunch 190:1 217:20
 349:20 395:15
burden 191:5 301:5
 330:7 395:3
burdens 345:8
burgeoning 300:5
Burger 212:15
buried 242:19
burning 192:3 314:15
 314:17
bushel 113:4 181:1
 187:4,8,9 191:20
 192:13 268:12
bushels 182:2 191:18

191:18 244:6
BUSHUE 313:1
business 27:3 30:13
 33:12 36:22 37:5 40:6
 159:10 171:4 183:18
 211:9 212:16 227:13
 250:2 251:11 260:19
 260:22 273:15 286:20
 294:5 307:18 314:5,8
 348:11
businesses 69:19,20
businessman 248:2
businessperson 70:5
busy 11:1 83:20 237:21
 257:7 258:11
butter 175:5,11
butterfly 113:14
buy 83:15 112:1 150:17
 151:15 154:22 160:14
 166:21 181:14,19
 183:20 185:13,16
 190:12 193:14 211:2
 212:15 220:8 230:1
 233:14 237:7 304:18
 312:14
buyer 181:9 188:7,10
 192:21 194:6 240:1
 271:13 305:14 342:13
buyers 146:15 182:14
 199:17 261:12
buying 145:19 158:18
 167:1 168:15,17,18
 169:1,4 190:4 284:22
 296:20 298:20 304:11
 304:19 311:12
buys 252:9
buzzwords 30:18
bylaws 46:2,2 56:11

C

C 3:1 5:1
calculate 272:12
calculated 251:12
calculations 160:21
calculator 250:1
California 83:14 375:15
call 55:7 102:7 173:20
 183:15 185:4 215:4
 360:7 363:8 364:1
 384:3
called 91:2 97:20
 166:15 205:5 208:11
 213:8 243:3 260:6
 328:21 331:1 338:22
 341:6 347:18,20,20
 348:1,2 365:8 383:2
calling 361:12 401:10
calories 70:12

calves 68:7
campaign 206:14
campaigns 36:17 163:3
 164:7
Campbell's 148:1,2,3
Campbells 147:7
camp 233:7
campus 11:1 44:10
 82:6 117:11 406:20
Canada 146:4 184:15
cancer 133:1,22 134:3
 134:4,7,7 218:5
cancers 133:3 141:6
candidate 333:17
candidates 405:10
candidly 41:10
canned 282:3
canola 118:8 120:5
 162:10
capabilities 318:6
capability 217:17
capable 66:20
capacity 57:12 62:3,7
 71:22 72:9 104:14
 371:5 389:15 391:21
capital 192:2
capitulate 226:13
captured 48:13 245:5
car 71:19
card 72:16
care 24:18 25:3 39:21
 43:15 91:6 179:10
 180:18 181:15 188:17
 191:17 233:13 284:3
 333:13
career 41:6 95:20 385:2
cares 22:18 41:7
caring 69:16 79:1
Carolina 1:7,8 5:16
 15:3,6,12 23:4,7
 82:10 203:5 377:12
 406:3
carried 187:14 223:8
 351:13
carry 182:1 275:5
carrying 17:16 191:18
cart 83:17
casava 14:7
case 44:17 70:5 89:4
 98:20 235:2 252:3,3,6
 259:15 300:16,19
 338:21
case-by 252:5
cases 114:6,9 179:9,10
 222:15 257:1 261:19
 266:20 297:6 333:4
 396:21
cast 16:10,10 21:8

cat 226:4
catalyze 213:21
catch 149:19 179:22
catch-up 74:17 78:7
categorical 228:10
categories 154:16
 155:4,8 177:15
 178:19,21
category 127:2 169:19
 177:15 178:20
Catherine 1:21 2:15
 4:11 235:17 241:2
 293:3
Cathy 24:9 66:2 77:8,10
 87:5 204:10 233:21
 233:22 241:7 256:1
 259:20 264:3 269:12
 280:8 359:14 394:13
 399:17
Cathy's 301:14
cattle 140:4,4,14 197:1
causative 133:15
cause 98:8 122:19
 238:16 274:16 351:22
caused 344:21
causing 122:15 130:16
 381:22
caution 305:1
celebrated 14:1
celebrating 31:2
Celestial 151:9,10
cell 97:12
center 2:20 5:20,21 6:8
 6:10,21 7:17,19 9:21
 10:11 11:22 12:16
 13:22 14:2,11,14
 26:16 40:2 58:9,21
 137:1 189:2 320:7
 406:17
centers 399:8
central 187:2 249:17
 394:18
cents 186:21 191:19
centuries 319:20
century 33:18 71:16,17
 165:15 360:6
CEO 148:2
cereals 236:19
certain 38:1 51:9 65:7
 68:5 97:14 105:3
 141:22 144:10 145:6
 168:15 250:5 252:18
 252:19 253:2,7
 279:13 300:13 351:6
 368:12 381:19 393:18
 393:20 397:12
certainly 12:9 23:15
 29:15 43:13 45:18

49:2,13 50:9 57:12
61:15 111:1 133:16
204:21 212:1 222:14
232:10 255:12 274:4
302:10 307:13 329:12
354:1 381:4 392:7
certification 187:14
266:9 271:22
certified 193:11 222:12
223:18 264:9 293:11
293:13
certifiers 368:15
Certifying 285:17 367:6
cetera 147:5 213:14
CFR 278:4
chain 144:10,17 145:1
145:10 174:4 180:9
180:10,10 188:9
219:19 264:10 266:20
270:11 271:21 296:15
297:6,20,21
chains 301:11
chair 1:16 50:11 57:12
116:18 219:16,16
265:13
chaired 23:18
chairman 205:4 242:3
255:14
challenge 17:9 25:21
26:12 40:16 51:18
64:14 65:5 78:10
137:10 145:8 182:17
190:7 213:20 216:2
218:16 275:21 290:16
292:8 311:10 390:22
399:10,22
challenged 40:1 94:8
218:8 246:6
challenges 4:1 6:16
17:2 26:9 29:3 33:4,5
33:8 35:1 37:13 45:2
50:5 87:10 174:3
187:20 213:4 214:21
215:4,7,16 216:16
219:12 245:13 282:15
292:15 310:6 316:18
344:13 362:16 363:9
403:19
challenging 12:21
16:12 21:12 53:11
131:18 136:20 348:7
389:22
Chamber 88:8
Champaigne 11:7
champion 22:16
championed 11:15
championship 165:1
chance 164:17 274:18

Chancellor 2:14 10:19
12:12
Chancellor's 11:16
chances 366:3
change 43:21,21 44:2
56:21 61:9 66:17
86:13 100:18,20
101:6 102:17 108:9
111:18 130:20 141:10
142:1 154:9 185:10
194:16 195:8 214:5
237:9 324:19 359:7
changed 60:20 65:4
68:6 103:19 105:2,19
106:4,15 204:7 205:6
277:17 311:3
changes 27:2 59:21
60:22 122:16 157:19
158:1,3 215:11 341:3
351:5 356:1 363:6,11
changing 26:10 40:12
44:3 62:16 89:22
103:7 106:17,19
108:18 111:17 142:2
184:21 211:4 212:2
212:10,12,17 213:3
298:21 384:22
channel 300:22
channels 291:19
characteristic 107:8
109:18 256:12 371:8
characteristics 102:18
103:2,3 105:19 108:9
112:6 114:15 116:4
164:4 181:16,17
185:11 256:7 320:2
characterized 148:6
347:19
charge 45:22 46:11,19
46:20 51:8,8 53:10
55:6 86:22 341:19,21
383:21 394:17 395:3
charged 17:8 345:4
charging 87:1 394:8
Charles 165:15
chart 37:19
charter 45:9,21
charts 175:17
cheaper 312:15
check 170:10 172:3
cheese 76:3,14 99:3
295:12
chemical 122:14 319:4
chemically 121:20
chemicals 76:20
chest 348:6
Chet 285:18
chew 243:18

Chiapas 113:2
chicken 202:3,10
Chief 2:6 359:16 361:19
369:15
child 87:22 153:10
283:9 295:10
children 117:4 126:5
135:4 149:2 295:12
Chile 290:22
China 181:5,6
China's 246:5
Chinese 207:18
Chipotle 147:8
choice 22:20 28:3,6
29:9 30:17 31:14 37:7
38:2 43:19 88:15
158:13,17 164:12
173:18 180:3 194:3,5
194:6 221:17 225:20
225:21 248:1 260:6
278:14 299:11 306:6
308:6,20
choices 8:14,19,20,21
16:17 27:16 203:11
220:6 231:17,18
264:22 273:15 403:15
choose 27:21 99:21
230:14 278:7 312:14
chooses 16:21 283:11
choosing 10:6
choosy 252:10
chronic 124:8 132:21
chuckling 54:5
churches 186:9
chute 333:2
Cindy 1:20 15:20 16:5
23:1,12 28:16 40:14
407:14
circle 198:8
circulates 301:8
circumstance 297:13
circumstances 234:7
235:7 342:14
cities 103:13
citizens 14:22 214:19
370:17
citrus 99:5
civility 203:16 204:4
civilization 103:15
claim 150:15,16
claims 27:18 144:22
149:7,7,10,11,14,20
149:21 224:16 279:12
clarification 173:6
clarify 152:3 158:14
173:5 286:14
clarifying 265:2
clarity 350:4

Clarkson 1:11,11 3:14
179:15,16 180:8
200:9 236:1 237:17
237:20 238:21 239:17
240:6 241:1 267:4
268:15
class 117:11 163:11,12
198:22 267:8
classes 178:21 377:10
classic 120:12 281:3
classified 114:19
clause 46:21 53:9
clawed 97:18
clean 135:20 190:15
287:18,19,19 335:3
cleaning 147:4 177:22
cleanliness 191:7
clear 71:12 93:4 115:16
223:1 287:2 343:9
406:8
cleared 273:19
clearly 140:1 168:4
213:3 344:1
client 181:12 183:12,21
Clif 83:9 236:17
climate 26:10 40:12
90:1 100:18,20 101:5
111:18 181:8
clinical 11:5
Clinton 222:3
clock 90:18
close 39:1 69:11 152:11
154:13,14 206:10
208:2 280:5 308:15
335:9 382:10 406:19
closely 15:18 246:17
378:18
closer 114:1 186:9
254:14 377:2
closest 202:2
closing 20:8
clue 78:18,19,20,21
Cluster 11:17
CME 174:19
co-director 2:19 5:19
10:4 58:8
co-op 293:21 299:16
301:6 302:4,14
304:14
coarsely 33:6
code 69:2 72:5,6 75:21
83:13
codes 267:22
coexist 257:5
coexistence 1:3 3:2,13
3:17,19 4:1,6,10 5:9
6:2,3 9:17 12:19 16:7
16:13 17:9 18:11,15

18:16 19:4,9,15,17
 20:20,22 21:19 22:9
 22:11 28:3,5 29:9
 30:17 31:7 37:7 43:17
 44:14 47:5 48:7 50:1
 51:12 55:1,6 56:14
 68:1,4,9,12,16 69:4
 88:15 95:18 150:1,16
 173:15 176:15 177:11
 179:17 180:4 207:2,5
 207:13,18,20,21
 208:7 210:8 220:2
 225:16 228:17 233:16
 233:20 235:21 247:10
 247:11 249:8 252:12
 254:20 255:7 259:17
 260:20 264:2,15,19
 266:1,10 268:3 270:2
 275:18 282:7 284:15
 286:17 302:2,6
 313:12,18 316:11,18
 336:16 338:1,6,16
 339:20 340:1,7 342:3
 343:12,21,22 344:12
 344:17 345:11,18,21
 346:7,10 353:21
 355:9 378:13 386:13
 404:19 405:1
coexisting 250:16
 265:18,19
coffee 5:5 68:11 274:10
Cohen 97:18
coli 88:7 97:16 229:6
collaborate 23:6 85:18
 338:7
collaborated 101:21
collaboration 32:21
 144:20 325:9 338:1,4
 377:17,21
collaborative 21:11
 219:18
collaboratively 17:15
 18:1
colleague 23:16 96:16
colleagues 85:13 169:3
 303:21 361:6
collected 140:2 161:6
 375:14 376:1
collecting 9:14
collection 6:10 370:5
 379:1 390:9,11 392:7
 399:8
collections 370:3 388:6
 388:11,13 394:16
collective 49:17 50:18
 54:17 142:10
collectively 9:20 110:20
 219:14

college 11:2 44:7,10
 113:17
colleges 6:12 8:8
colon 130:1,4
color 181:16 198:11
colorectal 134:7
colors 168:10
Columbia 166:6
combination 330:22
combinations 98:2
come 8:7 12:22 13:7
 17:18 23:6 24:13 41:2
 46:22 58:2 61:4 64:19
 66:18 75:15 92:21
 94:3 96:10 98:10
 99:12 101:2 102:16
 102:19 112:3 115:16
 117:8 119:10 127:15
 134:13 135:9 144:16
 148:9 182:5 200:20
 201:1 202:12 204:13
 210:22 213:3 226:11
 228:4 235:17 240:2,7
 244:22 246:2 250:6
 256:1 277:11 279:7
 284:12 288:20,22
 291:4,4 300:14 313:8
 315:22 316:4,7
 332:22 336:3 353:6
 359:18 380:14 387:3
 391:19 407:4
comes 26:9 74:5 84:6
 84:17 110:6 135:4
 136:6 147:1 159:22
 190:2 191:9 193:12
 253:18 292:7 299:13
 379:18 400:10
comfortable 93:3 281:8
coming 6:11 37:22 96:4
 120:16,20 129:13
 130:15 131:11 132:19
 137:21 147:6 152:16
 189:5 219:6 240:14
 268:6,10 272:4
 273:13 281:9 287:17
 296:11 308:10 330:17
 357:14 370:19 387:4
comingling 270:11
Commandments
 303:18
commend 9:17
commendable 139:4
comment 59:6 83:13
 86:9 94:21 95:1 139:5
 158:7 177:4 228:22
 230:6 239:21 305:6
 312:2
commentary 308:4,19

314:16
commenters 339:12
 340:6,9 344:10
comments 29:2,7 49:12
 67:11 69:7 172:20
 179:21 201:5 222:9
 232:13 302:1 305:7
 309:3,5 336:5 338:18
 339:4,5,9,19,22 340:2
 340:9,12 341:9,12,15
 344:7,9 345:12
 356:12,19 371:11,17
 402:10 404:22 407:13
commerce 88:8 212:11
 354:4,5,9
commercial 189:9
 212:17 278:22 279:2
commercialization
 246:18 266:4 277:11
 353:1
commercially 368:5
 374:20 380:17 382:17
commercially-accept...
 76:10
commitment 6:13 9:10
 35:4 146:20,21
 147:21 154:18 353:14
commitments 37:17
committed 34:18
 387:20
committee 3:5 17:8
 23:19 28:20 33:18
 34:11,18,19 45:2,13
 46:9 48:12,14 53:16
 53:18 54:6 55:14 56:1
 57:10 265:16 289:5
 341:20 342:7 355:8
 360:5,16 378:16
 382:15,22 383:3,9
 384:1,9,15,19 385:13
 386:18
committee's 360:9
committees 45:15
 46:17 101:1
commodities 145:6
 162:15 166:18 211:17
 347:16
commodity 19:7 181:15
 188:3 193:17,19
 210:13 251:9 256:14
 256:18,21 257:3,15
 258:9 281:3 375:10
 381:8
common 30:7 37:6 63:8
 76:1,4 96:19 98:7
 126:6 142:14,16
 163:11 214:19 226:2
commonest 109:7,8

commonwealth 41:18
communicate 137:22
 215:21 250:22 286:3
 294:10 296:6 338:8
communication 173:12
 218:15 249:13 250:17
 250:19 259:3 311:14
 311:14 337:22 338:4
 338:11,12
communications 341:1
 341:2
communities 15:4 25:6
 31:18 213:21
community 14:5 38:18
 38:19 47:18 69:16
 136:3 162:2 177:19
 185:18 194:13 196:6
 199:1 214:19 285:4
 285:12 302:15 310:17
 362:10 372:13
companies 27:3 122:4
 148:10 150:6 182:15
 188:10 189:22 190:8
 198:17 213:1 214:17
 224:15 231:14 240:14
 246:8 264:12 284:8
 285:4 286:2,21 287:9
 289:3,10,14 290:13
 291:8,11,22 297:18
 299:9,18 300:2 301:1
 301:10 310:1,3,10
 311:8
company 1:11 83:10
 124:8 151:9 158:10
 159:2 179:16 185:13
 185:16 189:15 199:16
 238:3 283:12 285:8
 289:15 292:5 300:17
 310:15
company's 143:10
 169:20
comparable 123:11
 156:10
compared 187:10 253:3
 363:14
comparing 131:22
 172:1
compassion 147:4
compatriot 207:19
compensated 364:21
 364:22
compensation 46:21
 47:1 49:6 52:22 89:11
 341:21 343:6
compete 317:18
competing 113:6
competition 8:11 96:10
 253:13

- competitive** 30:6
156:15 254:15 371:6
- competitors** 152:16
170:14
- compilations** 161:14
- compiled** 270:13
- complain** 345:14
- completed** 18:19 31:20
360:11 386:9
- completely** 63:5 64:5
102:13 296:10
- complex** 17:4 40:18
56:17,17 61:14 91:12
97:13 195:5 274:8
297:22
- complexities** 42:16
345:10
- complexity** 31:1 47:7
- compliance** 223:7
352:14
- complicated** 48:5 102:9
102:14 122:10 133:14
135:3 204:18 224:8
324:20 386:15
- complication** 126:17
127:13 379:22
- complies** 306:21
- complimentary** 153:21
316:10
- comply** 354:13 368:3
- components** 49:4
385:19
- composition** 128:16
- compound** 123:13,16
123:18,21 125:14
178:7
- compounded** 139:9
- compromise** 38:2,20
74:1
- compromises** 38:6
- computerized** 198:6
- conceivable** 142:11
- concentrated** 113:11
- concept** 65:6 210:9
274:7 284:14 287:17
303:6 313:12
- concepts** 124:13
- conceptually** 238:9
- concern** 32:14 52:19
53:6 56:1 119:12
129:10 133:8 137:7
143:13 146:8 150:17
150:19 221:22 267:11
317:12 318:14 322:20
345:1 369:2 380:5,9
388:3,5 402:3
- concerned** 13:12 30:2
61:22 62:4 88:22
- 95:17,22 98:12
101:10 135:3 137:9
149:4 190:11 342:21
356:14 388:22
- concerns** 32:2 40:4
48:13 84:16 117:13
126:2 148:21 216:20
219:3 239:2,4 339:12
341:15 350:12
- conclude** 327:4 358:1
- concluded** 186:4
- conclusion** 99:13 101:3
112:20 316:6
- conclusions** 32:1
254:12
- concrete** 88:12 90:10
- concurrent** 16:14
267:15
- condition** 276:19
- conditions** 111:17
156:11 172:12 253:16
352:12,16 362:17
385:1
- conducive** 247:9
- conduct** 21:3 327:1
382:16
- conducted** 21:1 377:16
377:21 382:3
- conducting** 326:8
373:12
- confer** 110:3
- conference** 23:8,14
87:18,20 88:1 97:20
97:21 384:3 387:8
406:16
- confidence** 28:12 29:22
41:13 186:5 196:3
234:17 238:19 239:13
- confident** 40:13 73:10
- confined** 352:13 354:3
- confinement** 373:4
374:17
- confirm** 375:22
- confirmation** 52:13
- confirmed** 333:15
- conflict** 20:22 39:13
194:9 208:16 209:7
209:10 265:11 267:9
269:5
- conflicts** 208:18,20
209:19 266:22
- confront** 67:1 219:12
- confused** 239:8
- confusing** 28:10
- confusion** 73:16 136:5
- congratulate** 280:12
- congratulations** 171:3
- Congress** 35:5 61:8
- 62:15 64:17 65:1 67:3
67:8 73:18 90:20
204:4 208:9 223:1
234:3,11,17 399:13
401:17
- Congressional** 203:15
343:16
- Congressman** 206:3
- congruent** 389:16
- conjunction** 270:18
- connect** 43:9 213:20
- connected** 71:21
- connecting** 125:1
367:20
- connections** 116:20
- connects** 180:11
- conscientious** 27:5
- conscious** 79:21
- consciously** 80:20
- consecutively** 330:10
- consensus** 17:11 45:4
45:4,5 48:20 54:2
100:20,21 164:5
213:21
- consent** 50:21
- consenting** 148:5
- consequence** 269:20
- consequences** 98:5,5
131:7 141:2
- consequently** 384:11
- conservation** 95:22
324:21 325:21
- conservationist** 115:17
- conserved** 379:19
- consider** 20:22 60:5
62:15 103:14 156:1
165:16 197:13 324:20
329:5,10,15
- considerable** 157:19
391:10
- considerably** 55:2
- consideration** 4:18
31:9 65:11 140:16
306:8
- considered** 59:16
124:16
- considering** 60:18 96:5
197:6 337:12 372:14
- consistency** 155:14
- consistent** 16:16 64:21
147:2 184:14 214:13
262:6 391:6
- consistently** 394:21
- consolidated** 310:4
- constant** 369:1
- constantly** 26:21
- constitutes** 228:15
- constitution** 287:13
- constrained** 89:1,2
152:13 175:8
- constraint** 182:21
- constraints** 258:3,7,8,9
265:3 276:11
- constructive** 37:17
- consultants** 73:8
- consulted** 104:9
- consumer** 16:17,22
25:6 26:21 28:12
29:21 36:11 37:2 70:5
70:7 71:13 72:3,6,18
74:6 77:8,18 78:2
88:6 117:9,15 121:19
122:9 131:13 133:21
133:22 148:15 160:3
164:11 173:12,18
175:2 178:8,14
179:10 197:8 212:18
231:19 232:21 233:1
233:4,5 234:20
239:13 282:3 298:19
299:11 304:16 339:17
- consumer's** 70:22
179:5 196:3 248:1
- consumer-driven**
211:13
- consumer-oriented**
81:18
- consumers** 24:22,22
27:3,8,9,15,20 31:17
32:11,16 33:10 43:20
45:18 68:22 117:2
118:4,19 121:1 122:2
126:2,7,16 129:11,20
130:2 131:2 133:11
134:22 135:12,17
136:14,19 137:8,9,17
138:1 144:2 145:14
145:15 148:8,11,22
154:18 155:15 162:3
162:4 166:21 177:2
211:7 216:18 219:20
220:6,8 221:17
222:13 226:1,20
230:10 231:11 232:3
238:15,19 247:2,19
279:17 296:10,19
339:22
- consuming** 71:9 98:15
98:17,19 132:7
150:18
- consumption** 125:18
132:2 133:19 134:8
- contain** 70:18 71:5,5
162:9,9 166:2
- contained** 34:14 119:22
- container** 181:21

272:13 273:1
containers 181:3 254:7
containing 118:6
containment 373:5
contains 119:9 221:7
 233:2
contaminate 191:7
contamination 89:15
 183:2 188:20 189:6
 190:16 216:14 224:7
 339:16 340:4 388:1,4
 389:1
contemplated 405:11
contemplating 94:21
contemporary 42:19
contending 183:15
content 70:12,13
 188:22 217:11 307:19
 342:11
contentious 214:21
context 4:6 6:9,18 9:15
 44:21 48:11 65:20
 94:12,18 96:2 138:16
 139:3 143:21 147:9
 316:4,5 317:7 336:17
 401:7 402:7
contexts 279:17
continents 199:17
continually 108:15
 300:14 389:14
continue 30:11 35:20
 49:20 92:16 223:20
 245:10 247:1 248:8
 268:3 276:20 283:17
 285:1,3 287:8 291:20
 292:16 307:6 313:19
 315:11 318:10 322:15
 337:8 371:15 383:14
 386:20
continued 109:20
 166:14,15,18 244:8
continues 133:8 384:15
continuing 105:10
 194:7 272:5 285:10
 357:1 383:12
continuum 269:22
contract 181:20 186:12
 198:15,20 252:4,12
 364:10,13,19,19
 367:4,17 368:6
contracting 340:16
contractor 244:15
contracts 345:3
contractual 342:10
contrast 339:22
contrasting 29:11
contribute 54:20
contributes 353:22

control 243:2,16,17
 245:19 278:19 290:17
 313:16 317:20 318:21
 320:10,14 323:3,18
 324:5,6,7 325:13
 327:8 329:17 331:6
 373:6 376:16,20
 382:5
controlled 181:8 243:6
 333:16
controlling 240:16
 303:10 320:11
controls 338:22
controversial 113:7
controversies 45:3
 50:5 196:13
controversy 30:3 88:20
 99:22 100:1 199:8
 342:4
convene 34:4
convened 17:7
convention 182:11
conventional 16:15
 31:14 36:4 59:11
 63:21 84:5 99:20
 156:13 160:9 172:1
 187:11,11 199:15
 214:9 241:16 243:2
 244:4 272:16 275:13
 283:6 291:1 299:19
 300:18 302:18 310:14
 310:22 311:12 312:15
 319:7 339:16
conventionally 141:4
 286:8,11 287:6
 291:15 329:16
conventionally-bred
 12:19
conversation 10:1
 13:10 14:18,21 26:13
 28:3,10 29:8 31:4,6
 32:4 34:9 36:3 39:15
 40:8,10,13 41:10
 43:13,14 45:11 46:8
 46:12 47:12,16,17,18
 47:20 48:3,4 49:13,14
 51:1 53:18 54:9,11,18
 55:2 56:3,12 58:14,18
 58:20 59:5 60:19
 61:12 71:15 74:14
 75:12,14 76:16 78:9
 81:20 82:22 83:2
 86:22 88:15 89:6
 147:1 193:3 203:4
 247:2,10,11 267:13
 277:18 280:14 281:1
 299:14 300:11 310:13
 350:21 403:5

conversations 13:15
 32:1 39:11 41:9 43:16
 59:1 161:14 267:2
 274:5 300:13
convey 66:13,15 71:1
 72:20 79:8 80:10
 136:19 137:10
convince 77:3 157:16
convinced 157:15
cooler 237:3
cooperation 33:16
 327:17 344:16 375:9
cooperative 2:5 292:22
 293:8,12,15,20 297:4
 297:4 298:7
coordinated 121:13
 351:9 353:5
coordinates 376:2
 407:1
coordination 259:3,8
coordinator 1:20 143:4
 143:9 337:2
cope 235:1
core 11:21 33:8 50:2
 69:21 347:12 358:22
 371:5 393:19 394:14
corn 2:8 14:7 67:13
 84:17 106:12,12
 107:10,12,13 108:20
 113:3,6 118:7,11,13
 118:14,18 120:5,10
 132:7,10 141:4,5
 142:1 145:7 162:1,9
 174:11,12,12 176:14
 176:19 180:12,13
 181:14 182:8,8,17,18
 184:17 185:11,14
 186:19,21 187:1,2,4,4
 188:3 190:22 191:20
 193:20 194:8 196:9
 196:19 202:4 237:2,7
 237:8 242:1 243:11
 244:5 248:6,18,19
 249:3,6,20 250:20
 251:17 268:6 272:14
 272:16,16,17 273:7
 279:6 281:22 282:3
 282:12 284:4,5,6,8,9
 288:1 291:7 292:2
 297:5 299:15,17,20
 306:19 320:19 331:2
 331:4 355:14 376:16
 376:20 377:9 378:3,7
 380:21 400:7
corn's 185:15
correct 239:9 308:22
correction 164:20
correlate 134:5

correlation 138:15,17
 139:19
correlations 132:5
 133:12 136:1 139:5
corroborate 172:21
corrupts 207:21
Cosmetic 329:10
cosmetics 182:15
cost 30:4 36:21 150:10
 191:15 192:6 198:21
 250:1,4 259:19
 260:10,18 269:22
 270:22 272:18 273:11
 303:14 306:2,5 398:4
Costco 152:20
Costner 210:20
costs 151:1 172:4
 216:21 250:10 260:18
 270:3,4,8 273:2 276:6
 306:10 342:15 345:2
 345:8 353:16
cotton 145:7 380:21
 382:4
council 35:13 83:11
 84:15,15 86:20 87:4
 89:19 242:7 382:20
 383:6
Counsel 343:5
counsel's 349:16
count 160:18
counter-argument
 230:22
counter-example
 107:16
counter-seasonally
 290:21
countered 111:9
counterpart 160:14
counterproductive
 36:18
counties 84:11 284:16
 365:11
countries 146:5 149:3
 246:9 273:20
country 13:3 24:19
 37:12 38:22 39:19
 40:5,7,8 67:1,5 68:8
 69:17 70:9 72:18 75:5
 81:3 86:14 155:20
 161:19 188:15 208:6
 221:20 253:7 261:7
 262:8 267:21 268:6
 268:10 274:6 280:22
 284:17 293:10 294:16
 372:4 393:6 399:9
couple 24:15 44:15
 55:17 95:1 118:17
 120:4 138:6 168:17

175:6 197:15 198:22
 207:16 210:3 228:3,5
 235:14,15 238:22
 256:9 273:10 281:17
 310:5 334:16 336:5
 402:21 403:22
courage 10:10
course 14:11 55:16
 62:6 105:8 106:5,10
 106:15 109:8 111:13
 119:7 120:5 124:11
 126:8 131:16 134:11
 134:15,19 137:13
 140:16,22 142:3
 206:20 207:4 210:9
 224:21 249:6,15
 259:10 337:6 348:13
 350:17
court 73:14 207:9,11
courts 30:9 267:8
cover 90:4 117:21
 244:21
covered 145:5
covering 382:14
covers 146:6
cow 205:18,18
cows 68:7 205:13
CPG 148:13
Creamer 205:1
create 63:19 65:12 74:2
 74:4 75:6 90:13 123:1
 146:22 177:1 195:10
 218:2
created 35:15 64:1,9
 81:19 89:8 182:20
 201:12 220:20 285:19
 364:17 365:7
creating 72:4 130:6,7
 177:6,12 219:21
creation 208:11
creative 21:11 40:2
 42:1 49:21 292:9
credibility 195:12 296:8
credible 295:16
credit 91:6
criminal 82:5
crisis 69:12
CRISPR 358:9,12
CRISPR/Cas9 59:20
criteria 233:4
critical 9:18 24:15
 43:14 48:20 58:19
 194:20,21 197:12
 219:21 231:12 277:9
 332:5
critically 276:8
crop 32:21 35:15 53:1
 84:9,20 85:4,22 86:5

89:8,10 90:1 105:22
 106:3 108:10 110:14
 114:4,5 120:13
 126:14 127:7 171:22
 185:4 211:5 218:20
 229:10 249:21 251:17
 252:2 253:21 254:1
 256:14 266:9 279:8
 279:19 283:4 286:12
 286:19 289:7 318:7
 323:6,9 329:19 339:1
 340:16 342:14 343:19
 362:1,13,14,18
 363:10,14,21 364:3
 364:20 365:5,21
 372:7,18,18,19,20
 396:18
crop's 366:4
crop-specific 341:6
 365:10
cropping 279:10 323:6
crops 3:8 12:19,20 14:6
 15:5 16:16,21,22 17:1
 18:18 22:20 32:5,6,13
 32:15 35:8 36:14,15
 38:17 59:11 84:17,19
 85:5 86:7 88:19 89:15
 90:5 95:5 96:7,8
 102:2 103:2,7,10
 104:19,21 105:18,20
 106:17,19 107:4,5,7
 107:14 111:4,11,16
 114:8 115:4 116:4
 118:10,17 120:9
 121:3 127:3 131:4
 145:5,8 150:3 153:13
 156:11 157:19,20
 174:15 179:8 183:7
 193:10 215:21 216:13
 216:22 217:9 221:1
 225:8 228:10 231:15
 241:16 245:7 257:2,3
 265:9,17,18,19,19
 266:1 269:15 277:11
 279:6 298:6 313:6
 317:13,18,22 321:9
 322:10 323:1,5,10,12
 323:15 326:6 327:12
 329:17 338:14 339:11
 344:20,22 345:3,5,7
 352:1 353:1 354:8
 355:4 364:1,12,18
 365:10,13 366:3
 369:4 378:10 380:20
 385:7 395:9,11
 396:22
cross-contamination
 225:7

cross-cutting 401:10
crowd 283:8
crowded 83:18 86:11
cub 295:5
cultivars 313:5
cultivated 27:14 104:21
 113:1 114:11 115:1
 115:21 116:2
cultivating 317:18
cultivation 16:14 96:6,7
 106:14 267:15
cultural 51:20 185:4
 192:21 195:8 196:18
 221:17 319:3 332:17
cultural-mechanical
 332:13
culture 102:2,3 302:14
cultures 132:1
cupboards 168:16
cured 77:15
cures 76:6 99:4,4
curious 168:3,5,12,22
 169:5
current 3:2 5:9 60:15
 60:16 61:16,18 62:1
 62:14 112:13 165:17
 165:21 216:2 269:8
 337:10 351:2 352:6
 355:19 368:7
currently 22:13 62:11
 116:1 161:15 239:5
 242:4 245:14 289:10
 310:9 338:12,15
 343:5,9 367:19
 378:21 385:16 391:1
curve 154:8 182:4
customer 146:1 158:10
 176:17 177:5
customers 33:1 147:12
 148:8 153:8 154:7,21
 155:11 156:19 158:9
 158:17,22 161:20
 165:10 169:7 171:5
 171:18 175:9 176:4
 176:16 294:8 296:7
 308:8,9 311:11
 313:10 367:21
cut 314:18 315:7
 401:19
cuts 392:19,21
cyber 218:19 219:4
cyberspace 136:3
cycle 129:5

D

D 5:1
D.C 39:2
daily 43:9 133:4 180:11

182:10 292:16
dairy 91:1 140:4,14
 143:12 149:13 152:14
 166:17 175:13 205:13
 205:17,18 293:14,17
 302:6
damage 104:18 196:17
 198:1 298:15 307:3
 314:5 352:1
damages 307:4 340:17
 341:22 342:6
Dan 1:12 3:16 201:4
 203:12
dandelion 319:12
dandelions 319:17
danger 71:9 163:8
 392:2
dangerous 123:14
 142:5,15 163:11
dangers 78:21
dark 182:8
data 35:17 52:9,14
 53:19 66:16,16 85:2,7
 121:4 122:2 128:5,8
 128:14 130:10 131:22
 140:2 141:8 159:18
 160:3,5 161:6,8 168:4
 168:7 169:12 170:4
 172:13 178:22 255:15
 255:17,21 265:8
 269:12 270:12 342:5
 342:8,16,20 362:7
 376:6
database 125:6 285:20
 311:17 366:17 367:7
 385:5
databases 123:11
date 270:7
dates 357:12
David 171:1
Davis 128:7
day 20:14 25:22 26:5
 57:2 71:18 83:1 91:17
 112:17 127:14 132:20
 143:14 160:15 173:16
 280:15 302:20 307:8
 316:6 328:14 402:16
 407:17,19
days 9:19 15:13 16:11
 18:8 24:15 182:9
 192:9 307:3 341:17
 346:6 350:21
deadline 144:17
deal 89:22 90:19 116:8
 117:6 119:22 157:6
 179:2 184:13 212:20
 220:9,14 224:4 235:7
 282:13,21 285:2

287:11,19 292:10
 295:1 311:2,13
 320:21 322:21 326:17
 350:16 380:7
dealing 42:20 66:21
 71:16 111:4 281:18
 288:18 348:20
deals 72:6
dealt 39:4 160:6 208:4
 209:2 349:18
Dean 11:2 44:7
dear 188:10
death 101:20 313:15
deaths 141:7
debate 28:8 158:20
 224:21 231:1 266:5
 279:10
debated 322:20
debates 9:13 56:8
 173:17 307:15
debating 28:14
decade 147:19 223:4
 242:14
decades 68:7 392:15
decide 73:12 165:10
 185:19 217:5 220:7
 234:5
decided 75:4 231:20
 357:4 359:21
decides 283:12
deciding 30:9 327:2
decision 60:13 70:14
 75:5 79:22 207:11
 329:20,21 350:18
decisions 8:15 62:20
 93:8 208:4 222:6
 227:1 234:4 248:2
 298:22 325:1 350:7
 353:10 355:6
declared 261:14
decline 312:17
declined 134:9 391:6
decomplexifying
 209:14
decrease 134:10
 262:20
dedicated 166:22
deep 79:4 302:14,17
 360:21
deeper 146:22 168:6
 245:5
deeply 8:19 22:18
 24:18 39:21,22 41:7
 95:22
default 266:11
define 16:14 75:10
 183:13 195:3 207:10
 207:12,14 287:16

defined 119:21 186:8
 196:3
defines 185:21 196:9
 196:10 257:8
defining 237:22
definitely 170:5,10
 269:2 361:11 406:13
definition 60:2 142:6
 193:8 195:6,22 196:6
 206:11 224:7 264:19
 351:19
definitions 183:14
 207:7
degradation 125:12
degrades 123:16
degree 100:21 225:11
 298:13 308:6
degrees 11:8
Delaware 44:6
delay 329:22
delayed 270:4 271:2
 274:15,19
Delborne 11:22
delegated 79:18
deliberate 348:9
deliberations 18:12
 94:18 404:22
delighted 227:21
 350:19
deliver 254:16
deliverables 367:16
 368:9
delivered 261:11 386:4
deliveries 184:10
delivering 254:3
delivery 86:12 161:20
 254:17 260:13,14
demand 3:11 19:1 34:1
 36:11 175:16 226:5
 232:3 258:1 285:6
 286:5 289:2,9 310:17
 312:3,7,12 389:6,10
 389:11,15 390:21
 391:20 393:12,21
 394:8 395:7 398:1
 403:16
demand's 152:15
demanding 155:15
 156:19 175:3
demands 16:22 176:17
 177:5 211:7 225:22
 234:21 282:21 389:19
 397:22
Democrats 233:20
demographic 169:3,4
 256:7,11
demonstrate 106:10
 123:15,19 352:19

demonstrated 17:7
 57:18 96:21 122:11
demonstrates 50:1
demonstrating 96:22
Denise 148:2
department 1:1 11:5
 16:6 17:15 87:11,13
 116:18 145:2 152:11
 154:9 169:20 208:14
 222:18 264:20 276:18
 278:6 280:13 326:6
 337:21 338:7 349:16
 362:11 369:10 386:21
department's 224:19
departments 8:8
depend 33:15 40:8
 111:20,22 193:2
dependably 298:7
depending 109:2
 114:20 305:13
depends 40:9 109:6
 140:12 186:21 251:14
 284:10,11,12 396:17
deploying 376:19
deposit 289:15
deposited 289:22
depression 133:7
deprive 30:5
deputy 10:12 206:20
 349:12
deregulate 62:9
deregulated 380:11
deregulation 88:18
 275:11 329:18
derivatives 118:13
 119:8
derive 118:14
derived 36:14 97:2 99:6
 99:6 162:10 245:7
describe 34:22 308:8
 332:12
Description 4:8
deserts 145:21
deserves 24:16
design 209:1 326:4
 348:9
designed 5:22 60:19
 303:12 350:11 351:11
 351:15 352:12 354:3
desirable 153:8 317:19
desire 32:20
desserts 119:14 202:7
destination 32:19 54:15
 254:14
destroy 113:13 123:20
 125:13
destroying 112:18
destruction 111:19

destructive 113:10,12
detail 299:10 340:8
 361:18 374:1
detailed 339:3 341:12
details 293:18 356:15
 367:16
detect 290:1 310:11
detecting 275:14
detection 373:9 381:20
determination 53:5
 238:6
determine 53:16 168:14
 183:8 288:3 289:9
 338:3 356:17
determined 287:20
detract 397:19
develop 18:1 86:4
 110:16 219:13 233:12
 250:2 326:10,20
 366:16 369:10 376:19
 378:16 379:3 401:16
developed 4:19 7:6
 8:13 76:18 124:17
 156:13 172:9 212:7
 219:8 249:22 320:10
 330:16 332:9 333:2
 346:3 353:13
developers 8:17 352:17
developing 30:16 244:1
 289:13,20 311:19
 367:7 373:3
development 1:9 30:4
 35:20 45:20 88:1
 213:17 217:2 300:1
 343:11 354:2 370:4,8
 372:20 378:6 385:5
developments 304:22
deveoping 211:12
devices 71:20,20
devolved 29:11
devoted 96:6,7 105:1
 105:12 112:8
diabetes 218:5
diagnostic 333:19
dialog 6:15 9:19 13:19
 14:13 29:8 34:5
 117:15 214:6 219:10
 247:2 302:8 341:5
diesel 192:3
diet 103:11 141:10
 149:1 210:15 212:4
dietary 201:11
difference 63:17 128:15
 128:16 187:15 253:4
 259:12
differences 56:15
 209:20 253:17 254:19
 256:9,12

different 9:12 13:2
33:22 34:1 47:6 55:5
63:6,20 64:1 66:18
73:10 76:9 82:21 96:3
105:10 107:2 109:1
110:21 121:18,20,20
121:21 123:6 126:19
131:22 132:1 142:6
142:13,13 168:18
177:16 180:9 190:21
194:16 201:22 210:11
210:11,14 211:8
212:1,19 213:14
221:18 227:18,18
229:13 241:10 245:19
250:7,16 251:17,20
252:20,22 253:1,5,9
253:13 258:21,22
259:14,22 279:19
282:12 294:2 298:1,2
302:21 303:7 313:5,6
322:18 323:5 330:11
334:10 347:18,19
349:19,20 356:10
371:4,9 377:8,9
378:22 380:2 381:7
386:14 402:17 403:19
406:11

differential 268:11,18
272:15 306:10 307:9

differentially 298:15

differentials 272:20

differentiated 233:8

differently 52:2 230:12
258:22

difficult 32:15 40:18
43:22 59:22 71:7
107:15 134:22 145:12
160:7 184:17,22
188:2 207:8,14 213:6
260:19 296:16 300:7
328:8 348:9 379:13

difficulties 37:21
300:12

difficulty 99:14 183:2
209:6 298:3

dig 244:17,22

digest 126:19

Digestibility 125:10

digestible 123:16

digestive 123:20

digging 55:20

digitally 93:13

digits 166:20 173:2

diligence 53:4

Dilley 1:8 2:12 4:20
21:13,15 94:5 116:13
138:3,5 141:12,16,18

142:17,20 143:1
157:3 162:16 165:2
166:3 167:6,11,22
170:19 172:16 176:9
179:11,13 200:7,10
203:2,9 228:3 229:11
232:16 235:9,13
236:2 237:19 239:15
241:2 315:6 334:16
335:8,15,18,21 336:2
336:9,12 358:5 359:8
359:11,14 387:2,14
388:17,20 389:2
390:3,14,17 391:5
393:9 394:11 396:8
398:17 402:9,12
406:22 407:13,16

Dillon 83:4,7,8 201:15
201:15 236:4 238:13
314:19

dime 212:18

dimensional 47:13

dimensions 8:15

dipped 173:1

direct 77:17 368:22

directed 64:17 74:2

directing 224:18

direction 342:22 389:9

directions 62:12 109:1
331:8

directly 18:8 111:20
302:11 313:7 335:11
340:10,13 344:9
346:3 362:6

director 10:12 83:8
203:14

directors 242:6

dirt 244:21

disadvantage 156:15
228:20

disagree 56:8 71:10
295:1

disagreement 309:20

disagreements 39:8

disasters 362:17

disciplinary 6:14

disciplines 6:12 8:8
14:16

disclose 354:19

discouraged 297:16

discourse 39:9

discoveries 171:13

discredit 36:20

discuss 6:2 20:16 31:7
241:13 274:1 278:17
340:7 346:16 385:18

discussed 49:7 101:15
267:1

discussing 312:13
341:4 346:5 362:5

discussion 3:17 4:3
16:12,13 19:21 21:12
22:8 39:9 48:8 62:6
68:1,5 70:20 95:17
96:5 109:4 124:14
130:2 168:21 173:14
183:12,13 195:5,6
200:14 255:18 256:1
261:1 267:3 268:22
272:10 296:13 302:5
305:18 313:2 315:7
315:12 336:6 337:9
346:15 367:12 381:2
402:17 404:11 407:10

discussions 18:5 20:3
20:14 21:19 45:3
49:21 56:9 68:17,18
74:22 92:15,19 94:15
265:12,14,16 266:21
269:18 274:1 337:11
342:4 343:16 344:4
355:15 370:20 381:8
404:14 405:12

disease 77:15 84:10
99:5 133:7,7 134:11
215:6 348:20 352:1

diseases 129:2 132:21
133:14 134:19 347:15

dish 178:2

disparages 247:8

dispersal 318:6

disposal 136:18

dispute 405:12

disputes 405:14

disqualify 266:8

disregarded 267:13

disrespect 76:17

disrespectful 274:5

disrupt 199:10

disruption 51:15
197:11,14,17 235:22

disruptive 197:20 199:6
354:5

dissemination 347:14
351:17

dissipate 224:3

distance 24:14 198:2
254:4 260:13 278:21

distances 278:1,9
374:8

distinct 295:14 380:3

distinction 180:15
198:11,11

distinctions 182:10,12
182:19 185:5 302:16

distinguished 381:18

distractions 54:14

distribute 176:21
395:13

distribution 398:2

distributors 264:11

distrust 37:1 148:9

Ditto 109:22

diverse 8:7 9:13 12:22
13:8 14:6,16 21:17
35:22 37:11 86:7
87:13 213:20 252:21
318:15 325:12 327:2
338:5 366:2

diversification 327:14

diversify 324:17 327:18

diversifying 324:15

diversity 3:8 18:2 26:16
26:17 28:4 31:2 38:15
38:16 47:7 49:5 57:4
83:12 84:2,2,3,6,8
85:4,11,11 86:1,5
89:21 90:1 95:5 107:3
107:4,8,12,14 108:1,4
112:9,10 214:11
366:2 385:7

divide 51:20 177:10

divided 30:11

divides 177:9

division 8:12 39:12
90:14,15

divisive 39:11

DNA 15:7 102:16
123:11,21 129:11,15
129:16 130:18 132:9
136:9 141:20,22
142:1,1 233:2

doctor 221:15

Doctors 10:8

document 48:19 51:16
282:22 404:5

documentation 187:17
266:3

documented 127:5
323:5,8

dog 71:22 226:9

dogma 219:10

doing 15:10 23:14 35:1
36:22 37:14 49:21
52:4,4 53:14 56:6
77:1 88:7 137:15
153:15 162:8 168:6
181:6 185:1 195:13
240:16 251:4 255:7
260:18 291:12 296:11
302:15 307:2 310:8
311:2 319:9 346:10
360:10 372:2 379:3
385:3 402:5 403:8,11

dollar 66:3 151:3 152:1
161:10
dollars 70:2 73:7
159:20 192:7,11
199:3 309:17 391:8
domestic 188:8 218:18
240:10 246:4 265:20
267:16
domesticated 105:18
domestication 103:6
dominant 319:18
320:15 322:2
dominate 318:10
323:21
dominated 194:4
dominating 195:14
donor 352:3
door 206:10 219:10
223:13
doors 202:2
dormancy 373:6
dormant 383:1
double 152:8,18 166:20
173:2 263:7
double-cropping 90:5
doubled 151:5 152:7
389:8 390:21
doubling 152:20
doubt 53:13
Doug 23:12
Dow 333:1,6,8
download 169:17
downside 94:1
downstairs 406:2
downtime 392:18
downturn 167:2
downward 107:9
downy 313:13
dozen 7:7 17:14 178:20
255:8
dozens 177:15
Dr 3:3,9,10 5:2,10 55:10
57:10 58:7,12 62:19
63:19 65:18 67:2 95:5
95:7,10,13,14 116:15
127:18 129:14 137:20
138:10 139:22 140:10
140:12 141:14,17,19
157:5,9 159:13
162:17,18 164:10,13
164:18,21 166:5
167:4,8,13,20 171:1
171:12 228:8,13
230:2,5 232:1,12,19
239:18 240:20 255:1
255:10 303:3 305:5
307:15 312:1 316:7
358:8,12 359:6,14,20

361:17,21 362:1
366:15 367:10 368:20
370:14 371:14,20,21
373:17,20,21 376:12
376:13 377:1 378:14
380:1 382:12 383:18
384:1 386:11 387:3,7
387:21 388:19,21
392:4 393:11 394:14
396:11,16 397:4
398:5,7 401:4 402:20
404:1
draft 19:20 334:6
drain 244:14,14,16
drains 297:1
dramatic 223:13
dramatically 134:12
311:3
drastically 106:4
draw 198:8 218:17
229:17 254:12 302:16
drawing 208:8
Dreams 210:20
drift 68:10,13 247:12
drink 20:11,12 77:19
154:21 183:17
drinking 79:6 163:19
175:9
drive 71:18 107:7
113:18 163:17 178:10
191:2 257:17
driven 168:4 210:13
395:8
drivers 396:2
drives 150:22 205:14
driving 163:4
drop 5:5 189:1
dropped 166:11
dropping 199:20
Drosophila 313:14
drought 172:12 215:5
290:20
drought-tolerant 244:2
drove 81:14 105:6
113:15 178:9
droves 154:19
drug 112:2 218:3 329:9
351:7
drugs 128:4 218:4
dry 143:11
Duane 11:15
duck 97:9
due 21:22 53:4 322:22
391:11
duh 113:16
Duke 1:7
Dukustan 303:14
Duo 331:2 332:20 334:2

dyes 397:11
dying 224:20
dynamic 265:20
dynamics 75:7

E

E 3:1 5:1,1 88:7 203:1,1
229:6
eager 57:22 58:5,7
eagle 142:1
earlier 14:19 28:16
98:10 99:2 107:9
147:11 174:10 177:4
179:21 224:18 239:22
255:14 290:16 301:5
308:12 314:3 333:20
367:13 369:12 370:15
372:2 381:9
early 139:14 141:7
267:2 275:16 312:8
321:21 322:13 331:9
332:4 385:2 399:12
earn 248:3
earth 104:15
ease 199:7
easier 161:3 176:21
366:18
easiest 106:10
easily 89:4 192:12
250:21 396:19
Eastern 190:6,9
easy 34:14 74:12 75:16
75:17 77:18 163:16
176:18 184:16 250:8
314:20,21 324:16,16
eat 126:11 127:13 221:6
243:18 287:6
eating 109:14 119:5
131:15 132:13 133:10
135:2 140:22 146:3
147:12 194:14
Ebola 76:7 99:4
eco-effects 329:7
ecological 96:11
104:18 388:14
ecology 95:20
economic 2:16 3:17,18
19:9 35:18 36:7 45:20
215:16 217:16 219:4
241:8 251:14,20
264:14 267:14 269:8
273:17,21 295:7
296:22 301:13 305:17
314:11 324:20 326:16
340:17 341:22 342:6
343:7 392:18
economics 1:22 250:15
251:7 296:13 305:19

359:16
economist 2:16 160:4
economist's 263:3
economy 15:9 26:2
41:22 81:7,10,11,18
151:22
ecosystems 112:4
214:13
ecotype 319:22
ecotypes 320:12
edge 189:1
edges 330:3
edited 164:14
editing 102:10 219:7
edition 110:8
educate 61:15 78:4
285:4
educated 146:1 256:18
educating 385:2
education 1:22 8:5 14:4
19:5 28:19 49:2
203:16 256:18 291:19
340:19 359:16 370:13
educational 308:17
326:20 331:9
educators 341:7
Edwardian 162:21
effect 105:11 108:1,4
253:4
effective 235:5 338:15
345:17 396:3
effectively 222:16
308:19 312:20
effects 105:14 339:14
339:15 360:8
efficacy 372:16
efficiencies 156:17,21
efficiency 129:1 140:20
171:20 172:11 188:18
258:19
efficient 81:1 83:22
175:14
effort 19:3 24:10 28:19
60:12 78:4 213:11
342:19 367:15
efforts 7:11 11:18 22:13
22:14 35:19 274:2
345:17 374:11
eggs 119:8,15 129:13
146:11 155:5 295:13
eight 39:5 54:5 101:15
149:2 150:7 159:20
241:11 255:16 263:12
eighteen 364:6
either 16:9 28:11 93:13
122:12 123:21 177:19
195:9 225:7 226:10
226:13 246:11 281:12

286:2 287:21 304:10
310:21 324:9 346:3
354:15 373:3
elaborating 337:14
elapsed 357:2
elastic 263:4
elasticity 265:3
election 89:9
element 233:15 309:5
393:18
elements 332:12 362:9
374:7
elevator 213:22
elevator 68:8 181:1,10
271:11
eliminated 363:15
ELISA 191:15 271:15
elite 289:14
eloquently 129:14
elusive 40:2 73:1
embarking 9:22
embodies 43:18 45:19
embody 9:20 48:15
embrace 74:7
embraced 162:3
embracing 214:10
emerging 184:15
215:19 218:16 296:3
348:15 353:8
Emeritus 1:15 95:6
emphasis 374:4
emphasize 31:11
152:12 172:7 317:16
348:3 357:18 375:7
emphasized 275:19
enable 12:18 32:22
376:2
enables 158:16
enacted 208:15
encourage 13:16 22:11
61:15 213:18 277:4
292:12 325:11
encouraged 32:12
55:15
encouragement 290:12
encouraging 227:19
ended 209:1 243:1
307:10
energies 49:17
energy 1:7 181:18
224:2
enforce 195:9
enforces 224:12
enforcing 147:21
engage 6:13 19:21
100:12 371:16
engaged 7:15 21:13
22:8 27:4 28:22 40:13

41:12 43:12 57:5
113:21 209:3,4
engagement 7:7 357:5
357:7
engaging 188:14
engine 154:3
engineer 375:20
engineered 8:10,16
12:20 15:5,7 16:16
47:11 59:16 60:6
107:19 351:7,12
374:10,15 375:4
381:16,21
engineering 5:20 6:8
6:16 8:3 12:15 13:21
14:11,17 58:9,21
59:10 60:2 63:22
82:14 99:21 215:1,9
218:2 219:1 222:21
380:15
engineers 59:21
engines 216:7
England 106:1
enhance 25:9 47:5
369:4,11
enhanced 362:13
enhancement 108:7
enhancing 389:17
enjoy 21:5 313:10
377:12 406:5
enlarging 62:16
Enlist 331:1 332:20
334:2 355:14
enormous 185:12
187:15 379:1 380:2
enriched 11:19 205:17
enrichment 217:10
ensure 21:14 222:1
223:6 247:15 351:12
352:15 365:14 390:10
396:12
ensures 38:11 318:11
ensuring 22:18 89:20
enter 121:8
entered 54:10
entering 341:5
entertain 58:3
entire 15:9 38:21 39:5
41:21 103:22 163:14
182:20 199:1 212:16
238:2,11 264:9 301:8
366:11
entirely 106:14 277:8
entities 20:19 185:22
298:1
entity 370:12
entrepreneurial 210:16
213:19 227:16

entrepreneurs 69:18
entrusted 44:1
environment 11:19
21:10 57:3 63:11
318:20 353:19 359:4
373:7,10
environmental 1:13 3:8
14:1 110:20 215:15
217:16 219:5 277:21
351:8 354:14,15,16
354:18 355:2,11,13
370:7
environmentalist
115:17
environments 318:16
388:14
envision 9:19 38:5
enzyme 125:11
enzymes 76:2 118:14
EPA 19:12 315:17
325:10 327:17 332:11
335:5 355:15,16
EPA's 328:10
epidemic 133:1
epidemics 84:9,21
epidemiological 131:22
epigenetics 102:15
EPT 72:16
EQIP 325:16
equal 228:18
equally 32:8 39:16
equation 329:11
equilibrium 165:18
equipment 74:11 78:22
190:15
equitable 345:16
equity 273:11 298:9
equivalency 121:17
equivalent 63:5 225:10
eroded 245:3
erosion 112:5 245:22
errand 73:18
Errol 1:19 3:12 143:3,8
172:18 174:1 239:21
268:7 298:19
escape 109:5
Escherichia 97:16
especially 23:20 135:4
156:6 172:12 188:4
209:20 211:18,19
283:19 300:15 312:9
344:11 356:15 362:20
395:9 401:2
essence 160:8 258:14
260:6,7
essential 85:20 321:19
essentially 60:17 63:4
72:4

establish 186:12,16
established 110:2
144:7 267:22 318:1
382:19
establishing 143:20
144:2
establishment 270:9
estimate 104:1 150:4
288:4 397:6
estimated 161:12 288:6
estimates 104:11
estimation 262:16
et 147:4 213:13
ethical 8:15
EU 149:15,18 190:20
299:2
Europe 75:3,7 104:2
137:5 190:6,9 312:9
312:16
Europe's 75:2
European 150:13
Europeans 184:7
194:17
evaluate 63:13 215:20
355:2
evaluating 64:7 354:10
evaluation 382:16
386:2
evaluations 62:20 63:2
evangelical 295:18
evening 316:14 371:18
event 5:13 300:20
events 7:7 215:6
237:16 380:11
eventually 98:5 155:20
ever-expanding 37:14
everybody 5:3 42:10
69:5 89:3 91:11 145:5
145:18 199:12 293:4
347:1 361:13 362:3
everybody's 307:7
everyone's 76:22 93:11
evidence 9:14 100:19
107:1 127:6,9,16
129:1,2,4,16 130:16
131:7,9 132:2,17,20
135:7 136:22 141:3,6
157:11 228:15,16,18
228:20 231:9 260:2
261:4 352:19
evident 47:19
evil 101:13 103:5
evolution 95:20 101:10
165:18 182:16 280:21
280:21 281:14 317:11
327:10
evolve 116:8 165:22
282:14 285:1,11

evolved 46:13 47:12
285:10 311:6 319:14
319:20 320:1,18,22
322:5
evolves 165:13
evolving 25:6 65:9
283:17 285:7 321:1
EWG 309:10
exacerbate 51:13
exact 390:20 391:2
exactly 30:10 100:20
110:17 160:9 195:18
225:3 240:21 294:13
301:19 312:13 314:4
320:2
examine 65:13 216:21
378:18
examining 8:19 373:14
example 8:1,9 9:2
13:14 14:12 28:16
39:18 63:17,21 70:18
106:7 108:21 111:8
113:13 114:12,15
120:13 124:18 126:7
128:18 134:1 146:21
157:18 159:19 160:12
160:13 165:1 273:12
309:11 313:17 320:7
320:17 330:6 370:13
377:15,19 401:13
examples 132:4 319:10
332:15 377:14
exceed 166:19
exceeded 154:5,10
exceedingly 39:10
96:19
exceeds 269:16
Excellence 11:16
excellent 201:20
209:13 318:5 387:20
exception 29:15
exceptional 42:22
57:11
exchange 123:4 259:7
excited 92:18 281:15
370:18
exciting 5:12
excluded 153:5 173:7
exclusively 323:17
excuse 193:18 286:18
287:18,18
executed 11:16
executive 1:19 2:13
10:19 143:4,8 203:14
285:19 297:7 337:4
358:16
exercise 47:19 389:22
exerted 300:4

exist 36:20 100:18
268:3 285:9 365:19
378:9
existence 6:21 207:18
existing 261:4 372:17
382:1
exists 64:15 65:20
217:6 363:16
exit 54:10
expand 25:9 76:19
313:4 363:22 366:10
expanded 89:10
expanding 88:2
expansion 25:13 68:11
68:19 105:4
expect 18:7 27:2,15,20
113:13 229:4 291:6
368:8
expectation 292:7
304:17
expectations 27:22
28:2 44:4 45:17
expected 125:16
expecting 238:17
367:17
expense 194:19
expensive 78:22
131:17 182:3 199:6
223:21 271:17 398:4
398:5,7
experience 26:22 29:13
36:8 44:6 50:10
102:17 312:9 335:2
356:20,22
experienced 32:17
392:19,22
experimental 395:14
experiments 260:6
expert 173:9
expertise 18:3 264:16
267:10 350:20
experts 173:19 205:10
205:22 217:5 359:18
explain 87:9 135:12,17
138:22 140:1 294:13
exploded 104:4
exploring 357:6
exponentially 306:5
export 348:21
exports 26:1
exposed 132:20
exposure 125:16
132:13,16
express 32:14 55:15
129:11 341:5
expressed 32:20
122:13,22 125:8
126:3 129:15 340:3

expression 124:2,4
127:1 131:6
extended 72:5
extending 23:3
extension 14:4 284:18
extensive 286:20
355:22
extent 60:9 233:2 290:6
391:18
external 345:8
extinction 105:4,6,16
extract 403:13
extramural 376:18
401:6
extraordinarily 15:11
69:20 80:2 89:21
188:2 199:5 295:17
extraordinary 34:10
41:6
extreme 191:2 215:5
299:2
extremely 197:12
246:10 297:8
eyes 308:15

F

F 203:1
F-FAR 205:5
fabulous 5:7 76:19
204:5
face 4:1 33:4 35:2 36:8
40:12 213:3 218:1
258:8,10 295:22
316:19 327:2 363:10
faced 29:4 37:21 88:17
326:16
faces 38:8 39:18
facilitate 68:19 347:15
349:3 378:13 405:11
facilitating 1:9 21:18
338:11
facilitator 2:12 21:14
94:5,8
facing 17:8 362:15
fact 38:15,20 59:9
88:17 105:12 115:13
115:22 127:13,17
136:9,10 137:19
140:22 152:3 162:13
164:4 166:13 167:2
169:16 176:18 178:9
192:17 204:20 253:19
256:19 263:6 281:11
308:22 318:6 322:9
325:7 337:18 344:6
355:6 358:21 370:11
384:5
factor 132:15 133:15
141:11 184:8 197:12
258:13,14 269:1,3
factors 134:13 140:21
256:7 258:21 259:9
260:15 261:16,18,21
281:17,21 282:14
284:12 288:19 291:3
faculty 6:11 9:8 11:14
11:16,21 14:16 44:11
fail 30:14 346:12
failed 28:8
failing 33:1 38:19
failure 199:22
failures 261:2
fair 72:12 353:14
fairly 5:3 71:12 105:13
125:1 234:7 262:6
391:5
fake 101:11
fall 8:11 59:17 230:8
325:2 356:17 395:4
fallacy 97:6
falling 392:2
falls 142:4 269:17 330:7
familiar 143:13 293:7
362:3
families 79:5 117:5
321:17
family 69:17 79:19
80:15,16 249:4
famous 207:10,11
210:21
fan 220:19
fancy 364:11
FAO 385:8
far 71:11 104:14 125:11
131:21 158:2 202:1
205:5,6 219:17 251:7
251:14 254:19 267:18
295:10 322:5 335:15
375:13 406:19
farm 30:9,10 33:21
45:20 69:12 78:17,18
87:6 89:8 90:7,21
91:7,9 98:18,22 190:4
199:1 227:15 242:16
248:4 249:4 256:7,11
257:9 271:4,17
284:11 306:21 310:20
313:7,9,13,21 343:14
365:8,12 384:10,10
384:12
farm's 67:22
farmer 16:20 22:19
31:14 79:15,18 80:20
173:18 176:12 180:11
186:13 192:1 193:9
193:12 194:3,4

198:16 199:14 241:22
 248:17 264:22 272:18
 273:15,16 274:3,3,22
 302:19 314:2 333:10
 341:1 342:12 346:12
 365:13 371:6 379:14
farmer's 288:14 333:7
farmer-to 340:22
farmer-to-farmer
 338:12 345:11
farmers 15:14 25:20
 26:5,7,19,21 28:13
 29:3 30:5 31:11,12,17
 32:7,12,13 33:4,8
 35:16 36:8 37:3 38:7
 68:4 69:13 78:12,12
 79:1,4,9,10,14 85:22
 109:1 116:6 117:10
 121:10 156:21,22,22
 174:13,16,20 181:20
 187:18 188:22 190:17
 193:4 196:16 213:1
 213:18 214:18 215:22
 223:5 227:11 242:9
 247:11 248:6 256:13
 256:13,15 258:22
 262:22 263:14 268:21
 270:14,19,20,21
 274:13,13,15 292:14
 293:10 294:7 296:18
 298:5 302:13 317:16
 325:4 327:2 339:21
 341:4,7 342:1,6 343:8
 343:21 344:12,16,19
 344:21,21 362:6,12
 362:15 365:3,18,19
 366:17 367:22 368:3
 372:4 375:10
farming 14:1 15:4,6
 24:18 38:17,18 78:19
 162:2 171:22 211:10
 242:18,18 244:12
 273:7 302:15 362:18
farms 27:10 68:13
 214:12 257:6,13,15
 302:22
fashion 298:14 302:22
fast 144:10 238:8
 241:10 389:9 391:20
fast-paced 191:14
faster 152:6
fastest 151:3 152:1
fat 70:12 175:11
father 244:13
favor 248:1
favor'd 339:11
favorite 237:18,19,20
 283:9

FDA 74:2 119:21
 121:12 223:11 234:9
FDA's 218:7
fear 36:17 164:6
fearing 298:9
fears 138:1
feature 20:10
February 356:3 367:6
fed 119:17 124:2 128:8
 128:10 129:4 140:5
 155:6 200:16
federal 14:9 19:5,12
 41:19 73:21 145:11
 155:13 179:4 186:1
 195:2 224:3 236:14
 236:20 282:17 309:3
 328:21 329:9 337:15
 337:20 344:8 350:2
 351:9 354:18 371:3
 383:2 392:9,12,17,20
federally 165:9
Federation 88:6
feed 40:10 76:21 80:15
 131:19 139:11 146:10
 146:12 171:7 180:20
 184:6 226:6 283:19
 286:18 287:21 293:17
 296:14,14
feedback 22:12 27:1
 37:17 357:11 403:6
 403:13 404:15
feeders 182:15
feeding 25:21 26:10
 37:13 79:19 80:15
 101:22 124:7 139:1
 295:11 310:19,19
feel 21:10 39:20,22 67:3
 77:14,20 131:3
 174:15 205:19 257:12
 266:13 293:6 300:3
 380:13 393:13
feeling 233:14
feels 16:19 295:16
feet 191:1,4 196:21
 197:3 245:1,5
fellow 370:16
felt 55:4 344:19,20
 345:7
fence 51:13 68:5 197:2
 249:15 251:4 259:3
 290:11 307:2
fencerow 274:3
fences 196:21 249:10
fencing 279:8,9
feral 373:15 374:16
 375:2
fermented 406:4
fertilizing 377:7

fiber 385:22
field 110:15 121:7
 124:11 185:10 189:1
 189:2 190:14,15
 192:8 210:19 211:15
 215:13 237:16 243:5
 300:20 318:1,9,11,22
 319:18 320:3,6
 331:11 333:7 352:9
 352:22 385:7
fields 108:6 113:16,18
 215:14 332:19 374:16
FIFRA 328:21
fight 173:3 285:7
fight 66:12 220:4
 280:17 304:3
fight's 221:20 223:21
figure 75:10,15 78:3
 87:8 90:12 131:19
 137:10 275:6 338:6
 345:16 391:2,22
figured 78:3
fill 220:5 272:14 379:7
filled 83:17
fillers 168:9
fills 367:18
filtering 94:6
final 206:6,8 292:20
 382:13 387:7
finalize 383:13
finalized 386:6
finalizing 385:17
finally 10:17 20:21
 201:19 202:8 244:21
 317:13 320:16
finance 394:7
financial 78:19 400:13
find 17:6 37:6 40:2
 72:22 74:12 89:14,17
 101:10 113:20 127:7
 146:16 169:21 178:5
 215:11 225:5 244:18
 247:21 260:7 268:22
 276:3 280:19 286:9
 287:20 288:12 292:14
 292:15 296:4 306:1
 342:12 364:15 367:22
finder 285:20 287:9
 311:16 366:17 367:13
 367:18
finding 56:14 63:8
 177:20,21 268:1
 280:16 348:6 400:3
fine 77:10 185:6 210:12
fingers 304:8
finish 307:1 315:22
finished 271:22
fires 87:17

firm 353:14
first 31:10 52:10 53:9
 58:8,13 86:9 96:12,16
 97:15 98:14 103:12
 104:20 105:20 107:4
 110:8 118:3 119:21
 120:1 144:6,16
 155:22 171:3 178:3
 183:11,12,16 191:9
 191:10 201:10 202:13
 203:4 230:18 236:4
 241:14 250:21,22
 255:11 257:5 275:11
 303:4 308:11,14
 317:5 325:16 330:20
 332:21 333:2,22
 336:13 361:4 363:12
 365:2 374:7 375:18
 380:3,7 404:7,12
firsthand 145:15
fit 287:1
fitness 373:6 388:17
fits 35:10 210:12 284:2
fitting 52:17
five 29:17 49:1 56:10
 78:17 115:7 152:7,8
 154:15 173:4 183:19
 183:22 184:2,4
 189:19 191:19 244:16
 253:8 261:12 272:1
 292:4 303:14,16
 323:9 331:12 363:13
 369:21
five-year 262:1
fix 38:9 228:21 296:3
fizzy 154:20
flash 255:19
flavor 156:17,20 181:16
 228:17 341:9
flavors 144:8
flex 184:8 238:4,10
 239:14
flexibility 240:19
 257:21 262:18 330:5
 333:8
flexible 65:16 102:14
flexing 238:7
fliers 216:8
flippant 76:12,14
flipped 311:7
flour 118:12
flourished 14:8
flourishes 14:2
flow 267:20 276:1
 277:13 304:22 372:8
 373:3,12,16
flower 286:13
flowers 235:2,3

- flying** 216:5
focus 30:16 240:15
 264:15 293:17 294:6
 372:13 380:22 404:13
focused 21:20 48:1
 73:3 88:2 156:16,22
 180:2,5,7 330:2
focusing 13:10 22:8
 214:10 360:8
fold 81:4
folder 404:5
folks 43:1 50:15 51:18
 52:9 61:4,22 62:4
 66:14 69:18 71:4 73:3
 76:17 79:20 81:22
 82:9 88:21 90:7,14
 146:2,2 147:6,20
 148:5,17 149:1 154:5
 164:9 167:1 169:3
 183:19 197:7 208:5
 210:11 227:18 267:1
 299:16 345:14
follow 34:8 114:20
 231:3 239:20 270:17
 350:1 352:21 390:5
 407:2
follow-up 369:8
followed 344:7 352:16
following 22:6 99:13
 238:2 349:22
food 1:14 3:10 14:5
 20:5,11,12 24:8 27:6
 27:11 37:2 38:12 43:9
 45:21 57:2 80:8 81:16
 88:5 95:8 96:14 98:13
 98:14 99:16 101:13
 111:21 116:18,19
 117:1,3,3,12,22 118:3
 118:5,7,10 119:3,3,5
 121:8,11,18,22 125:1
 125:17 127:13,14
 128:16 129:12 130:4
 131:4 132:14,22
 133:3,6,10,13,17
 134:3,9,14 136:6,8
 140:3 142:11 144:10
 145:21 146:6 147:1,5
 147:5 148:10,10
 149:6 150:3 151:8
 152:2 153:6,11
 155:10,11,11 156:19
 157:6,10,12 158:5
 159:8 161:7,7 165:8
 168:9 176:4 180:9
 182:14 184:6 185:19
 201:1 202:15 203:7
 205:4 211:9 213:22
 214:15 215:13 221:6
 221:12,17 222:4,8,11
 222:15 223:2,5,10,15
 224:2,5 225:10,14
 232:7 236:2,16 239:1
 247:20 268:12 270:18
 271:13 272:1 280:22
 281:19,21 285:10
 293:12 306:18 308:11
 326:12 328:6,7 329:8
 329:9 347:21,21
 351:7 385:10,22
 401:21 403:19
foods 1:20 98:17,19
 100:22 103:3 119:22
 126:11,19 128:20
 129:18 130:14 132:3
 132:6,12 133:19
 135:2,5 136:2 137:1
 138:16,20 139:2
 143:5,9,11,15,16,19
 146:8,9,15,17 148:3
 148:19 150:6 151:3,8
 151:13 152:5,19
 154:2,4 155:13,17,17
 155:22 157:7 161:8
 163:9 166:1 168:2,4
 168:13 170:12 174:21
 177:4,18 179:6 222:1
 225:12 226:6,7
 230:21 233:2 268:8
 284:22 285:8 339:3
fool's 73:18
foot 210:5
footprint 104:10
FootprintNetwork.org
 104:9
force 295:19
forcing 90:22
Ford 213:13
foreign 207:4 240:10
 267:7 271:12 284:13
foremost 31:10 257:6
foreshadows 267:5
forest 87:16,16
forestry 87:15
forget 65:19
forgiveness 209:5
forgotten 78:14
form 357:21
former 1:12 20:4 25:18
 201:3 206:8 242:3
forms 33:16 38:11 47:6
 84:5 106:19
Fort 389:12
forth 45:13 46:3 70:13
 73:9 95:21 158:21
 303:1
forthcoming 38:8 376:8
forthright 38:7
fortunate 20:3 293:6
 294:9
fortunately 128:14
 226:22
forum 13:7
forums 302:5
forward 13:11 31:6
 37:19 44:8,13 46:15
 55:2 57:11 60:8 85:3
 86:6 87:8,21 88:4,10
 88:11,13,14 90:12
 91:13 92:2,3 172:15
 222:21 235:20 248:10
 269:13 279:19,22
 292:17,17 345:14
 346:1 357:22 366:10
 368:18 371:13 401:2
 403:14
foster 21:10 337:22
 338:3 405:14
fostering 22:8 235:21
fought 29:16
found 7:17 55:22 61:13
 98:6 111:7 163:18
 209:6 245:1 299:22
 342:10
foundation 8:5 14:10
 46:15 57:19 84:18
 205:4 219:17 249:13
 289:15 310:9 374:12
foundations 213:12
four 78:16 192:5 253:8
 285:15 306:18 364:4
 374:6
fractions 132:10
Fraleigh 85:16
frame 198:8 293:19
 337:11
framework 49:6 62:14
 62:17 121:13 148:7
 351:10 353:5
framing 295:22
Frank 91:3,3
frankly 35:2 61:20
 89:22 266:18 296:21
 350:6
fraught 217:7
Fred 10:5 12:16
free 15:7 21:10 32:11
 75:10,11,12 147:17
 147:19 193:5 216:5
 221:3,4 222:2 229:5,5
 229:5,6,6,7,7 243:22
 284:7 287:17 289:20
 329:20 394:17 396:5
free-of-charge 395:18
free-range 202:9
freedom 32:8
freeze 108:20 198:7
French 67:5
frequencies 381:18
frequency 254:5
frequently 65:19 71:20
fresh 202:6 357:4,19
frictions 33:20
Friday 356:3
friend 23:16 24:7 91:3
 204:10,20 284:5
 319:13 320:17
friendly 74:7
friends 69:10,11,11
 70:1 133:2 183:18
 227:22
fringe 296:2
frog 97:18
front 48:15 202:8
 255:20
fronts 100:12
frozen 143:12 155:2
fruit 286:13
fruits 118:20 211:19
frustrating 160:5
frustration 363:17
frustrations 61:21
FTC 195:10
fuel 88:3 192:3
fuels 88:5
fulfilling 36:11
full 18:2 51:11 93:10
 254:7
full-value 271:21
fullest 30:15 276:18
fully 37:20 198:6
fun 387:18
function 262:17 266:15
functional 185:7,9
 192:14,22 193:1
 195:7 198:1 267:6
functioning 382:22
fund 74:3 326:13 371:7
fundamental 64:14
 148:7 228:14 400:16
fundamentals 43:18
funded 14:9 128:13
 263:15 373:1 374:1
funding 263:13 371:4,5
 371:5,6 372:16
 377:15,18,18 390:1
 391:3,13,13,16 397:1
fungi 351:21
fungicide 229:5 328:22
fungus 229:5
furnish 388:16
further 37:18 49:7 66:6
 202:12 203:20 219:4

233:6 275:19 289:17
 292:6 343:15 378:12
 386:20 392:2
fuss 66:12
fussing 70:1,2
future 24:18,20 26:15
 37:13 38:6,21,21 40:7
 40:9 41:8 60:17 62:1
 62:15 65:17 86:7
 116:3 156:2 176:1
 215:5,18 219:21
 234:16 281:14 302:8
 357:9 378:5
futures 174:19
FY 391:9

G

G 5:1
gain 139:6,7,20
gained 195:12 356:21
game 31:4 82:17
Gametophytic 377:5
gamut 264:13 271:15
gap 7:4 233:20 367:19
gaps 4:1,6 220:5
 316:19 336:17
Garden 1:16 95:7
Gates 14:9 213:13
gather 17:21 28:17
 35:17 338:2 342:19
 403:6
gatherer 103:18
gathering 255:12
GD743 278:17
GE 29:22 31:19 32:2,6
 32:15,18,21 35:19,21
 47:20,20 59:11,11
 62:1 70:21 76:2,3,5
 96:6 102:8 104:18
 110:21 111:4 114:1
 114:14 115:4 217:9
 219:6 249:21 266:4
 269:15 275:11,14
 283:19 313:8 339:1,2
 339:11,11 340:5,5
 341:22 342:5,9,11
 343:8 352:2 353:1
 355:4,12 356:22
 372:21 373:7,9,15
 378:4
GE-sensitive 367:1
 382:19
geared 208:19
gears 143:2
geez 67:12 78:3 87:21
gene 102:9 109:7
 122:12 123:2,9 124:4
 124:5 164:14 197:19

219:7,7 244:5 246:13
 246:14,15 276:1
 303:7 304:22 372:8
 373:3,12,16 379:18
 380:15 381:4,10
 384:21 385:2 391:17
 396:15,16
general 21:7 110:8
 148:20 163:8 164:5
 231:17 236:16,18,19
 338:22 340:19 343:5
 343:10 344:3 348:13
 349:16 371:7 395:19
generally 79:1 111:11
 167:7 210:7 293:17
 332:2 339:9 340:2
 393:12,22 395:13
 403:7
generate 255:22 374:7
generated 88:16
generating 88:19,19
generation 9:3 198:4
 217:9 376:16
generations 40:7 78:17
 140:17
genes 96:18 97:1,7,10
 97:15 99:8 102:11
 108:7 109:8,16 110:2
 111:13 123:4 142:2
 246:13 277:13 376:19
 376:21 377:5,6,8
genetic 5:20 6:7,16 8:3
 12:15 13:21 14:11,17
 35:13 58:9,21 59:10
 59:20 60:2 63:22
 82:13 83:10,12 84:1,6
 84:7,14 85:4,9,11
 86:1,5 99:20 107:7,11
 107:14 108:7 111:14
 115:11 117:2 131:1
 142:7 158:1 165:20
 171:14 215:1,9 218:2
 219:1 222:20 266:7
 378:8,11 379:20
 380:15 382:20 383:6
 383:22 384:20,22
 385:6,9 393:16
 396:11,12 397:5
 398:3,9
genetically 8:10,16
 12:20 15:5 16:16
 47:10 59:16 60:6
 84:17 86:6 99:7
 101:12 106:5 107:19
 110:13 117:18 118:22
 119:1,5,10,16 120:1
 120:11,17 121:2
 125:2 127:10 128:9

128:10,20 129:5,9,17
 132:3 133:18 134:2
 137:1 140:6 141:5
 221:7 228:10 317:13
 318:14 321:10 323:1
 323:12,14,19 326:5
 327:12 329:17,18
 330:21 351:6,12
 374:10,15 375:3,20
 379:17 380:2 381:16
 381:21
geneticist 109:19
genetics 68:6,13
genie 229:1 308:20
genius 371:11
genome 102:5,6 212:4
 398:21
Genomics 14:6
gentleman 216:13
genuinely 72:7
geographic 100:10
 101:14 273:13 338:14
geographical 253:4
geographically 278:8
geographies 251:14
 252:20
geological 165:19
geologists 165:16
geology 165:14,17
geospatial 376:3,6
German 406:17
germinate 318:8
germination 376:20
germplasm 49:5 370:3
 370:5,5 378:17,21
 385:18 386:3 387:22
 388:18 389:7,7
 391:17 392:7 393:8
GES 2:19
getting 50:6 58:14,16
 74:15 81:15 82:2
 120:19 177:3 227:2
 288:14 307:2 310:12
 310:21 391:18 403:1
GI 125:12 130:1
giant 245:16
GIPSA 196:8,11
give 15:21 18:7 24:4
 27:1 28:15 31:12
 63:16 68:2 70:15 75:4
 91:12 95:10 107:16
 116:5 117:22 142:12
 143:21 157:17 158:12
 158:12,13 163:13
 169:8 171:18 200:20
 201:9 209:22 239:11
 251:1,2 255:4,16
 264:6 288:16 293:2

339:3 341:9 351:15
 354:20 362:5 383:17
 390:19 402:13 406:15
given 104:8 180:21
 224:11 235:7 237:14
 303:17 314:14 315:14
 393:14
gives 195:15 221:16
 332:14
giving 176:16 301:14
glad 205:8
glasses 406:18
glassy-winged 313:14
Glickman 1:12 3:16
 24:6 201:4 203:12,18
 204:1,7 205:21 227:7
 228:7,11 229:12
 230:3 231:5 232:2,15
 232:18 233:19 235:10
 309:2
global 1:19 13:18 15:2
 17:1 101:5 104:10,12
 104:13 143:4,8
 246:21 385:5
globally 84:9 171:7
globe 38:12
gluten 126:8,9 147:19
gluten-free 177:17
glyphosate 109:10,17
 109:20 113:15 136:10
 136:13,17 243:10
 245:17,17 321:11
 322:7,9,11 323:2
 328:16 330:13,18,19
 331:1 334:7,8 375:7
 375:17,19
GM 98:17,19 100:22
 102:8 138:16,20
 139:2 142:4,5 163:16
 230:16,21 244:3
GMO 70:21 71:5,5
 75:10 118:6 126:4,11
 126:14,22 127:7
 130:3,14 134:14
 136:2,8,8,13 144:17
 145:5 146:8,10
 148:14,21 155:14
 157:10,12 160:14
 163:9 168:3,11,21
 169:5 172:1 174:19
 180:12 182:11,12,13
 183:16,22 185:9
 187:5 188:22 189:6
 190:5,9 193:4,5,7
 194:18 199:15 202:2
 210:9 213:6 214:20
 215:20 216:13,22
 218:20 219:14 220:18

224:2,13 225:13,17
 229:3 236:20 237:6
 238:10 240:15 256:5
 256:12,21,22 257:5,9
 257:11 258:5,6 259:4
 259:13,19 260:11
 261:6,10 262:8,20
 265:9 280:18 305:10
 307:18 311:4 313:3
 328:6,7 388:5
GMO-free 149:6,9,14
 149:15,20,22 150:15
 176:18 177:10 220:22
 222:12 223:16 224:6
 224:7 225:2,9,19,21
GMOs 75:2 145:10
 148:22 150:11,18,20
 153:5 161:19 165:9
 166:2 170:3,6 194:14
 206:11 215:2 221:8
 222:2,7,20 223:3,17
 307:21 388:1
go 30:11 65:1 67:20
 77:2,6 81:13 87:14,17
 87:20,22 88:5,8 92:19
 93:17,22 101:9
 108:20 135:16 139:3
 141:19 159:7 163:15
 167:13,14,17 181:18
 182:16 184:22 188:16
 193:17 199:4 202:15
 203:3 217:8 230:18
 232:8 234:11 238:12
 241:10 245:18,20,21
 247:13 250:8 251:7
 252:1 253:1 261:17
 262:16 263:12 279:14
 281:6 284:18 290:8
 291:12 292:5 301:21
 303:1 304:11 307:20
 316:14 320:3 327:6
 334:3 357:11 362:18
 376:14 396:10 404:7
 405:17,22
go-to 199:16
goal 13:10 181:12
 329:22 338:2 383:9
goals 10:1 63:7 376:4
God 186:9 208:2 280:22
goes 78:18 109:12
 122:7 134:16,17
 160:20 171:9 192:4,6
 192:16 251:8 254:20
 260:10 276:11 278:6
 278:15 306:8 313:11
 329:14 333:6 354:22
 366:4 392:5
going 23:21 28:15 42:4

44:8,13,16 46:13 48:6
 49:18 53:4 54:4,22
 55:1 60:22 61:3 65:17
 66:16,18 73:9,10,11
 73:13,14 74:11 75:4,6
 75:9 76:19,20,22 77:3
 77:5,6,7 78:11 81:4
 82:22 85:2 86:10,12
 86:13 87:2 90:1 92:19
 94:13 100:2 107:12
 117:15 119:22 131:3
 131:5 137:22 144:3
 144:19 158:20 165:7
 165:10 166:1 179:16
 179:20 183:10,20
 185:2 186:21 193:1
 193:16,17,18,20,21
 193:21 195:4 197:3
 197:17,18 198:21
 199:3 200:20 201:4
 202:11 204:14 212:13
 215:13 216:6,20
 220:11,11,13 222:21
 226:6,15 232:2,8,22
 234:11 241:6,10,11
 241:12,14 250:8,9,11
 252:14 253:3,9 255:4
 258:17,18,19 263:20
 264:4,22 267:18
 269:7,10 270:12
 271:10,12,13 272:6
 274:1 276:3,20,21
 277:13,18 279:7
 280:6,7,16,18 281:16
 284:1,19 286:8
 288:16,17 290:5
 291:22 292:3 293:2
 295:21 301:19 302:8
 304:8,8 305:3 307:10
 311:19 314:7,9,17
 315:15,20,21 316:16
 317:8,9 318:18,19,22
 319:7,18 320:4,5
 324:6 325:8,9 327:6,8
 327:13 328:18 329:13
 330:6 331:11 333:17
 334:4,6,10 335:12
 336:16,19 339:3
 345:16 352:9 357:18
 357:20,20,22 359:17
 360:1,2,8,10,13 361:2
 361:12,13,14 362:4,5
 363:4 364:13 371:13
 373:18 376:2,14
 379:4,6 382:14
 383:13,16 385:17
 386:7,18 388:16
 392:2,11 400:3

402:12 404:13 405:16
 407:4
gold 153:9 162:7 171:9
 171:9 175:22 247:7
 313:9 389:12
golden 153:9
goldfish 97:9
golly 76:18 78:13
good 5:2 12:6 16:4
 23:16 24:7 29:12
 33:11,12,12 42:10,10
 46:16 55:11 69:11
 75:18 77:20 80:8 85:3
 92:15 94:5,7 111:5
 129:10 135:13 138:8
 143:7 161:2 164:1
 190:17,20 205:17
 208:4 218:7 221:16
 228:13 235:4,6 236:5
 240:16 242:8 250:18
 264:1 269:11 270:13
 276:16 281:12 283:16
 284:5 293:5 302:11
 310:7 315:7 317:1
 318:9 336:22 347:1
 360:4 364:17 387:12
 394:18 406:3
Goodman 387:21 388:2
 388:19,21 389:5
 392:3
Goodman's 390:6
goods 119:12 143:11
 147:17 267:20 370:8
Gorman 406:17,18
Goss's 84:10
gotten 102:9 294:11
Gould 10:5 58:7,12
governed 60:5
governing 210:7
government 4:3 31:21
 33:2 41:20 42:17
 60:10 66:20 74:16
 184:3 186:1,5 188:16
 195:12 206:16 209:3
 224:4,10 225:5
 226:22 227:8,9
 229:16 233:12 236:20
 238:15,16,20 239:3,9
 239:12,13 300:10
 304:7 313:20 314:10
 315:10,18 354:7
 385:8 392:20 401:7
government's 52:20
 65:17 188:6
governmental 298:11
governments 41:20
 186:2 386:1
governor 25:18 39:4,6

41:14 80:14
governs 45:9
GPS 376:1
grab 5:5 93:22
grade 268:12 306:19
gradualism 165:14,17
graduate 8:5
grain 1:11 117:9 119:6
 119:16 128:9,10
 129:5 140:6 175:8,11
 179:16 196:8 249:4
 251:7,9 296:4 307:10
grains 128:20 132:7
 152:14 176:13 177:10
 211:18 311:21
grant 8:6 13:16 184:11
 325:21 326:12 395:1
 400:1 402:6
granted 353:2 354:6
grants 372:10 377:22
graph 120:7 128:17
 321:4,13 322:3,8
 323:3,10
graphs 255:20
grapple 185:19
grass 115:3 245:4
 319:19,20 320:1
gravity 304:3
gray 252:11 253:15
 254:19
grazing 205:13
great 12:8,9 13:6 14:18
 20:3 22:17 23:17
 37:11 41:17 42:5 43:2
 51:12 53:18 66:14
 76:11 82:6,7 95:15
 107:11,12 117:6
 120:21 153:22 157:6
 164:8 166:9,15,20
 168:5 171:4 179:14
 200:13 204:11,11
 233:9 234:14 236:5
 241:9,20 265:14
 277:7 280:12 295:1
 298:18 320:21 322:21
 366:15 371:21 378:14
 382:12 386:11 387:3
 389:15 400:7,9
greater 69:14 154:11,19
 154:19 155:4 322:6
 344:16
greatest 148:17 204:16
greatly 11:19 184:19
green 93:9 181:1
Greene 2:15 235:18
 241:7,7 248:12 255:1
 255:4 263:19 280:2
 292:19 301:17 303:1

306:15 307:12 308:3
 309:7 311:22 312:21
 314:13,22 315:4
Greene's 275:9
greening 99:5
Greeting 3:2
greetings 337:6
Gregoire 1:12 4:7
 336:15 346:15,22
 356:10 358:11,13
grew 355:10
grilled 202:3
GRIN 385:5
gritty 174:5
Grizzly 294:18 295:4,20
grocers 74:7
grocery 1:19 72:13,14
 74:3 80:4,5 86:10,11
 143:4,8,11 144:17
 145:12 166:14 178:19
gross 293:22
ground 30:7 37:6 63:8
 73:1 242:22 264:18
 346:11 405:15
groundswell 232:9
group 8:9,22 9:8 12:22
 20:14 34:3 42:22
 69:14 87:4 93:4
 103:16 128:7 131:13
 170:9 196:1 202:12
 321:8,18 369:6,9
 379:2
groups 8:22 15:6 17:14
 74:6 87:7 117:10
 132:1 133:21,22
 196:1 239:7 371:6
 375:10 403:2,5
 405:17
grow 16:21 22:20
 107:20 113:3 120:9
 153:22 166:14 174:13
 176:13,19 211:1,4
 217:12 227:12 242:1
 249:2 328:13 364:12
grower 249:18 252:13
 256:6 258:5,9 283:11
 283:21 285:4 286:9
growers 2:8 182:2
 248:18 249:6,16
 250:2 256:19,21,21
 257:5,15 259:4,4,13
 259:13 260:5,8,17
 261:10,10 262:1
 264:11 271:18 278:15
 279:1 283:20 286:3
 288:9 290:9 291:7
 292:1 312:14 324:17

324:22 325:11,22
 326:17 327:18 330:5
 330:7 340:5 345:7
 403:15
growing 25:15 32:13,21
 40:10 47:7 56:17
 86:10 96:8 105:20
 106:4,7,9 107:22
 147:18 153:3 172:11
 177:18 195:15 227:11
 239:7 251:16,18,19
 288:20 298:5 339:10
 344:19,20 345:2
 368:2 370:6 391:20
growling 200:19
grown 27:12 69:19
 107:18 108:6,10,17
 141:4 251:8 352:9
 364:4
grows 110:13 241:16
 250:19 365:13
growth 129:1 146:14,16
 148:17 149:14,17
 151:3,19,19,21 152:1
 152:6,13 154:3,6,8,10
 160:1,7,16,17 166:16
 166:19 173:4 175:17
 175:17 176:2 177:22
 178:6,7 258:3 319:15
GS 6:10 9:5,21 10:11
 11:21
GS784 278:17
guarantee 35:14 216:18
 341:3 386:7
guess 220:1 286:14
 313:9,22 358:2 363:8
guessing 187:11
guidance 46:5
guide 283:1 353:7
 359:1
guided 45:14
guiding 211:3
guilt 233:15
Gustafson 101:19
gut 129:21 130:11,15
guts 130:1
guy 11:1 244:20
guys 5:10 73:8 80:2,9
 80:22 149:22 175:18
 288:4 291:2

H

ha 164:10,10
habit 319:15
habitat 111:19
habits 44:3
Hain 151:8,10
hair 217:12

half 7:6 83:1 104:16
 150:7 154:13 159:20
 197:2,3 201:1,2
 202:12,15 241:13
 272:13 363:12 364:7
hall 1:7 224:14
hammer 78:12
hammered 78:11
hand 70:8 72:19 79:21
 138:7 201:13 205:2
 221:10 224:9 320:4
 344:18 345:6 381:11
 381:12
handle 243:16
hands 277:14
handy 191:13
happen 54:4 68:17
 123:3 130:19 132:14
 196:7 215:10,13
 216:20 225:3 226:15
 232:2 249:14 254:5
 254:11 267:5 274:6
 282:2 312:20 346:11
 386:7
happened 68:10 101:11
 134:15 166:8 254:9
 272:10 333:1
happening 58:16 73:5
 129:22 131:9 177:13
 199:5 215:11,12
 232:10 259:12 273:19
 276:1,8 331:14
 358:21 375:22
happens 27:9 75:8
 109:5 132:15 192:18
 197:19 226:15 237:1
 237:7 252:7 273:18
 274:3 334:3
happy 86:17,22 88:11
 90:9 91:22 94:9
 181:12 227:5 281:10
 350:14,21 369:12
 375:11
hard 10:14 23:13 37:8
 50:5 59:2 70:4 78:20
 81:5 89:1 118:1
 176:19 184:9 238:8
 239:8 250:10 273:6,9
 315:6 331:17 354:17
 361:3
harder 221:2,2
hardest 131:12
harm 129:4 351:22
harmed 229:10
harmful 70:17 124:10
 142:9
harmonized 267:21
Hartman 169:13,16

170:9
harvest 191:14 381:11
harvested 376:10
hate 187:18 399:1
Hawaii 120:13,16
hazard 71:9 157:13
hazards 124:15
he'll 77:4
head 11:4 308:16
 407:17
head-on 17:9
heads 24:10
health 1:12,20 27:13,18
 31:17 87:16 116:20
 123:14 124:10 125:22
 127:22 128:1,17,18
 130:1,1,8 131:11
 132:5,17 139:8,20
 140:20 163:7 217:3
 217:15 218:6 219:19
 221:9 231:11,19,21
 277:19 339:14 347:3
 347:5 348:4,16
 350:12,13 351:13
 353:19 361:20
healthier 217:11
healthy 214:12
hear 18:6,8,17,22 19:6
 34:12 116:21 117:12
 118:5 126:1,9 133:1
 135:1,18 147:10
 166:10 294:20 303:21
 342:7,18 350:8,10,17
 358:7 360:11,13
 377:19 381:3 400:18
heard 58:16 92:13
 194:17 197:6 229:20
 246:22 260:4 281:2
 283:20 317:3 320:20
 324:18 341:18 342:7
 344:3 350:9,12
 355:16 370:10,12,14
 370:20 371:2,11,14
 372:1 378:1 381:2,9
 386:12,15 387:13
 403:17
hearing 24:7 111:12
 148:13 361:2 386:19
heart 77:16 133:7
 134:10 392:5
Heat 132:14
heated 30:16
heavy 146:8
heck's 77:7
hectare 113:4
hegemonic 145:6
height 173:5
heirloom 174:12 179:8

339:16
held 1:7 10:20 76:9
 144:8 360:20 369:6
Hello 138:10
helm 263:21
help 5:21 17:21 21:19
 28:17 29:5 31:7 32:22
 35:13 51:3 63:15
 66:15 68:11,18,19
 69:4,4 72:14 74:3,4
 91:12 94:14 95:2
 136:15 206:19 215:3
 217:12 242:22 285:2
 308:22 311:16 325:3
 325:22 327:18 337:10
 337:21 345:15 346:7
 349:2 362:13 368:13
 368:18 375:11 388:12
 402:3 404:9 405:3,11
 405:14
helped 152:3 209:1
 322:11 355:14
helpful 46:10 55:22
 62:12 141:13
helping 344:12 362:12
 371:7 382:8 404:18
helps 27:17 367:22
 368:2,3
hemolytic 229:6
hemp 243:3
hens 140:5
herb 286:13
herbicide 4:3 19:13
 109:10 110:15 114:8
 114:13 217:1 246:14
 277:6 315:19 317:6
 317:11,12 320:18
 321:3,8,11,17 322:7
 322:12 323:4,7,12,16
 324:4,10 325:4,8,13
 325:20 326:1,11,15
 326:22 328:11 330:14
herbicides 110:6,11,12
 243:3 244:2 247:13
 273:8 288:19 320:22
 321:14,18 322:1,5
 323:17 324:8 329:1
 330:17
heritable 102:17 397:10
heritage 153:12
heterogeneous 397:13
heterozygous 397:13
hexaploid 106:13
hey 64:20 80:11 85:14
hi 168:1 230:5 239:17
 239:18 241:7 309:9
hiatus 382:21 384:7
high 35:9 172:11 182:5

189:1 211:17 223:20
 244:13 257:18 275:15
 318:5 331:5 395:16
High-grade 113:10
high-income 145:20
high-level 18:9
high-risk 395:13
high-tech 214:10 215:2
high-value 211:12
higher 172:5,10 175:14
 175:18 211:14,14
 272:19 300:20 363:19
highest 294:17 380:8
highlands 113:2
highlight 7:22
highlighted 340:14
 384:21
highly 106:9 146:1
 318:14 319:4 323:18
 379:16 397:10,13
highway 39:14 54:11
Hill 219:15
hillside 244:15 245:3
historically 70:9 221:18
 365:19,22
history 21:16 74:21
 104:3 124:17,22
 125:3 204:16 206:15
hit 183:9 190:21 291:3
 307:8 391:10
HIV 76:7
hogs 140:4
hold 157:1
holding 248:14
holds 330:8
holidays 175:6
home 25:19 86:11
 93:10,18
homeland 348:1
HomeScan 169:13
homework 4:18 336:6
 387:17
Homogenized 205:16
honest 50:8 93:2
 174:18 204:17
honestly 19:2,10 230:7
honey 374:20
honor 12:10
honored 25:11 224:4
hope 13:11 21:4,9 22:6
 23:16 29:2 30:21 31:5
 38:4 50:11 59:7 96:11
 155:19 173:16 228:8
 255:22 262:10 263:12
 292:16 296:9 337:17
 368:17 386:8
hiatus 343:17
hopefully 99:21 203:6

214:5 229:16 241:12
 316:21 366:10
hoping 164:8 393:4
horizontal 123:2 191:1
 196:18
hose 169:12
hospital 83:17
host 5:21 10:10 12:17
 166:22 269:3 305:3
hosted 7:6
hosting 9:18 143:17
hot 273:12 302:19
hour 241:13
hours 94:9 192:4
House 208:10 353:6
household 147:4
Housenger 1:13 4:5
 315:17 328:1,4 335:7
 335:10
housing 87:18,19
hovering 307:18
How's 377:3
huge 74:18,19 110:15
 117:14,14 128:13
 149:10,14 174:15
 294:6,6 378:20 379:5
Hughes 201:17,17
huh 335:16
human 1:14 95:9 98:22
 103:7,20 104:3
 110:18 111:8 116:18
 116:20 125:22 127:6
 128:1 129:19 131:11
 132:5,17 138:18
 212:3 339:14 401:21
humanities 6:20 9:4
humans 131:14
hundred 192:5,10
hundreds 70:2 98:16
 98:21 105:6 151:6
 188:22 192:7 381:14
hungry 76:21
Hunt 1:8
hunter 103:17
hurdles 363:9
hurt 177:11 193:9,10
hurts 194:1
hybrid 107:9 141:4
 189:12 309:12
hybridization 108:13
 114:3,22
hybridizing 108:15
hybrids 189:8 291:13
 378:3
hydrogenated 144:14
hype 163:22
hyping 162:22 163:16
hypothetical 63:17

hysteria 298:13

I

Idaho 375:15
idea 8:17 18:7 30:20
 58:19 79:1 91:5,6
 101:16 124:14 129:21
 173:17 176:15 251:2
 252:16 274:2 278:12
 308:1 398:2
ideal 233:19
ideas 18:1 22:11,13
 29:2 66:19 73:2
 200:13 241:12 279:21
 280:7 293:2 296:2
 403:20
identical 64:2
identifiable 394:1
identification 331:9
 332:4 343:19
identified 19:14 52:3
 54:10 94:17 121:15
 270:22 271:15,18
 325:15 333:11,12
 385:1 397:8
identify 20:18 124:15
 125:5 250:10 254:15
 265:11 325:11,22
 326:9 354:21 366:18
 368:18 374:14 382:18
identifying 333:19
 368:10,16 393:18
identity 3:13 16:15
 18:15 176:13 177:9
 179:8,17 183:1
 249:22 256:14 265:17
 266:1 283:22 285:5
 384:20 396:13 398:9
identity-preserve
 284:13
identity-preserved
 32:13 179:13 265:8
ideological 207:20
 208:1 234:14
ideology 209:21 228:16
ignore 171:15 304:6
Illinois 2:4 11:6 186:3
 187:2 242:1,4,7,9
 310:9
illness 98:20 122:15
 141:7
illnesses 129:3 130:7
illustrated 100:2
illustrating 319:10
image 294:14
imbalance 122:20
 299:7
immaterial 306:6

immune 129:3
impact 27:12,13 28:12
 64:8 231:19 251:15
 251:20 317:21 326:11
 326:21 354:16 355:11
 355:13 381:20
impacted 29:21 48:7
 132:18 238:3 326:22
impacts 45:5 46:4 49:9
 217:1,3 231:10,20
 250:18 251:6,22
 252:2 264:15 354:18
 354:19,21
impediment 299:22
 300:5
impediments 327:1
imperative 37:5 290:8
implement 34:20 47:1
 337:21 343:6,10
 361:4
implementation 222:5
implementing 222:4
 324:19 343:3 361:7
 386:16
implications 3:18 19:9
 45:5 49:10 218:10
 258:15 267:14 269:8
 273:18 295:7 299:6
 363:5
implied 392:9
implores 216:2
implying 228:9
import 174:14
importance 26:13 36:6
 36:10 49:16 81:22
 370:12,16 384:21
 398:22
important 5:12,22 9:16
 13:9 14:3 15:14 28:4
 31:16 32:9 39:16,17
 43:8 44:12 45:21
 46:15 48:11,12 49:2
 53:20 55:4 58:22
 60:14 61:1,7 72:17,18
 76:5 87:3 89:22 90:2
 91:14 103:2 107:15
 112:10 117:17 123:15
 127:2 136:16 147:16
 163:2 196:5 206:21
 210:18 246:10 258:15
 259:1 272:9 273:4
 276:8 280:4 305:18
 306:7 307:13 312:2
 343:2 345:21 348:5
 349:3 354:7 362:8,14
 367:19 374:21 376:3
 386:13
importantly 332:18

imported 352:8
importing 113:5 174:11
 174:11
imports 268:5
impose 318:21
imposed 334:2
imposing 345:8
impossible 117:1 220:9
 328:9
impressed 317:3
impressive 66:9
improperly 112:19
improved 346:9
improvement 194:7
improves 172:4
improving 115:20
in-the-field 373:8
inadequate 205:19
inadvertent 124:4
inappropriate 384:5
Inasmuch 345:1
Inaudible 67:11
inbred 396:20
incentive 187:6 307:5
incentives 49:3,20
 186:19
incentivize 186:17
incentivizing 343:11
inception 143:22
inches 328:14 331:5
incidence 262:5,12
incidences 272:11
incidentally 100:19
include 55:9 123:5
 140:21 246:3 278:20
 325:20 327:13 329:1
 329:1,2 331:19,20
 332:1 370:2,8 378:6
included 124:13 128:12
 198:15 297:22 325:7
 332:2 339:12 356:1
 372:15
includes 134:20,21,21
 146:7,10 155:5 202:3
 202:6,9 325:15 347:4
 347:6 351:21 385:21
 387:17
including 11:14 21:18
 22:12 27:6 60:3 89:13
 140:3 146:19 147:3
 155:5 170:14 171:21
 178:13 181:22 204:19
 215:9 216:22 221:6
 224:13 255:12 317:19
 338:10 339:13 349:20
 406:4
inclusive 6:14 150:6
 167:3

income 145:22 211:14
 248:3
incompatibility 377:5
 378:9
inconsistent 224:11
 278:2
incorporate 171:15
 278:19
increase 30:4 36:21,22
 37:1 81:4 84:9 90:4,5
 90:6 107:13 128:22
 189:5 237:6 240:3
 254:8 258:6 262:20
 263:6 268:9 306:5
 318:20 321:16 322:15
 325:4 365:4 390:8
 391:12 399:5
increased 129:2 134:5
 134:11 141:6 148:16
 149:7 244:6 322:10
 340:19 391:16 393:14
increases 30:7 216:22
 263:5 391:13 392:16
 393:2 395:21,22
increasing 25:19
 170:15 226:5 262:19
 268:5 325:17 326:17
 345:17
increasingly 25:7 26:19
 120:10 181:5 219:8
 348:6
incredible 23:4 33:3
 71:21
incredibly 43:7,7
incurred 342:6 343:7
incurring 276:6 342:15
independent 124:9
 146:18
independently 108:5
India 172:9
indicate 376:7
indicated 40:14 341:1
 345:20 384:2 390:20
 393:3
indicates 322:17
indication 89:12 140:19
 318:17
indicative 263:8
indigenous 379:15,15
indirect 119:15
indirectly 111:21
 119:10 353:22
indirectness 119:2
individual 55:4 107:5
 111:14 142:8 163:7
 319:11 323:19 365:10
individually 9:20
 107:19

individuals 23:13 85:15
 163:20 278:7
Indochina 112:13
induced 157:18,20
 158:5 219:7
industrial 108:3 182:14
industry 14:10 19:7
 20:10 30:12 43:7
 45:18 49:17,18 51:22
 74:5 81:3 86:4 155:21
 156:14 161:7 176:4
 184:15 190:18 217:22
 218:13 225:5,19
 238:2,11 242:3
 275:12,18 279:12
 280:10 281:7 282:7
 283:15 292:9 301:9
 310:15 312:10 340:6
 348:12,19 349:4,7
 368:3 375:10 382:8,8
 383:8 385:14 386:1
 388:13 396:4,4
industry's 165:8
industry-wide 374:11
inelasticity 304:16
inert 389:11
inexpensive 191:22
 373:8
infestations 313:15
infighting 29:21
inflexible 29:10
influence 26:8 258:21
 308:9
influences 130:8
 141:10
inform 355:14
information 18:13 19:4
 20:2 22:10 27:6,17
 28:18 37:16 51:9,10
 54:13 71:1 74:4,6,8
 85:10,12,16,22 89:17
 92:17 93:13 117:21
 125:6 137:11,18
 155:16 158:19 169:15
 170:11 172:8 200:21
 201:10 218:21 232:14
 234:22 236:6 247:21
 257:8 259:7 262:11
 279:16 283:1 289:8
 296:8 298:8 299:10
 307:14 331:9 337:17
 338:3,10,13,14
 339:13 340:11,15
 341:11 343:18 344:1
 353:11 357:21 365:12
 367:19 368:2,14
 374:7 402:15
informational 366:21

- informative** 16:11
informed 70:13 355:6
 355:10 361:1
ingredient 147:13
 294:3
ingredients 27:19
 118:15 119:2 144:21
 146:9 150:12 174:4
 272:4
inherent 78:21
inhibit 122:17 321:14
 321:19 373:3
initial 4:6 47:9 206:9
 336:17 357:11 376:7
initially 60:21
initiative 401:14
initiatives 17:17 20:11
 94:20 221:19 258:16
 401:10
innovation 325:21
 353:17
input 17:22 28:21 60:20
 117:14 135:18 337:21
 338:9 346:1,8 350:7
 369:22 389:22
inputs 298:3
inquiry 9:10
ins 298:2
insect 246:14
insecticide 243:13,16
 328:21
insects 351:22
insert 387:9
inside 155:17
insights 20:7 22:11
 373:19 376:7
insofar 342:21
inspection 1:13,21
 196:8 223:6 347:3,5
 347:22 352:15
inspire 196:2
inspiring 66:8
instance 177:17
instances 218:18
institute 169:13 203:13
 203:14 204:3 208:12
 208:18 209:16 326:12
 377:22
Institute's 171:21
institutes 239:1
institution 287:13
 400:21
instructions 41:1 97:12
 141:21 142:3,7,13
insufficient 275:17
insulin 76:6 99:3
insurance 35:16 53:1
 89:9,10 362:13,14,19
 363:10,14,21 364:21
 365:5,21
integrity 49:22 150:3
 293:21 396:13
intellectual 85:7
intelligent 229:15,16
intense 26:11
inter 6:13 9:5
inter-agency 17:14
interact 294:19
interacting 296:17
interaction 293:16
 295:8 371:9
interactions 346:13
interdisciplinary 8:2,5
 11:17
interest 7:10 28:11 98:6
 129:20,22 137:2
 220:7 233:6 341:5
 348:21 349:4
interested 27:10 29:1
 58:17 72:7 138:12
 164:2 240:11 297:8
 371:17 382:8
interesting 16:11 75:7
 102:14 231:14 241:17
 255:5 256:20 289:1
 296:22 297:17
interests 36:5,10 394:9
interim 383:11 384:16
internal 161:8 300:2
internally 161:5
international 2:19 5:18
 7:9 8:10 181:4 188:8
 208:19 218:19 246:4
 265:20 266:16 267:16
 339:17 354:9 385:9
internet 13:17
interpret 71:4
interpretation 295:2
interpreting 9:14
intersecting 335:6
intersection 42:19
interstate 352:8
intervening 313:20
intervention 188:7
 298:11
intimately 24:11 136:12
 143:12
intramural 369:20
 376:18 401:5,11
intrinsic 98:8 99:14
 163:5
intrinsically 64:10,10
 103:5 379:16
introduce 6:5 10:18
 15:20,22 22:18 41:5
 361:13
introduced 128:21
 321:11,21
introducing 6:4 134:2
 199:8 203:10 359:3
introduction 119:20
 120:2,6 253:11 322:9
 323:1 347:13 351:17
 355:4
invaded 317:22
invented 103:19
invention 311:5
invest 185:1
investigate 333:4
investigating 373:5
investigation 82:5
investing 301:10
investment 372:3 393:6
investments 395:15
invigorate 25:5
invisible 182:19
invite 5:3
invited 17:21 27:1
inviting 61:4 143:18
 241:21
invoke 179:20 294:14
involve 99:6 142:6
 217:10 323:12
involved 24:11 38:10
 46:9 57:13 59:1,12
 121:2 168:21 196:11
 197:10 199:2 208:21
 213:8 217:21 228:17
 242:2 293:20 338:5,8
 347:8
involvement 33:2 52:20
involves 194:19 374:19
 375:16
Iowa 1:15 25:18 95:9
 116:17 117:8 185:15
 185:17 210:20
IP 181:4,6,19 182:8,22
 198:4 256:13,13
 257:9 259:4,13
 261:10 269:15 340:4
 343:20 344:21 345:1
 345:5,6
iPad 93:17
IPM 325:17
IRI 169:12
irradiated 159:7 173:11
irradiation 159:4,5
 173:6
irreconcilable 209:20
irrelevant 185:8
irrespective 260:20
isolate 278:8
isolated 140:7
isolation 237:4 259:16
 277:5 278:1,9,21
 374:8
Israelis 207:5
issue 13:13,17 19:14,15
 19:16 29:16 36:7 40:1
 43:17 47:4 49:22
 50:13 51:12 52:18,20
 55:20 70:3,4 74:19,19
 75:1,16 85:4 86:3
 87:9 89:15 100:9
 117:1,18 123:2 131:2
 138:15 139:8 174:15
 175:15 185:18 186:18
 204:21 206:1,2 207:2
 207:5,6 209:9,14
 210:4,8 211:11 213:5
 214:4,20 220:2,15,18
 222:19 230:8 231:22
 232:3 234:15 240:15
 246:21 258:2 259:16
 259:18,20,22 260:17
 264:2 280:4 282:19
 297:1 305:6,16 317:6
 323:13 325:6 330:19
 332:21 335:5,6,14
 350:15 400:5
issued 224:17
issues 14:14 19:17
 24:16 28:6,9 29:8
 37:7 39:10,17 42:20
 45:19 48:1 55:16
 66:22 69:10 74:18
 75:1 85:18 118:1
 139:18 174:5 194:9
 197:15 205:8 210:1
 214:6,21 217:21
 219:15 220:11,14
 225:15 234:5,18
 242:17 245:14 246:3
 269:3,4 274:11 277:6
 280:3 285:9 287:10
 287:16 288:22 293:20
 296:1 313:13 324:21
 324:21,22 326:16
 328:20 329:14 334:9
 340:20 344:1,17
 345:13 347:9 348:16
 349:8,20 350:8,16
 355:3 370:10 372:14
 383:21 385:14,18
 395:16
item 62:3 83:19 368:21
items 47:2 143:12
 145:1 149:8 151:4
 152:10 170:16 178:14
 340:10 346:2 399:12

Jack 1:13 4:5 315:17
316:5 327:21 328:2
334:18,18,18,20,21
James 1:7
January 203:19
Japan 181:5 184:3,8
Japanese 181:9 184:2
Jason 11:21
Jennifer 2:18 3:3 5:17
12:5,16
jerky 222:10
Jill 1:18 4:4 315:16
316:5,17 328:1,2,11
332:10 334:18,18,19
Jim 2:8 3:20 248:16
249:1 314:20,21
407:14
job 14:18 57:11 87:10
87:12 91:16 137:14
146:16 169:19,20
171:18 204:5,18
209:13 235:6 240:16
265:14 395:5 400:9
jobs 26:2 81:12,19
jockey 178:22
John 270:15
Johnson 115:3
join 12:2 16:9 22:3
387:4
joint 220:16 343:12
Jr 1:8
judge 103:3
Judging 116:4
judgment 231:9
judiciously 397:18
jump 149:10
jumped 149:11
jumping 154:5
jumps 258:13
June 334:6
justice 200:15 207:9
349:17
justification 225:9
justify 353:16
juxtaposed 299:9

K

Kalaitzandonakes 2:2
3:20 159:13,14
239:18 240:20 255:2
255:10 305:5 312:1
kale 144:12 212:14
284:20,21
kaleidoscope 108:18
Kathleen 206:19 220:16
222:18
keen 233:22
keenly 240:11

keep 21:19 59:2 108:18
139:16 162:22 175:19
183:4 243:21 265:7
284:22 348:10 352:13
354:3
keeping 49:13 175:4
182:17 192:2 389:20
389:20
keeps 237:21
KEMPER 67:11,14,17
67:22 75:20 301:22
Kentucky 11:12
kept 90:22 287:17
kernel 76:15 198:8
Kevin 210:20
key 7:8 11:14 84:17,19
86:7 219:20 233:15
249:15 250:17 257:4
287:11 342:3 356:14
362:22 382:5 397:19
397:20
keynote 20:5
kickstarting 31:5
kid 82:16
kids 80:18
killed 139:14
Kim 10:8
kind 13:15 58:18 59:2
64:19,22 66:3 75:18
88:21 96:10 97:6,14
107:16 110:14 117:21
118:1 122:19 130:13
134:8 139:1,2 205:18
209:5 210:6 218:10
221:15 222:10 231:16
238:6 255:16 256:8
258:8,18 259:6,8
260:8,20 261:8 263:8
269:18 279:3 290:20
299:6 301:10 308:15
328:19 331:13 334:12
351:19 371:8 387:10
390:9 392:10 396:11
398:9 407:6
kindly 201:13
kinds 3:18 57:1 59:1
63:6 107:2 114:18,19
131:16 142:7,8
226:11 294:20 306:11
348:16 350:5,8 371:9
405:12
King 212:16
kits 338:13
knew 388:10
know 13:1 18:14,14
24:13 25:14 27:11
47:15 50:14,20 53:3
53:10 54:9 56:18

58:16 59:14 60:14
61:1,12 64:13 65:4,6
65:8,15 66:2,10 68:21
68:22 69:1,5,13 70:6
70:7,10,22 71:7,11,14
72:4,7,9,19 75:12
76:13 77:7,19,22 78:9
78:12 79:2 80:17,18
80:19 81:8 82:4,8,16
82:17,19 85:2 86:18
86:18,21 87:1,14 88:9
88:13,14 89:8 90:11
90:16,17 91:11,16,22
94:11 100:7,8 116:7
118:5 119:4 125:2
126:3,13,16 127:15
128:3 129:3 131:12
132:6 133:12,13
134:16 135:22 136:1
138:18 139:9,14,15
139:16,17 141:7,12
145:14 146:3,3
147:12,13,17 152:15
152:16 153:7 154:20
155:1,9 157:12 158:2
158:9,20 159:21
160:20 162:1 165:12
165:16 167:15 168:4
168:19,21 173:20
178:20 180:6 181:6
184:3,4,8 185:2
186:14 189:18 192:17
194:14,17,21,22
200:2,17 203:17
204:14 205:11,22
206:13 207:2,12,14
209:15 212:14,15
213:9 221:5,11,12
222:16 223:21 226:7
227:2,8,13 230:7
231:2,4,21 233:21
234:1 236:7 238:9
241:5 244:19 247:20
249:2,8,12,16,21
250:6,9,17 251:6,7
252:5,6,12,13,14,16
252:20,21 253:11,16
253:19 254:1 261:17
262:10 268:20 269:2
269:19,22 277:1,7
281:21 282:1,16,20
285:9 286:1 288:16
289:21,22 290:1,7,10
294:8,22 297:21
299:4 302:18 303:22
304:13,14,15 305:1,2
308:7 309:13 310:6
310:22 311:1,11

314:2,7,15 328:4
331:11 332:16 333:4
333:18 335:13 337:9
349:1 357:15 361:10
364:13 370:17 380:11
389:3 395:3 398:5,7,8
400:8,17 406:12,13
406:19
knowing 53:2 398:12
knowledge 4:1,6 76:1
163:5 171:14 316:19
336:17 370:7
known 3:18,18 19:8,8
33:19 71:8 114:21
116:9 122:12,14
123:10,13 126:20,21
206:17 252:18 256:5
256:12,21,22 257:4,9
257:11 258:5,6 259:4
259:13,19 260:10
261:6,10 262:8,20
296:22 305:10 377:6
knowns 296:12
knows 128:2 145:5
Knox 389:12
Kombucha 154:20
Kroger 152:18 170:15
174:21
Kustin 309:9,9
Kuzma 2:18 3:3 5:2,10
5:17 138:10 140:10
230:5 232:1,12

L

L'ETOLLE 176:11
lab 188:16
label 71:4 97:7 158:16
159:7 160:11,19
162:12,21 164:13,21
165:7 166:1 194:17
194:18 199:11 221:20
221:21 223:3,16
224:5,22 225:1,2,9,20
225:21 230:7,15,20
230:21 233:2 238:13
238:15,16,20 239:6
247:22 279:14,15
282:16 284:7 331:8
331:16,19 332:8
333:4
labeled 161:4 178:2
231:8 234:6 381:12
381:15
labeling 70:3,9,20
145:12 146:4 155:14
164:9 165:9 173:11
179:4 184:14 194:15
195:3,9 220:18,19

222:19 223:10,21
 224:3 225:12,14,18
 228:22 229:1,2,4,13
 230:6,8,13 231:1,20
 234:8 236:13,15
 247:19 279:10 298:21
 339:2,13
labels 27:20 224:14
 239:2,3 311:6 330:10
 331:20
labor 78:20 191:16
 229:8,9 231:15
laboratories 135:15
laboratory 98:3
labored 383:19
labs 163:7
lack 30:6 255:15 356:15
 398:9
lady 180:16
laid 29:3 49:11 57:19
 173:15 200:12
land 13:16 25:3 27:12
 96:6,7 104:22 105:5
 108:11,13,15,20
 242:8 249:10,15
 274:8 377:21 379:16
 395:1 400:1 402:6
landed 100:17
landing 22:2 100:14
 101:11
lands 112:22 214:13
landscape 41:22
 297:17 300:9 373:12
landscapes 319:13
language 330:9
lapped 362:22
large 69:20 78:22 107:6
 148:10 149:12 151:7
 214:8 221:8 235:6
 258:7 264:15 284:8
 338:19 395:10
large-scale 211:6
largely 208:19 253:18
 314:16 332:10
larger 42:16 208:4
 256:15 383:21
largest 74:20 149:3
 152:4 169:20 170:14
 206:12,14 213:12
 395:1
Larick 11:15
lastly 292:11 404:20
lasts 237:4
late 107:11 110:9
 243:14 301:18 359:21
 395:22
latent 257:18
latest 198:4 256:2

Laughter 50:7 54:7
 58:6 65:22 67:9 77:21
 79:16 91:20 157:8
 159:12 169:10 204:6
 205:20 227:6 255:3
 328:3 335:17 356:9
launch 253:10
launched 7:1
launches 149:6,12,13
 149:15
laundry 178:2
Laura 2:1 3:21 11:14
 172:19 263:20 264:7
 280:2 302:1
Laureate 20:5 24:8
 96:20
LaVigne 2:3 3:21 280:5
 280:8 309:19 367:11
 398:19,19
law 69:11 222:6 282:17
 311:5 328:18,21
lawmakers 33:7
lawns 319:13
laws 146:4 234:4
lawsuits 349:19
lawyer 80:12
lawyers 237:18,21
lay 186:15
laying 140:4
layout 111:3
lead 13:20 53:4 86:22
 101:12 130:11 131:5
 146:15 169:19 177:5
 252:6
leader 2:2 13:21 143:20
 147:8,18 361:22
leaders 43:22 213:20
 225:18
leadership 17:10 24:1
 34:10 42:13 57:17
 348:17 350:14 361:6
 391:11
leading 43:21 99:10
 151:6 154:3 239:6
leads 30:9 185:17
 229:13
Leahy 206:19
lean 85:19 86:3,17
leaning 86:18 87:21
 88:4 92:2,3
leapfrog 220:12
learn 10:1 18:11,15
 40:16 62:5 218:12
 294:19 327:6
learned 253:22
learning 9:11 182:4
lease 274:8
leave 263:11 324:2

leaves 191:10
leaving 44:2 104:15
 219:10
lecithin 118:13
led 51:17 103:7 132:4
 148:20 151:7 166:16
 208:10 341:7 365:16
left 91:16 199:10
 204:13 222:18 242:21
 292:21 310:3 319:12
 319:19 345:19
legacy 148:11
legal 52:4 64:10 343:9
 349:22
legally 62:14
legislation 73:21,22
 208:10
legislative 219:12
legislature 39:5
legislatures 73:6
lens 359:4
Leon 184:1
lessening 115:22
lesson 115:14
lessons 218:11
let's 50:4 187:1 188:13
 197:19 210:4 236:16
 236:17,21 258:2
 277:1 279:13 281:4
 297:10 301:21 303:1
 303:2 391:9
letters 48:18,18 205:16
 223:1
letting 222:16
level 17:11 33:21 44:4
 52:12 125:16 178:15
 184:20,21,21 185:6
 192:15 199:2 210:5
 218:1 240:12 252:15
 252:18,19 254:2
 274:16 275:14 291:19
 299:22 308:10 345:12
 381:8 392:17 405:2
 405:15
levels 122:10 181:15
 182:20 183:5 184:19
 185:22 186:7 190:12
 190:21 191:15 240:17
 250:5,7 260:14
 275:15
leveraged 256:17,17
liability 125:10 190:2
 290:2,3 301:2
liberation 13:11
Library 1:8
licenses 310:10
licensing 289:19
lie 340:5

lies 215:19 223:10
life 23:21 29:13 82:18
 88:10 112:8 129:5
 131:20 136:4 139:12
 139:18 140:8,15
 194:15 213:7 231:18
 307:22
lifetime 80:22 81:2,7
light 241:4 322:8
 356:20
lightly 250:21
lightning 349:8
lights 399:9
liked 180:18 356:7
likelihood 30:7 278:16
 303:10
likewise 252:9
limb 247:5
limit 132:15 184:12
 374:9 377:8
limitation 278:5
limitations 18:17 19:11
 275:3 343:3
limited 36:1 52:9 66:12
 91:22 126:20 234:10
 267:21 297:6 310:17
 341:10 395:7
limits 189:12 342:11
line 41:11 200:22
 202:13 207:10 210:21
 223:20 237:11 244:17
 249:15 256:10 257:10
 272:5 283:7 296:19
 321:12 322:3,8
 324:11 396:20 399:12
lines 229:17 289:14
 299:20 300:1 398:11
 405:19
link 119:15 126:4,22
 130:9,13 134:6,9
 135:2,7 339:4
linked 130:12 133:5,18
 134:17,18 136:12
linking 126:15
links 133:16 135:22
 180:10 181:4
Lipitor 221:13
list 147:13 200:1 214:4
 230:14 286:9 338:9
 364:1
listed 27:19
listen 5:11 7:19 37:8,9
 37:16 39:21 40:16
 67:3 336:19 357:20
listened 328:5
listening 67:8 72:22
 209:12 227:21 337:7
 369:6

listing 286:6
listings 286:12,13
literally 40:8
litigation 30:8,8 350:3
little 5:5 28:10 29:18
 39:3 44:17 51:5,18
 53:10,21 59:4 68:3,21
 72:6 77:3,4 78:12
 93:9,20 95:11 96:15
 97:7 127:12 131:18
 134:4 138:14 143:21
 148:18 149:18 150:14
 152:9 155:22 187:3
 189:10,17 200:21
 202:14 207:1 209:22
 213:2 230:12 239:8
 239:21 242:10 247:4
 257:7 259:14 260:4
 261:4 267:1 269:10
 281:16 285:8 286:15
 292:6,8 293:19
 294:14 299:10 301:18
 306:17 313:4 315:15
 315:21 316:12 317:7
 317:9 318:13 328:12
 331:6 332:3 333:6
 334:10 336:2 339:7
 350:10 351:1,3
 359:22 360:1 361:2
 367:11 369:17 373:22
 380:13 384:7,8
 387:16 390:14 399:11
 402:13 407:7
live 83:13 116:19 136:3
 140:14 280:22 304:17
lived 294:15
livelihood 79:3
livelihoods 209:18
 231:12
lively 48:4
liver 134:3,3,7
lives 43:10 129:11
 294:13
livestock 127:22
 138:21 139:3,11
 297:22 310:19
livestocks 211:19
living 71:17 149:6
 310:8
load 191:8,10 272:17
 272:22 297:2
loaded 93:14
loads 273:13 306:18
lobbyists 73:8
local 7:8 15:3 20:11,12
 20:22 291:19 310:22
 338:15 341:6 344:12
locales 156:11

locally 35:9 68:17,18
 310:8
located 145:20
location 318:12 406:11
 406:15
locations 340:18
 368:13
Logan 2:5 3:22 292:21
 302:2
Logan's 304:13
logical 63:3 125:3
logo 178:13
long 21:16 38:6 124:21
 139:16,17 148:12
 173:17 180:8 192:8
 195:4 196:21 210:22
 214:1 249:9,11
 253:22 255:9 257:18
 282:8 298:1 330:1,16
 351:19 392:11 400:8
long-term 46:3,4
 127:21 131:14 139:1
 318:11 395:13,16
longer 140:14 177:18
 190:8 192:20 220:10
 237:4 251:16 290:18
 363:16
longer-term 35:4
longstanding 374:11
look 38:5 46:10,14,15
 47:3 48:10,21 53:16
 53:21 57:11 62:8 65:2
 65:2 66:6 76:13 86:17
 91:10 93:18 96:1,2
 97:2 104:9 106:6
 123:9 124:2 125:5,7
 131:21 133:10,21
 169:7 178:22 197:16
 199:21 210:4 227:13
 227:15,16 230:18
 241:3 248:10 250:15
 251:5,13,21 252:4,11
 252:20 253:2,15
 259:12 261:21 262:17
 272:19 279:22 282:6
 282:18 284:2 287:15
 291:12 292:17 303:5
 303:5 316:10 331:13
 354:17 357:22 359:5
 375:21 378:8 380:4
 381:22 382:4 392:8
 399:1,8,18,19,22
 400:6,15 401:2,5,8
 402:4 404:10
looked 45:22 48:16
 128:8 141:9 256:6
 403:4
looking 45:1,7 46:3,20

47:2 49:4,14,16,19
 51:18 54:1 122:1
 123:22 124:12,17
 125:15 145:21 172:14
 177:2 188:4 236:7
 241:3 250:9 252:5
 277:2 280:20 288:2
 289:13 292:10 302:20
 302:21 311:20 318:16
 334:4,7,12 348:14
 354:12 364:8 374:19
 376:19
looks 36:4 144:10
 151:19 154:8 205:18
 275:4 294:13 320:2
 366:6,7
loophole 286:11
Los 220:17
lose 193:16 238:19
 295:21 298:9
losing 30:21 220:4
 276:4,5,5 366:4
loss 53:5 271:3 272:8
 273:21 300:15,19
 314:5 364:20 366:5
losses 35:18 51:16
 314:9,11 342:16
 343:7
lost 98:6 272:21 275:4
 306:20
lot 43:15 45:8 46:16
 48:13 60:20 65:4,4
 81:9,10,16 82:6 85:18
 86:12 88:20 90:2 91:8
 117:20 119:3 120:22
 121:9 122:2,7 125:20
 125:20 126:1,5,8,9,15
 127:8,11 128:1
 129:22 130:2 132:8
 134:4,13 136:5,11
 146:2 151:1 158:20
 158:21 159:6 160:1
 161:3 162:4 168:15
 168:20 169:2 173:19
 174:16 175:9,18
 176:15 179:7 187:18
 187:21 194:19 199:13
 205:10,21 206:18
 207:4 209:6,17
 211:14,20 214:6
 231:13 234:18 235:3
 236:5 241:9,17 244:7
 246:22 255:21 257:17
 258:7,20,21 259:2,8
 261:1 267:17 271:6
 272:6,6 273:13 274:1
 277:12 282:13 284:12
 284:16 285:21 286:1

288:18,19 289:3,6,8
 289:20 291:3 295:1
 296:15,20,21 298:1,2
 299:13 302:20 307:22
 308:1 310:2,10,18
 311:8,18,19 312:10
 316:3 330:6 331:20
 331:22 334:9 347:18
 347:19 350:8 356:10
 357:15 359:7 376:5
 379:12 386:13 390:15
 400:4,12,18 403:6,12
 403:17 405:1,6
lots 22:10 81:19 157:22
 183:14 235:19 242:17
 257:8 275:13 287:7
 306:7 405:10,10
love 76:22 78:13 303:20
lovely 203:6
low 129:15 132:13
 185:15 192:17,17
 275:14 381:18
Low-grade 113:9
low-income 87:19
Low-tech 214:9
lower 145:22 172:4,10
 294:17 306:4,4
Lucas 91:3
luck 24:2
lucky 80:11
lump 365:14
lunch 3:15 20:5 92:17
 92:18 94:14,14 200:8
 200:19 201:5,10,14
 202:17 203:3,6
lunches 200:21 201:12
Lyell 165:15
Lynn 1:11 3:14 179:15
 180:6 228:4 235:13
 235:14 236:4 239:18
 257:20 262:9 266:13
 267:4 268:13 271:6
 271:15 276:22 283:21
 288:15 306:12 308:13

M

ma'am 200:9
MacDonald 1:14 3:10
 95:8 116:15 139:22
 140:12 141:14,17
machines 8:10
Madison 400:8
Magazine 100:10
Mahals 399:10
mail-in 206:14
mailed-in 309:4
main 35:7 161:17 220:1
 307:17 332:1 396:2

maintain 214:12 249:19
 250:7 379:19
maintaining 250:4
 270:10 384:20 388:22
maintenance 288:18
maize 380:20 388:9
major 112:5 114:9
 117:8 129:2 130:1
 148:13 175:15,21
 190:7 214:17 273:5
 320:8 379:5 388:2
 390:6
majority 29:6 79:13
 118:9 119:4 339:9
 403:3
maker 271:13
making 6:2 11:22 12:1
 37:4 53:5 60:14 76:3
 82:18 109:9 122:4,6
 130:19 145:8 147:7
 176:15,22 179:18
 186:6 191:7 345:11
 350:18 366:13
male 373:3
malls 81:14
malnourished 104:6,16
 104:16
man 22:18 41:6 335:18
manage 52:1,21 54:13
 116:9 197:17 199:19
 250:14 257:5 267:14
 302:21 324:13 326:1
 327:7 344:12 356:5
 387:1
managed 52:22 111:1,2
 112:19 115:12 143:2
 199:9 299:20 356:5
 388:12
management 2:7 34:16
 35:15 43:20 53:2
 242:7 275:16 278:10
 283:2 297:7 317:7
 318:2 322:16 324:4
 324:13,22 325:12,18
 326:4,10 327:3,13,14
 327:15,18 332:2
 334:1,1,11 337:2
 361:16 381:3,6 382:1
 382:6 389:18
manager 169:19 177:15
managers 318:21 385:3
managing 328:20 381:4
mandate 33:2 158:10
 159:2 174:3 179:4
 290:10
mandated 165:9
mandates 313:19
 353:13

mandatorily 231:8
mandatory 145:11
 155:14 220:19 225:13
 230:8 231:7 270:7
 275:8 276:10
Mandela 209:4
mankind 74:21
manner 246:19
manufacture 97:12
manufacturing 76:3
manure 229:8
Mao 207:19
map 123:10
mapping 8:14 212:3
March 1:5 100:9 203:19
 291:5
mare's 245:15
Marie 2:6 4:14 361:17
 369:16 371:22 376:14
 378:14
mark 300:6
marker 102:4 396:12
 397:5,10,15
markers 198:3 396:22
 397:1
market 1:20 3:11 16:22
 19:1 31:19 32:10
 33:22 34:1 51:14
 66:11 120:3 143:2,5,9
 143:19 147:17 150:5
 151:4,13 154:2 158:4
 161:6 170:12 174:17
 174:18 175:1 177:1
 177:18 181:20 186:22
 193:17,20,22 194:5,7
 195:14 196:4 197:11
 197:11,14,16 226:16
 226:17 235:21 240:14
 246:21 248:5,7
 253:16 258:1,16
 260:1,22 262:19
 263:4,8,9 264:21
 265:3 266:11 267:19
 272:3 279:15 282:21
 284:11 285:10 287:21
 287:22 288:8 289:11
 290:14 295:8,10
 296:3 299:16 300:3,6
 305:8,14,22 306:9
 312:19 330:17 362:17
 363:20 364:3,16,22
 368:8,11,15 377:10
 382:18
market's 285:6 293:12
marketability 354:8
marketed 120:16
marketers 216:18
marketing 43:19 157:14

158:4 169:13 211:22
 216:15 220:11 270:15
 292:22 293:8 295:19
 339:10 367:2
marketplace 36:13
 73:16 220:5 225:20
 225:22 227:11 237:8
 265:5 266:12 268:3
 269:20 271:7 272:16
 272:17 273:4 274:14
 279:16 283:16 286:22
 365:1 367:20
markets 180:12,13
 181:4,5 183:9 199:10
 236:9 265:21 267:7
 276:5 306:11 310:12
 367:1 382:19
Marty 334:21
Mary-ellen 309:9
mass 211:16
Massachusetts 176:12
massive 62:2 73:16
 108:3 225:11 232:9
 299:5
massively 108:6
masters 11:10
matches 27:21
material 95:16 240:17
 266:8 379:18 393:16
materials 191:16
 326:21 333:3 368:11
 375:20 379:12,15
 381:9 389:11 395:12
 395:14 397:14 404:1
Matlock 334:20,21
Matt 201:15
matter 33:9 157:13
 199:14 256:19 263:5
 283:8 308:7 322:8
 327:5 348:13 359:17
Matthew 83:8
maturities 251:17
Mayans 113:2
mayor 80:13
MBAs 187:21
McArthur 213:13
McDonald's 144:12
 147:7 212:13,15
 233:14
McKalip 23:12
McKinnon 406:16
meals 80:19 119:13
 202:13
mean 7:2 16:18 38:16
 49:10,20 51:22 52:21
 54:2,8,10 57:6 78:10
 79:21 83:18 90:6,14
 90:15,16 99:22

113:16 150:10 160:8
 164:18 178:19 183:13
 189:17 212:14 228:11
 230:7 234:1 237:12
 240:20 250:12 253:6
 256:13 279:15 290:19
 302:8 333:6 342:12
 403:2
meaning 76:17 195:4
means 16:19 20:19
 36:5,12 44:2,3,4
 50:12 63:21 74:15
 78:6 138:16 155:9
 184:13 196:18 222:11
 229:2 263:4 306:4
 357:16,18 394:8
meant 186:8
measure 47:14 140:18
measured 31:5
measures 327:17 355:9
measuring 298:14
meat 119:7 129:12
 144:9
mechanical 319:2
 332:17
mechanism 47:2 52:22
 89:12 331:19 343:6
mechanisms 332:16
 341:22 342:1 356:2
 370:22 378:12 405:7
 405:10,13
media 206:13
mediate 300:11
medical 137:4 215:12
medicine 11:3,5 76:5
 77:13
medicines 99:3 112:1,2
 112:3 218:3 221:14
medley 202:7
meet 16:22 28:1 32:16
 32:22 33:22 35:21
 37:12 72:15 174:2,6
 177:8 186:14 195:17
 195:18 366:19 384:16
 389:10,15 397:21
 398:1
meeting 6:9 10:7,10
 12:17 13:14,19 15:16
 32:3 34:3,22 37:13,22
 38:3 52:10 93:9,14,16
 93:17 274:10 283:1
 339:6 348:18 383:14
 403:15 406:11
meetings 344:3,18
 360:20 369:1
meets 177:5 246:8
Melissa 201:17
member 219:16 249:5

members 11:14 18:10
34:1 46:8 48:14 54:6
55:4,14 204:4 235:16
283:3 285:22 299:16
302:6 360:2,16
399:13
memorandum 224:18
memorized 144:5
memory 48:17 387:20
404:11
men 17:19 217:12
298:4
mental 294:14
mention 209:16 210:2
220:15 299:13 379:10
381:1
mentioned 53:8 84:2
125:4,11 127:18
133:4 135:13 136:21
137:20 147:11 148:1
159:20 212:11 247:16
290:16 298:20 301:4
341:13 348:7 355:7
375:2 392:3 393:11
402:20 404:1 406:3
mentioning 395:20
menu 202:9
menus 144:12
merchandising 249:5
merchantable 193:11
merged 310:3
Merrigan 206:20 220:16
message 66:15 79:8
80:9 90:13 310:12
messages 36:16
189:21 195:16 239:8
239:10
messing 130:5
met 41:11 72:15 85:16
214:16 383:9 384:2
384:15
metabolomics 123:22
metaphor 241:5
method 33:9 35:11
153:5 173:7 324:7
methodically 383:19
methodologies 259:22
methodology 86:4
260:6
methods 26:17 38:17
98:4 108:8 111:16
115:11,19 186:17
262:16 295:18 338:11
370:4,21 389:17
methylation 102:15
meticulous 106:3
Metric 67:6
metrics 161:9,11

Mexico 108:21 113:3,5
174:11,12
mic 358:6 382:11
Michael 1:12,17 4:7,7
4:16 10:8,8 23:12
336:14,15,20 337:1
346:15,22 347:1
358:2,6,6 362:1
383:15 404:20 407:14
Michigan 11:10
micro 130:15
microflora 129:21
130:5,11,18
microorganisms
130:21
microphone 377:1
microphones 57:21
mics 138:7
mid 95:21
mid-1970s 321:17
mid-twenties 364:5
middle 73:1 75:16
145:20
midwest 84:13 107:10
239:1 253:7 377:20
migrant 229:8
Mike 346:20 386:11
406:14,21 407:13
mildew 313:13
mile 185:13 294:18
406:21
miles 254:17
milk 119:8,14 129:13
155:3 175:10 205:14
205:15 293:1 295:12
296:20
milkweeds 113:15,19
milled 287:22
millennials 148:18
million 25:16 66:18
92:4 101:15 103:9,22
104:2,5,6,15 145:17
182:1 240:19 288:5,7
291:21,22 328:15
391:4,22 394:3,3,5
396:1,2
millions 70:2 73:7
98:16,21 105:7
148:11 226:1
Mills 236:16,18,19
mind 38:5 136:11 240:9
265:7 283:10 305:18
minds 117:2 119:11
135:1
mine 70:1
mine's 380:5
minimal 250:18
minor 388:4

minute 6:7 96:15
170:19 201:2
minutes 34:12 192:1
241:11 255:16 263:13
301:19 315:22 334:17
miracle 330:14
misconception 71:2
mishaps 22:2
misidentification
398:10
misimpression 71:3
72:20
mismatch 389:10
mispronunciation
255:2
misquote 167:10
missed 29:20
missing 177:7 404:17
mission 347:11 383:3
392:22 393:19 401:20
Missouri 1:15 2:3 95:7
101:20 159:14 255:6
mistake 77:11,11
222:22 225:13 228:9
mitigate 300:19 372:21
mitigating 372:17
mitigation 372:8
mix 359:22
mixed 195:15 239:10
mode 125:7 402:3
model 250:2 371:12
modeling 373:16 376:3
376:6
models 123:19
moderating 235:18
Moderator 2:15
modern 106:19 107:5
108:16 115:11,19
162:20 217:17
modes 245:19 330:11
modification 165:21
315:14
modifications 331:15
modified 99:7,7 101:13
110:14 117:2,19
118:22 119:2,5,10,16
120:1,11,17 121:2
127:10 128:9,10,20
129:5,9,17 132:3
133:18 134:2 137:1
140:6 141:5 157:20
221:7 228:10 317:13
321:10 323:2,12,14
326:6 327:12 329:17
329:18 330:21
modulated 97:13
moldboard 242:19
244:11 245:21

molecular 375:21
mom 295:9
moment 34:6 46:22
391:3
Monarch 113:14
Monarchs 113:19
money 66:13 80:6
211:21 289:20 301:10
311:19 395:6 398:14
monies 391:19
monitor 332:18
monitoring 373:9 385:6
Montano 85:17 388:15
Montana 294:16
month 25:16,20 177:16
181:10 291:5 383:14
months 237:10 256:3
moon 100:13,17 101:11
Moore 2:4 3:19 241:15
241:19,22
moral 13:12 51:21 52:1
morning 5:2 12:6,9,11
12:14 16:4 22:4 42:10
58:15 92:13 94:5,7
116:22 143:7 255:15
280:16 292:13 307:1
348:8 350:13 355:7
360:18 386:18
morphological 396:19
morphologically
396:21
Morrison 148:2
mortgage 248:5
Moses 303:17
mother 290:17 295:4
mothers 295:11
motivated 27:4
motivations 28:5
motto 56:16
mounting 148:9
move 30:15,19 31:6
55:1 60:10 86:6
161:18 174:2 214:7
226:14 228:6 239:16
258:2 278:12 279:5
279:19 285:11 312:19
318:13 336:5 345:13
403:14
moved 14:15 109:1
189:2 303:14 352:8
389:8
movement 268:4
344:22 373:15
movers 285:13
moves 198:20
movie 210:19
moving 13:11 59:13
60:11 145:22 170:17

198:17 210:10 234:20
234:21,22 236:18
366:10 397:14
mowing 319:16
multi-generational
249:3
multi-ingredient 162:14
multidisciplinary 9:6
multiple 6:11 9:12
17:13 45:16 47:16
198:5 236:9,9 246:12
272:3,4 274:9 332:16
multiplication 289:17
372:19
multitude 246:11
music 97:11
mutagen 102:3
mutant 130:7
mutation 63:22 157:21
mutations 102:4 131:3
219:7
mutual 36:3
mutually 153:21
myriad 218:5
mysterious 114:14
myths 101:14

N

N 3:1,1 5:1 203:1,1,1
naive 308:1
name 5:17 16:4 143:7
168:1 179:22 201:13
249:1 282:1 303:8,8
336:22
named 369:5
Nancy 205:1
Nancy's 205:6
Napoleonic 112:14
NAREEE 383:3 384:6,8
384:11 401:15 402:2
narrow 62:8 84:19
234:7
nation 14:22 26:20
366:11
nation's 14:3
national 2:2,5,8 7:8 8:4
17:1 35:12 63:1 83:10
84:14 100:10 101:14
102:22 144:16 151:7
165:8 213:22 214:3
223:7 225:12 248:18
249:6 325:18 326:11
354:13 361:22 367:3
370:3,5 378:17
382:20 383:6 387:22
388:6 389:7 391:17
nationally 256:4 325:19
native 106:12 108:11

113:1
natural 6:19 9:3 25:8
109:18,21 114:3
123:19 130:13 133:11
139:2 143:15 154:4
161:7 169:13 245:8
344:22 362:16 393:14
401:22
naturally 291:15
nature 39:11 96:19 97:5
98:3,7 99:15 100:1,21
103:20 109:6,6 110:2
185:11 194:20 290:18
NC 5:19 10:6,19 11:3,17
11:21 12:22 13:20
14:8,15 15:2,12,14,18
205:7 388:2
NCGA 249:22
NCSU 2:14,20 10:11
377:17
near 45:5 48:20 104:7
357:9
near-consensus 34:13
nearby 32:14
nearly 151:4 154:16
222:8 338:21 364:6
364:18 365:2,5
366:11
neat 135:19
Nebraska 84:12
necessarily 71:2 72:20
122:8 138:19 229:18
necessary 47:1 59:6
331:15
necessity 113:1
need 7:14 14:19 15:6
30:6 31:13 38:6,15
40:12 57:5 60:4 65:2
65:17 72:15,16 79:7,7
84:3,4 85:7,19 87:1,7
87:21 88:9 91:14 92:1
98:12 108:12 111:1
153:2 156:4,6,8,12
172:7,7 174:16
175:11,12 176:4
184:8 187:16 190:22
194:12,15 197:16
203:17 211:5,6 217:5
234:5 235:4 250:13
260:8 275:19 276:17
276:21 278:17 285:20
286:10 287:8 299:21
307:7 309:15,16
322:17 324:17 340:14
340:19 342:12 343:15
344:1,5 345:10 369:4
385:1 388:13 389:22
390:10 391:1 393:15

393:16 399:1,13
400:15 401:5,11,11
401:12 406:9,17
needed 21:2 47:22
51:15,17 89:5 155:14
192:7 219:11 244:17
359:22 362:20 366:18
374:9 388:11 390:8
needs 7:3,5 17:2 24:21
25:7 33:1 35:22 38:10
40:3 61:9 73:21 75:13
75:18 80:10 81:21
110:18 111:5,6,8
114:12 179:3 190:21
201:11 252:13 278:18
338:10 368:10,16
369:7 382:2,18
400:19
negative 105:11,14
130:8 131:7 141:2,9
142:10 173:1 218:10
312:9
negatively 28:12
132:18 317:21
negotiate 274:15
neighbor 33:11 52:8
68:10 183:8 194:4
196:22 197:2 250:19
259:15
neighbor-to-neighbor
405:2
neighboring 33:21
278:18 340:18
neighborly 302:22
neighbors 32:22 43:20
49:16 51:14,22 68:5
77:6 196:17 198:1
249:14 250:22 252:1
259:5,6 275:2 313:16
313:22 341:4 343:12
343:22 345:15 363:15
net 25:15 108:1 112:16
362:15,19,22 365:18
Netflix 27:1
network 104:10
never 66:2 101:11
108:19 128:13 173:1
295:3 324:9 365:9
386:6
new 4:3 7:1 13:20,21
18:1 22:13 24:2 35:15
35:20 36:6 59:19
66:18 68:2,6 114:17
116:5 121:5 137:21
146:16 149:8 171:13
171:14 180:14,15
182:4,20 184:14
195:10 198:20 199:8

205:4 215:8 229:21
229:21 246:11,19
249:9 253:11 266:4
279:7,10 281:5
307:15 321:3 327:11
327:14 330:17 335:2
340:1 342:19 355:4
370:4 378:3 381:19
384:12 400:4 401:16
404:5
newer 120:20
newly 126:2
news 147:6
newsstands 100:11
NGO 214:19
NGRAC 383:1,7,17,19
384:11 385:11,16
nice 171:4 200:18
231:13 303:11
niche 240:14 294:12
295:9
Nicholas 2:2 3:20
159:13
Nick 239:16,17
Nielsen 169:12 170:10
NIFA 374:2 377:17
402:5
night 48:16 82:11
nine 106:18 171:8
349:19
Nine-fifty 268:16
ninety-nine 78:16
nitty 174:5
NMI 170:10
no-till 242:21 245:7,20
Nobel 96:20
nod 239:12
nodding 389:3
nomination 23:21
non 26:20 162:19
174:18 187:4 213:5
236:19 238:9 265:8
283:18 375:19
non-biotech 36:15
non-browning 100:3
277:19 349:6
non-commodity 369:3
non-dairy 155:2
non-detectable 189:20
Non-GE 3:11 19:1 30:1
32:10,13 35:21 36:9
110:22 143:3 225:1
278:8 287:21 289:11
290:13 309:18,22
339:1 366:22 372:22
382:17 385:16 386:3
non-GM 163:17 248:6
non-GMO 144:21,22

145:9,13,14,16,19
 146:12,18,20 148:19
 149:21 150:3,4,15,18
 151:11,20 153:7,11
 153:15,20 154:10,14
 155:3,6 156:4,5,22
 158:22 159:21 160:2
 160:10,15 161:12,13
 161:18 162:5,8
 168:16 170:16 172:13
 174:13,15 178:11,17
 182:11,13 183:14
 185:9 186:21 187:4,8
 187:13 189:16 195:3
 195:4 196:7 199:15
 210:9 213:6 236:14
 237:7,8 238:14 240:1
 261:18,18 277:4
 279:14 298:21
non-ideological 217:6
non-launch 253:12
non-organic 268:13
non-partisan 203:15
non-performance
 333:5
non-regulated 352:18
 353:2 354:6,11
nonlinear 306:3
nonsensical 164:22
NOP 153:5 287:10
 289:9
Norm 101:20
normal 181:22
normally 191:2
North 1:7,8 5:16 15:3,5
 15:12 23:4,7 82:10
 203:5 377:12 406:3
northern 251:19
northwest 294:16
 373:17
note 39:2 217:22 321:9
 341:13 343:2 387:7
notebook 93:11 94:1
noted 337:19 340:22
 342:3 405:3
notice 19:6 21:6 28:21
 59:22 70:15 328:2,22
 337:15,17,20 338:2
 339:6 344:8 353:14
noticed 254:5,6
notification 352:10,11
notion 150:16
notwithstanding
 234:17
novel 372:20
November 28:17 85:17
 337:19
noxious 359:3

NPDES 335:1,4,10
NRCS 325:16
NSF 8:4
nuances 126:19
number 26:9 28:22 34:1
 41:9 47:21 97:22
 115:8 121:9 126:20
 135:8 157:19 159:22
 160:17 161:11 170:15
 197:6 243:14 255:19
 256:6 258:7 259:21
 259:22 261:16 262:15
 263:1,22 266:14,22
 269:14 272:19 274:7
 301:7 303:12 304:9
 306:6 321:4,6,13
 322:4,6 323:4,7
 338:16 340:12 341:14
 361:5 384:3,15 390:7
 390:20
numbers 113:21 141:6
 159:16 160:1,22,22
 166:10 167:2 175:17
 257:20 261:8,13,22
 262:7 380:2
numerous 17:12
nutrient 122:19 217:10
nutrients 104:17
 243:20,20 245:9,22
 317:20
nutrition 1:15 63:9 64:8
 87:20,22 95:9 116:19
 139:10 210:15 212:4
 213:17 234:7 401:22
nutritional 70:11,19
 122:16,20 215:7
 231:20
nutritionally 121:19
nutritionists 133:13
nutritious 214:14

O

O 3:1 5:1 203:1,1,1
 271:17
oak 313:15
Oakland 83:14
obesity 130:9,12,16
 132:22 134:5,6,21
objections 224:20
objective 45:7 358:18
 368:6
objectives 20:15 44:16
 44:20 353:18,20
obligated 229:18
obligation 51:21 52:1,7
observation 64:13
observe 104:20
obstacles 57:1

obtain 19:3
obtainable 353:11
obtaining 250:4
obvious 111:12 112:20
 125:1 179:5
obviously 37:8 99:18
 162:2,7,18 163:2,18
 175:9 211:16 233:7
 233:22 241:9 282:18
 300:19 305:6 310:7
 311:4 330:13 333:16
 334:8
occupy 294:12 295:9
occur 158:1
occurred 295:5 342:9
occurrence 322:21
occurs 323:17 324:1
ocean 188:15
ocean-going 182:1
of-stocks 175:5
Off-mic 268:14
off-target 247:14
offer 183:17 194:11
 212:13 346:7
offered 340:9 360:18
offering 294:4 344:9
offerings 201:22 202:2
 294:2
offers 13:14
office 1:14 2:6 11:13
 69:9 284:18 337:2
 343:4 349:16 361:18
 369:15 374:3
official 184:2 285:17
 367:5
offset 290:19 366:5
offsite 247:14
offsprings 324:3
oftentimes 266:2
 310:14 363:19 381:10
 381:11
Ogle 10:8
oh 65:21 138:8 167:6
 406:15,17
oil 118:8,11 132:10
 162:10 217:11
oils 144:14
okay 53:16 55:18 58:11
 67:14,20 81:8,10
 88:10 92:8 130:13
 141:18 142:17 166:3
 167:20 171:1 187:12
 201:16,20 204:14
 205:2 216:7 223:19
 240:21 258:2 259:2
 268:16 269:18 311:22
 358:3 359:8 363:7
 387:3 388:20 394:2

400:4 406:15,22
old 14:14 90:17 207:8
 229:20 307:3 319:13
 400:20
older 93:20 256:16
Olsen 168:1,2 170:1,7
 176:6
Omega 54:22
omit 384:5
onboard 147:6
once 17:18 80:17 147:6
 178:13 202:13 262:2
 317:22 318:8 329:19
 329:20 354:6
one's 180:2 328:9,13
one-tenth 78:14
one-third 113:5
one-year 367:3
onerous 279:4
ones 114:10,11 197:22
 231:18 344:12
ongoing 29:7 150:11
 275:21 360:14 373:14
 382:16 385:4 386:2
 386:21
online 169:17 291:12
 309:4 337:7 341:13
 371:15
Oops 242:15
op-ed 220:16
open 9:10,22 38:4
 49:14 58:18 60:19
 66:15 181:20 217:19
 290:12 296:10 301:12
 360:3
opened 223:13
Opening 3:4
openly 18:13 294:11
operate 216:10 282:7
 353:5
operates 86:14
operation 284:2,3
 310:4
operations 38:18
 293:11 345:9
operator 264:11
operators 264:9
opinion 157:11 365:21
opinions 13:8 28:5
opportunities 6:2,15
 29:20 215:16 219:13
 227:17
opportunity 20:15
 22:19 23:6 24:2 25:9
 41:4 74:20 80:13 89:5
 94:22 241:20 252:17
 255:13 261:20 280:9
 283:22 290:14 291:21

300:17 317:2 331:12
 350:16 357:10 360:19
 365:20
opposed 101:17 158:3
 339:10,20 340:7
opposing 206:16
opposite 135:10 163:20
 263:10
ops 302:4
optical 198:5
optimal 370:21,22
option 30:19 44:9
 365:18
options 31:15 35:16
orchard 278:12
orchards 278:18 279:3
order 89:19 93:2 139:14
 233:5 260:9 279:16
 288:10 322:18 361:11
 401:13
ordinary 81:22
organic 2:1,5,5 3:11
 16:15 19:1 30:1 31:14
 32:10,12 35:16 36:9
 47:10 84:6 89:10 96:8
 143:2 145:9,19
 146:13,19 149:6,7,11
 150:2 151:10 152:2,3
 152:4,4,7,18,19 153:2
 153:6,7,14,19,20
 154:11,13 155:3,6,12
 156:3,5,6,6,8,9,12,21
 157:6 158:22 161:13
 162:7 166:8,11,17,17
 166:18,21 170:16
 171:21 172:1,4,22
 173:7,8,10 174:14,18
 175:3,5,8,11,13,20,22
 176:1,4,5 178:14,16
 182:11 186:7,8 187:5
 187:10,14 193:5,8,9
 193:11,14,14 195:20
 195:22 196:2,4
 199:15 202:9 206:2,4
 206:11 210:8,8 212:8
 213:5,6 214:9 220:20
 220:22 222:4,8,12,15
 223:2,4,7,15,18 224:5
 224:12,14,19 225:10
 225:21 226:6,7
 233:10,16 250:20
 263:21 264:7,9,13,16
 265:4,9,17,22 266:5
 266:19 267:19 268:5
 268:10,20 269:15
 270:5,8,14 271:9,21
 272:14,15 278:12,15
 279:1,13 280:17

283:6,14,19 285:16
 285:19 286:1,6,22
 287:1,9,21 288:12,13
 288:21 289:5,11
 290:14 291:1,6,9
 292:21 293:1,8,11,13
 293:21 294:4 298:8
 299:8,8,19 300:1,5,16
 300:18 301:1 302:13
 306:16,22 307:6,19
 307:21,22 309:1,22
 310:11,16 311:5,12
 311:15,16 312:3,10
 312:14,16 313:8
 319:7 339:21 340:4
 342:20,21 344:21
 361:17 362:21 363:9
 363:13,17,20 364:2
 364:14 365:3,4,18
 366:6,17,19 367:3,4
 367:13,18,20,21,22
 368:1,2,4,8,10,11,14
 368:15,15,19 372:4
 378:5 382:17
organically 364:4
organics 69:22 152:20
 171:8 175:16
organism 63:19 97:16
 352:3,4
organisms 8:16 96:18
 98:18,19 99:7 102:12
 102:18 111:15 117:3
 117:19 133:18 142:8
 142:14 221:8 223:2
 351:7,12 352:3
 356:17,22 373:9
organization 296:17
organizations 7:9
 36:20 87:6 99:11
 163:7 200:1 297:19
 344:11
organize 186:15
organizing 58:15
orientation 64:20
 216:11
oriented 64:18,18
 372:11
original 102:20 224:4
 251:11 307:20 309:1
 379:20
originally 245:2
originated 103:15
 240:9
OTA 263:22
other's 10:3 92:22
ought 32:3 73:3 78:3
 227:19
out-crossing 377:9

out-of-tolerance
 184:11
outbreaks 215:6
outcome 128:17 258:20
outcomes 98:1
outdated 274:7
outdoor 352:9
outlet 88:21 244:14,18
 245:1
outlets 300:22
outletted 244:19
outline 44:15 363:4
outlined 102:1
outreach 19:5 28:18
 34:16 368:11
outs 298:2
outset 53:8
outside 97:4 150:5
 155:17 170:12 173:9
 173:17 267:17 284:6
 342:10 377:11 378:11
 388:7 406:1,2
outsourced 268:19
outstripping 391:21
outweighs 218:9
overabundance 309:16
overall 35:6 81:6,10
 154:6 167:5,8,20
 324:11 345:21 388:17
overarching 47:4
overlapping 335:5
overnight 160:16 311:7
overseas 246:20 247:3
oversee 236:14 297:5
overseeing 223:10
oversight 356:3
oversupply 252:8
overtime 315:15
overview 3:5 15:21
 362:6
overwhelming 66:8
overworked 388:8
owner 264:10 307:4
owners 249:15
ownership 85:8 274:8

P

P 5:1
P&L 169:22
p.m 407:21
pace 66:17
Pacific 151:8 373:17
package 27:19 34:15
 48:22 72:5 222:14
packaged 143:11
packaging 237:9
Packard 213:13
Packers 196:9

packet 7:17 387:8,9
packets 381:14 402:20
page 50:6 249:17
pages 242:15
paid 186:20 196:21
 227:2 260:16 307:4
 363:13 393:20
pain 44:8
painful 44:2,13
Palestinians 207:6
Palmer 245:15 320:17
 320:21 328:12
panel 2:15 3:17 94:13
 95:1 143:1 179:14
 200:11 235:16,16,18
 241:9 248:22 255:18
 269:9 315:16 316:1
 360:1 362:2 383:16
 387:5,15 399:18
 402:9 403:3 404:3,7
 404:12
panelist 248:13
panelists 2:1 138:7
panels 94:17 336:5,13
papaya 118:18 120:12
 120:16 202:3
paper 93:13 101:21
 136:7 141:1
papers 93:22 255:9
paradigm 165:22 279:8
 313:4 399:2
paradigms 165:13
 279:18
parameters 276:2
paraphrase 351:20
parasitic 351:22
pardon 370:15
parents 84:18 149:1
part 8:4 10:16 20:13
 45:3 46:20 48:19
 51:17 61:11 74:13
 78:8,10 79:18 81:20
 81:21 82:1 90:21
 103:11 108:14 124:22
 183:11,12,17 185:12
 192:5 196:3 206:11
 209:7 211:22 223:10
 223:12 251:11 276:12
 277:3 278:4 281:21
 311:14 319:5 329:11
 342:19 349:2 350:19
 351:9 372:6 374:14
 374:19 382:3 397:12
participant 20:16 390:5
participants 345:13
participate 38:3 248:22
 260:9 350:22 360:19
participated 8:9

participating 18:4
participation 289:6
 353:15
particular 23:14 61:21
 62:9 64:9 70:11
 106:21 107:20,21,22
 114:16 118:4 163:16
 177:2 180:15 238:3
 260:22 267:11 298:15
 319:22 321:7 322:1
 341:3 342:9 358:14
 366:20
particularly 19:4
 115:10 118:17 152:14
 237:2 252:7 263:9
 266:3 302:1 354:9
 356:14 369:3 375:2
parties 47:15,16 190:16
 393:20
partisanship 36:21
partner 367:5
Partner's 1:8
partnered 7:8
partnering 326:19
partners 27:8 274:9
partnership 41:19
 74:22
partnerships 219:11
parts 97:10 102:16
 142:13,14 188:4
 281:20 403:19
party 146:18 152:21
 385:8
pass 226:17 234:4
passage 198:8 222:7
 311:5
passed 129:17 206:3
passing 239:7
passion 165:5
passionate 42:1 43:1
 69:15
passionately 16:20
 39:20,22 55:5 145:15
 197:7
passions 225:14
Pasteurized 205:16
pasture 105:1 155:6
pastures 320:9
patented 161:19
patents 85:8 218:20
 219:2
path 7:13 30:11 37:19
 56:21 60:8 91:13
 368:18
Patrick 206:19
pattern 254:11
patterns 26:11
pause 5:8 44:18 336:11

pay 77:4 181:10 187:15
 193:16,18,20,21
 227:3 233:9 248:4,5
 260:8 262:21 314:10
 393:22 394:10
paying 90:7 182:2
 187:2,3,5,13 197:1
pays 181:9
PCR 192:5,13 271:16
PDF 169:17
Peace 208:12 209:16
peaceful 207:20,21
peanuts 70:18 160:13
pedigree 163:14
Pedro 24:8 166:5
Pennsylvania 1:16
 23:18 41:15 42:4
 57:13 365:17
people 17:5,21 21:10
 25:16,21 26:3 40:6,15
 41:11 42:3 43:8 44:7
 56:6 57:2,22 60:5
 62:10 65:7 69:15
 71:10,19 72:10 73:22
 78:5 79:7,8,10,13
 80:10 81:16 82:1,7,12
 83:18 87:15 90:19,22
 91:8 94:6 96:17,19
 97:6,18 98:16 100:14
 100:15 101:2 103:16
 103:22 104:5,15,16
 105:19 106:1 111:22
 112:12,16 126:9
 127:8,11 131:20
 132:1 133:1,6 134:5
 135:15 138:7 148:20
 163:1,18,19 168:14
 169:1 171:8 182:4,5
 183:15 184:4,19,20
 185:1 186:4 190:18
 196:1 199:4 203:2
 206:7,8 208:16,16
 209:2,6,17,19 211:15
 211:20 218:3 221:10
 233:5,9,13 238:5
 266:18 273:8 276:3
 285:20,21 288:6
 295:1 304:5,18 308:1
 310:2,5,18 313:7
 315:1 328:5 330:14
 332:5 364:12 365:20
 366:1 388:9 393:21
 394:1,6 406:6
people's 119:11 136:11
 212:4 298:22 405:5
perceived 218:9 258:3
 309:16
percent 75:11,11 78:15

78:16 81:7,9,9 97:1
 104:12,13,21,22
 105:1 115:8 118:5
 120:15 143:10 145:6
 145:7 148:16,21
 149:2,4,10,12,13,16
 149:17,18 150:14,14
 151:2,9 152:6 153:3
 154:7,12,13,17 155:4
 173:4 175:4 183:20
 183:22 184:2,4,5,7
 189:19 190:22 196:22
 198:13 216:8,9 221:2
 232:7 233:1 236:22
 238:17 243:9 249:21
 252:15 260:15 261:19
 262:1,4,4,9 263:6
 266:15 268:9 269:16
 269:17 270:21 271:7
 275:15 292:2,4
 293:22 303:11,14,16
 303:17 304:1,1 305:9
 305:10,11,12,13
 363:14 365:3,6
 380:12,19,20 398:11
percentage 100:15
 120:8 149:12 154:11
 194:13 390:7
percents 282:15
perception 161:21
 197:4
perch 71:19
perfect 13:14 222:2
perfectly 105:15
performance 332:6
perils 328:5
period 128:19 132:3
 237:3 262:2 349:18
 382:21
permit 352:10,12,12,15
permits 335:10
permitted 198:2
Perry 101:18
perseverance 56:22
persist 318:3,9
persistence 317:10
persistent 129:18
person 16:9 26:4 56:2
 77:14 241:14 290:2,3
 384:2
personal 39:1 335:9
 360:17
personally 30:2 217:13
 222:17 223:22 224:1
 225:13 350:13
personnel 400:14
perspective 18:10 20:1
 25:17 31:18 43:3 71:6

117:22 119:19 120:22
 121:12,19 139:18
 233:9 236:11 263:3,8
 265:1 267:12 274:4
 276:13 277:15,20
 305:17,22 306:1
 328:10 399:7 404:17
 405:5
perspectives 3:17 6:12
 13:2,5,6 18:3 19:8
 20:6 240:8
pervert 197:14
pest 243:11 277:15
 278:3 337:2 348:19
 351:14,20 352:5,20
 354:12
pesticide 1:14 124:19
 161:20,22 217:1
 229:6 284:7 315:17
 328:7 329:21 339:15
pesticides 76:21
 136:18 162:5 230:18
 328:19 329:6,16
 334:5 335:2
pests 217:3 242:12,16
 243:17 347:14 351:17
 359:3
Peter 1:15 2:2 3:9 4:15
 95:5 361:21 373:17
 373:19 376:13 379:5
 379:6 382:12 385:3
 389:2 390:6 392:4
 393:2 394:12
Peterman 2:5 3:22
 292:21 293:3 302:10
 308:5
petition 352:18
petitions 223:15 338:19
 352:21 354:11
pH 125:12
Ph.D 11:11
pharmaceutical 217:22
 218:13
phenomenal 66:7
phenotypic 397:11
philosophy 394:14
phone 72:10,11 91:2
 407:2
phones 407:2
photograph 83:14
photographing 83:18
photographs 100:14
photosynthesis 321:15
phrase 399:2
phraseology 281:8
physical 78:20 251:5
physiologists 399:21
physiology 11:10,11

- piano** 97:11
pick 188:10,11 189:11
 266:14 283:9
picked 91:2
picks 189:10 258:1
picture 37:10 113:8
 182:7 400:1
pictured 328:17
pictures 163:19 180:21
piece 55:14 73:21,22
 83:15 135:11 275:10
 405:19
pig 97:8 141:22
pilaf 202:10
pilot 382:4
pinning 284:16
Pioneer 85:14 388:15
pipeline 121:4
Pitt 82:11
pivoted 206:17
place 13:19 26:14 44:9
 75:13 81:15,21
 137:17 155:20 193:15
 199:16 224:1 236:8
 248:8 259:9 276:10
 276:16,22 282:13
 283:18 285:1 300:11
 341:2 343:17 353:2
 358:22 363:11 375:8
 381:5,15 400:21
 405:13
placed 21:2 245:2
places 92:5 107:20,21
 107:22 108:10 113:20
 190:5 374:4
plan 211:22 251:11
 288:7 334:1,1,11
 378:16 379:4 380:22
 383:7
plane 22:2
planet 26:5
planning 386:20
plans 168:14 251:3
 343:12 371:15
plant 1:12,20 32:7 76:8
 95:20,20 102:6 109:9
 109:9 110:14,14
 113:20 115:7,19
 123:4,9 124:1,5
 162:20 181:21 191:12
 192:19 243:19,21
 277:15 278:3 284:19
 284:20,20 291:5
 347:3,4,5,7,14 348:4
 348:15 350:12,13
 351:13,14,14,17,20
 352:2,5,5,20 354:12
 354:22 359:3 361:20
 361:20 366:3 369:2,4
 369:5,8,9,11,13,19,20
 370:3,7,19 371:1,3,4
 371:7,13 378:12,17
 378:21,22 385:9
 388:2,3 392:6 396:14
 398:21 399:6 401:20
plant-based 146:7
planted 243:13,14
 249:20 259:10,11
 283:5 338:15
planting 271:2 274:15
 274:19,21
plantings 270:4 340:18
plants 76:8 95:22 96:14
 108:5,13,17 109:11
 110:4 111:14,20
 112:3 113:14 114:16
 115:1,6 163:14 164:3
 164:22 259:15 318:17
 318:22 320:5 321:15
 321:15,20,22 323:19
 324:2,8 351:22 352:2
 373:7 375:3,14
plastid 373:4
plate 234:19
play 7:20 60:15,16 61:1
 74:17 97:11 98:2
 184:18 187:22 282:9
 284:12 288:22 374:22
 375:1,5
player 196:14
players 298:16
playing 78:6
please 12:2 24:4 58:2
 158:7 166:5 188:13
 197:4 284:20 315:4
 321:9 334:19 371:19
 387:20 407:17
pleased 5:21 9:16
 10:15,16,17 12:21
 15:15 16:8
pleasure 5:15 6:4 22:17
 91:18 116:16
plenty 203:7
plotted 249:10
plowed 242:19 244:11
plowing 245:21
plus 153:7
pocket 80:6
podium 12:3 203:21
 361:9
point 23:20 53:9,19
 55:19 59:18 64:14
 65:14 66:4,6 68:15,16
 96:3,5,22 98:11 99:12
 104:4 111:12 119:6
 126:14 133:17,20
 135:7 136:16 139:7
 139:21 143:16 162:22
 170:13 183:17 191:9
 191:11 220:1 230:6
 231:3 232:9 245:4
 252:1 254:14 257:17
 258:12 260:12,14
 263:2 265:2 266:17
 268:19 271:20 276:2
 293:9 296:18 300:7
 308:18 315:8 317:4
 342:4 386:22 390:6
pointed 100:22 155:21
 213:4 239:5
pointing 106:11 371:12
points 9:12 49:7 55:22
 82:10,16 139:21
 148:16,19 236:6
 255:17,22 272:2
 382:5 385:18
poisonous 99:18,19
policy 8:11 21:17 33:12
 49:21 83:9 89:8
 119:21 144:1 146:6
 158:8 198:20 203:16
 207:4 209:5 214:2
 230:19 231:22 258:16
 260:20 269:3 337:3
 347:8 354:14 355:6
 357:6 361:17 365:10
 366:1
policymakers 8:17 33:7
political 65:20 73:8
 234:13 399:11,14
politics 292:11
pollen 291:16 309:13
 344:22 373:4 376:16
 376:20,21 377:7
 378:4 388:5
pollenations 381:10
pollenators 376:8
pollinating 290:18
pollination 237:2,3
 278:16,19 279:3
 282:2
pollinators 374:20
pool 197:19 382:16
 386:2
poor 233:13,17
popular 96:9 157:6
 177:20
populate 320:5
population 25:15,19
 37:14 40:11 78:15
 104:3 109:19 112:13
 112:14 226:8 227:15
 229:15 294:18 313:17
 320:15 322:2 323:21
populations 109:21,22
 317:11 318:20 319:6
 322:22 327:9 373:16
 374:16
populous 148:20
pornography 207:11
port 271:12
Portabellos 202:6
portfolio 294:1 347:4
portion 318:9
posed 110:21,22
 257:19 321:2
position 10:20 11:2
 72:14 137:3 155:13
 165:6,8 349:12 358:9
positions 29:11 38:1
 184:18 208:2
positive 166:19 217:13
 223:14
positively 166:16
possibility 115:9
possible 10:15 12:1
 15:19 17:17,22 76:6
 98:1 162:19 183:19
 221:4 243:22 335:16
 353:16 403:14
possibly 142:15 163:10
 279:14 405:7
post 352:20
Post-harvest 191:6
post-USDA 213:7
posted 369:12
poster 20:8 316:1,9,14
 336:6 371:19 377:10
 377:14 387:18 402:14
 403:12 405:21 406:1
 407:3,6,9,18
posters 378:10 406:6
posting 163:18
potato 14:7
potential 30:15 51:12
 51:14 112:18 115:22
 121:7,10 124:15
 125:19 153:22 214:21
 216:12,21 217:3,16
 318:5 339:14 341:21
 344:9 367:21 381:20
 405:9
potentially 30:8 39:18
 48:7 70:16 389:19
potluck 152:22
Potter 207:8
poultry 140:4
pounding 90:22
pounds 243:16
pouring 109:20
power 69:22
powerful 80:9

- PPA** 278:3
practical 33:5 208:3
 209:14 226:1
practice 3:13 7:5 52:2
 111:3,4,6 179:17
 319:17 327:10 381:3
practiced 69:11 162:21
practices 8:12 18:16
 110:7 116:8 242:7
 250:11 275:17 276:17
 276:20 278:10 283:2
 285:1,5 287:14 318:2
 318:3 319:12 324:18
 325:17 326:4 327:19
 332:3,13,17,18
 338:16 340:16 343:19
 344:2,6,10 348:12
 381:6,7 382:1,7
 389:18
practicing 112:21
practitioners 7:3
prayer 80:18
pre-GE 115:5
precede 352:22
precisely 86:19 89:14
 252:14
precision 247:14
precursors 103:18
predators 109:13
predicated 51:8
predict 253:19,20
predominant 295:10
predominantly 293:14
 304:19
prefer 43:16
preference 174:6
 266:11
preferences 16:17
 173:18 264:21 267:15
preferred 338:10
prehistoric 60:11
prejudging 53:15
premise 339:20
premium 182:3,5
 186:20 262:21,22
 263:7 268:18 284:1
 288:15,17
premiums 257:18
 260:16 263:5 306:10
prepare 316:15 354:15
 402:21 404:10
prepared 119:13 146:9
 355:12,13 407:10
preponderance 231:10
presence 32:14,19
 35:19 36:9 89:16
 183:3,3,4 237:6 266:7
 269:15,20 275:13
 299:19 300:21 343:8
 372:18,21 374:9
 375:5,17
present 2:11 33:13
 113:22 206:1 241:11
 327:5
presentation 3:15
 44:20 117:20 138:2
 141:1 143:22 203:4
 236:5 311:9
presentations 3:7
 93:11,14,21 94:13
 95:2,11 138:11 316:1
 402:17 403:3
presented 341:8
presenter 143:5
preservation 111:10
 183:1
preservatives 144:8
preserve 18:16 107:16
 245:8 285:6
preserved 3:14 16:15
 176:13 177:10 179:8
 179:18 250:1 256:14
 265:17 266:1 284:1
preserving 112:8
president 1:9,11,15
 10:22 21:15 91:18,19
 95:6 179:15 203:13
President's 393:1
press 87:8,9 88:9,11
 91:10 325:6,15
pressing 88:13,14
 90:12
pressure 38:1 116:1
 321:2 324:13 400:2
pressures 268:2 300:3
 317:10 348:20
presume 216:6
presumed 278:5
pretty 54:4 56:5 61:14
 77:18,20 88:16
 102:22 130:16,21
 131:8 134:11 140:10
 180:8 184:16 187:19
 190:17 240:16 263:4
 286:19 293:6 294:1
 395:7
prevalence 145:10
prevalent 149:8 150:11
prevent 177:13 222:20
 225:7 273:21 351:16
 376:21 377:7
preventing 340:4
preview 402:13
previous 21:18 46:7,17
 54:18
previously 46:9 148:6
price 27:20 89:9 268:11
 268:13 272:8,15
 307:9 342:15 363:21
 364:2,3,11,13,15,17
 364:20 365:1
prices 345:4 363:18,19
 366:8
primarily 70:10 143:13
 145:20 146:1 162:11
 166:17 299:14 395:4
 395:8
primary 278:20 363:8,9
 374:6
principal 394:18
principally 286:16,17
 287:22
principle 50:2 211:3
principles 55:10 210:6
 353:6,9 358:15,22
print 399:19
printout 255:20
prior 11:2,4 188:13
 344:18 349:11
priorities 214:3 369:22
 393:3
prioritization 394:12
prioritize 378:17 379:4
priority 91:15 214:1
 380:9 391:19
pristine 106:8
private 14:10 159:7
 185:17,22 188:17
 195:14 210:17 238:13
 239:2,5,12 266:16
 371:1 377:22 378:2
 385:22 392:10 394:9
 395:10,11 401:8
 402:8
privates 186:6
Prize 20:5 24:8
pro-GMO 158:15
proactive 18:4 21:5
 294:10
probably 56:15 82:15
 91:17 93:15 120:18
 128:1 133:15 136:17
 152:8,11 167:16
 169:11,18 187:3,9
 191:4,19 199:2
 200:18 211:2 220:5
 226:19 238:12 240:13
 277:7 286:15 290:22
 292:22 295:21 300:7
 305:18 309:20 310:18
 384:4 399:11
problem 12:18 13:1,4
 17:3 18:5 21:6 33:15
 40:17 50:14,16,19,22
 51:19 52:2,5,12,14,16
 52:17 66:10 91:1,4
 130:22 152:15 183:20
 185:3 186:10 189:7
 192:18,18,21 231:7
 238:8 244:17 254:9
 276:4 298:17 307:17
 317:16 320:8 321:1,3
 322:16,18 323:16,22
 325:9 326:18 327:5
 327:11 328:15 332:5
 332:21 333:9 392:6
problematic 86:15
problems 15:8 38:8,9
 91:11 98:9 115:18
 116:7 189:5 217:7
 220:9 228:14 246:2
 322:12,14 332:19
 344:20
procedural 349:22
process 21:21 23:22
 35:17 45:1 51:7 55:3
 57:18 63:2,14 64:17
 64:20 75:19 89:20
 96:13 97:4,13 98:6,8
 98:12 99:13,15,17
 100:4 121:16,16
 123:20 142:9,10
 159:8 176:20 181:16
 185:10 192:20 193:5
 193:8 208:22 218:7
 220:21 222:9 226:14
 226:16,20 227:5
 235:1 236:15 237:13
 244:3,4 246:5 266:6
 287:22 289:13 308:17
 311:3 352:17 358:18
 358:20 407:7
process-based 271:22
processed 132:8 146:7
processes 60:11 64:1
 105:10
processing 132:14
 191:12 192:19 281:19
 402:15
processors 182:14,15
 195:16 223:5
procurement 156:4,4
 169:7
prodigy 129:6
produce 15:6 32:9,16
 35:8 102:1,17 109:11
 118:16,21 132:11
 141:21,22 176:5
 211:13 231:15 252:15
 257:3 273:7 283:11
 283:12,15,22 286:11
 288:8,10,12,13,17

289:3,11 290:13
 292:1,3 307:6 311:9
 328:14
produced 34:13 38:17
 47:3 56:10 98:17,19
 102:12 108:6 114:22
 125:2 147:2 211:16
 223:17 253:21 286:7
 312:11 384:16
producer 16:17 38:19
 48:2 52:7 117:9
 236:16 288:8 306:16
 306:20 307:6 310:22
 342:20 363:13
producers 26:8,18
 28:13 31:15 33:21
 84:3,20 90:3 117:11
 219:19 222:15 223:15
 224:5 227:12 236:10
 261:20 270:6,9 299:8
 300:15 302:7,7 335:3
 345:1,6 362:21 363:9
 363:18 366:6,22
 368:16 382:18
producing 33:5 96:13
 109:9 115:10 190:9
 195:17 246:8 249:18
 254:1 282:9,11
 286:21 290:22 291:2
 291:13 341:20 345:4
product 26:1 27:21
 30:4 31:22 36:17
 59:15 62:9 63:2,13
 64:2,6,7,18 70:11,16
 70:18 71:3 72:8,10,21
 74:13 83:15 98:11
 100:6 119:9 121:15
 121:16 122:17 124:2
 147:16,21 149:15
 152:4,5 153:18
 177:16,21 178:5,12
 178:20 180:17 195:18
 221:11 225:8 229:8
 233:10 237:11 249:18
 252:9 253:11 261:2
 272:1,2 282:2 284:1
 300:17 307:19 331:1
 331:13 342:13 365:15
 395:16
product's 271:10
production 26:17 27:12
 33:9 35:10 36:14
 38:16 47:17 50:2 52:2
 56:17 76:6,19 119:6
 121:10 128:2 140:6,9
 140:20 153:6,11
 156:9 173:8 175:12
 175:13 186:12 214:14

215:2 222:5 229:10
 247:6,8 252:8 253:1,5
 253:13 257:1,10,16
 258:1 268:20 269:3
 270:1,2 271:2 278:9
 278:13 283:11 284:17
 285:5 292:15 309:18
 309:22 318:2 319:11
 319:17,21 320:19
 339:1,2,10 340:5,16
 342:21 343:20,20
 348:22 361:20 362:1
 363:20 366:20 372:19
 372:22 374:22 401:20
 401:21 403:20
productive 7:12 80:3
 81:1 102:2 214:12
 407:19
productively 112:22
productivity 81:4,6
 105:21 107:13 115:20
 156:16
products 3:12,14 4:19
 18:21 19:1 29:22 30:2
 31:19 32:3,10,16 33:5
 33:22 35:8 36:11
 59:17 63:4 64:11
 70:21,21 71:10 76:4,8
 76:10 88:18 94:19
 99:6 102:12 103:10
 106:14 108:22 111:14
 125:21 142:5,5 143:3
 144:3,18 145:16
 146:6 147:4 149:9
 150:5 156:12,19
 159:1 160:17 162:13
 162:14 164:9 165:7
 168:15,20 169:2
 173:10 175:3,20
 179:18 188:21 193:5
 193:8 220:22 221:10
 223:16 224:6,8 233:8
 238:18 240:1 293:13
 294:1 295:11 297:22
 339:11 352:2 358:19
 359:5 361:21 406:5
professionals 219:20
 325:10
professor 1:14 2:18
 5:17 10:5 11:4 95:8
 101:19 389:5 392:3
 396:18
professors 238:22
 395:2
profile 379:20 395:10
 398:3
profit 139:15 172:5
profitability 242:13

profitable 214:12
 245:10
profound 63:8 148:12
 170:18 178:7
profoundly 103:20
program 1:9 2:2,5 8:2,6
 9:5 10:13 11:17,18
 12:1 72:16 153:18
 203:15,17 204:3
 279:13 301:4,5
 325:18,22 333:3
 343:11 346:17 351:11
 351:13 352:15 353:1
 353:22 354:3 355:6
 361:22 362:14,21
 363:3,10,18,21
 364:21 365:5,8,8
 367:3 372:10 388:18
 398:12
programmatic 372:12
 401:14
programs 1:14 14:3,8
 21:15 45:20 83:9
 106:20 209:2 259:19
 260:11 261:7,8 262:8
 305:10 315:18 325:16
 325:20,22 362:11
 381:5 398:8 400:12
 400:15,17 401:6,11
 401:19,20
progress 29:19 35:1,6
 93:2 103:20 219:14
 360:15 366:12
prohibition 224:13
prohibitively 131:17
prohibits 153:5
project 146:20 161:12
 168:16 238:10 373:5
 373:8,14,19 379:5
projects 7:2 8:1 20:17
 287:15 373:2 376:18
 382:4 383:5
promise 16:10 36:5
 314:21
promote 204:4 242:8
 353:17
promotes 14:12
promoting 31:2 326:3
 346:7
promulgated 206:6,18
proof 71:8
properly 250:13 397:8
property 85:8
proportion 397:7
proposal 357:21
proposals 17:17 88:12
 326:13,13 372:13
proposed 60:21 99:4,4

206:16 275:16 309:1
 346:19 350:7 351:4,5
 354:18 355:20 356:16
 357:3 403:11 404:5
 404:16
proposition 231:17
proprietary 218:21
prospect 302:19
prostrate 319:15
protect 153:12 194:3
 226:19
protected 47:21,22
 98:3 109:13
protecting 97:22 116:2
 150:2,3 219:2 294:5
 383:22
protection 1:13 89:11
 155:18 185:4 277:5
 339:1,21 347:7 351:8
 351:15 353:19 354:22
 362:1
protective 195:7
protector 234:15
protein 97:14 122:13
 123:9,21 124:2 136:9
 181:15 191:15
proteins 122:22 123:11
 124:4 125:7 126:3,21
 132:9 141:22
protocol 198:20
protocols 53:4 186:16
 326:5
proud 7:13 8:21 204:19
prove 147:20
proved 17:10 32:6
proven 56:22
proves 114:14
provide 20:15 24:21
 25:22 46:4,5 95:2
 181:13 201:4 211:8
 225:8 239:10 262:11
 279:16 291:20 300:16
 316:5 329:6 333:9
 339:21 350:15 357:9
 357:10 373:18,22
 374:12 385:13 395:17
provided 53:17 74:9
 94:22 159:16 234:9
 325:6 339:4 367:15
 374:20
provider 198:16
providers 299:15
provides 74:6 92:14
 185:5 225:20,21
 352:17 362:19
providing 17:12 44:21
 246:8
proving 155:15

provisions 278:3
343:13 351:14 354:13
363:3
Provost 2:13 6:5 10:18
10:18,19 11:8,13 12:5
12:8 23:9
Provost's 11:18
public 2:18 5:18 7:7
28:22 29:7 33:7 34:4
42:14 56:16 94:21
95:1 137:2 203:16
204:11 214:2 215:22
218:1 222:9,22 226:5
297:12 309:5 337:20
350:7 353:14 370:8
371:1 385:21 394:18
394:22 395:4,8 396:6
402:7
public's 37:1
publication 339:5
publications 147:5
publicity 163:3
publicizing 147:22
publicly 137:6 151:9
159:1 169:16 264:12
published 28:21 135:20
135:21 230:11 337:19
355:20 356:8 357:3
369:7
publishing 338:2
pull 14:15 49:19 377:1
PuraMaize 291:14,14
purchase 27:21 221:7
222:1 296:18 299:17
purchased 312:12
purchases 240:3
pure 123:17 171:16
260:17 281:13
purely 210:13 260:21
purest 221:3
purity 183:10 186:18
190:22 198:13 250:5
252:15,19 274:16
277:5 280:5 296:14
340:17 379:12,13,21
purple 284:21
purpose 31:10 57:7
105:16 181:13,13
purposes 76:4 220:21
pursue 22:15 296:5
push 225:12 292:16
306:4
pushing 174:8 189:12
346:1
put 25:16 40:15 44:7
53:9 61:5 86:2,20
89:19 98:2 100:8
119:18 120:21 121:12

133:9 160:10 161:9
162:21 168:20 178:13
188:18 213:11 225:10
235:20 237:11 238:10
243:5,7 244:4,13,16
244:20 246:12 248:8
261:20 274:2 275:10
276:2 282:22 283:13
284:18 317:6 328:2
330:9 331:21 332:8
334:6 350:6 389:12
391:2 400:2
puts 63:3 156:14
228:18,20
putting 49:16 53:14
160:21 307:3 313:1
397:18 400:7

Q

Q&A 248:15
QR 72:6 75:21
qualify 55:17 159:19
quality 34:17 35:9 49:4
79:5 253:20 261:17
274:21 281:12 283:2
317:21
quandary 63:3
quantify 160:11 300:8
300:12
quantities 381:13
quarantine 347:8
quarter 112:2 386:5,10
quell 225:11
quelling 298:12,13
question 29:17 51:21
52:6 53:12 54:15
58:12 59:8,10 62:13
63:7,16 64:5,6 68:16
75:17 83:5,12 84:1
85:1 106:16 118:3
127:8 131:12 151:12
158:11 159:19 161:2
161:16 165:3 166:3
166:12 167:16 169:15
172:16,21,22 179:14
183:16 194:21 207:21
208:5 215:1,15,19
216:1 220:20 229:11
229:13 230:12 232:17
233:11 236:3,12,15
239:16,22 240:21
257:19 300:6 301:9
301:13 302:11 303:4
304:21 307:13 308:11
308:14 313:11 314:19
314:20 334:21 371:12
392:5,9 393:9 398:18
questioned 297:12

questioners 98:10 99:2
questions 14:17 21:21
58:1,3 84:7 89:13
92:6,20 93:4 94:22
95:12 116:11 122:1
138:6 142:17 157:1,4
159:16 162:17 170:20
190:13 200:12,14
214:22 215:17 217:18
219:5 228:4,5 235:14
235:15 248:10,14
258:4 261:5 264:14
270:16 279:22 292:17
296:20,21 299:1
301:20,21 303:3
304:15 334:17,18
335:19 350:5 358:2,5
359:9 360:2 361:14
371:18 372:1 387:1
387:15,16,19 390:4
396:9 405:17 407:11
quick 164:20 172:20
232:16 239:16 303:3
314:20 355:18
quickly 5:4 14:15 47:13
56:5 59:13 195:15
206:17 255:19 256:5
263:5 265:5 273:10
294:19 321:21 322:2
quickness 181:17
quite 8:21 86:15 89:11
109:4 145:8 153:14
157:22 206:17 231:9
237:5 242:14 259:11
266:18 315:2 330:15
350:6 354:5 384:2
386:7 389:8 402:16
quiz 407:6
quotations 207:16
quote 275:8 276:22
277:21

R

R 5:1 203:1
paces 108:11,13,15,20
379:16
rack 192:12
radiated 164:14
radiation 157:18,20
158:4,4
ragweed 245:16
raise 79:10 201:13
205:2 211:1 313:5
raised 53:12 79:20
155:7 183:7 190:5
315:8 339:12 341:15
raising 185:14
Rakola 2:5 4:13 361:16

367:10
Raleigh 1:8
Raleigh-Durham 22:3
ranchers 26:7 28:13
223:5 227:12
ranches 27:10
random 102:3
range 9:9 182:14
184:19 189:18 214:16
288:5,7 293:12 301:7
338:18 341:9 370:1
rangeland 320:9
rapid 285:13 395:22
rapidly 103:7 111:17
147:18 212:3,10,12
212:17 234:20,22,22
239:7
rare 141:6
rarely 29:13
rate 25:15 26:22 129:1
132:13 152:1 211:14
270:21 332:13
rates 133:22 141:7
rationale 106:6
rats 135:21
Raven 1:15 3:9 76:1
95:6,10,13,14 127:18
129:14 137:20 141:19
162:17,18 164:10,13
164:18,21
reach 14:20 15:2 30:15
264:4
reached 17:11 112:12
reaching 41:15
reaction 403:9 407:7
reactions 126:13
127:14
read 40:22 48:10,16,18
51:2 52:11 136:6
146:2 147:5 148:4
204:2
readers 69:2 72:16
75:21 101:15
readily 122:8 123:7
reading 255:9
ready 37:12 194:10
243:4 336:19 389:13
real 30:16 89:16,17
110:1 146:4 163:4
190:20 234:19 267:9
268:4 273:2 281:8
300:6 301:2 302:22
362:22 390:22 391:8
392:5,16 397:21
real-dollar 392:1
realities 299:8
reality 62:5 73:5 74:10
79:22 82:8 193:4,7

266:9 306:17 365:9
realize 216:9 218:22
 384:6
realized 51:6 85:6
realizes 388:8
really 5:15,21 9:17
 12:22 16:18 19:15
 23:19 43:6 45:13,16
 46:3,5 48:19 51:15
 52:12 53:11 54:20
 55:9,11,15,20,22
 58:13,15 60:19 62:7
 69:19 74:12,18 78:8
 80:20 85:19 87:21
 88:9 90:15 92:18 94:8
 94:8 97:4 108:19
 115:3,9 118:1 119:19
 120:6 128:13 132:12
 139:1 143:16 144:22
 149:22 153:9 157:12
 157:13 163:4,12
 164:2 170:2 171:6
 174:17 175:6 176:18
 179:9 180:2,3,4
 183:10 184:12 185:8
 188:6 194:10 200:13
 214:5 223:20 227:18
 233:3 236:5,8,10
 239:20 255:5 256:10
 264:1 265:15 268:19
 269:14 276:9,14
 277:8 280:4 281:10
 287:16 291:3 297:16
 302:4 306:7 309:11
 312:3 313:11 317:1
 328:15 330:2 347:11
 353:21 354:17 357:16
 359:6 360:8,21 364:2
 372:5 374:4,12,13
 375:8 376:3 378:19
 381:7 386:14 389:16
 391:21 394:2 395:7
 399:1,10,14 400:7,15
 402:4 403:1,5 404:9
 404:13,15 405:14
realm 207:20 208:1
reap 139:15
reason 80:11 81:11,12
 81:13 137:3 160:6
 168:18 300:21 318:4
 337:17 367:14 389:21
reasonable 17:5 40:15
 217:4,19 237:18,22
 238:12
reasonably 184:14
 353:10
reasons 70:10 120:4
 161:17 168:3,10

169:5 273:5 356:11
 386:14
recall 19:20 209:4
recap 245:11 324:1
recapping 265:14
receive 27:3 262:22
 364:14 366:8
received 34:17 262:7
 309:2 338:17 341:10
 344:8 346:2 356:12
 356:20 363:19 387:8
 402:16
receiving 191:9,10
 222:8
receptive 376:20
recess 94:4
recession 166:9,15,21
 173:1,5
recipient 352:4
recognition 50:13
 51:11 54:21 266:5
 401:1
recognize 21:11 24:20
 25:1 33:3 35:7 38:14
 38:19 46:16 149:20
 149:21 220:22 224:6
 224:19 226:3 233:3
 254:10 298:19 346:10
recognized 55:3 301:2
recognizes 45:16
 146:17
recognizing 42:18
 366:2
recommendation
 236:13 279:1 337:22
 366:16 368:22 376:15
 376:17 378:15,19
 379:3 382:14 385:12
 385:13,20
recommendations 3:6
 4:2,10 17:12,16 18:12
 28:20 34:8,15,20 35:3
 35:7 48:22 56:10 61:8
 87:3,4,5,6,7 89:7
 90:11 92:1 316:9,20
 337:13 340:8 343:1,4
 343:14 346:4,5 360:9
 360:12 361:1,8 362:4
 386:17 402:18 403:10
recommended 62:22
 67:5 373:11 382:15
 384:19 385:6
reconciliation 208:22
reconstitute 400:14
reconvening 42:21
record 26:1
recorded 272:11
recorder 21:9

recoup 395:6
recruiting 11:20
recruitment 370:13
red 115:2 205:16 287:4
 322:3
red-rated 144:15
Redding 1:16 3:6 23:18
 34:11 40:22 41:5 42:6
 42:8 44:19 50:8 54:8
 58:14 92:14 341:19
 342:3 360:15 365:15
Redding's 17:10
redefining 148:7
redo 265:12
reduce 247:12 278:16
 303:9 326:10
reduced 89:9 217:11
 299:21 342:15 394:4
reduces 243:19
reducing 148:22 198:21
 235:21 373:6
reduction 107:11
redundant 397:8
REE 383:3 392:22
reengaging 43:13
reestablished 383:1
reestablishment 355:8
reevaluation 329:15
 334:3
refer 270:12 339:15
 387:11
reference 70:21 93:7
 141:12,14 321:9
 385:11
referenced 170:9
 339:19
referendums 73:7
referred 269:12 309:2
referring 389:5
refined 374:13,17
refining 275:20 374:8
reflect 61:18 306:11
 363:21
reflected 33:20 366:8
reflecting 94:19
reflections 407:5
reflects 363:20 364:2
refrain 369:1
refresh 48:17
refreshes 404:11
refuges 277:4
refuse 313:16
refuted 136:2
regard 130:17 131:8
 226:9 296:14,14
 297:1
regarded 105:15
regarding 18:14 19:9

19:22 84:7 342:16
regardless 266:12
 318:1 324:5 346:1
 397:14
regards 251:22 253:17
 254:1 267:5
regenerate 381:9
regenerated 380:18
 388:12,15 389:14
regenerating 388:11
regeneration 388:6
 397:16,20
region 273:13
regional 309:22 400:17
regions 251:19
register 19:5 309:4
 329:15 337:15,20
 344:8
registered 330:14
 332:20
registering 329:13
registrant 330:8 331:10
 331:13 332:7
registrants 330:9
 331:21 332:1
registration 330:8,21
regrets 12:13
regs 220:12
regular 108:14 121:22
 135:9
regularly 76:2
regulate 61:10,11
 328:19 329:3 352:2
 358:17,19
regulated 158:1 326:5
 351:6 352:7,13 354:2
 356:18
regulating 59:14
 356:22
regulation 19:21 60:18
 61:6,6 63:6 121:13
 348:4,15 353:7,15
 356:18 358:16
regulations 19:19 64:3
 73:11 278:4 306:22
 335:1,4 350:11
 353:13 355:22 356:2
regulatory 18:20 20:1
 31:21 35:19 59:18
 60:3,10,13,22 61:17
 62:1,3 64:15 66:19
 88:22 195:11 197:13
 212:6,20 219:12
 226:14,16,18 229:17
 234:10 235:1,5 246:3
 265:6 271:8 346:17
 347:7 348:2,8,10
 349:13,21 350:7,18

351:2,11 352:6,16
 353:16,18,20 354:7
 355:19 356:3
reinforce 179:19
reinstitution 287:13
reiterate 49:13 292:12
rejected 101:7 261:12
 261:16 262:2 272:17
 306:20
rejecting 162:3,5
rejection 223:15 262:13
 272:21
rejections 32:18 253:18
 254:7 261:3 272:12
 342:8,11
rejects 224:14
relate 125:19 213:5
 221:9 258:4 259:9
related 107:14 122:13
 143:14 159:17 168:11
 169:15 170:3,6 269:4
 270:1 316:11 341:22
 342:5 355:3
relates 211:11 212:18
 265:22 267:19 376:15
relating 343:3
relationship 49:15
 212:22 270:14 292:5
 304:11
relationships 148:8
 313:21
relative 114:4,6 154:9
 250:12
relatively 107:15
 191:22 335:2 340:12
relatives 109:12,15
 115:1 133:2
release 298:8 325:6,15
released 127:4 277:22
relevance 401:18
relevant 15:11 19:4
 156:10 212:8 220:14
 226:18 363:3 380:5
reliance 327:7
relied 148:12
reluctant 331:21
rely 15:4
relying 271:8
remain 30:6 38:13
remains 389:13
remarkable 17:11 57:17
 102:11
remarkably 398:14
remarks 3:2,4 57:17
 96:12 138:17 227:17
 337:16 341:18
remediating 333:9
remediation 331:10

remedy 258:14
remember 108:12
 163:16 206:9 207:4,8
 210:18,19 259:1
 281:18
remembering 112:11
removed 78:17
renewable 88:3,5
repair 244:18
repeat 254:11
repeated 319:16 320:18
repeatedly 324:8
repeating 45:9,17 49:2
rephrase 312:5
report 34:13,18 35:7
 47:3 48:9,10,15 49:10
 55:7,10 56:10 161:13
 332:6,19 333:15
 339:20 341:20,20
 366:21 368:22 369:7
 373:11 383:11,13,17
 384:16 385:17,17
 386:3,6,9 401:17
 402:18
report's 340:8
reported 98:21 275:15
reporting 331:10
 333:20
reports 54:19 368:9
represent 9:8 78:14
 215:2 264:8 283:6,9
 380:6
representative 187:21
 188:1,2 256:4 279:11
representatives 198:19
 336:14 348:18 349:7
represented 370:2
representing 378:22
represents 205:7
 293:10
reproduce 318:19
 323:20 324:10
reproductive 140:15
 318:5
Republican 39:4 91:3
Republicans 233:21
reputation 273:16
 276:6
request 339:13 340:11
 372:12,15
requested 338:9
requesters 394:22
 395:1
requesting 28:21
requests 340:14 393:4
 401:9
require 35:3,5 173:11
 226:12 232:5 277:4

352:9 395:14
required 43:17 223:18
 282:17 333:10,14
 350:1
requirement 270:7
 271:7,8 272:6 368:4
requirements 198:15
 246:9 265:6 266:16
 270:6 275:8 285:14
 331:18 350:1 366:20
requires 43:15 150:11
 150:21 209:9 216:4
 249:12 333:4 354:17
requiring 232:5 236:21
 278:1
research 1:17,18,22
 2:17 6:14 7:1,2 8:6
 14:4,6 24:10 34:17
 35:19 49:4 66:13
 84:14 121:2 140:1
 156:7,8 172:7 175:13
 186:2 205:5 214:22
 241:8 255:5,7 275:19
 285:13,14 305:21
 309:17 311:19 326:8
 326:9,14 337:3 354:2
 359:15 361:22 372:3
 372:6,9,13 373:1,12
 373:13 374:1,6 375:8
 375:16 376:4,16,18
 377:15,16,20 378:6
 392:6,18 393:7,17
 395:14 401:18,19
 402:7
researcher 160:4
researchers 8:17
 219:19 375:12,13
 395:2,4
residue 242:20,21
residues 328:7
resilient 40:11
resist 321:22
resistance 4:3 19:13
 109:17 110:1,11,16
 110:17 111:8 114:13
 217:2 224:10 245:14
 315:19 317:4,6,11,12
 320:18,22 321:2,16
 322:5,12,19 323:13
 323:16 326:9,11,15
 327:10 328:10,11,20
 329:10,14,22 330:2
 330:16,19 332:7,14
 332:22 333:15,17
 334:1,9,10 355:16
 375:7
resistance-wise 331:14
resistant 109:10 110:6

114:7,8 162:1,10,11
 242:17 243:6,10
 245:16 246:15 320:13
 321:5,7,14 322:7,10
 322:22 323:4,8 324:9
 325:5,20 326:2,22
 328:16 333:11,12
 375:18
resisting 109:11
resolution 21:1 208:17
 209:8,10 280:16,19
 405:12
resolve 1:9 2:12 21:16
 209:11,18 274:13
 275:1 322:11
resolved 274:11
resolves 267:10
resolving 208:18,19
resource 83:11 392:13
resources 25:8 35:13
 66:12 85:9 186:15
 245:8 317:19 350:20
 382:20 383:6,22
 384:22 385:9 390:8
 391:2 397:2,7,19
 400:13 401:22
respect 70:14 92:22
 262:12 281:5 283:18
 358:9 360:12 372:3,7
 393:6
respectful 9:22 14:13
 58:20 59:3,5 93:1
 219:9
respects 38:10 40:3
respond 25:6 86:8
 159:2 165:2 174:9
 179:3 216:19 248:7
 265:5 308:5 389:4
 394:12
respondents 149:3
responding 235:15
 271:4 361:7 379:2
responds 263:4
response 4:9 12:7
 52:16 76:13,15 79:11
 92:7 123:1 124:6
 127:6,10,12 142:19
 151:14,17 225:22
 268:14 270:21 311:22
 314:15,17 335:20
 337:12 346:3 359:10
 407:12,15
responses 4:1,6 135:5
 309:8 316:19 336:18
 341:10 344:7
responsibilities 45:17
responsibility 24:20
 25:2,5,9 28:1 33:10

41:16 43:21 44:1 50:2
 54:17 61:5 79:19
 158:11 223:9 249:19
 277:2 340:3 361:7
 379:6 392:9,12
responsible 11:20
 122:5 143:10 222:4
 314:10
responsive 27:2 340:10
 340:13 341:14
rest 39:19 66:11
restart 50:22
restarted 35:12
restarting 28:2 36:2
resting 138:9
restrict 279:2
restricted 229:3 263:9
 278:22
restrictions 85:8
result 56:9 88:14 97:20
 102:16 110:7 113:5
 188:13 256:10 294:6
 294:11 306:1 327:8
 342:14 343:8 376:17
 389:9
resulted 398:10
results 188:9 192:8,10
 230:16 376:7
retail 86:14 155:9
retailer 154:4,4 158:12
 159:1 165:6 172:14
 174:21 178:3
retailers 214:18 216:19
 220:6 227:12 247:6
 264:11
retarding 112:4
retirement 400:9
return 211:14
revelation 43:6
revenue 365:13,14
 366:5,7,9
review 31:20 177:15
 178:18
reviews 18:19
revise 355:21
revised 19:20
revisions 355:22
rewards 366:2
rewrite 276:12
rhetoric 29:12 30:16
rhubarb 284:20
rice 115:2,2 172:8,12
 202:10 319:21 320:3
 323:11
rich 233:9,17,17 402:16
rid 189:10
ride 182:3 396:5
ridiculous 100:1

right 5:10 17:11,19,21
 22:2 27:11 29:12 43:5
 44:10,17 46:10 47:14
 50:17 51:16 52:4,4,13
 52:17 53:11 54:10
 55:18 56:7,16 68:21
 68:22,22 69:5 70:6,7
 70:22 71:13 72:3,19
 75:5 77:17 79:3,12
 82:4 100:11 129:20
 142:20 158:9 170:1
 175:16 193:13 195:13
 196:17 197:5,12
 198:18 200:15 201:15
 201:20 204:12 222:17
 225:16 232:10 238:8
 240:12 242:15 249:9
 268:2 269:1 278:14
 280:11 283:18 286:5
 286:11 297:9,17
 299:7 314:13,18
 320:16 334:13 335:21
 359:11 361:2,18
 375:6 377:4,16
 388:19 390:3,18,19
 398:18 406:1,2
 407:16
rightfully 27:20
rights 339:17
rigid 65:15 184:12
rigorous 23:22 150:21
 223:6
rip 295:21
rise 25:20 134:20
 218:20
risk 2:7 29:22 30:8
 34:16 35:15 53:1
 78:19 99:16 125:22
 131:15 134:6 150:12
 216:3,4 218:13 219:3
 228:10 271:9 314:4
 329:8 334:6 352:20
 354:12 356:16 361:16
 372:8,9 395:17
risk-benefit 329:5,11
risk-free 216:10
risks 110:20 132:5
 215:20,21 216:13
 217:3,17 219:1 329:8
 339:16
River 291:13 309:12
RNA 141:21
road 205:14 217:8
 234:11
roadmap 369:10,13,19
 371:15,16
roadside 373:15
roadsides 323:11

roasted 202:4
Robert 85:16
robust 22:7 25:13 219:9
 363:4 371:8,8
Rockefeller 213:13
rod 349:8
Rodale 171:21
Rodenticide 328:22
role 44:22 116:17
 293:15 297:4 298:10
 315:10 349:2 374:22
 375:1,5 376:8 401:7,8
 405:9
roles 344:11
roll 20:17
rolled 17:6 281:9
rolling 402:1
Ron 2:4 3:19 241:15,22
 248:12
room 17:20 18:3 31:3
 36:13 40:15 57:21
 79:10,13 93:21 94:6
 126:13 173:19,21
 205:10,22 208:6
 240:18 277:8 285:18
 308:22 309:21 310:5
root 274:16
roots 15:3 243:18,18
rootworm 243:12,17
 244:5
rope 174:8
rose 230:16
Rosendale 248:17
 249:1
rotation 251:2,21
rough 161:11
roughly 25:18
Roundup 162:1,10,11
 243:4,8,9
routine 31:8 45:13
 397:5
row 211:5 286:12,19
 289:7
rows 51:13 278:21
RS 374:2
rubs 403:18
rule 193:6 206:6,6,8,9
 206:10,16,18,22
 224:9,12 238:1,4,5,8
 295:2 309:1 346:19
 351:4,4 355:21 356:4
 356:7,13,15 357:3,3,4
 357:17
rulemaking 222:9
rules 185:2 220:12
run 42:15 44:16 56:5
 91:5 191:20 198:4
 200:8 271:9,14

running 244:20 315:15
runs 262:9
rural 25:6 31:18 41:22
 41:22 213:17
ruse 222:20
rush 184:1 320:7,11
Russ 92:14
Russell 1:16 3:6 17:10
 23:18 24:1 34:11,12
 34:18 41:2,5,15 42:6
 57:16 58:13 59:9
 61:13 207:17 265:13
 280:13 337:6 360:15
 365:15 386:8
Ruth 1:14 3:10 95:8

S

S 3:1 5:1 203:1,1,1
sad 82:8
safe 18:20 31:21,22
 32:5,6 38:13 122:6
 124:17 125:22 127:18
 137:6 147:15 157:16
 158:2 214:14 328:6
 329:9 347:15 349:3
 351:13
safeguard 347:12
safer 82:18 136:17
safety 3:7,8,10 37:2
 45:21 63:10 64:8 71:3
 88:6 95:4 96:14 98:13
 98:14 99:16 117:1,3,4
 118:1 122:1,3 124:13
 124:22 127:17 136:6
 136:22 147:21 159:8
 197:6,7,10 215:18
 221:9 231:11,19
 282:19 347:21,21
 353:19 362:15,19,22
 365:18 401:21
salad 202:10
salads 212:14
sales 143:11 146:13
 150:8 152:7,13,18
 153:2 154:9,12
 159:21 160:16,19
 161:4,8 163:4,17
 164:1 166:8,11,14
 172:22 178:12 293:22
 294:3
salsa 202:4
saluting 360:5
sample 187:21 188:1,3
 256:4
samples 375:14 376:1
 380:3,6 384:21
Sanchez 24:9 166:5,6
 167:4,8,13,20 307:15

- sat** 328:4
satisfy 199:11,12,13
 225:17 239:3
satisfying 233:17 239:2
sauteed 202:7
saving 311:1
savings 120:13
saw 55:16 81:5 189:4
 244:20,20 365:4
saying 53:15 64:9
 77:13 85:14 101:8
 134:14 166:10 196:1
 199:4 201:20 217:6
 222:2 229:14 283:7
 286:17 298:16 307:7
 308:6 312:8 366:18
 394:7 396:5
says 85:17 97:8 112:3
 204:2 205:18 207:12
 229:3,4 248:5 258:14
 261:22 277:11 282:20
 400:16
SBU 160:8,10
scale 108:3 214:8,18
 299:5 373:12
scan 198:5
scanners 72:13 74:3
 198:5
scape 319:14
scary 175:7
scenario 211:9 252:6
Schechtman 1:17 4:7
 4:16 10:8 23:12 57:10
 336:14,20,21 337:1
 362:2 383:15,18
 404:21
Schechtman's 55:11
schedule 315:14
scheduled 23:15 386:4
scholarly 11:19
scholars 9:3
scholarship 6:13
school 2:18 5:18
 244:13
schools 106:20
Schroeder 1:18 4:4
 315:16 316:17,21
SCHWEITZER 164:8,11
 164:16,19 165:4
Schweizer 1:19 3:12
 143:3,7,8 151:15,18
 158:8 161:2 166:13
 167:9,15,19 169:6,11
 170:5,8,21 171:11,17
 174:7 176:7 177:14
science 1:14 3:7 8:4
 18:18 43:19 60:9 61:9
 61:16 62:21 65:6,7,9
 65:14,20 66:6 71:11
 74:15 76:18 78:5
 81:21 82:1,3,4 85:3
 95:4,8 100:12,13
 101:16 116:18 135:12
 135:19 137:2 139:10
 156:5 163:5 165:11
 165:13 208:17 212:2
 212:10 215:11 217:18
 219:9 220:10 222:20
 226:17 234:20 276:7
 276:16 277:12 282:20
 309:17 317:3 325:10
 326:2 332:9 340:20
 348:11
sciences 6:20,20 9:4
 11:9 82:2 99:10
 102:22
scientific 18:19 71:8
 99:11,13 100:4,19,21
 101:9,13,21 106:3,22
 123:7 135:19 136:3
 136:22 142:12 164:5
 165:21 172:2 209:10
 228:16,18,19 233:11
 234:12 303:12,16
 304:4 307:16 349:17
 352:19 353:11
scientifically 142:4
scientist 2:6 82:17 87:2
 156:8 165:12 172:14
 204:12 359:16 361:19
 369:15
scientists 65:19 66:7
 67:3 78:11 82:13
 85:10 97:19 101:5,6,8
 102:1 124:9 133:13
 135:13 137:12 163:6
 228:20 326:8 392:13
scope 52:15 97:5
 349:20 356:1,19
 384:18
score 97:11
scored 82:10
scores 82:16
scout 332:5,6,18
screens 397:20
scrutinized 33:6
scrutiny 106:22 218:1
 223:8
seafood 144:15 147:3
 168:8
season 237:3 251:16
seasoned 21:14
seat 71:19 359:19
seated 201:3 361:10,11
seats 5:3,6 94:11 203:3
 336:9,18
second 139:12 173:6
 211:11 230:17 252:2
 274:12
secondary 214:4
secondly 45:1 303:11
 325:19 347:15
secretary 1:11,12,17,21
 3:4 6:6 9:18 12:10
 14:19 15:15,22 16:19
 17:2,19 18:6,9 20:4
 22:20 23:1,17 24:4,6
 25:12 41:2,17 42:5,8
 42:12 43:12 46:1,12
 46:19 47:4 49:1,11
 50:9 53:9,14 56:12
 57:4,9,13 58:1,1,4,11
 60:7 63:15 64:12
 65:21 66:1 67:7,10,12
 67:15,16,18,19 68:20
 69:6,8 75:20,22 76:11
 77:22 79:12,17 83:4,6
 86:8 87:12 91:21 92:8
 92:12,14 121:14
 135:13 173:15 201:4
 203:18 204:16 205:3
 206:4,20 223:12
 224:17 242:5 280:12
 280:15 281:2 283:7
 309:2 325:2 337:4,15
 337:18 341:19 342:3
 345:20 348:7 350:14
 351:16 355:7 360:18
 362:9 370:15 374:3,3
 383:11 384:17 386:4
 401:17
Secretary's 15:17 55:8
 55:18 179:20 292:13
section 48:10,13
sector 25:14 140:3
 182:12 210:17 264:17
 378:2 392:11 394:22
 395:4,8,10,12 396:7
 401:8
sectors 385:22
secure 86:6 182:2
 218:21
security 13:18 85:20
 218:19 219:4 348:1
Sederoff 62:19 63:19
 65:18 67:2 157:5,9
 228:8,13 230:2 358:8
 358:12 359:6 396:11
 396:16,18 397:4
 398:5,7
see 12:8,21 27:7 42:11
 51:15,17 52:14 59:12
 59:18 66:16 74:17
 77:5 86:13 90:4,20
 118:2,20 120:7 124:3
 126:5 128:19 133:6
 134:10 144:4 147:6
 150:15 152:1 154:4
 162:5 167:2 176:2
 179:4 180:9 181:3
 184:9 188:22 194:3
 195:16 197:19 198:12
 198:21 204:10 207:13
 207:15 212:12 213:14
 219:22 221:19 227:3
 230:2,3,15 232:10
 239:6 241:4 252:1
 254:10 259:7,14
 261:13 262:21,22
 263:6 264:5 266:2
 268:21 277:10,16
 278:11 284:2 289:11
 291:5 297:10 299:8
 302:7 303:6 321:12
 322:14 323:6,9 330:5
 331:17,22 335:3,12
 367:19 377:11,14
 380:4 382:1 393:16
seed 2:3 15:6 34:17
 35:10,14 49:5 84:4
 117:10 156:6,8
 188:20 189:5,6,14,15
 189:16,22 190:4,5,8
 190:12,17 197:5
 198:16,17,18 213:1
 214:17 218:11 240:13
 240:14 246:7,17
 247:17 274:16,21
 275:13 277:5 280:4,5
 280:6,10 281:12
 282:6,11 283:2,11,12
 283:13 284:17 285:4
 285:5,12,16,17,19
 286:1 287:9,9,18,19
 287:19,21 288:8,11
 288:17,21 289:5,14
 289:15,16 290:13
 291:7,8,22 292:5,9
 293:20 296:18 299:15
 299:16,17 300:1,6,17
 304:21 310:1,10,10
 310:10,11,15,21,22
 311:2,8,9,15,16,20
 312:3,11,15,16 313:3
 313:12 314:1 339:2
 339:17 340:17 366:17
 367:4,5,13,18,20,21
 368:4,8,10,11,12,13
 368:14 372:18 373:6
 374:22 375:10 376:9
 376:10 381:12 382:17
 385:15,22 396:3,4

398:20
seeding 312:10
seedless 284:3
seedling 375:20
seeds 122:5 190:9,10
 298:4 309:18 318:7,9
 328:15 366:19,22
 367:22 368:17,19
seeing 84:8 126:12
 156:18 161:17 162:4
 162:12 172:15 178:15
 189:8 198:22 236:8
 267:8 268:5,9 303:4
 321:16 322:13 407:9
seek 171:12
seeking 145:16 337:20
seemingly 209:20
seen 25:13 105:14
 170:3 208:13 238:21
 239:11 328:13
seepy 244:14
sees 283:21
segment 152:5
segmented 305:14
segments 341:16
segregate 180:12
segregated 211:21
segregating 180:13
segregation 150:22
 181:2 186:16 196:18
 197:22 198:14 270:3
 270:10
segue 149:5 179:14
seismic 148:6
select 318:22 324:6
selected 105:20 106:21
 321:22
selecting 42:22
selection 102:5,6
 108:22 109:20 139:10
 287:6 317:10 319:5
 321:2 324:1,13 327:9
 364:2
selections 27:18 339:8
 341:8
selective 110:3
self 176:20
self-select 257:11
sell 77:8,18 78:1 143:14
 144:18 145:1 146:7
 146:11 152:19 153:19
 155:11 156:13 163:14
 168:8 170:16 175:20
 176:20 179:7,9
 193:12,15 232:6
 288:15 300:18 304:18
 305:10,11,12,13
 313:6

seller 342:12
selling 77:12 143:15
 158:16 177:9 189:16
 238:18 304:11,19
 342:14
sells 284:5
senate 39:6
senator 80:13 206:19
send 71:2
sending 93:10 137:12
sends 12:13
senior 2:15 10:21
 361:19
sense 108:1 118:20
 126:15 151:22 214:4
 221:3 226:2,12
 260:10 304:2 305:20
 344:5 390:17
sensitive 180:13
 286:15 321:15,20
sensitivity 89:13 126:8
 192:4
separate 117:2,18
 136:8 307:20 381:14
separation 191:1
September 384:17
sequences 123:9,10
sequencing 102:6
series 22:1 88:17 94:13
 346:2 357:7
serious 185:18 192:6
 192:21 209:19 215:7
 222:22
seriously 135:6 184:17
 196:20
servant 204:11
serve 13:11,19 15:4
 25:4 43:2 83:10 91:18
served 42:3 203:18
 349:12
serves 7:3 9:1 112:4
service 1:13,18,19,21
 2:17 42:14 56:16
 195:13,14 241:8
 326:8 337:3 347:3,5
 347:22 362:12 373:14
 395:19
Service's 367:2
services 347:7 349:13
 361:22 362:7,11
serving 242:4 382:19
session 3:2 4:1 5:9
 20:8 301:18 316:2,10
 316:14,18 336:7
 360:7 369:6 371:19
 372:5,6 377:10,14
 387:11,18 402:14
 403:12 405:21 406:1

406:7 407:6,9,18,20
sessions 21:5,7,8
 404:14 407:3
set 6:8 20:2 45:13 53:3
 57:21 76:9 88:12 89:7
 90:10 92:1 94:15
 97:22 98:3 141:21
 144:17 267:21 316:3
 316:11 364:14 377:13
 393:3 402:14 404:12
sets 46:3 73:11 160:5
 196:10
settle 188:12
seven 41:12 102:1
 189:9,12
seventeen 364:6
severe 77:16
Severin 11:15
sex 163:20
sexy 163:20 400:11
shadow 25:7
shake 308:16
shaky 189:17
share 9:10 13:5,8 18:13
 19:12 33:9 37:16
 85:16 161:10 162:15
 174:2 263:1 274:4
 279:21 280:7 368:14
 387:12
shared 24:19 43:3 50:1
 167:3
sharing 172:19
Sharon 10:13 200:20
 201:7 203:10
sharpshooters 313:14
she'd 66:4
shelf 237:12 311:10
shelves 83:16
shift 399:2
shifted 397:16
shifting 143:2
shifts 148:6
ship 181:21
shipment 32:18 272:22
 273:14 342:8,10
shipped 306:18
shipping 188:14 272:13
ships 182:1
shocked 158:5
shoot 91:17 92:2
shooting 102:3
shop 151:12 157:7
 168:2,10 274:10
shopping 86:10 145:18
shops 68:11 81:14
short 25:8 37:18 120:7
 128:11 215:9 292:20
 312:2 315:20 336:8

360:7 378:1
shortages 268:7
shortened 319:14
shortly 377:11
shot 33:19 178:13
 296:7
show 81:2 124:9 129:8
 130:17 131:14 135:9
 135:21 141:1,9 172:3
 175:2 255:21 256:9
 261:9 262:14 406:14
showed 175:18 198:19
showing 171:20 172:10
 178:8
shown 150:19 190:18
 219:17 322:3
shows 50:12 81:6
 102:10 128:18 321:4
 321:5,6,13 323:3
shying 199:17
sick 128:4
sickness 98:20
side 27:19 28:11 30:20
 30:20 40:1 48:15
 54:14 73:20 102:6
 156:5 205:13,15
 226:13 251:4 285:12
 289:7,7 304:10
 312:22 347:4
sides 9:13 28:7 29:15
 29:16 36:22 57:21
 69:10 72:22 225:15
 312:18
sighted 215:10
signal 175:2 248:7
signals 174:18 248:8
signed 338:20 345:3
significance 39:16 56:6
significant 24:14 26:8
 26:11 64:13 80:21
 187:6 194:13 198:2
 244:8 256:8,11
 303:16 356:1 360:15
 386:16 392:21 393:2
 395:6
significantly 355:21
 397:16
signing 48:18 51:2
 52:11 53:21 55:7,21
silks 377:7
silos 400:21
silts 245:5
silver 305:2
similar 111:1,2 123:13
 160:19 165:19 196:6
 334:8 366:21 378:6
simple 38:14 57:9

253:10 375:18 400:2
simpler 307:22
simplicit 221:15
simplified 352:11
simply 37:5 97:10
 228:8,18 237:11
 297:7 357:1 365:11
simulation 305:22
simulations 260:1
sincere 79:4
single 25:20 26:4,5
 56:2 79:9 83:15,19
 98:20 99:9 164:21
 183:2 258:13 264:10
 314:11 322:15 327:7
 370:12 395:1
sir 62:18 158:8 228:7
 232:18
sit 69:9,22 269:6 280:17
 295:9
sites 375:15
sitting 192:1,3 295:13
situation 63:12 65:13
 238:2 323:6 337:10
 390:2 392:3
situations 98:4 285:2
 287:3 291:9 323:11
 370:9
six 25:11,15 39:3 189:9
 189:11,19,20 204:5
 248:14 253:8 272:1
 349:14
six-year 349:18
size 38:17 210:12
 253:20 272:12,13
skeletonweed 320:8,11
 320:13
skeptical 77:4
skepticism 51:5
sketches 369:19
skill 397:11
skim 175:10
skin 31:3 226:4
skip 145:4
SKU 160:18
SKUs 237:12
slaughtered 140:11
sleeves 17:6
slice 171:5
slide 118:2 141:15,16
 155:22 245:11 262:14
 319:9 332:14
slides 144:4 264:5
slight 315:13
slow 332:13 348:8
slowed 167:18
small 68:8 69:12 182:20
 213:18 214:7,18

285:8 310:1 340:12
 340:12 381:13 382:4
smaller 20:14 151:11
 254:2 256:15 331:5
 403:2,5
smart 40:15 72:10,11
 225:2 407:1,2
smell 200:18
smiling 180:16
Smith 1:20 15:21 16:4,5
 23:12 57:16 92:11
snack 149:12
snap 72:16 87:22 304:8
snapshot 121:3 355:18
SNP 397:1
so-called 148:10
 166:20 379:15
soap 178:2,2
social 6:20 9:4 148:6
 206:13 215:16 217:16
 219:4 326:16
societal 6:18 82:3
society 5:20 6:8 7:14
 8:3 12:16 14:11 42:20
 58:9,21 215:20
 216:10 326:20 332:9
socioeconomic 355:3
soda 68:8 154:21
sodium 70:12
Soi 268:10
soil 79:2 242:20 245:8
 245:22
sold 77:7
solely 36:20 329:8
solicit 326:13
soliciting 29:1 372:12
solid 50:19,19 249:12
solution 17:7 30:22
 36:19 40:3 83:20,22
 91:4 281:13 292:14
solutions 13:20 30:17
 56:14 84:4 226:12
 268:4 292:15 338:16
 341:7
solve 33:14 40:17 50:16
 325:8
solved 17:4 40:19
solving 18:5 21:6
somebody 41:7 47:8
 48:2 53:5 59:12 74:12
 110:13 160:10 167:11
 195:17 254:13,17
 278:13 288:22 308:21
 314:3,10 406:2
someone's 78:2
someplace 278:13
somewhat 96:3 110:18
 194:16 224:8,11

291:14 297:15
Sonnabend 201:19
soon 107:5 109:22
 120:4 357:14 368:9
soon-to-be 23:16
sophisticated 74:11
 262:15
sorry 169:6 180:1 206:5
 312:4 358:11 388:16
 406:18
sort 28:14 45:13 46:10
 46:19 47:10,15 49:19
 50:6,14,17,20,22 51:6
 55:7,11,19 56:4,19
 60:11 63:16 73:19
 78:11 134:22 136:14
 145:11 162:19 173:21
 186:7 197:14 233:12
 264:19 265:2,7 267:4
 269:21 275:2 277:17
 298:11 300:8 303:8
 304:2,4 394:6
sorts 71:6
sound 283:16 305:15
sounds 167:19
source 119:11 145:9,13
 145:14 159:6,18
 190:13
sources 119:7 160:22
 272:4
sourcing 144:21 153:11
 174:4 240:10,11
South 208:22 209:2
Southeast 172:9
southern 113:3
southwest 293:9
Soviets 207:7
soy 67:20 84:18 107:17
 155:3 162:11 180:12
 180:14 268:12 272:14
 279:6
soybean 2:4,4 118:11
 118:14 132:7 141:4,5
 241:15 242:4,5
 247:18 263:14,14
 320:19
soybeans 118:7 120:5
 120:10,20 145:7
 182:17,18 184:16
 187:7,8,10 188:3
 191:3 193:19 194:8
 196:10 242:1 243:8,9
 248:6 249:3 268:6,10
 272:19 273:1,7
 282:12 288:1 297:5
 331:2,4 355:14
 380:21
space 147:8,19 170:18

264:13 265:9 266:6
 293:16 311:21
span 131:20 139:13,18
 140:8
spawns 49:21
speak 19:2,10 28:8
 108:11 222:17 226:13
 229:22 297:3 301:6
 309:14,15 310:6
 367:14
speaker 116:22 209:12
 213:1 241:11 248:16
 255:1 263:20 292:20
speakers 1:10 20:6
 93:7 248:14
speaking 108:12
 393:13
speaks 40:3 259:16
 298:10
spearhead 28:18
special 42:11 104:19
 201:11,12 374:2
specialize 103:17
specialty 256:14 257:2
 378:5,7
species 12:20 96:18
 97:16 105:7 115:7,8
 116:2 251:17 318:3
 318:12,14 319:1,6
 320:15 321:5,7 322:4
 322:6 323:4,8,18
 327:9 379:1,14 380:6
 380:8,10
specific 22:12 65:14
 90:10 270:16 340:13
 341:11 342:16 351:19
 358:14 368:16 385:11
 388:14 403:9
specifically 264:16
 385:19 393:7
specifications 32:17
specificity 125:8
spectrum 141:8
spectrums 234:14
speculation 297:10
 298:12 301:12 357:16
speech 88:4,6 227:2,4
speed 60:10,12,13
 348:10,11,12 390:9
spend 20:13 45:8 81:15
 200:2 296:1 302:12
 302:20
spending 16:1 70:1
 191:19
spends 24:15
spent 29:19 73:7 95:19
 117:6 138:12 349:15
sphere 298:8

spices 159:6,7
spill 376:9
spinach 202:6
spinoff 303:10
SPINS 169:12
spirit 9:21 346:4
spirited 56:8
spoke 42:17 121:14
 171:6 260:5 268:8
spoken 66:2 116:12
 385:4
sponsoring 203:6
 372:7
spontaneous 63:21
 165:18
spot 86:2 244:14
spotlight 281:11
spray 68:9 375:18
sprayed 110:12 247:13
spraying 113:14 136:10
sprays 110:15
spread 36:21 107:6
 162:12,14 164:6
 374:15 391:14
spreading 84:12 107:10
spurred 81:17
square 294:18
squash 118:18 120:2
SRI 172:8
SSR 396:22
stability 131:1
stable 31:5 105:13
stack 93:20 181:3
 217:15 246:13
staff 6:11 9:8 10:7,9,12
 15:17,17 58:17 294:6
 349:17
stage 20:2
staged 100:13
stages 386:20
stake 20:10 27:9
stakeholder 1:3 7:7
 16:7 46:6 267:11
 357:5 370:10 371:11
stakeholders 6:3 8:18
 15:8 21:17 22:15 31:9
 34:4 38:7 43:22 117:7
 213:15 214:17 219:21
 269:5 326:21 333:21
 338:18 343:18 356:6
 356:13 357:10 370:1
 371:16 383:8 385:21
stand 75:21 111:12
 236:7 274:18
standalone 347:17
standard 116:5 146:19
 150:21 153:9 162:7
 171:9 176:1 183:16

184:2 187:7 195:17
 195:19 232:6 233:12
 238:10 239:6 247:7
 266:6 299:3 313:9
standardization 252:17
standards 76:9 97:22
 143:20 144:6 147:3
 147:22 171:10 173:7
 177:22 184:14 186:13
 186:14 192:22 193:1
 193:1 196:11 206:4
 212:8 220:21 223:8
 224:20 266:6,16
 270:6 300:2 374:11
standing 92:3 137:20
 228:19
standpoint 77:13
 197:11 282:8
stands 383:17
starch 132:10
StarLink 199:21
start 35:22 61:13,13
 83:2 93:7 164:9 189:1
 190:4 198:21 222:10
 232:4 250:20 279:18
 288:20 308:16 314:2
 337:14 342:22 357:5
 357:19,21 360:4
 407:4
started 7:13 51:4 58:10
 58:14 67:13,20 69:19
 119:19 134:1 165:14
 200:11 227:17 242:18
 242:18 244:12 267:3
 281:6 287:14,14
 289:5 301:18 310:4
 312:17 330:20 336:10
 380:9,16,16
starting 69:12 106:2
 107:10 171:19 189:4
 372:11
starts 35:9 78:9 273:18
 405:1
starvation 104:7,8
state 1:7,15 3:2 5:9,16
 5:19 10:6,19 11:3,11
 11:17,21 12:22 14:8
 14:16,22 15:2,12,14
 15:18 23:4,7,17 25:19
 39:3 41:20 42:16
 60:15,16 61:1,16,18
 73:6,12 80:13 82:10
 95:9 101:16,17
 116:17 117:8 186:1
 203:5 205:7 208:14
 289:16 291:19 365:17
 368:7 371:3 375:16
 377:18 388:3,5

State's 13:20
stated 137:6
statement 53:22 55:8
 99:12 174:10 354:16
 355:11,13
statements 51:3 52:11
 55:21 147:7
states 1:1 16:5 87:11
 96:8 98:15 100:16
 103:13 107:18 120:9
 136:11 166:8 174:17
 175:3,12 190:8
 199:18 206:15 207:7
 213:12 232:7 234:2,3
 246:1 247:3 266:17
 270:20 294:17 351:18
 366:9 369:11 384:1
static 184:20 390:1
 391:1 397:22
statistical 262:15
 303:15
statistics 81:5 166:7
 401:12
status 352:18 353:3
 354:6,11 367:9
statute 329:5 354:16,20
statutorily 384:9
statutory 62:14,16
 278:2 353:12
Stauffer 10:13 201:8
stay 56:19 57:5 171:16
 173:21 180:5,6
 196:13
staying 43:12 44:9
 57:13 180:2 335:15
stays 59:5
steam 159:8
steer 55:12
step 46:7 125:3 137:13
 234:18 296:12 300:11
 357:19
Stephanie 275:9
stepped 45:11
stepping 13:9 247:5
steps 20:19 144:1
 325:3 342:2 363:2
 384:20
sterility 373:4
sterilization 159:9
stewardship 34:16
 242:8 276:17,20
 333:3 372:8
Stewart 207:8
stick 269:10
sticks 73:20
stimulate 14:21
stink 235:3
stock 175:19

stocks 339:17
Stockyard 196:9
stole 367:11
stomach 125:12 134:7
stomachs 200:19
stop 80:18 181:7 314:1
 345:22 376:11 395:20
stopping 153:15
storage 260:13
store 80:5,6 151:7
 152:6,12 154:6
 166:19 170:17 181:11
stored 147:14
stores 72:13,14 74:3
 86:11 112:2 145:13
 145:19,19 155:19
 167:5 170:17 171:18
stories 133:2 136:7
story 120:12 133:4
 135:11 205:12 307:1
straight 329:13
straightforward 251:6
strains 108:16
strange 101:4 299:6
strategies 3:19 22:9
 250:16 275:20 278:19
 278:20 305:3 326:10
 372:21 374:17 376:19
strategy 219:13 259:17
 322:16
strawberries 287:4
stream 244:19
street 82:9 406:18
strength 57:5
strengthen 312:3,7
 338:1
stress 44:4 242:12
 243:21 330:4
stresses 244:1
strictly 240:15 381:12
strident 29:10
strides 386:16
stepped 210:3
strikes 106:16
stringent 31:20
strip 192:16 271:15
stripes 84:20
strips 271:1
strive 15:7 277:1
strokes 210:11 227:18
strong 136:22 232:21
 234:13 246:16 295:17
 374:4,12 375:2,9
stronger 338:22
strongest 396:6
strongly 61:22 62:22
 148:15 305:20
struck 73:14 207:17

224:4
structurally 121:21
structure 45:12 130:20
 195:11 299:2
structured 65:3
structures 66:20 250:4
struggle 176:14,22
struggles 120:18
struggling 395:5
stuck 71:15
student 229:9
students 6:11 8:1,7,22
 9:8 44:11 117:12
studied 101:1 140:19
 165:11
studies 125:20 127:19
 127:21 128:12 129:7
 131:17 135:8,20,21
 169:14 171:20 190:20
 239:11 263:15 368:12
 378:8
study 121:6 128:13
 131:14 138:22 139:2
 139:6,19 140:2,7
 169:17 170:8 172:1,2
 186:2 238:21 303:13
 303:19 377:6
studying 373:2,8
stuff 66:14 88:11 90:8
 122:4 131:15 163:17
 178:22 179:1 190:3
 218:10 221:15 226:3
 231:16 233:14 234:1
 240:9
stuffed 202:6
subcommittee 383:2
 384:6
subject 63:5 64:2 114:2
 165:5 190:7 208:9
 213:7,16 223:6
 225:15 338:8 359:17
subjects 138:11
submitted 224:14
 338:20 383:11
subset 226:8
substantial 100:15
 103:11 130:10 231:10
 300:15 395:11
substantive 29:2
 219:14
succeed 346:12
success 15:13 21:14
 31:13 36:3 85:21
 345:22
successful 19:3 69:21
 262:10 318:18,19
 319:21 320:11 327:13
successfully 22:19

326:1
sudden 54:12 74:8
 205:14 313:15
suddenly 237:5,9
sue 238:20
suffer 364:20
suffice 7:11
sufficient 278:20
sugar 118:8,9,12
 120:19 202:4
suggested 29:4
suggesting 75:17 86:9
 86:16
suggestions 62:12
 194:11 200:13 235:20
suggests 275:16
suit 107:22
suitable 366:22 386:2
suited 257:9,13,16
suits 199:1,4 267:8
sum 386:12
summarized 21:9
summarizes 387:10
 404:3
summary 56:14 339:4,5
 341:12 387:12
sums 366:12
sunflowers 114:10
super 314:20,20,21
supermarket 83:20
supermarkets 69:3
 83:18
supplier 262:3
suppliers 144:20 145:3
 146:12 153:14 158:15
 161:15 178:9,10,11
supplies 187:16
supply 37:3 118:3,7,11
 121:8 125:1,17 130:4
 132:22 133:6,11,17
 134:3 145:1,10 152:9
 152:13,15 153:1,16
 153:22 174:4 175:4,7
 219:19 237:15 257:18
 262:16 264:10 266:19
 268:7 270:11 296:15
 297:6,20,21 301:11
 312:4,6,16
supplying 367:1
support 12:2 26:2
 31:11,13 35:20 55:17
 107:1 127:16 194:3,5
 194:6 199:13 234:13
 275:17 287:8 366:22
 367:15 368:2 372:3
 375:9 388:18 392:11
 392:17 393:8 402:5
 404:19 405:4,6,8

supported 8:4 52:15
 103:11 385:4 399:15
supporters 338:20
 396:6
supporting 180:4
 316:11 403:15
supportive 247:18
suppose 234:1
supposed 375:19
suppress 242:22
Supreme 207:9,11
surcharge 363:14
sure 42:3 53:19 54:4
 59:4 73:2 74:7 83:6
 83:19,21 122:6 125:9
 127:1 161:2 176:15
 176:22 177:6,14
 191:7 196:12 200:14
 203:18 216:8,9
 230:22 232:15 241:17
 246:7,18 247:1 269:2
 301:19 304:6 306:12
 306:13 307:12 315:1
 333:11 349:7 359:2
 377:18 387:2
surface 104:22 105:6
surfaced 344:17
surpassed 149:9
surprised 230:16
 257:11
surprising 257:14
surrounded 163:19
surrounding 6:15
 356:16
survey 35:17 89:14
 168:7,13,14 169:1
 230:10 255:5 262:5
 270:13,17,19 271:18
 289:10 305:22 342:20
 387:22
surveyed 270:20 288:4
surveyor 270:22
surveys 256:2 261:5,9
survival 318:11
survive 107:21 120:3
 318:18 319:1,15
 320:5 323:20 324:7
 324:10 327:10
survived 320:14
survives 375:21
surviving 130:3
susceptible 323:18
suspect 239:14
sustainability 104:12
 104:13 242:14 244:10
sustainable 14:4 30:12
 37:15 40:11 147:3
sustained 371:13

suzukii 313:14
sweet 14:7 118:18
 250:20 284:5,5,8,9
sweeteners 132:11
Switzerland 96:20
Sydney 11:10
syndrome 313:15
synonymous 379:21
synthesis 321:19
synthetic 6:17 219:6
system 11:1 49:6 53:2
 53:6 61:17 62:2 64:15
 67:6 74:2 89:1 105:11
 108:14 129:10 140:7
 140:9 163:21 185:19
 188:19 194:20 199:20
 212:7,20 229:17
 243:4 247:6,8 257:22
 267:22 269:9 270:1
 271:14,22 280:22
 281:19,22 290:17
 303:9 314:3 319:5
 324:12 333:19 348:8
 348:10 351:2 352:6
 352:17 355:19 356:16
 371:2 378:21 388:7,9
 389:7 395:18 396:12
 397:6,15 398:22
 399:20 400:1,3,21
 403:20
systematically 348:14
systems 14:5 57:3
 59:20 65:9,12 66:19
 109:18 117:13 129:3
 156:9,14 161:20
 165:19 171:21,22
 172:2,8,11,13 173:9
 214:11 226:18 246:1
 253:1,5,9,14 278:9
 282:13 288:11 319:8
 319:22 320:19 325:5
 338:5 368:1 370:3
 372:19,22 378:5,7,9
 378:17 388:1 391:17
 397:10

T

T 3:1,1 203:1
table 17:5 50:15 56:7
 90:22 202:1,5,5,8
 257:7,14 258:11,12
 295:14
tables 17:20 255:19
 256:10
tackle 171:13 363:8
tackled 204:20
tackling 204:21
tactic 324:4,4 327:8

- tactics** 318:21 322:18
324:15 325:12,14
327:3,14
- tad** 184:11
- Tadle** 10:9
- tags** 27:20
- tail** 226:9 245:15
- tailored** 291:20
- Taj** 399:10
- take** 5:3,6 6:6 18:2
20:20 22:15 26:14,14
33:19 34:6 39:19 41:4
41:16 46:14 48:21
53:21 57:1 65:2,10
75:13,13,14 77:14,15
77:15 81:21 91:4
93:18 94:2 102:20
104:17 105:12 153:17
162:19 171:13 191:22
197:16 200:11,22
202:14 203:2 228:5
235:14 239:15 243:19
252:14 259:9 262:3
268:21 288:18 290:2
290:3 303:2 315:16
315:20 316:13 334:6
334:17 336:4,9,18
341:2 342:2 354:17
357:19,20 358:2
359:18 375:8 387:14
394:5 405:13
- take-home** 115:14
- takeaway** 257:4
- taken** 4:9 94:4 137:2
140:16 152:2 202:17
333:13 336:8 337:12
363:2,11 376:2
394:15
- takeover** 115:13
- takes** 42:15 135:6 192:9
- talk** 66:11 68:12 79:7
85:19 87:14,17 95:15
107:3 110:5 118:4
126:5 131:13 133:22
135:15,16 137:12
158:3 173:22 179:16
197:7 207:1 210:1
213:15 214:19,20
216:17 242:10 244:10
247:6 259:5,6 268:11
269:7 272:15 277:18
281:16 290:9 291:8
313:19 315:18 316:7
316:12 317:9 328:9
328:18 330:6 332:3
336:16 339:7 348:19
351:1 353:8 360:1
371:19 378:1 387:16
- 406:6,6
- talked** 68:9,20 85:13
117:9,10,10 157:5
213:2 227:14 245:12
247:4 255:15 259:2
270:3 271:6 288:6,21
320:20 323:14 328:11
349:5 350:9 380:1
- talking** 24:15 78:13
81:22 84:16 87:16,19
105:4,9 110:11 117:7
130:11 150:1,2 160:2
186:13 216:13 229:19
249:7 266:10 272:20
279:9 286:16 288:9
289:22 290:6 298:4,5
298:6 304:14 310:16
337:16
- talks** 100:11 157:18
283:2
- tall** 243:3
- target** 37:3,4 150:20
152:17 160:15 170:14
258:17,18 397:14
- targeted** 211:21 306:12
368:12 391:15
- targets** 391:15
- task** 17:14 34:14 43:5
173:22 383:20
- tasked** 379:2
- tasks** 383:20
- taste** 156:17,20 212:18
- tastes** 25:7
- taxed** 25:8
- teach** 117:11 208:16
- teaching** 370:16
- team** 9:7 18:10 23:11
57:10 87:5
- teams** 9:6
- teased** 139:5
- tech** 246:7
- technical** 55:22 120:4
130:18 194:7
- technically** 131:19
- techniques** 123:6
208:17 209:8,10
210:16 281:15 372:17
- technologies** 13:21
31:13 35:21 59:19
63:20 137:21 138:1
215:8 217:21 219:6
247:12 353:8 373:2
381:20
- technology** 36:6 45:20
59:13 102:3,7,8
119:20 136:8,14
137:6,16,19 183:6
197:18 215:18 216:2
- 218:11 219:1 357:1
358:10,14,17,19
370:21
- tell** 6:7 7:10 50:11 69:14
89:7 91:7,13 92:4
160:7 180:19 184:1
189:21 205:12 225:3
225:16 281:7 290:15
297:14,15 300:9
367:9 369:12,16
391:3 396:20
- telling** 90:14 196:19
397:4
- tells** 102:10 194:22
- template** 74:4
- temporal** 251:13,15
259:16
- temptation** 76:12
- ten** 173:3 185:12
191:19 192:15 262:1
272:1 288:7 291:22
294:15 303:18 315:21
320:20 336:3 365:2,6
369:21 389:6 390:21
- ten-minute** 336:4,7
- tend** 126:4 191:14
294:9,10
- tends** 155:22
- tenets** 249:17
- tensions** 51:13
- tenure** 219:15
- term** 38:6 63:7 148:15
207:14 379:11 392:11
- Terminator** 291:15
303:7 305:6
- terms** 41:21,21 53:1
54:2 60:1 61:10 62:1
62:8,16 63:9,10,10
69:15 107:3 143:20
159:4 161:16 162:8
164:12 174:4 209:14
216:14,15 235:20
236:13 258:19 262:19
265:7 266:21 267:13
270:9 271:1,3,19
272:8 276:1 298:2,12
301:6 308:8 323:14
338:22 343:1 354:8
375:4 379:13 382:6
390:7 391:8 392:1
403:7 407:8
- terrible** 191:4 303:5,8
- test** 185:15 188:9,10,13
189:14 190:3,16
191:8,9,11,17 192:6,7
192:11,16 236:21
272:5 301:11 303:15
398:13
- tested** 297:19
- testing** 32:19 74:10
121:7 122:3,3,7,10
123:5 124:13 150:11
182:19 187:20 188:11
192:11,13 196:11
236:20 253:16 261:7
271:5,13 272:2
275:12 297:2,5 301:4
301:5 342:9 375:17
382:6
- tests** 137:15 191:12,14
191:15,20 192:5
271:14,16,17,19
381:19 398:10
- thank** 5:11,13 10:5,7,11
12:2,5,10,15 15:17
16:1 23:1,4,11 24:1,6
24:12 40:20 42:8,11
42:17 57:9,14,16
58:13,15 67:17 69:6
75:20 83:7 92:8,11
95:14 116:10,13,15
138:3,10 141:18
142:21 157:3 159:10
159:15 161:1 167:20
170:7 179:11 180:1
201:8,16,20 202:11
202:16 203:5,9 204:1
204:9 227:20,22
230:3 235:9,11 236:1
240:21 241:19,20
248:12,19,20,21
254:21 255:10,11
263:17,19 280:2,22
293:4 301:14,22
302:9 306:15 309:7
315:4 327:20 334:13
335:21 336:21 346:22
359:11,20 360:16
367:10 369:18 373:20
377:3 383:18 396:8
398:16 402:9 407:18
- Thankfully** 391:10
- thanking** 387:5
- thanks** 24:16 42:12
43:11 69:8 80:19
172:18 176:6 200:4
224:17 239:19 264:3
268:17 280:8 292:19
293:3 315:6 328:1
360:17 366:15 368:20
371:21 376:13 378:14
379:8,9 382:12
386:11 398:17
- theme** 229:14
- themes** 210:6
- theory** 142:12 163:9

165:13,17 227:8,9
therapies 218:3
they'd 152:22 196:12
thing 27:8 44:17 56:22
 59:4 64:19 65:1,3
 67:8 90:15 91:14
 96:16 98:14 101:5,7
 104:20 106:12,13
 144:11 149:22 159:5
 163:2 166:9 168:5
 175:21 177:2 184:7
 196:6 210:18 217:7
 222:11 227:10 242:13
 250:21 251:1 295:3
 303:9 306:18 343:2
 364:10 365:7 380:3
 392:10 394:4 399:16
things 9:1 39:7,20
 43:14 44:2 49:18
 54:13 55:12 56:4
 58:10 60:3,4 63:13
 68:3,12 69:2 71:22
 99:6 102:19 109:14
 111:20 112:17 113:13
 121:9 131:6 133:20
 183:11 185:1 186:11
 191:3,21 193:2 194:9
 199:21 209:15 210:3
 212:5 213:16 215:17
 228:19 229:19 230:14
 231:13 232:20 234:21
 236:7 241:17 243:22
 250:5 251:3 260:13
 265:15 268:1 274:12
 282:14,18 290:4,20
 294:22 297:17 304:18
 313:17,18,20 330:3,4
 334:13 337:9,10
 339:18 344:4 347:18
 351:21 354:1 359:7
 360:11,13 384:18
 386:19 392:8 402:21
 403:8,22 404:16
 405:3
think 7:21 24:17 25:12
 26:12 30:6 34:9 37:10
 39:15 41:10 48:6
 49:11 51:2,5 53:13,19
 54:16,21 57:22 61:7
 61:20 62:6 64:14 65:8
 65:11,12,16 66:21,22
 68:1 69:1 71:11 73:17
 73:18 75:19 80:10,14
 82:21 83:21,22 86:9
 86:12 90:1,2 91:1
 92:13,19 107:9
 112:17 116:10 118:22
 119:12,13,13 120:15

120:22 127:11,17
 133:5 137:3,13
 157:12 159:4 161:17
 164:16 165:15 169:18
 171:19 172:21 173:19
 174:16 175:1,15,21
 177:9 179:2,3 186:4
 187:21 189:7 194:12
 194:15,19,20 195:2,9
 195:11 196:4,5,6,12
 196:15 197:2,16,21
 198:2,14,17,18,21
 199:7,11,12,13,19
 200:12 204:20 206:5
 206:21 207:13 209:8
 210:17 212:13 215:7
 218:6,7 220:8,10
 223:22 225:13 226:2
 226:14,16 227:10,14
 228:17,21 229:1,12
 229:15,18 230:17,19
 231:19 232:8,19
 233:3 234:12 235:4,6
 235:10,19 236:6
 238:11 239:9,20,21
 240:13,17 247:9,19
 257:15 262:5 264:4
 264:18 265:15 266:13
 267:2,3,7,12 268:7
 269:1,11 270:17
 272:8 273:4,8,22
 274:12 276:7,14
 277:2,9 279:5 280:14
 280:20 281:4 283:7
 287:10 292:9 296:22
 297:20 298:10,18
 300:4 301:17 302:2
 304:2,13,22 308:12
 308:18,21 309:5,19
 310:13,14,17 311:18
 314:11,13 315:8
 316:13 328:14 332:15
 334:5 346:6,8 349:15
 353:21 359:1 379:13
 379:21 386:8 388:7
 390:7 391:22 392:4
 393:11,17 394:3
 398:22 399:7 402:1
 404:9 406:8
thinking 47:9 90:17
 138:13 295:6,6,7
 309:12 324:11 328:6
 359:1 361:4 394:11
 403:14 405:20
thinks 82:4
thins 202:14
third 105:1,5 146:18
 154:14 190:16 212:2

230:17 386:5,9
thorough 169:19
thought 43:4,5,22 47:8
 47:14 67:20 72:2
 75:19 76:18 79:14
 110:10 148:4 199:9
 200:22 209:13 210:1
 210:2 230:9 232:13
 236:2 308:2 327:16
thought-provoking
 400:20
thoughtful 13:19 14:13
 42:1
thoughtfulness 360:22
thoughts 69:2 226:21
 231:4 237:13 263:12
 306:13 407:8
thousand 185:12 188:5
 192:16 381:19
thousands 105:6 121:5
 145:2 375:14
three 20:15 23:13 25:21
 31:16 44:19 46:20
 68:2 78:16 97:1 109:7
 149:14 184:5 192:9
 201:22 230:15 240:4
 245:1,5 256:2 262:9
 281:11 283:10 287:12
 323:10 364:7 373:2
 375:15 377:21 380:20
 381:19 384:2
three-D 139:9
three-page 387:9
three-pager 404:2
three-quarters 394:21
three-year 153:18
 265:4
threshold 150:13 266:7
 266:12 269:17
thresholds 252:4,13
 305:7,11,11,12,13,17
 306:3,5,10
thrive 15:10 38:11
Thro 2:6 4:14 361:18
 369:16,18 376:15,21
 377:3
throw 197:18 308:2
 360:2
throwing 361:14
thunder 367:12
THURSDAY 1:5
ticks 90:18
tied 39:6 277:14
ties 370:14
tight 5:4
tile 244:14,14,17,22
time 6:22 7:5,10,21,22
 15:20 16:1 21:20

23:20 25:22 29:19
 30:19 35:3 45:8 46:13
 50:6 65:14 66:3 73:17
 81:5 83:5 90:16,20
 91:22 95:12 104:8
 112:15 113:22 116:6
 117:6 120:8 128:12
 128:19 133:2 137:21
 138:6,12 142:18
 146:17 166:11 176:7
 192:7,8 195:8 196:22
 200:2,8,19 201:6
 205:3 206:7,15 211:1
 214:2 215:12,14
 216:12 219:17,17
 225:8 228:3 241:3
 249:9,12 253:22
 254:9,16 272:2
 284:19 292:21 296:1
 301:14 302:12,20
 304:6 311:7 314:14
 314:22 318:8 319:11
 319:14 322:15 330:16
 332:10,11 333:18
 343:2 347:21 349:11
 349:14,15,18 357:2
 378:2 393:12 396:9
 400:10
timeframe 149:17 167:3
 254:17
timeline 119:18
timely 61:6 246:10,19
times 25:22 53:20 54:3
 80:22 81:2,8 112:14
 162:21 220:17 237:14
 269:16 277:10 324:19
 353:3 357:12 383:10
 384:2,3,15
timing 187:1 237:4
tired 39:10 90:15
tissue 102:2
title 269:9
today 5:4,13,16 6:5
 12:12 14:2 15:11 16:2
 20:17 31:4,19 32:1
 33:12 34:2,10 36:2
 37:16,18 38:14 39:9
 39:12 42:3 43:13
 44:15 57:7 59:16
 64:15 66:22 68:2,11
 70:20 91:8 92:4 95:15
 102:21 104:12 114:2
 116:16 117:20 120:16
 126:11 136:21 160:9
 174:10 182:22 187:1
 187:12 192:17 194:10
 198:19 201:10 210:14
 211:2 212:6,9 216:5

216:14 241:9 246:22
 248:22 288:22 302:19
 310:1 317:8 324:19
 328:9 337:6,8 342:8
 350:9 361:9 367:13
 369:12 370:2,15
 372:2 381:2 386:13
 400:11 403:17
today's 15:22 26:21
 46:6 83:20 123:7
 305:8 306:9 404:11
 406:7
told 157:14 206:14
 254:13
tolerance 183:5 184:10
 184:18,20,21 185:5
 185:21 186:7 190:12
 240:12,17 260:14
 277:6
tolerant 246:14 330:22
tolerate 321:10
Tom 1:11 3:4 16:19
 22:20 80:11 204:12
 227:9,14
tomato 99:19,19 120:3
tomatoes 120:2
tomorrow 20:13,18
 87:14 91:22 94:15
 160:10 288:21 316:15
 342:18 371:19 381:3
 386:18 402:13,22
 403:1,3 404:7,10,13
 405:18 406:11 407:4
 407:10
tool 8:14 215:2 338:13
 345:15 348:5,5
toolbox 215:3
tools 7:6 30:5 31:12
 33:13 49:3 180:22
 247:15 325:8 338:11
 346:6 362:22 370:4
top 146:14 181:6 214:3
 242:21 246:13 319:12
 321:12 323:9 331:4
top-notch 82:13
topic 43:10 117:14,17
 265:1 338:6
topics 28:22 94:16
 317:8 338:10,17
 340:19 344:2
total 115:8 322:4
totally 115:5 122:5
 216:10 222:17
touch 34:7 50:4 251:1
 259:18 335:14
touches 26:4
tough 70:4 93:3 288:11
town 69:12 274:10

towns 103:12
toxicity 122:11,12,15
 125:19
toxin 109:9,12 122:14
 123:13 124:18,19
toxins 126:21
traceability 150:22
track 127:22,22 128:1
 161:4 267:20
tracked 128:5 299:21
tract 125:12
Tracy 400:6
trade 2:1,3 74:18,19,20
 88:10 180:22 246:17
 247:17 263:22 264:8
 266:18 267:22 269:13
 273:18 276:13 280:6
 304:5 306:9 339:17
 347:16,20 349:3
 398:20
traded 151:9 159:2
 174:19 264:12
trades 267:6 305:9
traditionally 70:8
traditionally-bred
 190:10
train 208:16
training 8:6 9:2 160:4
 331:8 333:3 385:2
trait 109:12 124:16
 125:3 127:10 129:9
 129:17 162:1 192:15
 374:17 375:18 378:3
traits 47:21 120:1,20
 121:3,6,9 124:10
 125:5 130:3 132:8,12
 134:2 136:13 185:4,7
 185:9 195:7,8 196:19
 197:20 199:8,9,19
 237:6 244:9 246:11
 246:12,19 248:9
 266:4 269:15 275:14
 372:22 373:15 374:10
 374:15 375:4,6
 381:16,21 396:19
 397:11
trans-Atlantic 74:21
trans-genes 114:2
transactions 145:17
transfer 96:17 108:7
 123:3 124:5 129:8,15
 130:17 142:12 370:21
transferred 97:17 114:3
 142:7
transferring 99:8
transform 352:5
transformation 102:7
 358:18

transgene 373:4
transgenes 109:5
transgenic 244:5
transition 153:18 265:4
transitioned 141:3
transitioning 302:13
translational 7:1,2
transparency 55:19
 144:18 146:10,22
 147:10 148:1,14
 151:5 154:2 155:5,18
 156:18 158:9,15
 218:14 219:3 274:14
transparent 137:14
 154:17 163:13 246:6
transparently 178:2
 218:22
travel 94:7 254:4
treat 218:5
treated 110:18 114:12
 121:22 128:4
treating 330:10
treatment 283:13 319:1
 323:20
treatment's 319:2
treatments 76:7 114:7
 132:14
treats 377:12 406:3
Treaty 385:9
tremendous 41:13
 348:22
trend 86:10 90:4 143:20
 151:3,19,21 152:4
 173:2 178:1,5 179:5
 211:4
trending 147:10 148:14
 148:21
trends 144:2 146:14,16
 152:1 156:1,18 159:3
 166:16 169:21 170:2
 176:3 177:6,7,12
trial 171:22
trials 121:7 124:7,11
 326:5 352:9,22
tribal 386:1
trick 226:2 234:16,19
tried 48:14 127:7
 238:10 265:10 281:22
 363:7,22
trigger 352:6
triggers 53:3
trillion 74:13
tripled 112:15
troubles 191:3
truck 181:22 192:2
 205:14,15
truck's 191:17
truckload 272:13,22

trucks 192:11 376:9
true 62:21 99:16 102:21
 166:12 210:22 304:16
 379:20 389:20
trueness 378:19 379:11
 397:22
Truer 66:1
truly 13:8 28:8
truncate 315:21
trust 29:22 34:13
 295:21
trusts 295:15
trustworthy 239:4
truth 76:15 102:20
 208:21 296:4
try 13:15 54:1 60:12
 66:13 78:4 83:14 93:9
 116:7 123:8,12 125:5
 125:21 133:20 135:17
 137:10 171:14,15
 173:13 174:2 180:20
 213:14 221:3 243:21
 264:4,6,13,22 269:10
 275:5 289:3 291:17
 300:12 303:20 379:17
 379:19 397:17 399:19
trying 7:16 9:21 33:22
 46:14 55:11 72:22
 74:16,17 91:9,10 94:9
 121:17 122:21 124:14
 135:12 136:15,19
 137:14,16 144:11
 165:2 177:1,3 180:4
 184:9 187:16 242:8
 246:18 269:21 281:6
 288:3 289:10 305:15
 308:7 315:9 330:4
 364:14 390:22 393:3
 401:2 405:6
tumors 135:22
Tung 207:19
turn 81:18 95:13 143:5
 180:7 235:17 241:6
 316:16 327:21 336:19
 346:14 359:19 367:8
 376:11 382:10 386:22
 399:9
turnaround 393:5
turned 182:9 242:20
turns 168:19 398:13
tutorial 381:7
TV 82:5
twelve 81:2 268:13
 272:1
twenty 230:14 285:7
twice 25:18
twist 379:22
two 6:7 9:19 15:13

16:11 18:8 25:21 39:6
 47:15 52:10 53:10,21
 63:20 64:1 70:10,14
 78:16 91:16 97:20
 107:2 109:7 114:9,21
 116:21 154:17 159:16
 160:3 162:16 170:20
 172:20 178:20 186:20
 188:21 189:4 192:9
 204:15 205:12 240:4
 260:4 262:4,4 274:14
 275:15 290:20 291:9
 303:3 328:14 336:12
 336:13 338:19 341:16
 346:6 350:21 364:7
 377:14,21 396:9
 401:3
two-day 13:9
two-fold 305:8 347:12
two-thirds 111:21
 394:21
type 7:14 46:20 237:13
 258:9 262:7 324:5
 378:19 379:11,20
 389:21 396:21 397:22
types 31:16 156:10,11
 156:11 236:9 253:9
 269:8 279:8,10,20
 282:2 304:10 313:3
 338:14 368:12 371:4
 378:5,7,11 381:17
typical 364:3
typically 132:7 189:3,15
 352:21
Tze 207:19

U

U.S. 4:3 38:12 49:5,11
 84:9 115:4 126:15
 137:5 139:3 146:4
 149:16 151:21 174:10
 181:10 184:15 194:2
 199:14 208:11 209:16
 263:14 268:21 315:17
 335:13 345:22 348:18
 349:4 352:8 354:7
 371:2,10 380:17
 385:8 392:14
ubiquitous 296:9
UC 128:7
ultimate 234:2
ultimately 30:5 32:3
 33:14 64:22 73:13
 75:8 121:11 158:22
 224:22 234:1,4
 299:21 346:11
unanimous 50:21
unanswered 190:13

214:22
unbelievable 22:1
UNC 11:1
uncertainties 362:18
uncertainty 37:2 44:5
uncomfortable 135:16
uncompensated
 231:16
undefined 157:22
underestimate 273:9
underfunded 388:8
undergirds 394:15
underlying 8:15 340:21
underpinning 276:15
 304:4
underscore 275:2
underscores 26:13
Undersecretary 359:15
 391:11
understand 9:11 23:22
 25:17 44:10,12 50:16
 53:13 56:5 61:17
 63:15 72:9 80:21 89:2
 96:17 97:3 99:9
 121:17 123:12 126:17
 126:18 136:16,20
 189:22 193:6 197:8
 216:4 221:21 224:1
 250:3 256:8 273:5
 275:22 277:12,13
 289:1 294:12 297:8
 299:18 345:10 368:7
understanding 6:1 8:14
 8:19 10:2 42:15 46:11
 47:6 64:16 79:4 82:3
 121:18 122:9 173:10
 190:6 216:3 276:7
 302:18 344:15 393:15
understands 41:18
 87:12,13
understated 309:6
understood 43:4 45:10
 47:8 48:5 54:17
 251:10
undertow 52:19
underway 22:13 94:19
 316:8 402:19 403:10
 404:3,15
undesired 377:9
unfathomable 278:14
unforeseen 215:4
unfortunate 28:14
unfortunately 21:22
 28:7 29:6 200:7 321:1
 327:11
uniform 107:7 108:6
unintended 32:18
 35:18 36:9 89:16

183:4 343:8 372:17
 372:21
Union 150:13
unique 6:19 28:1
 115:18 265:6 327:12
 371:10 392:13
uniquely 392:8
unit 347:7 349:13
United 1:1 16:5 87:11
 96:8 98:15 100:16
 107:18 120:9 136:11
 174:16 175:2,12
 190:8 199:18 206:15
 207:7 213:12 232:7
 234:2,3 246:1 247:3
 263:14 266:17 294:17
 351:18 369:11 383:22
universal 211:5
universities 13:16
 400:18 402:6
university 1:7,15 2:2
 5:16 11:6,9,11,12
 13:18 14:12 95:9
 101:19 159:14 166:6
 186:3 203:5 255:6
 334:21 395:2
unknown 102:13
 299:12
unknowns 252:7
 296:13,15 298:18
unmanageable 345:9
unnecessarily 226:9
unprecedented 64:3
unproductive 223:22
unreasonable 217:4
unregulated 64:4
unrelated 96:18 97:15
unsafe 137:4
unshakeable 17:3
unsustainable 120:14
untreated 286:8 299:20
 311:1,12
unusual 99:15
unwanted 183:3
unwinding 61:14
update 19:18
upgrade 382:2
upheld 73:14
uphill 174:8
upper 84:12
upset 97:19,19
urban 83:20
Urbana 11:6
urge 209:22
urged 385:7
usable 341:11
usage 172:11
USDA 1:12,17,18,20,21

2:2,5,6,7,16 4:6,8,19
 5:21 9:16,18 10:6,7,9
 10:14 12:17 15:21
 17:12 18:13 19:12,21
 20:19 21:18 22:10,14
 23:11 24:11 28:20
 29:4 31:7,10 33:3,12
 34:7,19 35:6 44:22
 45:19 46:5 49:3 54:19
 57:10 59:14,18 60:4
 62:19 72:13 74:2
 85:19 86:3 94:19
 143:17 146:19 153:4
 179:3 195:10 205:12
 206:7,8 219:15 223:9
 223:11 224:18 234:9
 236:14 241:20 274:2
 287:10 292:7 303:13
 313:1 315:16 316:7,8
 316:17 317:14 320:9
 325:9 326:19 327:16
 329:19,20 332:12
 336:14,16 337:11,22
 338:9,17 339:4 342:2
 343:3 346:2,17 347:3
 355:6,9,16 360:10
 361:3 362:8 367:14
 368:13 370:11 371:15
 374:1,2 377:15,17,20
 383:7 385:13,14,20
 399:3 403:6,8 404:6
 404:18
USDA's 4:1,6 18:10
 31:18 33:17 37:15
 241:8 275:9 316:19
 336:17 338:1 340:11
 340:13 341:19 345:20
 361:17 368:4,6
 369:20 405:9
USDA.gov 369:14,15
use 65:6 71:20 76:20
 113:6 124:17,22
 125:3 137:16 138:7
 150:12 161:22 215:18
 217:1 218:22 223:17
 231:15 233:4,5
 234:21 242:11 244:5
 244:8 245:7 247:8,14
 248:9 255:16 260:5
 262:15 278:9,21,22
 279:2 283:8 284:16
 285:21 286:10 288:19
 303:15 311:16 319:17
 320:18 321:3 322:10
 322:15 323:2 325:17
 326:3 329:21 331:12
 332:16 339:15 342:13
 344:14 358:6 364:19

368:1,4 370:21 371:4
395:10 396:12,22
397:15 399:1
useful 96:11 255:17
343:18 362:21 367:2
374:8
user 74:7 289:17
users 191:11 385:16
uses 148:19 276:18
usual 109:6
usually 139:13 144:1
204:15 251:8 330:12
utilization 102:4
utilized 219:8
utilizing 153:13

V

vaccinations 101:12
vagaries 186:22
vagary 297:10
valid 169:18 221:19
validate 178:16
Valley 44:6 292:22
293:1,8 294:4
Valley/CROPP 2:5
valuable 32:9 398:14
value 70:11,19 135:17
153:17 211:17 249:19
250:8,12,13 251:9
252:8 253:13 254:3
271:2 272:21 273:3
331:22 340:22 371:2
value-add 252:22 253:9
268:21 273:6
value-added 249:18
254:1
values 8:13,20 161:10
180:19 197:9 263:2
vanished 384:10,12
variability 109:2
variable 251:22 252:3
318:15 323:19 379:17
variations 229:14
varietals 309:14
varieties 107:17 108:10
110:21,22 146:11
174:14 283:16 286:6
289:16,21 291:17
311:20,20 313:6
368:17 380:16 382:18
385:15
variety 19:3,7 27:16
39:10 87:7 123:6
140:21 142:6,8
168:10 176:13 213:15
286:7,10 291:14
362:16 370:8 377:8
various 19:17 313:3

341:16 344:11 385:18
399:13
vary 262:8
vast 29:6 79:13 121:1,8
161:18 362:9
vastly 105:2 106:15
vector 352:4
vectors 188:20
vegetable 202:7 282:10
286:13,20,22 289:7
vegetables 118:21
155:2 211:20 282:9
vegetarian 202:5
vegetation 317:19
vehicle 345:14
vendors 286:12 367:21
venue 10:6 23:5 350:15
verb 374:13
verge 104:7,7 120:14
verification 146:18
151:20 186:17 224:20
272:6
verified 150:4 161:15
178:12
verify 123:12 127:9
187:17 224:16 308:22
verifying 144:21
versa 311:13
versus 49:19 70:22
214:8,9,9 225:1
246:14 253:11 275:7
282:19,20 331:5
vessels 254:7
veterinary 11:3,5,9
viability 388:22 397:20
viable 30:19 31:15
36:19 390:11
vibrant 43:7
vice 1:8 2:13 10:19,21
21:15 203:13 311:13
vicinity 108:17
video 7:19 296:9
view 9:12 28:7 36:18
63:18 65:15 69:15
75:2,2 96:3 98:11
221:10 340:3 345:20
358:14
viewed 100:4
viewpoints 10:3
views 92:22 212:4
241:10 370:1
vigorous 25:13
villages 103:12
Vilsack 1:11 3:4 12:10
14:19 16:1,19 17:2
22:21 23:1 24:4 41:2
58:4,11 60:7 63:15
64:12 65:21 66:1 67:7

67:10,12,16,19 69:8
75:22 76:11 77:22
79:12,17 80:11 83:4,6
86:8 91:21 92:8
204:12 223:12 224:17
325:2 337:16,19
345:20 370:15 384:17
Vilsack's 227:9
viral 109:22
virtually 71:17 80:7
81:2
virus 120:15 229:5
viruses 97:2 109:11
vis-a-vis 343:20
visibility 271:9
visible 274:22 396:19
vision 194:2 369:20
visitor 156:1
Vitamin 205:17
vitro 123:17,18
VOICE 167:17
voices 9:9
voluntary 247:18,22
275:7 338:15
voting 154:18
vulnerability 85:5,11
86:1,5
vulnerable 84:16,20

W

wag 226:9
wait 116:11 220:10
Wal-Mart 152:17 170:14
212:16 216:19
Wal-Marts 232:4,5
walk 80:4,5 144:3 181:7
269:21
wall 284:19
walls 14:20
want 10:5,7,11 12:1
18:7 20:9,12 23:11,15
24:6,9,12 41:4 43:11
58:13 59:8 61:4,18
64:22 68:2 72:6 73:12
77:6 83:11,15 85:10
85:15,17 86:2 90:19
93:1 94:7 95:19 96:12
113:17,19 133:11
135:18 137:8 139:15
143:21 146:2 147:12
147:13,20 154:7
155:10,16,16 156:3
157:10,17 158:15,22
161:21 163:13 164:19
167:10 169:9 170:13
171:19 172:3,6
173:13 174:9 175:21
176:4,16 179:4,19

181:6,14 183:8,15,19
184:20,21 185:13
188:8,11,12 190:1
194:11,21,22 196:12
198:7,9,10 199:11
200:2,16 201:5,9
203:9 211:3 212:14
219:22 220:2,3,4,15
222:19 223:16 226:8
227:2,10,10,11
230:13,15 233:8
235:13 237:10 239:20
240:4,9,10 247:1
248:6 252:10 255:16
257:22 258:5,12
259:18 260:12 263:2
263:13,15 264:18
265:1 267:18 275:2
277:20 281:15 282:4
282:4 283:13 287:1
288:15 289:4 291:5
292:1,2 293:19
294:14 313:3 314:7
315:13 316:13 317:15
332:5,22 335:14
339:6 357:17 359:2
360:16 372:4 389:2
394:12 406:13,14
wanted 43:1,1 47:21
52:13,14 91:7 138:14
139:17 141:19 152:18
203:5 230:5 231:2,3
233:1 287:16 299:12
328:12 333:10 367:13
369:16
wanting 156:21
wants 17:19 72:7
152:19 180:20 194:13
283:12 362:9
war 100:11,13
warehouse 181:7
warehouses 181:9
warm 407:5
warming 13:18
warn 70:14
warning 70:19 71:5
warp 60:10
Warwick 2:13 10:18
Washington 39:2
208:13 375:16
wasn't 50:17,20 51:11
53:15 54:4,9 89:4
141:2,9 250:8 311:7
watch 70:1 71:18
270:19
watchdog 59:3
watched 44:11
watching 39:9 98:4

188:21
water 25:3 79:5,6
 172:11 181:18 243:3
 243:20 245:22 270:18
 317:20 335:4,11
waterfront 117:22
watermelons 284:4
Waters 335:13
waterway 245:4
wavelengths 198:6
way 1:8 28:9 29:19
 30:22 37:15 38:10
 39:13 40:11 59:6 60:8
 64:10,21 71:1 72:15
 72:21 86:14 90:13
 97:3 102:15 103:17
 106:10 110:1,19
 111:7 114:5,14
 115:13 118:10 119:15
 120:6 128:21 130:19
 131:10 136:19 137:16
 144:13 146:22 153:12
 162:6 164:11,21
 178:3,16 179:7,19
 183:7 187:18 192:20
 193:2,2 208:15
 212:21 217:6 221:22
 222:3 223:14,14
 224:16 226:2,4
 238:12 268:22 272:7
 273:6 276:6 277:3
 281:5 291:7 296:19
 324:14 376:5 380:7
 380:12 388:3 395:7
 397:12 398:13 400:16
 400:20
ways 9:13 29:4 57:3
 96:22 102:1,11 103:4
 111:1,2 116:9 125:20
 128:2 131:21 162:20
 164:3 225:6,6 259:6
 274:6 292:10 302:21
 325:11 343:21 347:19
 353:22 366:18 400:19
we'll 7:20 31:22 34:22
 42:3 76:21 89:17
 92:15 95:10,11
 149:19 180:7 187:12
 201:14 202:14 228:4
 228:6 239:16 245:21
 248:8,15 255:21
 264:5 315:11 316:11
 334:7 336:10 339:15
 346:5 360:3 365:9
 366:10 381:2 387:16
 400:4 403:2 405:17
 405:22 407:17
we're 7:12 8:21 24:17

26:14 28:2 35:16 37:3
 37:18 46:14 49:20
 61:3 66:16 71:16 75:9
 86:21 88:13 89:13
 90:3 92:21 94:13
 95:17 104:12 105:4,9
 106:4,8 112:16 117:8
 120:17 126:12 132:8
 132:13 133:10 135:2
 136:10 144:19 148:13
 150:1,1 153:13
 154:17 156:15,18
 161:17 162:4 164:8
 165:7,8,9,20 166:1
 169:4 173:14 174:14
 175:16 176:16 177:1
 177:21 178:3,14
 183:10 186:13 187:2
 187:3,5,11,15 188:4
 188:12 189:8 191:19
 197:5 198:22 199:20
 207:1 217:18,19
 226:6 229:18 241:10
 241:12 243:9 245:14
 246:6 247:22 248:13
 249:7 250:11 265:4
 266:10 267:7 268:1,5
 268:7,9,22 271:21
 273:22 276:4,5,5,20
 279:7,9,18 280:16,18
 280:20 281:10,15,16
 281:18 283:17 285:13
 286:16 288:3 289:9
 289:13,21 292:10
 294:9 296:11,11,17
 300:8 301:19 304:8,8
 312:21 314:22 315:14
 315:15,20,21 327:12
 329:12,20 330:4
 331:7 334:4,6,12
 341:14 350:21 357:18
 357:19,20 359:2
 360:10 364:5,8
 367:16 376:14 379:10
 382:13,14 392:1
 393:3,4 401:10,15
 402:4 404:6 406:11
 407:4
we've 6:21 32:6 33:13
 34:3 40:5 56:20,22
 57:19 74:14 84:22
 85:5 89:8,9,10 92:13
 98:15 106:17 113:19
 130:14 144:1,8 152:9
 180:13 195:3 199:3
 200:7 201:12 204:7
 214:6 216:9 226:3
 231:20 242:16 245:18

246:16 260:1,1 270:3
 283:1 287:14 289:6
 294:1,11 296:21
 297:15 299:21 311:17
 313:13 320:20 322:20
 330:3 347:17,18,19
 347:20 348:1 350:8
 354:6 356:21 360:11
 360:14 363:2,7,22,22
 364:4,6,10 366:13
 372:1,7 373:1 381:2,5
 382:3,7 383:15
 386:15 387:10 394:15
 400:21
weak 130:16 131:8
 312:12
weakened 129:3
wealthier 66:4
wealthy 66:5
weather 26:11 215:4,6
 242:12 244:1 253:19
 362:16
web 16:10 21:7 136:7
Webinars 357:8,12
website 7:18 93:15
 104:10 369:13,14
Websites 36:19
weed 110:11,16 115:2,3
 243:1,6,7 245:13
 313:15,16 317:3,4,7,9
 317:10 318:14,21
 320:4,8 322:22 323:2
 323:8,18 324:5,5,12
 325:10,12,17 326:7,8
 326:19 327:3,15,18
 328:10 331:6 332:9
 333:16,22
weeds 4:4 19:13 110:6
 113:16,18 114:6,11
 114:18,19 115:9
 197:15 217:2 242:11
 242:16,17 243:1
 245:20 315:19 317:16
 317:18,22 319:4,10
 320:21 321:1,13
 324:6 325:5,21 326:2
 326:14,22 327:4,8
 328:11 333:11,12
 351:18 355:17 359:3
weedy 114:4,5
week 145:18 281:3
weekend 168:2,8
weeks 175:6
weigh 128:3 389:18
weight 128:18 139:6,7
 139:20 140:18,19
 141:10 329:6
welcome 5:15 12:10

16:6 23:2,10 152:21
 203:20 225:18 241:1
 337:5 345:12 373:21
welcoming 3:2 12:3
welfare 348:16
well-received 277:8
went 47:18 48:3,17 49:1
 51:6 82:9 173:2,3
 206:10 249:11 269:11
 289:20 307:10 349:19
 360:22 384:7 396:1
 400:12 404:3
weren't 46:13 281:8
 290:6,21 291:2
Werner 96:20
western 242:1
wheat 106:2,13,13
 126:14 176:14,19
 249:3 323:10
whisker 96:15
white 29:14 99:3 353:6
wide 27:15 362:16
widely 110:16 124:20
wider 34:3
widespread 131:10
 217:15 279:7 352:22
widgets 187:22
wild 106:12,13 109:12
 109:15 112:3,9 114:3
 114:10 115:1 202:10
 379:14
wilder 114:5
willful 388:5
willing 93:5 137:18
 180:17 184:5 188:12
 393:22
willingly 44:7
willingness 38:5 55:9
Willis 2:7 4:12 361:15
 363:4,7
wilt 84:10
wind 322:16
window 290:19
wings 208:14
winner 75:14
winning 30:20
Wisconsin 248:18
 249:2 293:9
wise 335:18
wish 32:7,9 65:7 152:21
 278:16
withdraw 357:4
withdrawing 346:19
 351:4 356:4
withdrawn 357:17
withdrew 60:17
Woleki 4:11
Wolf 41:15

woman 179:22
women 17:19
won 8:11
wonder 166:7
wonderful 23:5 64:11
 106:8
wondering 60:1 138:21
 170:2 174:1 309:14
Woodson 12:12
word 115:6 207:3 221:3
 237:18,20,22 293:5
 314:14 364:11 393:12
words 53:10,20,21 66:1
 86:19 104:14 114:8
 257:21 258:17 292:13
 337:5
work 6:3 7:4,14 8:13
 9:4,5 10:10 15:10
 21:3 23:7,13 26:4
 34:7,11 35:14 41:11
 42:2 45:14,22 46:7,16
 53:6 54:19 55:11
 57:20 69:3 71:18 74:6
 82:6 86:3 109:2
 136:15 148:3,3 151:1
 152:9 174:6 179:1
 180:10 191:13 216:5
 220:3,3,3 225:5
 227:10 236:16,18
 237:5,13 251:15
 260:19 261:6 264:1
 267:17 270:13 275:9
 285:3 287:10 291:7
 311:15,18 316:21
 325:9 327:1 333:18
 333:19 342:1 343:22
 345:11 347:6,6 360:5
 360:9,22 365:16,21
 369:20 371:1 375:12
 383:8,12,14 385:3,14
 385:20 386:20 389:17
 389:19 401:2
workable 252:19
worked 54:16 75:3
 160:2 242:6,13
 246:16 294:15
worker-effects 329:7
working 10:14 12:16
 15:18 17:6,15 21:16
 33:14 52:16 144:19
 151:2 214:13 216:7
 236:17 247:16 249:11
 274:17 279:18 285:16
 296:1 299:18 302:14
 332:11 340:2 361:3
 369:5,9 378:2 383:7
 384:19 401:15 405:17
works 199:16 366:1,6

workshop 1:3,7 5:22
 9:17 10:14 16:7 20:16
 21:7,20 22:6 46:6
 49:8 315:9 317:5
 369:7
world 13:3 15:1 20:5
 24:8 25:1 26:20 29:14
 37:14 40:9 76:22 80:7
 88:1 96:1 99:10 100:5
 101:22 103:22 104:21
 105:2 106:21 111:15
 111:15,22 112:14
 114:19 115:7 116:19
 117:15 123:8,8 149:4
 180:9 182:22 183:21
 191:13 198:4 204:8
 207:3 216:5 226:7
 227:22 232:4 304:17
 392:14 398:2
world's 25:14 105:5
 154:3
worldwide 15:14 103:6
 163:6
worried 126:7,9 131:2
 132:9 192:14,15
 196:20 199:19
worry 106:22 133:1
 307:21
worse 189:7
worth 7:21,22 45:8 49:1
 398:14
worthwhile 387:22
worthy 19:16
Woteki 1:21 24:9 66:2
 204:10 316:7 359:15
 359:20 366:15 367:10
 368:20 371:14,20,21
 373:21 376:12,13
 377:1 378:14 380:1
 382:12 383:18 384:1
 386:11 387:3,7 392:4
 394:14 401:4 402:20
 404:1
Woteki's 391:11
wouldn't 72:20 76:13
 92:3 199:12 238:15
 251:18 257:10
wrap 54:1 277:17
wrestle 12:22 315:9
wrinkles 381:17
writing 103:18 110:8
 278:11
written 205:15
wrong 29:13 100:3,5
 239:11
Wynn 10:12
Wyoming 84:11

X

X 289:22 290:1 321:3,5
 323:7

Y

Y 321:6 323:5
yeah 24:4 67:16 140:13
 140:15 174:7 177:14
 230:5 232:1 238:13
 248:22 302:10 316:4
 335:8 358:6 390:4,16
 390:17 398:19 406:18
year 6:22 7:12 10:21
 14:14 39:6 102:8
 108:19,19 151:2
 152:17 175:18 181:11
 182:4 185:3,3 187:7,9
 189:9 190:19,19
 195:21 220:17 224:18
 237:2 243:7 262:4
 268:1,2,8 271:2 288:9
 290:18 301:7 330:20
 348:22 363:12,15
 364:9 365:1,2 366:9
 366:14 367:6 386:5
 386:10 399:5 401:9
 402:2
year-over-year 178:6
years 11:13 25:11
 29:17 39:3,5 41:12
 55:17 56:20,21 59:14
 60:21 65:3 67:4 68:4
 78:2 90:17 91:16
 97:21 98:16 101:18
 103:9,10,14,16,19,21
 104:2,3 105:8,22
 106:1,5,18 108:22
 117:7 132:4 139:4
 143:15 144:9 149:14
 152:8 153:2 154:6,15
 154:18 160:3 163:15
 165:14 168:17 173:3
 180:14 186:20 188:21
 189:4,9,12 204:5
 212:5,9 213:3 218:18
 224:15 237:21 240:4
 240:4 242:3 244:16
 249:22 255:8 259:21
 261:13 263:22 269:14
 285:7,15 287:12
 290:20 291:9 294:15
 310:2 318:10 320:9
 320:20 321:5 330:15
 331:12 334:4 349:14
 352:21 356:21 364:5
 364:7 369:21 381:6
 388:10 389:6 390:21
 394:20 397:10

yeasts 76:3
YELP 26:22
yesterday 22:1 306:17
 306:19,20 348:17
yield 105:21 113:3
 156:16,21 171:20
 172:4,10 175:14
 242:12 271:3 317:21
yields 77:6 217:1 244:6
 318:7
Yokohama 181:7
York 229:21,21
young 82:1 140:10
 149:1 295:11
younger 148:18,20
 256:16

Z

Zack 11:22
Zea 201:19,20
zero 183:16 184:22
 189:19 308:15
Zilberman 171:1,2,12
 232:19 303:3 393:11
Zimmerman 2:8 3:20
 248:16,20 249:1
zone 253:10,11 267:9
 269:4 273:12
zones 265:11 274:20
 276:5 277:5
zoning 185:17
zucchini 283:4

0

0.9 184:7,16 185:5
 189:4 190:22 192:22
 193:13 197:21 236:22
 238:17,18

1

1 3:2 5:9 150:14 299:4
 305:13 380:12
1.25 299:4
10 149:13 150:9 152:6
 154:12
10,000 103:9,14,15,21
 104:2 151:4 163:15
 181:1
10:25 94:3
100 75:11 104:6 128:11
 180:14 191:1 196:21
 197:3 216:8 221:2
 243:5,9 252:15 400:3
100,000 104:1 105:8
 112:16 145:1
1000 191:18 235:2
 400:3
1070 1:8

11 104:20,21
1101 406:17
115 353:3
116 3:10
12 1:5 80:22 81:3,8
 148:16 191:3 237:10
 244:6
120 181:1
1200 81:9 161:14
13 143:15 286:12
1350 149:16
14 384:4
14,900 378:22 380:6,12
143 3:12
145 149:16
15 65:3 186:8,21 191:22
 334:4
15,000 152:10 243:16
150 67:4 254:17 313:5
1500 150:6 270:20
156 104:13
16 148:19 151:2
17 10:22 270:20
18 17:17 20:17 98:16
 237:10 256:3
180 3:14
1800 293:10
1800s 124:20
1880 106:7
1888 68:1
19 270:21
1900 286:13
1930s 107:11
1960s 110:9
1970 104:11
1970s 103:1 134:12
1972 347:17
1975 69:12 97:21
1977 242:18
1980 143:22 144:7
1980s 128:21 321:21
1983 97:18
1986 121:13
1987 208:15 351:5
1990 206:3
1990s 243:14
1992 119:21
1994 120:2 182:16,18
1995 203:19 243:1
1996 182:18 321:11
1998 206:5
1999 195:21 206:5
19th 165:15

2

2 4:1 182:1 299:4
 305:11 316:18
2.4-D 330:22 331:1,3

2.8 103:9 104:2
20 65:3 78:2 82:16
 104:22 132:4 139:4
 143:16 155:4 212:9
 336:3 364:8 380:10
 380:11 396:1
20-foot 273:1
20,000 114:18 115:6
200 106:1
2000 195:21 206:5
 312:8
2000s 396:1 399:12
2001 203:19
2002 144:9
2003 144:14
2004 11:3
2005 186:4
2008 149:17 346:19
 351:5 355:20 356:13
 357:3
2008-2009 166:9
2009 356:13 392:1
2010 10:20 11:4 151:20
 178:12 391:9 392:1
2011 33:17 128:22
 178:12 275:11
2011-2012 149:8
2012 144:14 149:10
 363:11
2013 28:17 144:15
 149:11 151:6 337:19
 372:11,16 383:10
 384:4 391:9
2014 150:8 383:10
 384:17 391:11,13,16
2015 1:5 106:9 150:9
 391:16
2018 174:3
204 3:16
20th 14:2 71:16
21st 33:18 71:17 360:6
22,000 150:4
23 3:4 232:6
24 94:9
242 3:19
25 65:3 261:19 313:6
2500 313:10
27,000 338:20
27th 356:3
281 286:12

3

3 305:10
3.75 187:2
30 120:15 143:10 212:5
 212:9 356:21 394:3
 398:11
30-year 171:22

30,000 114:20 152:11
 210:5 380:18
300 56:20,21 240:18
 243:7 400:3
300,000 222:8 240:3
 309:3
3000 310:11
30s 112:16
316 4:4
32,000 338:21
336 4:6
34 149:12
340 60:22 276:12 277:3
 278:4
350 149:17
352 4:10
365 151:7
388 4:19

4

4:47 407:21
40 3:6 148:21 212:9
 396:2
40,000 399:4
4160 338:17
426 151:19
45 149:10 366:9 394:3
460 149:18
48 331:5
49 149:4
4th 337:19

5

5 3:2 189:18 195:18
 380:19
50 73:10,15 175:4
 191:18 196:22 263:6
 293:22
50/50 277:1
500 107:17 291:6
500,000 240:18
5000 103:19
54 148:16 154:6
569,000 378:20 380:6
 380:13,19

6

6 380:19
6:00 406:9
60 146:5 149:2 154:12
 268:9
60,000 399:5
60s 95:21
62 364:18
65 90:17

7

7 145:17 278:4

7.2 104:4
70 104:12 118:5 155:4
 191:1 260:15
7000 264:8
75 186:21
76 3:8
77 153:3

8

8:30 1:8
80 118:5 233:1
800 104:5,15
80s 69:13 322:13
82 81:7
88,000 356:12

9

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This is to certify that the foregoing transcript

In the matter of: Stakeholder Workshop on Coexistence

Before: USDA

Date: 03-12-15

Place: Raleigh, NC

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