Appendix D. Acronyms and Glossary

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Acronyms and Glossary

	A
Abiotic	Non-living, environmental factors such as cold, heat, drought, flooding, salinity, toxic substances, and ultraviolet light.
Acute exposure	Single or short-term exposure to a substance.
Acute toxicity studies	Acute toxicity studies are those that study the effects of a single or short-term exposure to a substance.
AIA	Advanced Informed Agreement
a.e.	Acid equivalent; refers to the weight of an herbicidally-active acid.
a.i.	Active ingredient; refers to the weight of an herbicidally-active acid plus its salt.
Agrobacterium tumefaciens	A bacterium that causes crown gall disease in some plants. The bacterium characteristically infects a wound and incorporates a piece of its own DNA into the host plant genome, causing the host cell to grow into a tumor-like structure. This DNA-transfer mechanism is commonly exploited in the genetic engineering of plants.
***Agrobacterium*-mediated transformation**	The process of DNA transfer from *Agrobacterium tumefaciens* to plants, which occurs naturally during crown gall disease and can be used as a method of transformation.
Allelopathic	Effects to reduce the growth of one plant due to chemicals released by another.
Allelochemical	A chemical produced by a plant of one species that has a detrimental effect on plants of other species.
AMPA	Aminomethyl phosphonic acid; byproduct of the degradation of glyphosate.
AMS	Agricultural Marketing Service.
AOSCA	American Organization of Seed Certifying Agencies.
Allergen	Any substance that causes an allergic reaction.
Autotoxicity	Self-destruction of a species through the production of chemicals that

	escape into the environment and directly inhibit the growth of that species.
APHIS	Animal and Plant Health Inspection Service.
ARMS	Agricultural Resources Management Survey.
ASSP	Alfalfa Seed Stewardship Program
	B
Bioaccumulate	To increase in the concentration of a chemical in biological systems over time as compared to the chemical's concentration in the environment.
Biotechnology	Making specific modifications to the genome of an organism using techniques based on molecular biology, such as genetic engineering, gene transfer, DNA typing, and cloning of plants and animals.
BMP	Best Management Practice
BNF	Biotechnology Notification File.
Breeding	The process of sexual reproduction and production of offspring. Plant breeding is an applied science for the development of plants suited for the use of humans, rather than their ability to survive in the wild.
BRS	Biotechnology Regulatory Services (USDA–APHIS).
BSE	Bovine Spongiform Encephalopathy.
Burndown	Application of herbicide to kill weeds and prepare field for seeding.
	C
CAS	Chemical Abstracts Service. CAS numbers are unique numerical identifiers for chemical elements, compounds, polymers, biological sequences, mixtures and alloys.
CAST	Council for Agricultural Science and Technology
CCD	See Colony Collapse Disorder.
CDMS	Crop Data Management System.

CEQ	Council on Environmental Quality.
Certified seed	Seed produced to specific standards to assure purity and freedom from weed seeds and seedborne pathogens, which is used for commercial production of the crop.
CFR	Code of Federal Regulations (U.S.).
Chlorination	A water purification and disinfection process.
Chronic exposure	Exposure to a substance over a large percentage of the subject's life span.
Chronic toxicity studies	Chronic studies are those that study the effects of exposure on a large percentage of a subject's life span, such as daily exposure received by workers.
Colony Collapse Disorder (CCD)	Phenomenon in which worker bees from a beehive or European honey bee colony abruptly disappear.
Companion crop	A crop different than the primary crop for harvest grown in close physical proximity to the primary crop, on the theory that they assist each other in nutrient uptake, pest control, pollination, and other factors necessary to increasing crop productivity.
Conspecific	Belonging to the same species.
Conservation tillage	A broad range of soil tillage systems that leave crop residue on the soil surface, substantially reducing the effects of soil erosion from wind and water.
CP4	Strain of *Agrobacterium.*
CP4-EPSPS	Bacterial gene (from *Agrobacterium* sp. strain CP4), responsible for the production of 5-enolpyruvylshikimate-3-phosphate synthase (CP4-EPSPS) that has been inserted into the alfalfa genome to create GT alfalfa.
Cross-pollination	Occurs when pollen is delivered to a flower from a different plant.
CRP	USDA's Conservation Reserve Program.
	D
DEIS	Draft Environmental Impact Statement.

Deoxyribonucleic acid (DNA)	A nucleic acid that carries the genetic information of a cell. The structure of DNA is two long chains, consisting of chemical building blocks called 'nucleotides,' twisted into a double helix. The order of nucleotides determines hereditary characteristics.
DNA	See Deoxyribonucleic Acid.
Donor	An organism that provides a gene or gene fragment used in the genetic transformation of another organism, called the "recipient."
Dormant variety	Varieties of alfalfa that go dormant in the fall, with reduced growth in response to low temperatures and shorter days.
Dryland seed	Alfalfa seed produced in areas that receive little rainfall.
	E
EA	Environmental Assessment.
EIS	Environmental Impact Statement.
EIQ	Environmental Impact Quotient.
EO	Executive Order
EPA	U.S. Environmental Protection Agency.
EPSPS	An enzyme; 5-enolpyruvylshikimate-3-phosphate synthase.
EPTC	Eptam (herbicide)
ESA	Endangered Species Act.
EU	European Union
EUP	End Use Product.
Event	See Transformation Event.
Expression	The means by which a gene's information stored in DNA (or RNA in some viruses) is turned into biochemical information such as RNA or protein.

	F
FAS	Foreign Agricultural Service.
FDA	Food and Drug Administration.
Feral	An animal or plant that has escaped from domestication and returned, partly or wholly, to a wild state.
FFDCA	Federal Food, Drug, and Cosmetic Act.
FFP	Food, feed, or processing
FGI	Forage Genetics International.
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act.
FONSI	Finding of no significant impact
Foundation seed	Seed of a particular plant variety that is produced from breeder seed and is then planted to produce certified seed used for commercial production. (See Breeder Seed and Certified Seed.)
FR	Federal Register
	G
GE	See Genetically Engineered.
Gene	The basic unit of heredity transmitted from generation to generation during sexual or asexual reproduction; an ordered sequence of nucleotide bases comprising a segment of DNA. A gene contains the sequence of DNA that encodes an individual RNA or protein.
Gene flow	The spread of genes from one population to another by the movement of individuals, pollen, seeds, or spores.
Gene insertion	The incorporation of one or more copies of a gene into a chromosome.
Gene product	A RNA or a protein (e.g. an enzyme), the production of which is directed by the corresponding gene.

Genetic engineering	Genetic engineering refers to the process in which one or more genes and other genetic elements from one or more organism(s) are inserted into the genetic material of a second organism using recombinant DNA techniques.
Genetically engineered (GE)	Modified in genotype and, hence, phenotype using recombinant DNA techniques.
GE organism	Genetically engineered organisms. (See Genetically Engineered.)
GE plant	Genetically engineered plant. (See Genetically Engineered.)
GENEEC	Generic Estimated Exposure Concentration.
Genome	All of the hereditary material in a cell including DNA present in the cell nucleus, as well as in other locations such as plant chloroplasts and mitochondria.
Genotype	The total genetic makeup that an individual receives from its parents.
GI	Gastrointestinal
GIS	Geographic information system.
GMO	Genetically modified organism
GPS	Global positioning system
GRAS	Generally recognized as safe.
GT	Glyphosate tolerant.
	H
Haylage	Alfalfa baled at a higher moisture content than dry hay.
Herbicide	A chemical that kills plants.
Herbicide resistance	The ability of a plant to remain relatively unaffected by the application of what would otherwise be a highly damaging dose of an herbicide.
Human environment	According to the Council on Environmental Quality, the term human environment "shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment." 40 CFR § 1508.14

Hybrid	The offspring of two genetically dissimilar organisms.
Hybridization	When two species interbreed to form hybrid offspring.
	I
Interfertile	Two plants or groups of plants capable of interbreeding and producing offspring.
Interseed	Seeding a crop after a crop has already been established.
Interspecific	Arising or occurring between species.
Intraspecific	Arising or occurring within the same species.
Introgression	The introduction of genes from one species into the gene pool of another via sexual crossing. The process begins with hybridization between the two species, followed by repeated backcrossing to one of the parent species.
IPA	Isopropylamine.
IPCC	Intergovernmental Panel on Climate Change.
Isopropylamine	An organic amine. Used in glyphosate herbicides.
	K
kg	Kilogram.
	L
LMO	Living modified organism
LOC	Level of concern.
	M
Meristem	A tissue in plants consisting of undifferentiated cells (meristematic cells) and found in zones of the plant where growth can take place - the roots and shoots.

Microorganism	An organism that is microscopic (too small to be seen by the human eye).
MJD	Multi-jurisdictional Database.
mg	Milligram.
MOU	Memorandum of Understanding.
MTA	Monsanto Technology/Stewardship Agreement
Multiparous	Animals that have given birth more than two or more times.
	N
NABI	North American Biotechnology Initiative
NAFA	National Alfalfa and Forage Alliance.
NAPPO	North American Plant Protection Organization
NASS	National Agricultural Statistics Service.
NEPA	The National Environmental Policy Act of 1969 and subsequent amendments.
NGO	Non-governmental organization
NOI	Notice of Intent.
Non-dormant varieties	Alfalfa varieties that grow through the winter.
Nontarget organism	Organisms that are not the target of a pesticide.
NOP	National Organic Program.
NRC	National Research Council
NRCS	Natural Resources Conservation Service.
	O
OMRI	Organic Materials Review Institute.

OSTP	Office of Science and Technology Policy.
Outcrossing	The tendency of a plant species to produce offspring that result from the mating of two different individual plants. (See Self-pollinated.)
Ozonation	A water purification and disinfection process.
	P
Perennial	Perennials are plant species that live more than two years. They may die in the winter, but grow back from their root-stock the following spring.
Permits	An application to BRS for the introduction of GE organisms that pose a plant pest risk, including plants, insects, or microbes.
Pesticide	A chemical that kills pests. These chemicals include herbicides and insecticides.
Plant pest	Any living stage of any of the following that can directly or indirectly injure, cause damage to, or cause disease in any plant or plant product: protozoan, nonhuman animal, parasitic plant, bacterium, fungus, virus or viroid, infectious agent or other pathogen, or any article similar to or allied with any of the articles specified in the preceding subparagraphs. (7 U.S.C. 7702(14)).
PNW	Pacific Northwest.
POEA	Polyethoxylated tallowamine; a surfactant that may be added to the herbicide formulations to increase leaf penetration.
Post-emergent	Used or occurring in the stage between the emergence of a seedling and the maturity of the crop plant.
PPA	Plant Protection Act.
Pre-plant	Occurring or used before planting a crop.
Pre-emergent	Used or occurring before emergence of seedlings above the ground.
	R
Recombinant DNA	DNA, including DNA from different organisms, that has been cut apart and recombined using enzymes.

RED	Reregistration Eligibility Decision.
Regulated article	Subject to APHIS regulation under 7 CFR part 340.
RfD	Reference Dose.
Risk assessment	A scientifically based process consisting of the following steps: (i) hazard identification; (ii) hazard characterization; (iii) exposure assessment; and (iv) risk characterization.
Rotation	In crop production, the cycle of crops grown in successive years in the same field.
RQ	Risk quotient.
	S
Secondary seedling	Seedlings that are not planted directly by the farmer but rather sprout unintentionally.
Seedbank	Natural storage of seeds, often dormant, within the soil.
Self-pollinate	The tendency of a plant species to produce offspring that result from a flower pollinating itself. (See Outcrossing.)
Shikimate pathway	Biochemical pathway in plants that produces aromatic amino acids.
Soil tilth	A measure of the health of soil. Good tilth is a term referring to soil that has the proper structure and nutrients to grow healthy crops.
Subchronic toxicity studies	Subchronic toxicity studies are those that study the effects on a small percentage of a subject's life span.
	T
T&E	Threatened and Endangered Species.
Trait	A characteristic of an organism that manifests itself in the phenotype. Traits may be the result of a single gene or may be polygenic, resulting from the simultaneous expression of more than one gene.
Transformation	The uptake and integration of DNA in a cell's genome, in which the introduced DNA is intended to change the phenotype of the recipient organism in a predictable manner.

Transgene	A foreign gene that is inserted into the genome of a cell via recombinant DNA techniques.
TSCA	Toxic Substances Control Act.
TUG	Monsanto Technology User Guide
	U
U.S.	United States
U.S.C.	United States Code
U.S.D.A.	United States Department of Agriculture
USDA-ERS	United States Department of Agriculture – Economic Research Service
U.S. DHHS	United States Department of Health and Human Services
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
	V
Vector	The agent, such as a plasmid, used by researchers to carry new genes into cells.
Volunteer	Plants resulting from crop seed that escapes harvest and remains in the field until subsequent seasons, where it germinates along with the succeeding crop.
	W
Weediness	The ability of a plant to colonize a disturbed habitat and compete with cultivated species.
Winterhardy	Those plants that are able to grow during the winter, or at least remain healthy and dormant.

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