



United States Department of Agriculture

Plant Protection Act Section 7721 Fiscal Year 2021 Spending Plan

Plant Pest and Disease Management and
Disaster Prevention Program

January 2021

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Summary

The U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) is allocating \$70.725 million to support 383 projects under the Plant Protection Act's Section 7721 (PPA 7721) to strengthen the nation's infrastructure for pest detection and surveillance, identification, threat mitigation, and safeguard the nursery production system. This amount includes \$63.225 million to fund 354 projects for the Plant Pest and Disease Management and Disaster Prevention Program (PPDMDPP). This amount includes direct program costs. Approximately \$14 million of the PPDMDPP funding will be reserved for responding to pest and plant health emergencies throughout the year. Selected projects will be carried out by State and Federal agencies, Tribal nations, nongovernmental organizations, and private entities in 49 states, Guam, Puerto Rico and Washington, D.C. By working with these collaborators, USDA will leverage and extend its ability to protect, detect, and respond to plant pests and diseases at local and regional levels.

Since 2009, USDA has supported nearly 4,400 projects and provided nearly to \$670 million in funding. These projects have played a significant role in our efforts to protect American agriculture and educate the public about the threat posed by invasive species. The PPA 7721 received nearly 850 submissions requesting over \$102 million in funding, during the six-week open period last summer. USDA is funding approximately 44 percent of the projects suggested. USDA appreciates all the suggestions received and recognizes the great interest in carrying out work that helps protect U.S. agriculture and the environment from invasive plant pests and pathogens. We encourage all cooperators to submit project suggestions for PPA 7721 funding in FY 2022 and beyond. We thank all applicants for their interest in the PPA 7721 funding.

Information for Cooperators

Congratulations on receiving funding approval for your project suggestion under the PPDMDPP! In this FY2021 Spending Plan, you will find our funding level by the project submission's title and state listed on the application. If your project is national in scope, you can view your funding level by searching for project's title under the 'National' section. Note: Sub-cooperators, please contact the main project applicant to determine if you were approved for funding.

As a next step, USDA will assign the Agency Authorized Departmental Officer's Designated Representative (ADODR) to each project to guide the cooperative agreement process. The ADODR will contact you in the coming weeks to collaboratively work on the project work plan and financial plan. Work plans and financial plans must be delivered to ADODRs no later than April 1, 2021.

In the meantime, if you have not had a previous APHIS cooperative agreement, please obtain an ezFedGrants account. All APHIS cooperative agreements are required to be processed and completed using the ezFedGrants system. PPA 7721 funding recipients must have an eAuthentication (eAuth) account with Level 2 access to use the system. For additional information, please reference the ezFedGrants user guide or visit the USDA's ezFedGrants website.

Funding by Goal Area

Funding by Goal Area		
Goal	Goal Area Description	Funding Level
1A	Enhance Plant Pest/Disease Analysis	\$2,087,871
1S	Enhance Plant Pest/Disease Survey	\$14,000,000
2	Target Domestic Inspection Activities at Vulnerable Points in the Safeguarding Continuum	\$6,249,616
3	Pest Identification and Detection Technology Enhancement	\$6,250,000
4	Safeguard Nursery Production	\$1,999,878
5	Outreach and Education	\$3,800,000
6	Enhance Mitigation Capabilities	\$14,108,444

Note: Additional funding includes Rapid Response and direct costs (\$14,729,191)

Funding by State

Alabama				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1172	Solanaceous Commodity Survey	State Government	\$20,000
1S	1S.1189	Phytophthora ramorum Survey	State Government	\$20,000
1S	1S.1231	Oak Commodity Survey	State Government	\$20,000
TOTAL				\$60,000

Alaska				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0990	AKF2021 Defoliating Moth Survey	State Government	\$60,000
1S	1S.1276	Pathway(s) of Phytoplasma Introduction to Alaska	Academia	\$50,000
5	5.0868	First Detector Training and Engagement in Alaska	Academia	\$40,840
TOTAL				\$150,840

Arizona				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0696	Nursery and Retail Plants Pest Survey	State Government	\$50,000
3	3.1238	Molecular Detection of Global Tomato Yellow Leaf Curl Virus in Plants and Seeds	Academia	\$124,450
3	3.1277	Morphological and Molecular Identification of Weevil Pests on Avocado	Academia	\$84,744
6	6.0814	Sonic Weaponry for Managing Rangeland Grasshoppers and Mormon Crickets	APHIS	\$113,551
6	6.0825	Developing Smart Molecular Insecticide (RNAi-based) Control Method Targeting Mormon Crickets	APHIS	\$197,807
TOTAL				\$570,552

Arkansas				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1233	Phytophthora ramorum Nursery	State Government	\$15,000
4	4.1249	Development of Diagnostics for Three New Blueberry Viruses	Academia	\$110,695
5	5.1242	Forest Pest Outreach Project	State Government	\$31,491
TOTAL				\$157,186

California				
Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.1065	Harnessing Non-regulatory Pest Reporting for Rapid Targeted Responses to Invasive Pest Incursions	Academia	\$173,014
1A	1A.1084	NPDN Analysis – Identifying Diagnostic Capacity by Network Analysis of Inter-state Sample Traffic	Academia	\$54,013
1S	1S.0913	Invasive Fruit Fly Survey	State Government	\$4,575,000
1S	1S.0929	Asian Defoliator Moth Survey	State Government	\$400,000
1S	1S.1175	Stone Fruit Commodity Survey	State Government	\$300,000
1S	1S.1192	Grape Commodity Survey	State Government	\$150,000
1S	1S.1271	Citrus Commodity Survey	State Government	\$225,000
2	2.0935	California Agriculture Detector Dog Team Program	State Government	\$4,000,000

2	2.1278	Differential Phase Contrast X-ray Imaging for Detection of Pests in Plants	Academia	\$156,750
3	3.0713	Targeted Identification of Pheromones and Related Attractants for Invasive Cerambycid Beetles	Academia	\$209,814
3	3.0879	Diversity of Quarantine Significant Hornets – Invasive Hornet Identification	APHIS	\$102,040
3	3.1044	Tools for the Identification and Detection of Graminicolous Downy Mildews Including Peronosclerospora	Non-APHIS Federal	\$391,699
3	3.1272	Increase Identification Capacity and Strengthen Detection Technology for Broomrape of Regulatory Concern	State Government	\$126,078
4	4.0703	Develop and Harmonize a Voluntary Rubus Nursery Certification Program Based on Diagnostic Testing	State Government	\$99,353
4	4.1018	National Ornamentals Research Site at Dominican University	Academia	\$375,000
4	4.1077	Potential for Using Sterile Insect Technique, Mating Disruption and Other Tools to Eradicate Box Tree Moth	APHIS	\$285,720
4	6.0778	Development and Evaluation of Navel Orangeworm for Sterile Insect Release	Academia	\$246,315
6	6.0863	Emergency Plant Health Response Teams	State Government	\$2,000,000
6	6.0896	Biological Control to Bagrada Bug	APHIS	\$215,122
6	6.1009	Postharvest Treatments for Spotted Lanternfly	Non-APHIS Federal	\$111,132
6	6.1070	Eliminating Transmission of Xylella Fastidiosa by the Glassy-winged Sharpshooter Using CRISPR	Academia	\$102,839
TOTAL				\$14,298,889

Colorado				
Goal	Project #	Title	Cooperator Type	Funding Level
3	3.0693	Curation of Insects from PPQ and State Cooperative Pest Surveys	Academia	\$10,938
3	3.0866	Molecular Research to Support the Asian Giant Hornet Response	Academia	\$211,081
3	3.0877	Diagnostic Tools to Identify Invasive Tortricidae that Threaten U.S. Agriculture	APHIS	\$220,753
3	3.0942	Identification Resources for Plusiinae Pests	APHIS	\$117,113
5	5.1195	Outreach and Training to Tribes	Tribal Nation	\$36,552
TOTAL				\$596,437

Connecticut				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1015	Vegetable Crops Pest Survey	State Government	\$25,000
5	5.0899	Wasps Watchers – Cerckeris Biosurveillance	State Government	\$18,504
6	6.0946	Spotted Lanternfly Phenology on Different Hosts and Temperatures to Enhance Mitigation and Response	Non-APHIS Federal	\$60,827
TOTAL				\$104,331

District of Columbia				
Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.1096	Improving Predictive Modeling and Surveillance Allocation with the Cost-Effective Surveillance Allocation Tool 2.0	Non-Profit	\$124,816
TOTAL				\$124,816

Delaware				
Goal	Project #	Title	Cooperator Type	Funding Level
6	6.0715	Spotted Lanternfly Survey and Control	State Government	\$426,506
6	6.0837	Biological Control of the Asian Longhorned Beetle	Non-APHIS Federal	\$90,443
6	6.0885	Biocontrol of Invasive Emerald Ash Borer to Protect North American Ash Industry and Forests	Non-APHIS Federal	\$177,360
6	6.1013	Determining the Distribution and Natural Enemy Complex of the Roseau Cane Scale in Asia	Non-APHIS Federal	\$302,909
6	6.1181	Optimizing Trissolcus japonicus Releases for Brown Marmorated Stink Bug Biocontrol	Non-APHIS Federal	\$123,255
TOTAL				\$1,120,473

Florida				
Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.0864	Developing the OPEP Risk Assessment Model for Wood Borers	Academia	\$67,043
1A	1A.1179	A Smart Surveillance and Mitigation Platform	Academia	\$98,000
1S	1S.0671	Survey for Tomato Leafminer, Old World Bollworm, and Pest of Tomato	State Government	\$145,000

1S	1S.0824	Fruit Fly Detection	State Government	\$1,000,000
2	2.1059	Identification of Giant African Snail Odors to Aid Detector Dog Training	APHIS	\$119,118
3	3.0900	Target-SNAP Development of a High Priority Pathogen Surveillance System for Southern Pines	Academia	\$92,314
4	4.0921	Monitoring Tools and Chemical Control of Hibiscus Bud Weevil	Academia	\$53,425
5	5.1038	Florida First Detector	Academia	\$45,373
6	6.0777	Search for and Development of Classical Biological Control of Australian Pine	Non-APHIS Federal	\$157,209
6	6.0794	Establishment and Evaluation of Brazilian Peppertree Biological Control	Non-APHIS Federal	\$453,757
6	6.0931	Development of Emergency Detection, Monitoring, and Management Strategies for the Red Palm Weevil	Academia	\$115,091
6	6.0984	Biological Control of Cactus Moth	State Government	\$175,659
6	6.1119	Identification and Mitigation of Hemp Acarine Pests	Academia	\$99,373
6	6.1168	Registration of Verticillium Nonalfalae to Control Tree-of-Heaven	Academia	\$261,293
6	6.1171	Application of Novel and Effective Oviposition Deterrents for Bactrocera and Other Invasive Fruit Flies	APHIS	\$160,972
6	6.1177	Phytosanitary Treatment of Fruit Using Steam in Vacuumed Chamber	Academia	\$110,000
6	6.1254	Lychee Mite Eradication Effort	State Government	\$79,801
6	6.1256	Mitigation of Lychee Erinose Mite	Academia	\$94,699
TOTAL				\$3,328,127

Georgia				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0890	Survey of Cucumber Green Mottle Mosaic Virus in Cucurbit Crops	Academia	\$20,000
1S	1S.1006	Small Fruits and Berries, Berry Pest Survey	State Government	\$15,000
1S	1S.1019	Field Crop Pest Survey	State Government	\$30,000
1S	1S.1034	Forest Trees and Shrubs, Forest Pest Survey	State Government	\$35,000
5	5.0850	First Detector Network	Academia	\$38,016
TOTAL				\$138,016

Guam				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0685	Survey for Ralstonia Solanacearum Race 3 Biovar 2 and Tuta Absoluta	Academia	\$38,000
TOTAL				\$38,000

Hawaii				
Goal	Project #	Title	Cooperator Type	Funding Level
4	4.0753	Best Management Practices Program for Plant Quarantine Security of Hawaii's Tropical Flowers and Foliage	Academia	\$128,635
5	5.1274	PCSU Nursery Outreach: Expanding the Pono Endorsed Nursery Program	Academia	\$96,155
TOTAL				\$224,790

Idaho				
Goal	Project #	Title	Cooperator Type	Funding Level
3	3.1203	Detection and Biology of the Emergent and Invasive Pest Species Rathayibacter and Anguinid Nematodes in the Western United States	Academia	\$152,610
6	6.0694	South American PCN Genetic Diversity	Academia	\$203,987
6	6.0741	Protecting the U.S. Potato Industry Against Invasive Viroid Pathogens Impacting Trade	Academia	\$105,159
6	6.0829	PCN Immunity	Academia	\$860,632
6	6.1202	Nez Perce Tribe Bio-control Project Noxious/Invasive Weed Survey, Mitigation & Rapid Response	Tribal Nation	250,000
TOTAL				\$1,572,388

Illinois				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1144	Asian Defoliator Survey	State Government	\$40,000
1S	1S.1149	Agricultural Pest Pathways Survey	State Government	\$57,000
5	5.0767	Forest Pest Outreach	Non-Profit	\$62,372
TOTAL				\$159,372

Indiana				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0729	Specialty Crops Survey	State Government	\$15,000
1S	1S.0791	Invasive Wood Borer/Bark Beetle Survey	State Government	\$60,000
4	4.1151	Nursery Inspection Database Version 2.0 for the Central Plant Board	Academia	\$69,414
5	5.0749	Forest Pest Outreach and Survey Project	State Government	\$65,755
TOTAL				\$210,169

Iowa				
Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.1055	Implementation Support for the U.S. Regulatory Framework for Seed Health	Academia	\$186,826
1S	1S.0705	Walnut Twig Beetle/Thousand Canker Disease Survey	State Government	\$10,000
TOTAL				\$196,826

Kansas				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0666	Forest Trees and Shrubs, Agroforestry Pest Survey	State Government	\$10,000
1S	1S.0668	Nursery and Retail Plants Pest Survey	State Government	\$12,000
TOTAL				\$22,000

Kentucky				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0677	Grape Survey	Academia	\$21,000
1S	1S.0708	Orchard Commodity Survey	Academia	\$20,000
1S	1S.0709	Solanaceous Commodity Survey	Academia	\$29,000
1S	1S.0710	Asian Defoliator Survey	Academia	\$15,000
1S	1S.0714	Phytophthora ramorum Nursery Survey	Academia	\$20,000
5	5.0716	Invasive Pest Outreach: Focus Firewood	Academia	\$12,152
6	6.0911	Japanese Beetle Control Near Airports and Cargo Transportation Facilities	Academia	\$99,769
TOTAL				\$216,921

Louisiana				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0672	Sudden Oak Death Survey	State Government	\$20,000
1S	1S.0739	Citrus Commodity Survey	State Government	\$13,000
1S	1S.0740	Solanaceous Commodity Survey	State Government	\$17,000
TOTAL				\$50,000

Maine				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0787	Cyst Nematode Survey	State Government	\$30,000
1S	1S.0802	Mollusk Survey	State Government	\$12,219
1S	1S.0804	Vegetable Crop Pest Survey	State Government	\$15,000
1S	1S.0805	Grape Commodity Survey	State Government	\$8,110
1S	1S.0916	Invasive Woodborer and Bark Beetle Survey	State Government	\$35,000
5	5.0869	Outreach and Education to Protect Forests from Invasive Plants	State Government	\$22,860
5	5.0967	Tribes in Maine Invasive Species Project	Tribal Nation	\$76,224
5	5.1199	Invasive Forest Pest Outreach and Education	Non-Profit	\$34,022
5	5.1258	Firewood Outreach Campaign	State Government	\$16,641
TOTAL				\$250,076

Maryland				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1026	Phytophthora ramorum Nursery Survey	State Government	\$20,000
1S	1S.1128	Asian Defoliator Survey	State Government	\$25,000
1S	1S.1146	Walnut Twig Beetle/Thousand Cankers Disease Survey	State Government	\$14,000
1S	1S.1148	Oak Commodity Survey	State Government	\$13,500
3	3.0786	Validation of a Rapid, High Throughput Screening Assay for Phytophthora ramorum Using Isothermal Recombinase Polymerase	Non-APHIS Federal	\$158,624
3	3.1260	Enhancement of Identification Tools for Common Fungal Port Interceptions	Non-APHIS Federal	\$108,762
3	3.1269	Analysis of Virus Prevalence in Varroa Mites: Optimizing Sample Pooling Strategy and Documenting Variation in U.S. Honey	Non-Profit	\$149,407

4	4.1097	Inter-laboratory Validation and Standardization of High Throughput Sequencing for Detection of Regulated Pathogens on Specialty Crops	APHIS	\$129,210
6	6.1023	Synergies of Biocontrol and Systemic Insecticides to Protect Ash from Emerald Ash Borer	Academia	\$173,937
TOTAL				\$792,440

Massachusetts				
Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.0758	Risk Characterization of Lymantria xyliina and L. Mathura Through Marine Translocation	APHIS	\$129,800
1S	1S.1240	Orchard Commodity Survey	State Government	\$25,000
1S	1S.1266	Phytophthora ramorum Nursery Survey	State Government	\$20,000
3	3.0711	Developing Traps for the Spotted Lanternfly	APHIS	\$128,840
3	3.0712	Developing Survey Tools for Agrilus Biguttatus and Other European Woodborers	Foreign	\$71,000
3	3.0757	Asian Giant Hornet Lure Development	APHIS	\$100,000
3	3.0762	Studies of Queensland Longhorn Beetle to Monitor and Control its Spread in Hawaii	APHIS	\$142,673
3	3.0764	Lure and Color Trap Development for Monitoring of Citrus Longhorned Beetle Anaplophora Chinenis	Academia	\$84,127
3	3.0788	Development of Droplet Digital PCR for Khapra Beetle	Academia	\$60,842
3	3.0789	Identification of an Antennally Active Component of Sirex Noctilio Sex Pheromone	APHIS	\$28,030
3	3.0792	Attraction and Detection of Spotted Lanternfly	Academia	\$313,418
5	5.0751	Forest and Agricultural Pest Outreach	State Government	\$55,876
5	5.1068	Asian Longhorned Beetle Outreach Campaign	State Government	\$130,965
6	6.0779	Attract-and-Kill to Monitor and Manage the Khapra Beetle	APHIS	\$153,659
6	6.0978	Biological Control of the Spotted Lanternfly	State Government	\$326,884
6	6.1156	Evaluating Persistence of Imidacloprid Applied with Different Methods for HWA Control with ELISA and LC/MS	APHIS	\$106,328
6	6.1180	Facilitating Spread of the Microsporidian Pathogen, Ovavesicula Popillae, for Long-term Suppression of Japanese Beetle	Academia	\$162,562
6	6.1205	Identifying Effective Treatments for Spotted Lanternfly Control	APHIS	\$74,240
TOTAL				\$2,114,244

Michigan				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0770	Potato Cyst Nematode Survey	State Government	\$16,000

1S	1S.0977	Phytophthora ramorum Survey	State Government	\$20,000
1S	1S.1125	Forest Pest Survey	State Government	\$50,000
1S	1S.1178	Invasive Tortricidae Survey	State Government	\$64,000
3	3.0733	Enhancement of Xyleborine Ambrosia Beetle Identification Tools	Academia	\$37,812
TOTAL				\$187,812

Minnesota				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0750	Cyst Nematode Survey	State Government	\$54,000
1S	1S.0752	Forest Trees and Shrubs Pest Survey	State Government	\$80,000
1S	1S.0790	Vegetable Crops Pest Survey	State Government	\$110,000
5	5.0755	Invasive Pest Outreach and First Detector	State Government	\$87,019
5	5.0888	Don't Pack a Pest Campaign for Academic Travelers – Phase II	Academia	\$52,514
TOTAL				\$383,533

Mississippi				
Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.1221	Quantifying Drivers of Spread for Laurel Wilt Disease	Academia	\$59,000
1S	1S.0756	Invasive Wood Borer/Bark Beetle Survey	State Government	\$15,000
1S	1S.0759	Pine Commodity Survey	State Government	\$29,000
1S	1S.0761	Oak Commodity Survey	State Government	\$26,000
1S	1S.0776	Asian Defoliator Survey	Academia	\$35,000
1S	1S.0783	Solanaceous Commodity Survey	Academia	\$35,000
3	3.0799	Eastern Regional Screening Center	Academia	\$160,000
5	5.0775	Mississippi Bug Blues: Invasive Insect Education and Statewide Outreach	Academia	\$77,200
5	5.0785	Mississippi Bug Blues Farmers First Initiative	Academia	\$22,223
5	5.1224	Mississippi Bug Blues Educator Invasive Box	Academia	\$27,416
TOTAL				\$485,839

Missouri				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0725	Thousand Cankers Disease Survey	State Government	\$20,000
TOTAL				\$20,000

Montana				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0853	Terrestrial Mollusk Survey	State Government	\$18,000
1S	1S.0865	Invasive Wood Borer/Bark Beetle Survey	State Government	\$24,000
1S	1S.0867	Nursery and Ornamental Plant Survey	State Government	\$10,000
3	3.0906	Pulse Crop Diagnostics Laboratory	Academia	\$205,000
5	5.0830	Don't Move Firewood Educational Campaign	Non-Profit	\$162,400
TOTAL				\$419,400

Nebraska				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0813	Cyst Nematode Survey	State Government	\$37,000
1S	1S.0818	Khapra Beetle Survey	State Government	\$5,000
1S	1S.0855	Grape Commodity Survey	State Government	\$7,000
1S	1S.0856	Commercial Greenhouse and Nursery Survey	State Government	\$8,400
TOTAL				\$57,400

Nevada				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0801	Cyst Nematode Survey	State Government	\$35,000
1S	1S.0803	Solanaceous Commodity Survey	State Government	\$30,000
1S	1S.0806	Nursery and Retail Plants Phytophthora Survey	State Government	\$25,000
1S	1S.0905	Asian Defoliator Survey	State Government	\$16,000
1S	1S.0919	Vegetable Crops Pest Survey	State Government	\$16,000
1S	1S.0925	Palm Commodity Survey	State Government	\$14,000
1S	1S.0932	Khapra Beetle Survey	State Government	\$5,000
5	5.1052	Invasive Pest Outreach	State Government	\$36,000
TOTAL				\$177,000

New Hampshire				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0760	Forest Pest Survey	State Government	\$25,000
1S	1S.0812	Vegetable Crops Pest Survey	State Government	\$9,000
5	5.1191	Forest Pest Outreach	Academia	\$45,000
6	6.0854	Field Variation in Emamectin Benzoate Concentrations: Impacts on Emerald Ash Borer and its Biological Control Agents	Academia	\$98,338
6	6.0944	Testing the Use of Airborne Sound and Substrate-borne Vibration as a Method to Manipulate and Disrupt Spotted Lanternfly	Academia	\$89,770
TOTAL				\$267,108

New Jersey				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0718	Box Tree Moth: Scouting and Advanced Preparedness	Academia	\$100,000
3	3.1007	Detection of Khapra Beetle in Stored Grains Using Environmental DNA	Academia	\$95,138
6	6.0717	Enhanced Mitigation and Detection of Basil, Cucurbit, and Impatiens Downy Mildews	Academia	\$411,797
TOTAL				\$606,935

New Mexico				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1000	Pecan Nut Pest Survey	State Government	\$35,000
5	5.1056	Invasive Species Outreach and Education	State Government	\$30,000
5	5.1141	Outreach and Education for Multiple Tribes in the Western United States	Tribal Nation	\$40,000
TOTAL				\$105,000

New York				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0701	Field Crops Pest Survey	State Government	\$50,000
1S	1S.0951	Grape Commodity Survey	State Government	\$100,000
1S	1S.0952	Orchard Commodity Survey	State Government	\$95,000
1S	1S.0955	Stone Fruit Commodity Survey	State Government	\$270,000

1S	1S.0961	Solanaceous Commodity Survey	State Government	\$20,000
2	2.1241	Rail Inspection Program	State Government	\$190,704
3	3.0846	NPDN and State Diagnostician Preparedness Training	Academia	\$139,596
3	3.1283	Creating and Implementing Professional Development Courses that Promote Quality Diagnostics	Academia	\$55,016
4	4.0998	Reinstating Apple Tree Certification in New York	State Government	\$113,295
5	5.0815	American Foul Brood Education	State Government	\$9,608
6	6.0721	Ground Testing Response Options for Hemlock Woolly Adelgid Early Detection Surveys Following New Infestations	Private Entity	\$57,882
6	6.0849	Deregulation and Enhanced Regulatory Activities of Golden Nematode	State Government	\$141,735
6	6.1032	Saving Ash Trees in Aftermath Forests Using EAB Parasitoids	State Government	\$45,000
TOTAL				\$1,287,836

North Carolina				
Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.0697	Optimizing Management of Emerging Pests and Pathogens with Tangible Landscape Visualization	Academia	\$131,989
1A	1A.1086	Eradication Analysis & Decision Support	Academia	\$109,025
1A	1A.1088	Automated Host Mapping Tool for Spread Modeling and Field Operations Planning	Academia	\$96,345
1A	1A.1090	Trade Route Analytic Computing and Evaluation	Academia	\$184,929
1A	1A.1092	Developing New Predictive Modeling Approaches to Estimate Plant Pest Suitability	Academia	\$129,290
1A	1A.1131	Analytical Support for OPEP Assessments and CAPS Datasheets	Academia	\$147,980
1A	1A.1153	Plugging the Gap: Landscape Risk Analysis for High-Resolution and Multi-scale Pest Surveillance	Academia	\$100,000
1A	1A.1229	Enhance and Complete the Rapid-Screening Framework to Identify Candidates for OPEP Pest Prioritization	Academia	\$105,586
1S	1S.0861	Solanaceous Commodity Survey	State Government	\$11,000
1S	1S.0886	Grape Commodity Survey	State Government	\$12,000
1S	1S.0894	Asian Defoliators Survey	State Government	\$12,000
1S	1S.0907	Nursery and Retail Plants Pest Survey	State Government	\$11,000
3	3.0823	A Data Driven and Sensor Integrated Platform for Monitoring Emerging Phytophthora Diseases	Academia	\$301,048
5	5.1005	Invasive Pest Outreach	State Government	\$20,000

6	6.1047	Field Studies to Align Emerald Ash Borer Stages to Parasitoid Release for Successful Biological Control	Academia	\$52,702
6	6.1099	Enhancing Invasive Plant-Pest Mitigation and Response by Developing New Pest Response Guidelines	Academia	\$364,370
6	6.1197	Develop a Design Tool for Visual Delimitation Surveys for New Pest Response Teams	Academia	\$131,529
6	6.1216	Field Testing a Novel Delimiting Survey Design for Mobile Insects	Academia	\$123,791
TOTAL				\$2,044,584

North Dakota				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0851	Grape Commodity Survey	Academia	\$30,000
1S	1S.0954	Cyst Nematode Survey	State Government	\$85,000
TOTAL				\$115,000

Ohio				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1011	Phytophthora ramorum Nursery Soil/Container Mix and Retail Plant Survey	State Government	\$10,000
1S	1S.1041	Grape Commodity Survey	State Government	\$20,000
1S	1S.1114	Orchard Commodity Survey	State Government	\$45,000
1S	1S.1234	Solanaceous Survey	State Government	\$20,000
TOTAL				\$95,000

Oklahoma				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0845	Phytophthora ramorum Nursery Survey	State Government	\$25,000
3	3.0745	Target Specific High-throughput Sequencing EDNA-Pome for Detection of Quarantine Pathogens of Pome	Academia	\$95,180
TOTAL				\$120,180

Oregon				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0981	Nursery Survey	State Government	\$70,000
1S	1S.1033	Invasive Wood Boring Bark Beetle and Asian Giant Hornet	State Government	\$41,971
1S	1S.1045	Asian Defoliator Survey	State Government	\$235,000
1S	1S.1259	Orchard Commodity Survey	State Government	\$75,000
1S	1S.1261	Grape Commodity Survey	State Government	\$55,000
3	3.1078	National Identification Center	State Government	\$120,000
4	4.0926	Safeguarding Grapevine Nurseries from Introduced Pathogens	State Government	\$95,121
4	4.1087	Certified Nursery Stock Program – Harmonization of Standards for Clonally Propagated Nursery Stock	State Government	\$57,404
4	4.1147	Surveying Certified Prunus Nurseries for the Causal Agents of Little Cherry Disease	State Government	\$156,884
5	5.1267	Don't Pack a Pest Program for Academic Travelers: Phase 5	Academia	\$177,944
6	6.0727	Development of Nematodes within the Genus Phasmarhabditis as Biological Control Agents of Invasive Gastropods	Academia	\$152,429
TOTAL				\$1,236,753

Pennsylvania				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0903	Orchard Commodity Survey	State Government	\$80,000
1S	1S.0908	Vegetable Pest Survey	State Government	\$35,000
1S	1S.0915	Nursery Disease Survey and Regional Support	State Government	\$30,000
1S	1S.0936	Public Garden Survey	Non-Profit	\$75,000
1S	1S.0949	Grape Commodity Survey	State Government	\$35,000
1S	1S.0974	Asian Defoliators Survey	State Government	\$20,000
1S	1S.1027	Stone Fruit Survey	State Government	\$30,000
2	2.0816	Spotted Lanternfly Regulatory Canine	State Government	\$83,227
3	3.0684	Screening and Identification Services for Wood-boring Insect Pests	Non-Profit	\$60,000
3	3.0917	Native and Non-native Bee and Wasp Survey	State Government	\$72,675
5	5.0841	Sentinel Plant Network – Phase 2	Non-Profit	\$135,437
5	5.0892	Forest Pest Outreach	State Government	\$58,126
5	5.1182	Spotted Lanternfly Outreach	Academia	\$354,690

6	6.0673	Preventing Spread of the Invasive Spotted Lanternfly Through Automated Detection and Citizen Science	Academia	\$157,219
6	6.1017	Monitoring Satellite Populations of Spotted Lanternfly	Academia	\$91,434
6	6.1255	Using Novel Means to Improve Detection and Suppression of Spotted Lanternfly	Academia	\$219,290
TOTAL				\$1,537,098

Puerto Rico				
Goal	Project #	Title	Cooperator Type	Funding Level
3	3.1075	Research in Puerto Rico to Support the Old World Bollworm Program	Academia	\$100,376
6	6.0859	Systems Approach for the Management of Coffee Berry Borer in HI and PR with Emphasis on Biological Control	APHIS	\$348,765
6	6.0948	Developing Biological Control to Mitigate the Harrisia Cactus Mealybug Damage	Non-APHIS Federal	\$352,236
6	6.1227	Research in Support of the Systems Approach for Mango Exported from PR to the European Union	Academia	\$49,145
TOTAL				\$850,522

Rhode Island				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1123	Vegetable Crop Pest Survey	State Government	\$26,000
1S	1S.1135	Grape Commodity Survey	State Government	\$18,000
5	5.1169	Forest and Agricultural Pest Outreach Project	Academia	\$25,250
TOTAL				\$69,250

South Carolina				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1093	Grape Commodity Survey	State Government	\$35,000
1S	1S.1103	Phytophthora ramorum Nursery Survey	State Government	\$24,000
1S	1S.1104	Solanaceous Commodity Survey	State Government	\$35,000
5	5.0686	Forest Pest Outreach	State Government	\$33,478
5	5.0950	Southeastern Regional Forest Health and Invasive Species Education Program	Academia	\$81,015
5	5.1118	Asian Longhorned Beetle Education Program	Academia	\$81,220
TOTAL				\$289,713

South Dakota

Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1030	Khapra Beetle Detection Survey	State Government	\$6,779
TOTAL				\$6,779

Tennessee

Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0674	Phytophthora ramorum Nursery Survey	State Government	\$25,000
1S	1S.0956	Survey of Viruses and Viroids of Cucurbit Crops, Emphasis on Cucumber Green Mottle Mosaic Virus	Academia	\$25,000
1S	1S.1081	Survey of Viruses of Solanaceous Crops, Special Attention to Tospovirus Groundnut Bud Necrosis Virus	Academia	\$20,000
1S	1S.1286	Asian Defoliator Survey	Academia	\$20,000
5	5.1126	Forest Pest Outreach and Survey Project	Academia	\$52,258
6	6.1174	Post-Release Aftermath Assessment of Biological Control of Emerald Ash Borer to Enhance Mitigation in a Southern Climate	Academia	\$88,406
TOTAL				\$230,664

Texas

Goal	Project #	Title	Cooperator Type	Funding Level
1A	1A.0689	Predictive Modeling of Texas Crop Pests and Pathogens Expanded: Niche and Climex Models	Academia	\$106,895
1A	1A.0690	Predictive modeling of molluscan agricultural pests to assess probability of invasion	Academia	\$83,320
1S	1S.0679	Invasive Wood Boring Beetle Survey	Academia	\$55,000
1S	1S.0680	Field Survey for Corn and Small Grain Priority Pests	Academia	\$40,000
1S	1S.0687	Soil Nematode Survey	Academia	\$50,000
1S	1S.0957	Grape Commodity Survey	Academia	\$45,000
1S	1S.0960	Stone Fruit Survey	Academia	\$60,000
1S	1S.1003	Survey for Tomato Brown Rugose Fruit Virus in Commercial Production Fields and Greenhouses	Academia	\$40,000

2	2.0773	New Multisensory Data Fusion Model for Improving Domestic Pest	Academia	\$96,877
2	2.0941	Critical Entry Point Monitoring for the Pests of Agricultural Biosecurity Concern	State Government	\$1,339,183
3	3.0927	Identification of Oriental Fruit Fly Larvae and Trap-captures	APHIS	\$107,456
3	3.0930	Population Genomics, Diagnostic Strain Determination, and SIT Characterization for the Mexican Fruit Fly	APHIS	\$130,039
3	3.1040	CRISPR-based Diagnostics to Streamline Detection and Identification of Tuta Absoluta	Academia	\$168,244
3	3.1105	Expanding Coverage of Species Complexes of Bactrocera Fruit Flies	Academia	\$176,962
3	3.1115	SNP-based Diagnostic Tools for the Rapid Identification of the Boll Weevil – Year 3	Academia	\$150,206
3	3.1122	Development of Diagnostic Tools for All Life Stages of Anastrepha and Other Pest Fruit Flies	Academia	\$464,259
4	4.0766	Enhancement of a Handheld Infrared Thermography-Minirhizotron Device for Nondestructive Rapid Detection of Cyst Nematode	Academia	\$139,000
5	5.0691	Citrus Greening Educational, Outreach, and Management Program in the Gulf Coast	Academia	\$46,583
5	5.0748	Statewide Agricultural Biosecurity Curriculum Development and Implementation for Texas High Schools	Academia	\$89,982
5	5.0820	Preparing Growers to Detect and Mitigate an Emerging Pest	Academia	\$18,679
5	5.0833	Mexican Fruit Fly Public Education and Outreach	Non-Profit	\$70,000
5	5.0979	Enhancing Outreach Tools and Opportunities	APHIS	\$42,394
6	6.0698	Continued Screening of Novel Antibacterial Producing Soil Isolates as Biocontrol Agents Against the Rice Pathogen Xanth	Academia	\$92,120
6	6.0822	Enhancing Mitigation of the Invasive Chili Thrips and Associated Viruses	Academia	\$130,817
6	6.0882	Developing Integrated Pest Management Plans to Manage Chili Thrips	Academia	93,724
6	6.0938	Monitoring Changes in the Bacterial and Fungal Microbiome in a Mass Rearing Facility for Anastrepha ludens	Academia	\$78,576
6	6.1176	Deploying sUAS for Precision Aerial In-water Treatments in Aquatic Plant Management	Academia	\$115,503
6	6.1252	Zap-o-Particles: Improving SIT Using X-ray Excitable Nanoparticles	Academia	\$243,833
6	6.1268	CRISPR-based Antimicrobial for the Targeted Removal of Bacterial Plant Pathogens	Academia	\$285,146
6	6.1270	Targeted Antimicrobials to Maximize the Production and Health of Anastrepha Ludens	Academia	\$258,261
6	6.1280	Improving Efficacy of Nanoparticles for Delivery of Therapeutics to HLB-infected Citrus Trees	Academia	\$250,683
TOTAL				\$5,068,742

Utah				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0704	Specialty Crops Pest Survey	Academia	\$17,000

3	3.0835	Bee Bycatch in Different Moth Trap Technologies and Impacts on Pollinator Populations and Services	State Government	\$89,511
5	5.0744	Invasive Pest Outreach	Academia	\$42,495
6	6.1035	Selecting and Improving Varroa-Resistant Honey Bee Stocks for Commercial Beekeeping	Non-Profit	\$81,673
TOTAL				\$230,679

Vermont				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1190	Invasive Wood Borer/Bark Beetle Survey	State Government	\$20,000
1S	1S.1194	Phytophthora ramorum Survey	State Government	\$14,000
1S	1S.1206	Fruit Crops Pest Survey	State Government	\$25,000
1S	1S.1213	Field Crops Pest Survey	State Government	\$24,000
5	5.0724	Forest Pest Outreach Project	State Government	\$67,980
TOTAL				\$150,980

Virginia				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.1082	Phytophthora ramorum Nursery Survey	State Government	\$20,000
1S	1S.1117	Grape/Corn Commodity Survey	State Government	\$25,000
1S	1S.1133	Thousand Canker Disease/ Walnut Twig Beetle Survey	State Government	\$20,000
TOTAL				\$65,000

Washington				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0675	Forest Pest Survey	State Government	\$100,000

1S	1S.0754	Stone Fruit Commodity Survey	State Government	\$150,000
1S	1S.0832	Grape Commodity Survey	State Government	\$100,000
1S	1S.0840	Invasive Mollusk Survey	State Government	\$85,000
1S	1S.0862	Asian Defoliator Survey	State Government	\$270,000
2	2.1244	A Novel Approach to Enforcement of Plant Health Quarantines	State Government	\$95,778
3	3.0700	Developing Molecular Identification Resources for the High Priority Pest, <i>Cernuella virgata</i>	State Government	\$115,969
3	3.0831	CRISPR-based Approaches for Broad Spectrum, Rapid and Sensitive Detection of Pospiviroids of Specialty Crops	APHIS	\$96,156
3	3.1150	Invasive Pest Survey Screening Center	State Government	\$120,000
4	4.1051	Harmonizing Nursery Certification Standards for Specialty Crops to Safeguard Nursery Production and Comply with New EU Regulations	Non-Profit	\$126,830
4	4.1063	Lateral Movement of <i>Phytophthora ramorum</i> in Nursery Substrates	Academia	\$59,892
5	5.0772	Asian Giant Hornet Community Outreach and Education	State Government	\$130,965
5	5.0826	Interagency Outreach and Education – Comprehensive Approach for Youth and Adults	State Government	\$80,000
5	5.0901	Native American Tribes Invasives Vigilance and Education Project	Tribal Nation	\$82,492
6	6.0924	Asian Gypsy Moth Post-Treatment Response	State Government	\$139,000
6	6.0943	Asian Giant Hornet Response	State Government	\$460,099
6	6.1048	Soil Steaming for Eradication of <i>Phytophthora ramorum</i>	Academia	\$46,981
6	6.1101	Biological Control Prospects of Native Parasitoids on the Invasive Apple Maggot	State Government	\$43,673
6	6.1273	Effectiveness of Aerial vs. Ground-based Insecticide Applications for Douglas-fir Twig Weevil Control	Academia	\$43,400
TOTAL				\$2,346,235

West Virginia				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0904	Asian Defoliator Survey	State Government	\$16,000
1S	1S.0970	Grape Commodity Survey	State Government	\$5,000
1S	1S.0988	Solanaceous Commodity Survey	State Government	\$12,000
1S	1S.0994	<i>Phytophthora ramorum</i> Survey	State Government	\$15,000
1S	1S.1029	Stone Fruit Commodity Survey	State Government	\$8,000
5	5.1140	Invasive Pest Outreach Program	State Government	\$48,000
6	6.0730	Enhanced Mitigation and Rapid Response to Reduce Spread and Impact of Spotted Lanternfly	Academia	\$350,533
TOTAL				\$454,533

Wisconsin				
Goal	Project #	Title	Cooperator Type	Funding Level
1S	1S.0893	Oak and Pine Commodity Survey	State Government	\$40,930
1S	1S.1083	Potato Cyst Nematode Survey	Academia	\$58,750
1S	1S.1200	Forest Pest Survey	Tribal Nation	\$44,877
5	5.0808	Play, Clean, Go National Outreach Expansion	Non-Profit	\$139,761
5	5.0912	Building Collaborations to Increase Pest Detection for First Detector Network	Academia	\$42,987
5	5.1154	Investigating in the Future: Native American Seasonal Workers Outreach and Education	Tribal Nation	\$65,443
5	5.1193	Invasive Species Management Training Program Expansion	Non-Profit	\$90,288
6	6.1130	Enhancing Mitigation and Rapid Response Through the Tribal Conservation Council	Tribal Nation	\$25,507
TOTAL				\$508,543

National				
Goal	Project #	Title	Cooperator	Funding Level
1S	1S.0780	National Honey Bee Pest and Diseases Survey	State Government	\$1,263,464
1S	1S.0811	Survey Supply and Procurement Program	APHIS	\$800,000
2	2.1116	Canine Training and Maintenance	State Government	\$167,979
5	5.1152	National Outreach in Support of Honey Bee Health	APHIS	\$74,355
5	5.1188	Hungry Pests Campaign Continuation – Public Outreach on Invasive Plant Pests and Diseases to Reduce Their Spread	APHIS	\$275,000
TOTAL				\$2,580,798

Tribal Nations				
<i>NOTE: Cooperators whose projects target a Tribal audience; funding amount is incorporated into the state funding levels previously listed.</i>				
Goal	Project #	Title	Cooperator	Funding Level
1S	1S.1200	Forest Pest Survey	Wisconsin Tribal Conservation Advisory Council	\$44,877
5	5.0901	Native American Tribes Invasives Vigilance and Education Project	Native American Tribes	\$82,492

5	5.0967	Tribes in Maine Invasive Species Project	Penobscot, Passamaquoddy, Maliseet, and Micmac Tribes	\$76,224
5	5.1141	Outreach and Education for Multiple Tribes in the Western United States	Indian Nations Conservation Alliance	\$40,000
5	5.1154	Investing in our Future: Native American Seasonal Workers Conducting Outreach and Education	Wisconsin Tribal Conservation Advisory Council	\$65,443
5	5.1195	Outreach and Training to Tribes	APHIS	\$36,552
6	6.1130	Enhancing Mitigation and Rapid Response Through the Tribal Conservation Council	Wisconsin Tribal Conservation Advisory Council	\$25,507
6	6.1202	Nez Perce Tribe Bio-control Project Noxious/Invasive Weed Survey, Mitigation & Rapid Response	Nez Perce Tribe	250,000