2020 USDA EXPLANATORY NOTES – ANIMAL AND PLANT HEALTH INSPECTION SERVICE

AGENCY-WIDE

PURPOSE STATEMENT

The Secretary of Agriculture established the Animal and Plant Health Inspection Service (APHIS) on April 2, 1972, under the authority of Reorganization Plan No. 2 of 1953 and other authorities. The mission of the Agency is to safeguard the health, welfare, and value of American agriculture and natural resources.

Together with its stakeholders, APHIS promotes the health of animal and plant resources to facilitate their movement in the global marketplace and to ensure abundant agricultural products and services for U.S. customers. APHIS also ensures that biotechnology-derived agricultural products are safe for release in the environment. APHIS strives to assure its stakeholders that it is on guard against the introduction or re-emergence of animal and plant pests and diseases that could limit agricultural production and damage export markets. At the same time, APHIS also monitors and responds to potential acts of agricultural bio-terrorism, invasive species, diseases of wildlife and livestock, and conflicts between humans and wildlife. The Agency also helps to resolve sanitary (animal) and phytosanitary (plant) trade barriers and addresses certain issues relating to the humane treatment of animals.

APHIS' mission is carried out using three major areas of activity, as follows:

Safeguarding and Emergency Preparedness/Response

In addition to APHIS' domestic monitoring, APHIS monitors animal and plant health throughout the world and uses the information to set effective agricultural import policies to prevent the introduction of foreign animal and plant pests and diseases. APHIS and the Department of Homeland Security cooperate to ensure that these policies are enforced at U.S. ports of entry. These policies prevent the entry of many invasive pests, including crop, pollinator, woodland, and livestock pests. APHIS also develops and conducts pre-clearance programs to ensure that foreign agricultural products destined for the United States do not present a risk to U.S. agriculture. The Agency engages in cooperative programs to control pests of imminent concern to the United States and to strengthen foreign plant protection and quarantine organizations. APHIS certifies plants and plant products for export to other countries and regulates imports and exports of designated endangered plant species.

Should a pest or disease enter the United States, APHIS works cooperatively with other Federal, State, and industry partners to conduct animal and plant health monitoring programs to rapidly determine if there is a need to establish new pest or disease management programs. APHIS, in conjunction with States, industry, and other stakeholders, protects American agriculture by eradicating harmful pests and diseases or, where eradication is not feasible, by minimizing their economic impact. The Agency monitors endemic pests and diseases through surveys to detect their location and through inspection to prevent their spread into non-infested parts of the country.

The Agency maintains a cadre of trained professionals prepared to respond immediately to potential animal and plant health emergencies. Program personnel investigate reports of suspected exotic pests and diseases and take emergency action if necessary. To facilitate these efforts, APHIS develops pathway studies and thoroughly investigates outbreaks to determine the origin of animal and plant pests and diseases and the most appropriate response actions to take including the development of tools and technologies to help manage these pests. APHIS also actively engages State, Tribal, and local governments, and industries to advance their emergency preparedness and response capabilities.

Through its Wildlife Services program, APHIS develops methods to control animals and pests that are detrimental to agriculture, wildlife, and public safety. The Agency's regulatory structure brings the benefits of genetic research to the marketplace, while ensuring they do not pose a plant pest risk. APHIS also conducts diagnostic laboratory activities that support the Agency's veterinary disease prevention, detection, control, and eradication programs.

Safe Trade and International Technical Assistance

Sanitary (animal) and phytosanitary (plant) (SPS) measures implemented by U.S. trading partners can have a significant impact on market access for the United States as an exporter of agricultural products. APHIS plays a central role in resolving technical trade issues to ensure the smooth and safe movement of agricultural commodities into and out of the United States. APHIS' role is to negotiate animal and plant health certification requirements, assist U.S. exporters in meeting foreign regulatory requirements, ensure requirements are proportional to risk without being excessively restrictive, and provide any necessary technical information to support the safety of U.S. agricultural products destined for foreign markets.

APHIS helps to protect the United States from emerging animal and plant pests and diseases while meeting obligations under the World Trade Organization's SPS agreement by assisting developing countries in improving

their safeguarding systems. APHIS collaborates with other Federal agencies including the Foreign Agricultural Service, the U.S. Agency for International Development, the State Department, and the Office of the U.S. Trade Representative, to implement technical and regulatory capacity building projects with shared resources. APHIS develops and implements programs designed to identify and reduce agricultural pest and disease threats while still outside of U.S. borders, to enhance safe agricultural trade, and to strengthen emergency response preparedness.

Animal Welfare

The Agency conducts regulatory activities to ensure the humane care and treatment of certain animals and horses as required by the Animal Welfare Act of 1966 as amended (7 U.S.C. 2131-2159), and the Horse Protection Act of 1970 as amended (15 U.S.C. 1821-1831). These activities include inspection of certain establishments that handle animals intended for research, exhibition, and sale as pets, and monitoring of certain horse shows.

Statutory Authorities

APHIS operates under the following authorities:

Table APHIS-1. Statutory Authorities

Reference	Title
General:	
7 U.S.C. 1633	Talmadge-Aiken Act (cooperation with States)
7 U.S.C. 7759	User Fees (for export certification of plants)
21 U.S.C. 136-136a	User Fees
31 U.S.C. 9701	User Fees (offsetting collections and miscellaneous receipts)
7 U.S.C. 3291(a)	Authority to provide technical assistance and training
7 U.S.C. 5680	Farm Security and Rural Investment Act of 2002 (reporting on SPS issues and trade barriers)
7 U.S.C. 5925	Food, Agriculture, Conservation, and Trade Act of 1990 (authorizes funding for national honeybee pest survey)
7 U.S.C. 2279g	Marketing Services; cooperative agreements
Animal Health:	
7 U.S.C. 8301-8317	Animal Health Protection Act
49 U.S.C. 80502	28-Hour Law (feed, water, and rest for animals)
19 U.S.C. 1202, Part I, Item 100.01	Purebred animal duty-free entry
7 U.S.C. 1622	Section 203 of the Agricultural Marketing Act of 1946
7 U.S.C. 1624	Section 205 of the Agricultural Marketing Act of 1946
7 U.S.C. 398	Section 101(d) of the Organic Act of l944
7 U.S.C. 3801-3813	Swine Health Protection Act
7 U.S.C. 851-855	Anti-hog cholera serum and hog cholera virus
7 U.S.C. 2274	Firearms (tick inspectors)
7 U.S.C. 1901 note	Transportation of Equines to Slaughter
21 U.S.C. 151-159	Virus-Serum-Toxin Act
21 U.S.C. 113a	Authority to establish research facilities for Foot-and-Mouth and other diseases
21 U.S.C. 618	Section 18 of the Federal Meat Inspection Act, as amended, as it pertains to the issuance of certificates of condition of live animals for export
7 U.S.C. 8401 and 8411	Title II, Subtitles B and C of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002
7 U.S.C. 8318	Section 10504 of the Farm Security and Rural Investment Act of 2002 (training of accredited veterinarians)
Plant Health:	
7 U.S.C. 7701-7772; and 7781-7786	Plant Protection Act

Reference	Title
7 U.S.C. 1581-1610	Title III, Federal Seed Act
7 U.S.C. 2801 note; 2814	Federal Noxious Weed Act
7 U.S.C. 281-286	Honeybee Act
7 U.S.C. 7760	Terminal Inspection Act
7 U.S.C. 2279e and 2279f	Title V of the Agricultural Risk Protection Act of 2000 (penalties for interfering with inspection animals)
16 U.S.C. 1531-1544	Endangered Species Act (plants)
16 U.S.C. 3371-3378	Lacey Act (importation or shipment of injurious mammals, birds, fish)
7 U.S.C. 8401	Title II, Subtitle B of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002
39 U.S.C. 3015	Alien Species Prevention and Enforcement Act of 1992
Wildlife Services:	
7 U.S.C. 8351-8354	Control of predatory and other wild animals
Animal Welfare:	
7 U.S.C. 2131-2159	Animal Welfare Act
15 U.S.C. 1821-1831	Horse Protection Act

There were 5,524 permanent full-time employees as of September 30, 2018. Of the total, 1,174 full-time employees were located at headquarters. APHIS manages programs on a national basis through two regional offices and 433 field offices, including area offices, work stations, technical centers, and animal import centers. APHIS conducts much of its work in cooperation with State and local agencies, private groups, and foreign governments. APHIS performs work in the 50 States, Washington, D.C., Guam, Puerto Rico, Virgin Islands, Mexico, Central America, South America, the Caribbean, Western Europe, Asia, and Africa.

Each year, the Office of Inspector General (OIG) and the Government Accountability Office (GAO) audits selected programs to examine the efficiency of the programs and operations including program results, compliance with applicable laws and regulations, and fair presentation of financial reports. Audits in which APHIS has been involved during FYs 2018 – 2019 include those listed below. If an audit has no specific recommendations for APHIS, the audit will not be included in this listing for APHIS.

OIG and GAO Reports

Table APHIS-2. Completed OIG Reports

ID	Date	Title	Result
33099-01-23	05/2018	Texas Boll Weevil Eradication Foundation Grant	OIG report was issued with 6 recommendations. APHIS is in the process of implementing recommendations.
33601-01-31	05/2017	Animal Welfare Act – Marine Mammals	OIG report was issued with 6 recommendations. APHIS has implemented two recommendations and is in the process of implementing the remaining four recommendations, which includes coordinating with NOAA.
33601-01-41	12/2014	APHIS Oversight of Research Facilities	OIG report was issued with 15 recommendations. Of the 15 recommendations, 14 recommendations are closed. Recommendation #15 is still pending implementation and will remain open until APHIS revises Form #7023 and develops related guidance.
50024-01-22	03/2018	USDA Controls over Purchase Card Use	Audit includes APHIS and other USDA agencies. USDA's Office of Procurement and Personnel Management is the lead for this audit. Audit report was issued with no recommendations for APHIS.

ID	Date	Title	Result
50099-03-21	09/2018	USDA's Management Over the Misuse of Government Vehicles	Audit includes APHIS and other USDA Agencies. Audit work is on-going.
50601-01-32	09/2015	Controls Over APHIS' Introduction of Genetically Engineered Organisms	OIG report was issued with 13 recommendations. APHIS implemented and received official closure on 11 of the 13 recommendations. Recommendations #2 and 8 are pending implementation.
50601-04-31	03/2016	USDA Response to Antibiotic Resistance	OIG report was issued with 6 of the 19 recommendations for APHIS. APHIS is in the process of implementing recommendations #7, 8, 9, 15, 16 and 19.
50601-08-TE	12/2005	Controls Over APHIS Issuance of Genetically Engineered Organisms Release Permits	OIG report was issued with 28 recommendations. Of the recommendations, 25 are closed. Recommendations #1-3 remain open.
50601-16-TE	05/2011	Controls Over Genetically Engineered Animal and Insect Research	OIG report was issued with 8 recommendations. All recommendations have been implemented by APHIS.
50701-01-21	09/2018	USDA Activities for Agro-terrorism Prevention, Detection and Response	OIG report was issued with 5 recommendations for APHIS. APHIS is in process of implementing recommendations.

Table APHIS-3. In-Progress OIG Reports

ID	Title
33701-01-21	National Veterinary Stockpile Oversight
50401-16-11	Department of Agriculture's Consolidated Financial Statement for Fiscal Year 2018
50501-17-12	Security Over Select USDA Agencies' Networks and Systems (FY 2018)
50501-21-12	Data Encryption Controls Over Personally Identifiable Information on USDA Information Technology Systems

Table APHIS-4. Completed GAO Reports

ID	Date	Title	Result
100267	03/2017	Federal Actions to Monitor and Control Antibiotic Resistance in Food and Animals	Audit includes APHIS and other USDA and non USDA agencies. GAO report was issued with one recommendation with 3 parts for APHIS. APHIS has implemented two parts, and will have the third part implemented by summer 2019.
100285	10/2014	Foreign Ownership of Government-leased Space	Audit includes APHIS and other USDA and non-USDA agencies. GAO report was issued with no recommendations for APHIS.
100294	04/2017	Safety of Imported Beef from Countries with a History of FMD	GAO report was issued with 3 recommendations for APHIS. All recommendations have been implemented.
100332	12/2016	Financial Management, Oversight, and Transparency Policies Review	GAO report was issued with 3 recommendations for APHIS. All recommendations have been implemented.
100668	05/2017	Highly Pathogenic Avian Influenza	Audit includes APHIS and other USDA agencies. GAO report was issued with 1 recommendation for APHIS. APHIS has implemented the recommendation.
100751	04/2017	Biological Threat Characterization	Audit includes APHIS and other USDA and non-USDA agencies. GAO report was issued with no recommendations for APHIS.
100849	10/2016	Federally Owned Aircraft. (GAO-17-73R)	USDA's Office of Procurement and Personnel Management is the lead office. Audit is government-wide. GAO report was issued with no recommendations for APHIS.
100924	10/2017	Federal Facilities Risk Assessment Processes	The audit is of USDA's Agricultural Research Service. APHIS was included in this audit. GAO report was issued with no recommendations for APHIS.
101016	10/2017	Comparative Oversight of High-Containment Laboratories	Audit includes APHIS and other non-USDA agencies. GAO report was issued with 6 recommendations for APHIS. APHIS has implemented 3 recommendation, and is in the process of implementing the other 3 recommendations.
101039	12/2017	U.S. Foreign Assistance to Inter-American Multilateral Organizations	Audit includes APHIS and other USDA agencies. GAO report was issued with no recommendations for APHIS.

ID	Date	Title	Result
101985	05/2018	Animal Use in Federal Research: Agencies Share Information, but Reporting and Data Quality Could Be Strengthened	GAO report was issued with 4 recommendations for APHIS. APHIS is in the process of implementing recommendations.
291264	04/2016	High-Containment Laboratories: Comprehensive and Up-to-Date Policies and Stronger Oversight Mechanisms Needed to Improve Safety.	GAO report was issued with 5 recommendations. APHIS has implemented all recommendations and is awaiting final closure from GAO.
361562	05/2015	Federal Veterinarian Workforce	The audit includes the Office of Personnel Management. GAO report was issued with 1 recommendation for APHIS. APHIS is in the process of implementing the recommendation.
361589	04/2016	Genetically Engineered Crops.	The audit includes APHIS and USDA's National Agricultural Statistics Service. GAO report was issued with 3 recommendations for APHIS. APHIS is implementing the recommendations.
361615	12/2015	Emerging Swine Diseases	GAO report was issued with 3 recommendations for APHIS. All 3 recommendations have been implemented.
460640	09/2016	Improved Oversight of Dangerous Pathogens to Mitigate Risk	GAO report was issued with 4 recommendations for APHIS and several non-USDA Agencies. APHIS has one remaining recommendation that requires implementation.

Table APHIS-5. In-Progress GAO Reports

ID	Title
101657	Financial Rewards for Reporting Illegal Activities Related to Plants, Wildlife, and Antiquities
101732	Federal Grants Workforce Training
102051	USDA's Preparedness for Foot-and-Mouth Disease
102432	Federal Efforts in Environmental Justice
102509	Federal Preparedness for Responding to Antimicrobial-Resistant Pathogens
102874	Federal Government's Efforts to Develop, Validate, and Promote Alternatives to the Use of Animals in Research, Testing and Training
102916	Federal Cybersecurity Requirements and Assessments for State Programs
102947	National Bio- and Agro-Defense Facility Operations Transfer
103113	National Biodefense Strategy

AVAILABLE FUNDS AND STAFF YEARS

Table APHIS-6. Available Funds and Staff Years (thousands of dollars, staff years (SY))

Item	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	2020 Budget	SY
Salaries and Expenses:								
Discretionary Appropriations	$946,212	4,827	$981,893	4,827	$981,893	4,827	$981,893	4,849
Citrus Greening	5,500	-	7,500	-	7,500	-	-	-
Subtotal Discretionary Funding	951,712	4,827	989,393	4,827	989,393	4,827	981,893	4,849
Mandatory Funding:								
Mandatory Approp: Farm Bill	58,188	15	70,050	26	227,850	256	75,000	26
Agricultural Quarantine Inspection User Fees:								
Total Collections	760,857	1,250	796,584	1,325	798,060	1,325	842,430	1,325
Buildings and Facilities:								
Discretionary Appropriations	3,175	-	3,175	-	3,175	-	2,709	-
Fruit Fly Rearing Facility	47,000	-	-	-	-	-	-	-
Trust Funds:								
Mandatory Appropriations	9,612	50	9,514	50	9,004	50	9,082	50
Foreign Service National Separation Liability Trust	-	-	157	-	200	-	200	-
Transfers In	23,901	1	-	-	-	-	-	-
Transfers Out	-534,515	-	-539,000	-	-539,000	-	-539,000	-
Adjusted Appropriation	1,319,930	6,143	1,329,873	6,228	1,488,682	6,458	1,372,314	6,250
Balance Available, SOY	321,557	492	415,469	498	457,880	516	595,452	773
Other Adjustments (Net)	39,673	-	36,492	-	-	-	-	-
Total Available	1,681,160	6,635	1,781,835	6,726	1,946,562	6,974	1,967,766	7,023
Lapsing Balances	-1,313	-285	-4,220	-498	-	-	-	-
Balance Available, EOY	-415,469	-498	-457,880	-516	-595,452	-773	-566,827	-771
Subtotal Obligations, APHIS	1,264,378	5,852	1,319,734	5,712	1,351,110	6,201	1,400,939	6,252
Obligations under other USDA appropriations:								
Agricultural Marketing Service	7,276	-	8,132	-	8,183	-	8,199	-
Agricultural Research Service	4,557	-	4,889	-	4,920	-	4,929	-
Departmental Administration	-	-	80	-	81	-	81	-
Economic Research Service	16	-	-	-	-	-	-	-
Food Safety and Inspection Service	426	-	364	-	366	-	367	-
Foreign Agricultural Service	5,590	-	4,757	-	4,787	-	4,796	-
Forest Service	541	-	697	-	701	-	703	-
Grain Inspection, Packers and Stockyards Admin.	1,648	-	1,687	-	1,698	-	1,701	-
National Appeals Division	-	-	7	-	7	-	7	-
National Institute of Food and Agriculture	-	-	106	-	107	-	107	-
Natural Resources Conservation Service	-	-	11	-	11	-	11	-
Office of Chief Financial Officer	-	-	145	-	146	-	146	-
Office of the Chief Information Officer	-	-	84	-	85	-	85	-
Office of the Secretary	-	-	24	-	24	-	24	-
Risk Management Agency	30	-	42	-	42	-	42	-
Total, Agriculture Appropriations	20,084	-	21,025	-	21,157	-	21,199	-
Other Federal Funds:								
DOD, U.S. Air Force	9,174	-	11,096	-	11,165	-	11,188	-
DOD, Air National Guard	3,588	-	2,947	-	2,965	-	2,971	-
DOD, U.S. Navy	6,155	-	4,810	-	4,840	-	4,850	-
DOD, U.S. Marine Corps	1,210	-	2,133	-	2,146	-	2,151	-
DOD, U.S. Army	1,563	-	1,365	-	1,374	-	1,376	-
DOD, U.S. Army Corp of Engineers	1,632	-	1,687	-	1,698	-	1,701	-
DOD, Defense Threat Reduction Agency	528	-	76	-	76	-	77	-
Department of Energy	224	-	190	-	191	-	192	-
Department of Health and Human Services	106	-	104	-	105	-	105	-
DHS: for Coast Guard and other services and support	615	-	394	-	396	-	397	-
Federal Emergency Management Agency	156	-	332	-	334	-	335	-
National Aeronautics and Space Administration	267	-	347	-	349	-	350	-
USDOI, Geological Survey, National Park Service, Office of Insular Affairs	1,626	-	1,401	-	1,410	-	1,413	-
USDOI, Bureau of Land Management & Reclamation: for administrative and technical support	444	-	471	-	474	-	475	-

Item	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	2020 Budget	SY
USDOI, Fish and Wildlife Services: for natural resources and endangered species	2,797	-	2,479	-	2,495	-	2,500	-
USDOT: Federal Aviation Administration	1,295	-	857	-	862	-	864	-
Department of State: miscellaneous services	86	-	3	-	3	-	3	-
Department of Veterans Affairs	22	-	24	-	24	-	24	-
Environmental Protection Agency: miscellaneous services	1,255	-	1,034	-	1,040	-	1,043	-
GSA: for miscellaneous services	14	-	2	-	2	-	2	-
Other Federal Funds	376	479	251	411	253	419	253	419
Total, Other Federal	33,133	479	32,003	411	32,203	419	32,269	419
Non-Federal Funds:								
Funds from organizations, states, and local entities for wildlife, plant, and animal services support	60,886	635	58,001	636	58,364	636	58,481	636
Import-Export User Fees	46,798	370	42,569	336	42,836	364	42,921	364
Phytosanitary Certificate User Fees	19,448	141	18,983	137	19,102	140	19,140	140
Reimbursable Overtime	8,360	82	9,379	83	9,438	84	9,457	84
Veterinary Diagnostics User Fees	7,402	56	6,319	54	6,359	57	6,371	57
Other User Fees	464	-	3	-	3	-	3	-
Subtotal, Reimbursables Salaries and Expenses	196,575	1,763	188,282	1,657	189,461	1,700	189,840	1,700
Total, APHIS	1,460,952	7,615	1,508,016	7,369	1,540,571	7,901	1,590,779	7,952

PERMANENT POSITIONS BY GRADE AND STAFF YEARS

Table APHIS-7. Permanent Positions by Grade and Staff Years

Item	2017 Actual			2018 Actual			2019 Estimate			2020 Budget		
	Hdqts	Field	Total	Hdqts	Field	Total	Hdqts	Field	Total	Hdqts	Field	Total
SES	29	10	39	26	10	36	29	10	39	29	10	39
GS-15	75	61	136	77	59	136	77	63	140	77	63	140
GS-14	326	301	627	333	290	623	334	298	632	334	300	634
GS-13	288	514	802	284	507	791	286	512	798	287	516	803
GS-12	204	996	1,200	200	974	1,174	203	981	1,184	205	987	1,192
GS-11	85	769	854	95	769	864	97	773	870	99	777	876
GS-10	-	8	8	-	8	8	-	9	9	-	12	12
GS-9	84	458	542	70	451	521	72	451	523	72	457	529
GS-8	6	259	265	7	259	266	7	261	268	7	261	268
GS-7	61	648	709	61	597	658	62	599	661	62	600	662
GS-6	9	204	213	8	155	163	8	155	163	8	155	163
GS-5	9	139	148	7	103	110	8	105	113	8	105	113
GS-4	9	20	29	15	18	33	15	18	33	15	18	33
GS-3	-	14	14	3	14	17	3	14	17	3	14	17
Other Graded	10	99	109	15	112	124	15	112	127	15	112	127
Total Perm. FT EOY	1,195	4,500	5,695	1,201	4,326	5,524	1,216	4,361	5,577	1,221	4,387	5,608
Staff Year Est	1,482	6,133	7,615	1,434	5,935	7,369	1,538	6,363	7,901	1,547	6,405	7,952

VEHICLE FLEET

Motor Vehicle Fleet

APHIS uses vehicles to deliver mission critical services. The Agency's veterinarians, animal health technicians, inspectors, plant protection and quarantine officers, wildlife biologists, and other technical personnel use motor vehicles in their daily responsibilities, which entail travel between inspection sites, farms, ranches, ports, nurseries, and other commercial firms. In some cases, APHIS' cooperators use Agency vehicles as authorized in program cooperative agreements.

To maximize the life span of vehicles, operators are required to keep historical maintenance records and submit the vehicles' operational and cost data for review and report on the vehicle's condition and usage statistics at least once a year. Periodic maintenance surveys and reviews of consolidated vehicle fleet data ensure optimal use of each vehicle in the fleet.

Replacement Criteria

APHIS replaces vehicles in accordance with Title 41, CFR § 102–34.270. Agency programs replace and retire vehicles using data on utilization, age, condition, and funding availability. APHIS has implemented efforts to both increase the number of alternative fuel vehicles and extend the life cycle of each vehicle.

Reductions to Fleet

APHIS ended FY 2018 with 4,635 vehicles (leased and owned), which is an increase of 94 vehicles. The additional vehicles, mostly light duty trucks, were acquired to support the unforeseen emergency programs (spotted lanternfly and cattle fever tick).

Table APHIS-8. Size, Composition, and Annual Costs of Motor Vehicle Fleet [a]

Fiscal Year	Sedans and Station Wagons	Lt. SUVs and Vans	Lt. Trucks (4x2)	Lt. Trucks (4x4)	Medium Duty Vehicles	Heavy Duty Vehicles	Total Vehicles	Annual Operating Costs [b]
2017	270	1,112	313	1,971	858	17	4,541	$19,821
Change	-24	-54	-44	+159	+58	-1	+94	-511
2018	246	1,058	269	2,130	916	16	4,635	19,310
Change	-21	-15	-6	+30	-8	-	-20	+289
2019	225	1,043	263	2,160	908	16	4,615	19,599
Change	-11	-10	-1	-5	+1	-	-26	+294
2020	214	1,033	262	2,155	909	16	4,589	19,893

[a] Vehicle count includes those owned by agency and leased from commercial sources or GSA.
[b] Excludes acquisition costs and gains from sale of vehicles as shown in FAST.

Aircraft

APHIS uses aircraft to conduct mission critical activities such as aerial resource and surveillance surveys, aerial application tests, equipment demonstration and testing, implementation of methods for the control and/or eradication of destructive plant pests or wildlife to reduce damage to agricultural crops, among others.

The annual appropriations act provides APHIS with authority to acquire up to five aircraft of which two shall be for replacement. The agency replaces aircraft when necessary to maintain fleet safety and efficient operating conditions.

The APHIS aircraft fleet consists of 7 operable aircraft for domestic plant pest and disease management programs, and 60 aircraft used for the wildlife damage management programs. Of the 60 aircraft used for the wildlife damage management programs: 53 are owned, 4 are borrowed from State cooperators, and 3 are rented. Of the 53 owned aircraft, 6 of them are non-operational. APHIS uses the non-operational aircraft for parts.

SHARED FUNDING PROJECTS

Table APHIS-9. Shared Funding Projects (dollars in thousands)

Item	2017 Actual	2018 Actual	2019 Estimate	2020 Estimate
Departmental Shared Cost Programs:				
1890 USDA Initiatives	$285	-	-	-
Advisory Committee Liaison Services	5	$5	$5	$5
Agency Partnership Outreach	-	580	601	601
Classified National Security Information	87	-	-	-
Continuity of Operations Planning	157	-	-	-
Emergency Operations Center	180	-	-	-
Facility and Infrastructure Review and Assessment	35	-	-	-
Faith-Based and Neighborhood Partnerships	31	-	-	-
Hispanic-Serving Institutions National Program	150	-	-	-
Honor Awards	-	2	5	5
Human Resources Self-Service Dashboard	45	45	46	50
Human Resources Transformation	128	69	-	-
Identity and Access Management	516	-	-	-
Medical Services	11	8	9	9
Office of Customer Experience	-	149	241	291
People's Garden	50	37	-	-
Personnel and Document Security	-	204	192	192
Personnel Security Branch	133	-	-	-
Security Detail	261	344	355	355
Security Operations	-	807	814	814
TARGET Center	113	102	89	89
USDA 1994 Program	61	-	-	-
USDA Enterprise Data Analytics Services	-	-	-	415
Virtual University	155	78	-	-
Total, Departmental Shared Cost Programs	2,402	2,430	2,357	2,826
E-Gov:				
Budget Formulation & Execution LoB	6	6	6	6
Enterprise HR Integration	142	142	142	142
Financial Management LOB	10	10	10	10
HR Management LOB	20	22	22	22
Integrated Acquisition Environment	135	138	149	-
E-Rulemaking	55	69	57	-
Geospatial LoB	13	13	13	13
Grants.gov	1	1	1	1
Total, E-Gov	382	401	400	194
Working Capital Fund:				
Administration:				
HR Enterprise System Management	86	105	106	113
Integrated Procurement Systems	1,619	1,655	1,602	1,606
Mail and Reproduction Services	212	208	200	188
Materiel Management Service Center	934	858	824	825
Procurement Operations Division	27	40	53	65
Communications:				
Creative Media and Broadcast Center	81	654	596	353
Correspondence Management Services				
Office of the Executive Secretariat	1,059	953	1,371	1,361
Finance and Management:				
Financial Shared Services	7,254	7,059	9,992	8,878
Internal Control Support Services	177	153	159	159
National Finance Center	2,212	2,425	2,289	2,397
Information Technology:				
Client Experience Center	3,853	3,571	4,726	4,609
Digital Infrastructure Services Center	12,716	12,389	7,821	7,821
Enterprise Network Services	1,236	1,503	7,211	7,421
Total, Working Capital Fund	31,466	31,574	36,949	35,797

ACCOUNT 1: SALARIES AND EXPENSES

LEAD-OFF TABULAR STATEMENT

Table APHIS-10. Lead-Off Tabular Statement

Item	Amount
2019 Annualized Continuing Resolution	$981,893,000
Change in Appropriation	0
Budget Estimate, 2020	981,893,000

APPROPRIATIONS LANGUAGE

The appropriations language follows (new language underscored; deleted matter enclosed in brackets):

For necessary expenses of the Animal and Plant Health Inspection Service, including up to $30,000 for representation allowances and for expenses pursuant to the Foreign Service Act of 1980 (22 U.S.C. 4085), $981,893,000, of which $470,000, to remain available until expended, shall be available for the control of outbreaks of insects, plant diseases, animal diseases and for control of pest animals and birds ("contingency fund") to the extent necessary to meet emergency conditions; of which $7,000,000, to remain available until expended, shall be used for the cotton pests program, including cost share purposes or for debt retirement for active eradication zones; of which $44,857,000, to remain available until expended, shall be for Animal Health Technical Services; of which $705,000 shall be for activities under the authority of the Horse Protection Act of 1970, as amended (15 U.S.C. 1831); of which $62,840,000, to remain available until expended, shall be used to support avian health; of which $4,251,000, to remain available until expended, shall be for information technology infrastructure; of which $176,843,000, to remain available until expended, shall be for specialty crop pests; of which, $7,809,000, to remain available until expended, shall be for field crop and rangeland ecosystem pests; of which $15,744,000, to remain available until expended, shall be for zoonotic disease management; of which $40,966,000, to remain available until expended, shall be for emergency preparedness and response; of which $56,000,000, to remain available until expended, shall be for tree and wood pests; of which $5,725,000, to remain available until expended, shall be for the National Veterinary Stockpile; of which up to $1,500,000, to remain available until expended, shall be for the scrapie program for indemnities; of which $2,500,000, to remain available until expended, shall be for the wildlife damage management program for aviation safety; of which $17,800,000, to remain available until expended, shall be for science program and transition activities for the National Bio and Agro-Defense Facility: Provided, That of amounts available under this heading for wildlife services methods development, $1,000,000 shall remain available until expended: Provided further, That of amounts available under this heading for the screwworm program, $4,990,000 shall remain available until expended; Provided further, That no funds shall be used to formulate or administer a brucellosis eradication program for the current fiscal year that does not require minimum matching by the States of at least 40 percent: Provided further, That this appropriation shall be available for the operation and maintenance of aircraft and the purchase of not to exceed five, of which two shall be for replacement only: Provided further, That in addition, in emergencies which threaten any segment of the agricultural production industry of this country, the Secretary may transfer from other appropriations or funds available to the agencies or corporations of the Department such sums as may be deemed necessary, to be available only in such emergencies for the arrest and eradication of contagious or infectious disease or pests of animals, poultry, or plants, and for expenses in accordance with sections 10411 and 10417 of the Animal Health Protection Act (7 U.S.C. 8310 and 8316) and sections 431 and 442 of the Plant Protection Act (7 U.S.C. 7751 and 7772), and any unexpended balances of funds transferred for such emergency purposes in the preceding fiscal year shall be merged with such transferred amounts: Provided further, That appropriations hereunder shall be available pursuant to law (7 U.S.C. 2250) for the repair and alteration of leased buildings and improvements, but unless otherwise provided the cost of altering any one building during the fiscal year shall not exceed 10 percent of the current replacement value of the building.

In fiscal year 2020, the agency is authorized to collect fees to cover the total costs of providing technical assistance, goods, or services requested by States, other political subdivisions, domestic and international organizations, foreign governments, or individuals, provided that such fees are structured such that any entity's liability for such fees is reasonably based on the technical assistance, goods, or services provided to the entity by the agency, and such fees shall be reimbursed to this account, to remain available until expended, without further appropriation, for providing such assistance, goods, or services.

PROJECT STATEMENT

Table APHIS-11. Project Statement (thousands of dollars, staff years (SY))

Item	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	Inc. or Dec.	Chg Key	SY	2020 Budget	SY
Discretionary Appropriations:											
Safeguarding and Emergency Preparedness/Response											
Animal Health Technical Services	$37,857	156	$37,857	156	$37,857	156	+$7,000	(1A1)	+14	$44,857	170
Aquatic Animal Health	2,253	13	2,253	13	2,253	13	-	(1A2)	-	2,253	13
Avian Health	55,340	247	62,840	247	62,840	247	-	(1A3)	-	62,840	247
Cattle Health	91,500	473	96,500	473	96,500	473	-	(1A4)	-	96,500	473
Equine, Cervid & Small Ruminant Health	20,000	120	20,000	120	20,000	120	-3,500	(1A5)	-18	16,500	102
National Veterinary Stockpile	5,723	7	5,725	7	5,725	7	-	(1A6)	-	5,725	7
Swine Health	24,800	146	24,800	146	24,800	146	-5,047	(1A7)	-16	19,753	130
Veterinary Biologics	16,417	101	16,417	101	16,417	101	-	(1A8)	-	16,417	101
Veterinary Diagnostics	39,540	151	39,540	151	39,540	151	+9,690	(1A9)	+12	49,230	163
Zoonotic Disease Management	16,523	64	16,523	64	16,523	64	-779	(1A10)	-	15,744	64
Subtotal, Animal Health	309,953	1,478	322,455	1,478	322,455	1,478	+7,364		-8	329,819	1,470
Agricultural Quarantine Inspection (Appropriated)	29,330	372	31,330	372	31,330	372	-	(1B1)	-	31,330	372
Cotton Pests	11,520	51	11,520	51	11,520	51	-4,520	(1B2)	-	7,000	51
Field Crop & Rangeland Ecosystems Pests	8,826	77	9,326	77	9,326	77	-1,517	(1B3)	-5	7,809	72
Pest Detection	27,446	190	27,446	190	27,446	190	-	(1B4)	-	27,446	190
Plant Protection Methods Development	20,686	131	20,686	131	20,686	131	-	(1B5)	-	20,686	131
Specialty Crop Pests	166,500	718	178,170	718	178,170	718	-1,327	(1B6)	+35	176,843	753
Tree & Wood Pests	54,000	301	56,000	301	56,000	301	-	(1B7)	-	56,000	301
Subtotal, Plant Health	318,308	1,840	334,478	1,840	334,478	1,840	-7,364		+30	327,114	1,870
Wildlife Damage Management	103,376	589	108,376	589	108,376	589	-	(1C1)	-	108,376	589
Wildlife Services Methods Development	18,856	125	18,856	125	18,856	125	-	(1C2)	-	18,856	125
Subtotal, Wildlife Services	122,232	714	127,232	714	127,232	714	-		-	127,232	714
Animal & Plant Health Regulatory Enforcement	16,224	116	16,224	116	16,224	116	-	(1D1)	-	16,224	116
Biotechnology Regulatory Services	18,875	96	18,875	96	18,875	96	-	(1D2)	-	18,875	96
Subtotal, Regulatory Services	35,099	212	35,099	212	35,099	212	-		-	35,099	212
Contingency Fund	477	5	470	5	470	5	-	(1E1)	-	470	5
Emergency Preparedness & Response	40,966	199	40,966	199	40,966	199	-	(1E2)	-	40,966	199
Subtotal, Emergency Management	41,443	204	41,436	204	41,436	204	-		-	41,436	204
Subtotal Safeguarding and Emergency Preparedness/Response	827,035	4,448	860,700	4,448	860,700	4,448	-		22	860,700	4,470
Safe Trade and International Technical Assistance											
Agriculture Import/Export	15,599	81	15,599	81	15,599	81	-	(2A)	-	15,599	81
Overseas Technical & Trade Operations	22,114	55	22,115	55	22,115	55	-	(2B)	-	22,115	55
Subtotal Safe Trade and International Technical Assistance	37,713	136	37,714	136	37,714	136	-		-	37,714	136
Animal Welfare											
Animal Welfare	28,810	232	30,810	232	30,810	232	-	(3A)	-	30,810	232
Horse Protection	697	6	705	6	705	6	-	(3B)	-	705	6
Subtotal, Animal Welfare	29,507	238	31,515	238	31,515	238	-		-	31,515	238
Agency Wide Programs											
APHIS Information Technology Infrastructure	4,251	-	4,251	-	4,251	-	-	(4A)	-	4,251	-
Physical/Operational Security	5,146	5	5,146	5	5,146	5	-	(4B)	-	5,146	5
Rental and DHS Security Payments	42,560	-	42,567	-	42,567	-	-	(4C)	-	42,567	-
Subtotal, Agency Management	51,957	5	51,964	5	51,964	5	-		-	51,964	5
Subtotal, Appropriated	946,212	4,827	981,893	4,827	981,893	4,827	-		22	981,893	4,849

Item	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	Inc. or Dec.	Chg Key	SY	2020 Budget	SY
General Provision 757 - Citrus Greening	5,500	-	-	-	-	-	-		-	-	-
General Provision 771 - Citrus Greening	-	-	7,500	-	7,500	-	-7,500		-	-	-
Subtotal, Discretionary Appropriated	951,712	4,827	989,393	4,827	989,393	4,827	-7,500		22	981,893	4,849
Authority from Offsetting collections....	201,731	1,685	206,990	1,785	194,872	1,785	+195		-	195,067	1,785
Mandatory Funding:											
Farm Bill, Section 10007	62,500	15	75,000	26	75,000	26	-		-	75,000	26
Farm Bill, Section 2408	-	-	-	-	37,500	200	-37,500		-200	-	-
Farm Bill, Section 12101	-	-	-	-	120,000	30	-120,000		-30	-	-
Sequester P.L. 113-6…Farm Bill.....	-4,313	-	-4,950	-	-4,650	-	+4,650		-	-	-
Subtotal, Farm Bill	58,188	15	70,050	26	227,850	256	-152,850		-230	75,000	26
Trust Funds.....	9,613	50	9,510	50	9,000	50	-		-	9,000	50
Trust Funds Sequester Restored P.L. 113-6.....	89	-	91	-	87	-	-5		-	82	-
Foreign Service National Separation Liability Trust.....	-	-	157	-	200	-	-		-	200	-
Agricultural Quarantine Inspection User Fees:											
Total Collections.....	767,682	1,250	795,675	1,325	795,000	1,325	-		-	795,000	1,325
Less: Transfer to DHS	-534,515	-	-539,000	-	-539,000	-	-		-	-539,000	-
Sequester P.L. 113-6 ...AQI.....	-51,399	-	-50,490	-	-47,430	-	+47,430		-	-	-
Sequester Restored…AQI User Fees.....	44,574	-	51,399	-	50,490	-	-3,060		-	47,430	-
Subtotal, AQI User Fees (APHIS).....	226,342	1,250	257,584	1,325	259,060	1,325	44,370		-	303,430	1,325
Subtotal, Mandatory Funding	294,232	1,315	337,392	1,401	496,197	1,631	-108,485		-230	387,712	1,401
Total Appropriations.....	1,447,674	7,827	1,533,775	8,013	1,680,462	8,243	-115,790		-208	1,564,672	8,035
Transfers In:											
CCC.....	23,901	1	-	-	-	-	-		-	-	-
Departmental	150	-	90	-	-	-	-		-	-	-
Transfers Out:											
Working Capital Fund	-	-	-450	-	-	-	-		-	-	-
Subtotal, Transfers.....	24,051	1	-360	-	-	-	-		-	-	-
Sequestration P.L. 113-6….Trust Funds	-91	-	-87	-	-82	-	+82		-	-	-
Recoveries, Trust Funds	149	-	122	-	-	-	-		-	-	-
Recoveries	39,029	-	37,139	-	-	-	-		-	-	-
Balance Available, SOY.....	485,876	642	529,075	549	591,549	625	+143,310		+342	734,859	967
Total Available	1,996,688	8,470	2,099,665	8,562	2,271,929	8,868	+27,602		+134	2,299,531	9,002
Lapsing Balances.....	-8,458	-306	-8,875	-568	-	-	-		-	-	-
Balance Available, EOY.....	-529,075	-549	-591,549	-625	-734,859	-967	-19,057		-83	-753,916	-1,050
Total Obligations	1,459,155	7,615	1,499,241	7,369	1,537,070	7,901	8,545		51	1,545,615	7,952

JUSTIFICATION - SALARIES AND EXPENSES

(1) A net increase of 22 staff years for Safeguarding and Emergency Preparedness/Response

A) A net increase of $7,364,000 and net decrease of 8 staff years for Safeguarding and Emergency Preparedness/Response – Animal Health

1) An increase of $7,000,000 and 14 staff years for the Animal Health Technical Services program ($37,857,000 and 156 staff years available in 2019).

APHIS' Animal Health Technical Services (AHTS) program develops and enhances the tools available for acquiring and managing vital animal health information for improving global market access. Incorporating national surveillance data standards into data management applications enables animal health information to be compiled nationally, thus leveraging the work of animal health professionals nationwide to meet local, State and national veterinary health objectives. Private veterinarians, trained and accredited through APHIS' National Veterinary Accreditation Program (NVAP), help producers meet export requirements and disease program standards, allowing U.S. animals and animal products to compete in the global economy. APHIS' shared disease transmission and spread models, which the Agency develops for the NVAP, improve planning, managing, and responding to an animal health incident.

The national animal disease traceability (ADT) framework allows Federal, State, Local, Tribal, and private animal health professionals to quickly identify diseased animals, trace their movements, and control disease spread to protect U.S. livestock. This system assures trading partners that the United States is committed and able to rapidly detect and contain an animal disease of concern. The USDA National Agricultural Statistics Services valued production of the U.S. livestock industry at approximately $69 billion in 2017. APHIS' ADT system helps reduce the number of animals involved in an investigation, reduces the time to respond, and decreases the cost to producers. Moreover, this system assures trading partners that USDA is committed and able to rapidly contain an animal disease event. APHIS has established national baselines for ADT tracing activities. States/Tribes have improved their ability to retrieve the requested animal identification information and are now able to do so successfully 99.5 percent of the time. Prior to implementation of the national baseline for tracing activities, the combined times for three standard types of traces was 490 hours. That combined total dropped to 123 hours in FY 2015 and has continued to decline through FY 2018 to a total of 47 hours.

The AHTS program evaluates existing animal health data systems and applications to determine if they are functioning as intended and meeting customer needs, or if they should be modified, enhanced, or replaced. APHIS makes these systems available to States and Tribal Nations to support their traceability plans and other animal health activities. For example, in FY 2018, APHIS conducted a feasibility and affordability analysis of the Mobile Information Management System, which supports the agency's cattle fever tick eradication program operations. As a result of the analysis, the agency completed a project that modified and enhanced the Mobile Information Management System. These enhancements allow for real-time scanning of animal identification tags, improving the ability to track and monitor animal movement particularly along the U.S. Mexico border.

Additionally, the AHTS program uses epidemiologic and economic models to improve the understanding of historical events, estimate future consequences, and inform strategic, logistical, and budgetary decisions. In FY 2018, APHIS continued to develop and update foot-and-mouth disease (FMD), classical swine fever, and avian influenza models for contingency planning, evaluating potential control strategies, estimating potential consequences of disease introduction and spread, and analyzing surveillance and response activities for recent outbreaks. APHIS also continues to address challenges by developing models designed to advance our understanding of disease epidemiology for the purposes of emergency preparedness and management. Working with the Agricultural Research Service's Foreign Animal Disease Research Unit in FY 2018, APHIS analyzed experimental data for FMD transmission, persistence, and infection dynamics in order to inform parameter development in disease-spread and control models.

The NVAP authorizes private veterinary practitioners to work cooperatively with Federal veterinarians and State animal health officials to report when there are suspect animal diseases. APHIS' NVAP offers educational modules to more than 66,000 highly-trained accredited veterinarians, significantly expanding public outreach. This provides the first step in rapid diagnosis,

quarantine, and other control measures to safeguard our nation's animal and human health. Accredited veterinarians also provide official animal, flock, and herd health certifications, disease testing, and traceability practices for billions of animals each year. Mandatory training and renewal of accreditation provide increased knowledge of animal disease surveillance, prevention, zoonosis, judicious use of antimicrobials, animal welfare, and disaster preparedness. APHIS currently hosts 31 web-based supplemental training modules for accredited veterinarians. Since FY 2011, accredited veterinarians have completed more than 600,000 web modules, with more than 35,000 modules completed at veterinary conferences nationwide.

This program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world by quickly controlling the spread of animal diseases to protect the U.S. livestock industry. In FY 2020, the program will continue to focus on the highest priority technology investments that fully integrate animal health information for State and Tribal partners; collaborate with State animal health officials to identify diseased animals and trace their movements; and train veterinarians to help producers meet export requirements and disease program standards.

Overall, base funding for the Animal Health Technical Services program currently supports salaries and benefits of personnel, contracts and agreements, and other normal operating costs such as travel, supplies, rent, and utilities necessary to conduct program activities.

a) An increase of $7,000,000 and 14 staff years for ADT enhancements and emerging disease and pest activities.

   APHIS is requesting a $4 million increase with nine staff years to enhance the tracking and reporting of animals through the end of their lifespan, and to improve the record keeping systems that support the national ADT framework. With the additional funds, APHIS would modernize its investments in equipment panels and readers at slaughter plants, allowing the Agency to better track and report when animals are no longer in the system, and retire animal identification tags as appropriate. Currently, the system tracks the animals from the beginning of their movement. The new system will enhance the tracking throughout the lifespan of the animal with the implementation of an electronic ear tag and scanner. Retiring identification tags for dead animals is currently an issue because it requires removing and cleaning each ear tag, manually entering identification numbers into the system to find a match, and then closing the number. This method is labor intensive, time consuming, and inefficient. With electronic ear tags and scanners, identification numbers could be scanned, matched, and closed quickly, efficiently, and accurately. In addition, APHIS would also improve the software associated with its record keeping systems, including electronic health certification. With improved software, the Agency could fully implement an electronic Health Certification System for the interstate movement of livestock. Under this system, accredited veterinarians may enter all animal health certificate data online, where the animal's movements will be tracked and stored through its lifespan. The online system also could produce paper or electronic certificates, whereas the current system requires the entry of certificate data from a paper document.

   In addition, APHIS is requesting $3 million and five staff years to help implement the United States National List of Reportable Animal Diseases (NLRAD). The U.S. NLRAD is a uniform, science- and policy-based, nationally supported standardized list of animal diseases and agents. In 2013, APHIS began to incorporate the NLRAD into the National Animal Health Reporting System, in cooperation with participating States. APHIS is currently in the process of writing a regulation for the NLRAD, which will require States, laboratories, veterinarians, researchers, and producers to report suspected animal diseases. Additional resources will be used for stakeholder outreach, development and maintenance of IT systems, data analysis, emerging disease investigations, and reporting. Existing reporting from Federal and State disease programs will feed into the NLRAD. This new framework will allow diagnostic laboratories to investigate newly identified pathogens and determine their significance and potential for economic impacts. It also would provide Federal officials and State cooperators with resources to conduct field investigations and surveillance. Further, it would enable laboratories to develop new diagnostic tools for the management of emerging diseases and for the reporting of detections.

Emerging animal diseases have the potential to negatively affect animal health, public health, and trade. If they are not detected and addressed, they could threaten the livelihood of producers or limit their access to important markets (domestically or internationally). In recent years, we have seen events such as porcine epidemic diarrhea virus in swine, novel parvovirus in horses, and the identification of a new tick species in multiple livestock species and wildlife. The United States had previously never identified this tick species, which is capable of carrying many devastating diseases in livestock as well as zoonotic diseases. The additional funding also would allow the creation and implementation of a new component of the NLRAD that addresses emerging animal disease surveillance and response. APHIS has developed an emerging disease surveillance and response plan that is compatible with the new component. The new component will lead to increased field investigations with State and Federal officials; new laboratory methodologies and expanded diagnostic testing for new pathogens at laboratories; data collection, management and reporting; and coordination with public health partners for zoonotic disease concerns.

The NLRAD framework is a vital component of comprehensive and integrated animal disease surveillance in the United States. It will provide the basis for consistent reporting with uniform case findings and reporting criteria. It will facilitate national, interstate, and international commerce; assist in meeting international reporting obligations to the World Organisation for Animal Health and trading partners; support the generation of export certifications; contribute to the assessment and reporting of listed zoonotic and endemic animal diseases; and facilitate response to an emerging disease or issue. This framework will also align U.S. reporting standards with the national reporting standards of other countries, such as Australia, Canada, Mexico, and the European Union. The NLRAD concept encourages consistent disease reporting; facilitates national, interstate, and international commerce; and assists in meeting international reporting obligations. It benefits the U.S. agricultural industry by enhancing animal disease surveillance and standardization of animal disease reporting and improving international transparency and relations.

2) Aquatic Animal Health program ($2,253,000 and 13 staff years available in 2019).

The Aquatic Animal Health program protects the health and value of U.S. farm-raised aquatic animals and natural resources by carrying out activities consistent with the National Aquatic Animal Health Plan (NAAHP), which calls for surveillance and testing of high-consequence aquatic animal diseases. The NAAHP helps the Federal government develop policies and programs to address aquatic animal diseases for the benefit of aquaculture and aquatic animal resources. Together, USDA, the U.S. Department of Commerce, and the U.S. Department of the Interior implement the plan.

APHIS works with the National Aquaculture Association on the Commercial Aquaculture Health Program Standards (CAHPS). The goal of CAHPS is to support improved health management, protection and expansion of aquaculture business opportunities, promotion and facilitation of trade, and improved resource protection. The CAHPS establishes plans for biosecurity, surveillance, and response related to animal health events; well-managed surveillance planning is the foundation for animal health activities. In addition, CAHPS establishes a non-regulatory framework to improve and verify the health of farm-raised aquatic animals to provide leverage in trade negotiations. The aquaculture industry and State governments use this framework to maintain or enhance their aquatic animal health programs. This effort positions commercial producers to better compete in domestic and international trade markets, valued at $1.6 billion (2012 USDA Census of Agriculture), and helps the aquaculture industry demonstrate adherence to sound aquatic animal health practices. The Aquatic Animal Health program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world.

In recent years, APHIS has added several aquatic animal pathogens to the National Animal Health Laboratory Network (NAHLN) repertoire of standardized testing, including infectious salmon anemia virus, spring viremia of carp virus, and viral hemorrhagic septicemia virus. Incorporating these pathogens into the NAHLN has helped standardize aquatic animal pathogen testing and build our Nation's capacity to respond to aquatic animal disease outbreaks, support surveillance, and maintain or expand U.S. export markets.

Overall, base funding for the Aquatic Animal Health program currently supports salaries and benefits, and other program operating costs such as travel, supplies, rent, and utilities necessary to conduct program activities.

3) Avian Health program ($62,840,000 and 247 staff years available in 2019).

The Avian Health program protects the U.S. poultry industry, valued at $43 billion in 2017 (National Agricultural Statistics Service, USDA), while facilitating trade in poultry and poultry products. This program consists of the surveillance, prevention, and control of avian diseases; disease threat planning and response; international health activities; and modeling activities. To ensure the poultry industry maintains worldwide competitiveness, it is essential to quickly detect and address endemic, emerging, and foreign disease threats. To quickly detect avian diseases, APHIS conducts surveillance in domestic poultry, live bird marketing systems (LBMS), and wild birds. The Agency helps prevent and/or control the spread of avian diseases through collaboration, education, and regulatory enforcement. APHIS designed these prevention and control activities to quickly diagnose disease, improve biosecurity conditions, and minimize the effects of avian influenza (AI) on the LBMS and commercial poultry industry.

The National Poultry Improvement Plan (NPIP) is a cooperative Federal-State-industry program that helps participants guard against disease incursion and enhance the marketability of poultry and poultry products. The NPIP AI prevention and control program involves the participation of all 50 States and Puerto Rico; more than 95 percent of commercial broiler, turkey, and egg industries; and 100 percent of the primary poultry breeding industry. Approximately 100 authorized and approved laboratories provide diagnostic testing for the program.

The LBMS is a network of U.S. live poultry markets and their production and distribution systems, which provides fresh poultry meat to consumers. Approximately 40 States and the U.S. Virgin Islands have live bird markets that participate in the Agency's AI prevention and control program. State cooperators help conduct surveillance and diagnostic activities for the LBMS. When these tests yield presumptive positive results, APHIS confirms the presence and strain of AI. LBMS testing prevents and controls the disease in markets and among producers and distributors that supply those markets. These prevention and control activities are designed to quickly diagnose disease, improve biosecurity conditions, and minimize the effects of AI on the LBMS and commercial poultry industry.

Overseas, APHIS facilitates agricultural trade, works with agricultural officials, monitors agricultural health, and supports efforts in sanitary and phytosanitary standard-setting. In addition, the agency works with the USDA Foreign Agricultural Service and the U.S. Trade Representative's Office to maintain a coordinated, strategic approach to resolving avian health issues that affect U.S. exports. Further, APHIS coordinates with the World Organisation for Animal Health and other international organizations to assist with disease prevention, management, and eradication activities in HPAI-affected regions. Assisting other countries in emergency preparedness reduces the risk of the disease spreading from overseas to the United States. To open markets for U.S. poultry, APHIS negotiates protocols for trade of poultry and related products. When markets close to certain States or regions in response to LPAI detections, APHIS provides science-based rationales to reopen markets, coordinates informational visits and exchanges, facilitates the U.S. industry's access to foreign decision-makers, and participates in negotiations.

In addition, APHIS sponsors and staffs the Emergency Management Center (formerly the Crisis Management Center for Animal Health) at the Food and Agriculture Organization (FAO) of the United Nations in Rome, Italy. The Agency provides a veterinarian for this Center, which helps countries respond to and contain animal disease threats. The Center also provides assessments, guidance and resources to enable rapid response to animal disease outbreaks in countries where the United States would have difficulties placing personnel or responding bilaterally. This approach reduces the threat of disease outbreaks becoming widespread and evolving into pandemics. APHIS ensures that U.S. trading partners adhere to the Sanitary and Phytosanitary rules of the World Trade Organization and other international standards-setting organizations, as the United States and FAO-Rome expand their cooperating relationships and establish new partnerships.

This program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world by quickly detecting and then addressing economically

significant avian diseases that impact the value and marketability of U.S. poultry and poultry products.

Overall, base funding currently for the Avian Health program supports salaries and benefits, cooperative agreements and programmatic contracts, and other normal operating costs such as travel, supplies, rent, and utilities to conduct program activities.

4) Cattle Health program ($96,500,000 and 473 staff years available in 2019).

The Cattle Health program protects and improves the quality, productivity, and economic viability of the U.S. cattle and bison industry, valued at $111 billion in 2017 (National Agricultural Statistics Service, USDA). The Cattle Health program has two major goals: to rapidly detect and respond to diseases that could significantly affect the U.S. cattle and bison population, and to prevent the spread of any newly detected disease in the United States as well as endemic domestic cattle and bison diseases of concern. To accomplish these goals, APHIS conducts activities related to surveillance and monitoring, disease prevention, and disease investigation and outbreak response actions. In addition, APHIS maintains regulations, national program standards, and guidelines that direct cattle health activities at the Federal, State, and Tribal level. Maintaining these standards is a vital Federal responsibility that supports interstate and international commerce by providing assurances about the health of animals and products being moved or traded.

APHIS conducts surveillance and monitoring activities for diseases to protect the health of U.S. cattle and facilitate trade. Surveillance information within the Cattle Health program verifies that certain diseases do not exist in the cattle population, thus facilitating trade and protecting public health. For example, surveillance information on bovine spongiform encephalopathy (BSE) has been instrumental in allowing the United States to maintain export markets for all beef, which were worth approximately $6.2 billion in FY 2017 (International Trade Centre).

APHIS conducts surveillance for diseases of concern including bovine tuberculosis (TB), brucellosis, and BSE. APHIS' surveillance and disease prevention activities for bovine TB includes testing live cattle and using slaughter surveillance data from the USDA's Food Safety and Inspection Service. Since the bovine TB program began in 1917, the prevalence of TB has significantly decreased in U.S. livestock. Today, the prevalence rate in cattle herds is at less than 0.001 percent. We also have had success in reducing the prevalence of brucellosis. All 50 States, including the District of Columbia, Puerto Rico, and the U.S. Virgin Islands, have been free of brucellosis since July 2009; however, bovine brucellosis remains endemic around the Greater Yellowstone Area in wild bison and elk.

APHIS, with cooperation from the State of Texas, also maintains a permanent quarantine zone on the Texas/Mexican border to prevent cattle fever ticks (CFT) from spreading within the United States. Since white tail deer and exotic nilgai act as a carrier for the pests, the risk of ticks crossing the Rio Grande River and leaving quarantines areas continue. The program increased its mitigations by conducting more individual animal inspections, restricting wildlife movement, treating additional white tail deer populations with medicated corn, and increasing the use of vaccines that fight tick infestations. In FY 2018, APHIS conducted 137,565 individual animal inspections and 97,303 treatments throughout South Texas. This program's goal for FY 2020, is to continue to eliminate all CFT outbreaks that occur outside the quarantine area within 12 months.

APHIS also conducts preventive programs to exclude exotic pests and diseases from the country. The Agency works with neighboring countries to prevent the entrance of cattle diseases such as bovine TB, foot-and-mouth disease, and BSE, as well as invasive livestock pests such as screwworm. USDA estimates that the benefits for U.S. livestock producers remaining free of screwworm to be approximately $796 million a year, resulting in $2.8 billion a year in general benefits to the wider economy. APHIS partners with screwworm-free nations to maintain import protocols and quarantine processes to prevent infested animals from entering the United States. In addition, APHIS works with the Panamanian government to maintain a screwworm prevention barrier at the Darien Gap and to be prepared to respond to outbreaks in the United States.

The Cattle Health program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world by protecting and improving the quality, productivity, and economic viability of the U.S. cattle and bison industry. APHIS will continue to

detect, prepare for, and respond to cattle health issues in FY 2020, reducing the likelihood of disease spread that would result in larger and more serious disease outbreaks.

Overall, base funding for the Cattle Health Program currently supports salaries and benefits, cooperative and programmatic contracts, and other normal operating costs such as travel, supplies, rent, and utilities to conduct program activities.

5) A decrease of $3,500,000 and 18 staff years for the Equine, Cervid and Small Ruminant Health program ($20,000,000 and 120 staff years available in 2019).

The Equine, Cervid, and Small Ruminant Health (ECSRH) program protects the health and improves the quality, productivity, and economic viability of the equine, cervid, sheep, and goat industries. The program conducts surveillance, investigates and responds to disease outbreaks, and carries out disease prevention and preparedness activities when animal health issues are identified. APHIS also works with international and domestic trading partners to facilitate safe trade in equine, cervids, and small ruminants and their products and ensure that cases of diseases of trade concern are reported to the World Organisation for Animal Health. The ECSRH program conducts surveillance activities for the following diseases: equine infectious anemia, equine piroplasmosis, Eastern equine encephalitis, Western equine encephalitis, West Nile virus, equine herpes virus, and scrapie.

The program protects the equine industry by helping State animal health officials monitor equine diseases that threaten animal and human health, such as equine infectious anemia and equine piroplasmosis. The United States is the world's second leading exporter of horses by value, accounting for 17 percent of the $2.7 billion worldwide market value (Global Trade Atlas 2017). According to a study conducted by the American Horse Council, the industry's 7.2 million horses contribute approximately $50 billion in direct economic impact to the U.S. economy. Biting arthropods transmit equine infectious anemia and equine piroplasmosis diseases, and no vaccine is currently available, making surveillance efforts more meaningful. Equine infectious anemia surveillance efforts have been very successful. The rate of reactors among the tested equine population has declined from 3.8 percent in 1972 to 0.00004 percent in 2017. APHIS also collaborates with States and the Centers for Disease Control and Prevention to facilitate communication about zoonotic diseases in equines including Eastern equine encephalitis, Western equine encephalitis and West Nile virus. In FY 2018, State animal health officials and private veterinarians reported 97 cases of equine encephalitis to APHIS' electronic surveillance and reporting system.

Scrapie is a fatal, degenerative disease that affects the central nervous system of sheep and goats. The industry loss due to scrapie is estimated to be $10 to $20 million annually, not including lost market opportunities due to export restrictions (National Institute for Animal Agriculture). Since 2003, the percentage of cull sheep sampled at slaughter that tested positive for classical scrapie has decreased significantly. In FY 2018, APHIS collected samples from 43,625 sheep and goats for scrapie testing, detecting three positive (0.0068%) cases. The National Scrapie Eradication Program has a voluntary flock certification component, the Scrapie Free Flock Certification Program (SFCP). Participation in the SFCP enables producers to enhance the marketability of their animals by protecting them from scrapie and provides participants an avenue to export sheep and goats. At the end of FY 2018, 264 flocks were enrolled in the SFCP. Of these, 47 were export certified (scrapie-free), 54 were export monitored (working toward scrapie freedom), and 163 were select monitored (reduced scrapie risk).

APHIS also conducts monitoring and surveillance activities to detect diseases that affect cervids, including chronic wasting disease (CWD) and tuberculosis (TB). APHIS' voluntary national CWD Herd Certification Plan (HCP) works with States, Tribes, and the cervid industry to control CWD in farmed cervids by allowing the interstate movement only from certified herds. Currently, 28 States participate in the national CWD HCP and the program used an immunohistochemistry test method to test 21,584 farmed cervids for CWD. In FY 2018, the program also tested 11,475 animals using a blood test and 2,807 animals by the single cervical skin test for TB.

This program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world by detecting foreign, emerging, zoonotic, and domestic diseases that could substantially impact the economy.

Overall, base funding for the ECSRH program currently supports salaries and benefits, contracts and agreements, equipment, and other normal operating costs such as supplies, rent, and travel to conduct program activities.

a) Eliminate Federal contributions for cervid health program efforts (-$3,500,000 and 18 staff years)

In collaboration with industry and State partners, APHIS developed and implemented a voluntary HCP for CWD. However, CWD continues to spread within the United States. APHIS significantly scaled back its CWD program several years ago due to higher priority animal health needs and the lack of tools available to reduce the spread and eradicate CWD. These challenges still exist. Therefore, APHIS proposes to eliminate Federal contributions for the cervid health program in FY 2020. With the absence of Federal contributions, States and industry would be responsible for carrying out CWD activities.

6) National Veterinary Stockpile program ($5,725,000 and 7 staff years available in 2019).

The National Veterinary Stockpile (NVS) is a component of APHIS' Surveillance Preparedness and Response Services Logistics Center and serves as the primary source of materials, supplies, and equipment for the response to, control of, and containment of significant animal disease outbreaks. The NVS has two primary objectives: to deploy countermeasures, within 24 hours of approval, against the most damaging animal diseases including highly pathogenic avian influenza, foot-and-mouth disease, virulent Newcastle disease, and classical swine fever; and, to assist States, Tribes, and Territories with planning, training, and exercises for the rapid request, receipt, processing, and distribution of NVS countermeasures during an event. To prepare for an incident response, the NVS works with States, Tribes, and Territories to develop their logistical plans, conduct logistical training, and organize full-scale logistical exercises.

To maximize cost-efficiency and response capabilities, NVS personnel work with industry modelers and academic institutions to develop a scientifically estimated quantity of supplies to stockpile for each of the diseases on APHIS' high-consequence diseases list. The NVS personnel gather input from Federal agencies on strategies such as commercially available countermeasures including vaccines, criteria for deploying countermeasures, and ways to leverage stockpiles. The program continues to maintain its capabilities to address high consequence animal diseases, manage inventories, and develop ways to best address the Agency's response capabilities by quickly deploying animal health response resources. For example, the NVS was able to acquire additional poultry depopulation equipment and was successful in providing shipments of personal protective equipment, supplies and equipment in response to the virulent Newcastle disease outbreak in California within 24 hours.

The program facilitates planning and training exercises to identify resource gaps and improve State NVS plans. As a result, animal health officials are better prepared to respond logistically to animal disease outbreaks. In addition to outreach activities, the NVS program partners with other Agency personnel to conduct training to improve communication, collaboration, and integration during a logistics emergency response. These activities enable the Agency, as well as participating stakeholders and partners, to refine their preparedness procedures.

This program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world by deploying supplies and equipment in response to animal disease outbreaks. Without NVS' efforts, disease outbreak response efforts would quickly deplete State resources and overwhelm industry, leading to larger and more serious animal disease outbreaks. In FY 2020, the NVS will continue to deploy countermeasures against the most damaging animal diseases, and assist States, Tribes and Territories with preparing countermeasures during an animal health event.

Overall, base funding for the NVS program currently supports salaries and benefits, supplies, and contracts and agreements, as well as other normal operating costs like rent, travel, and equipment to conduct program activities.

7) A decrease of $5,047,000 and 16 staff years for the Swine Health program ($24,800,000 and 146 staff years available in 2019).

APHIS' Swine Health program protects the health and improves the quality, productivity, and economic viability of the swine industry. The 2017 production value of the swine industry was

approximately $19 billion (National Agricultural Statistics Service, USDA). In addition, the program facilitates trade in swine and pork products, and addresses swine health issues at the human-swine interface and between wildlife and domestic swine. APHIS activities include comprehensive and integrated swine surveillance, emergency preparedness and response planning, disease investigation and control activities, zoonotic disease prevention and response, swine health studies and special projects, collaborations on emerging issues, and outreach and communication with stakeholders. In addition, the Agency maintains regulatory and programmatic guidelines to direct activities at the Federal, State, and Tribal levels. Establishing and maintaining national standards support interstate and international commerce by ensuring the health of animals and products being moved or traded.

APHIS collects swine samples from various surveillance streams as part of a comprehensive integrated surveillance approach to detect swine diseases that could substantially affect domestic producers and the national economy. Comprehensive integrated surveillance includes field work and epidemiological investigations, designated surveillance streams, a veterinary diagnostic laboratory infrastructure, data management systems, and methodologies for data analysis and reporting. Surveillance testing supports the swine industry by assuring trading partners and other stakeholders of the status of swine diseases in the United States.

This comprehensive surveillance approach has enabled APHIS to maintain effective surveillance using a risk-based methodology that targets high-risk samples and reduces surveillance costs. In FY 2018, APHIS tested samples for pseudorabies virus (PRV), swine brucellosis, influenza A virus – swine (IAV-S), and classical swine fever (CSF). Testing results received by November 1, 2018, continued to confirm that all commercial swine herds were free from PRV and swine brucellosis, and that CSF remains eradicated from the United States. However, swine brucellosis and PRV continue to be found in non-commercial herds following exposure to feral swine. In all test-positive cases, APHIS and State partners investigate and quarantine infected herds, conduct outbreak testing to determine herd disease levels, and depopulate or remove infected animals through a test-and-removal strategy to eliminate disease from these herds. These efforts protect commercial herds that may be exposed to infected feral swine. Because APHIS has eliminated PRV and swine brucellosis from all U.S. commercial herds, the Agency continues to modernize surveillance activities to reflect a comprehensive, risk-based, and science-based approach to swine surveillance to support trade efforts while reducing burdens on States and producers.

APHIS has the responsibility under the Swine Health Protection Act to license and inspect swine production facilities that feed cooked garbage to swine, and search for unlicensed facilities that may illegally feed raw garbage to swine. This practice could transmit infectious diseases such as African swine fever (ASF), foot-and-mouth disease (FMD), or CSF to swine. By ensuring that food waste fed to swine does not threaten domestic swine, APHIS protects the commerce, health, and welfare of U.S. citizens.

Swine can harbor several zoonotic disease agents, such as IAV-S, swine brucellosis, and trichinella. In FY 2018, APHIS continued to work with the swine industry to further evaluate the development of a negligible-risk compartment for trichinella. Compartmentalization represents a major shift from the traditional paradigm of disease control in that it defines the health status of a subpopulation of animals by common biosecurity and management principles rather than a shared geographic boundary. Establishing this compartment will enable the U.S. pork industry to access and protect international markets for fresh pork without the need for other mitigations such as individual carcass testing or freezing.

In FY 2018, APHIS supported multiple special projects to advance scientific knowledge, situational awareness, rapid disease detection, advance information technology to support comprehensive surveillance and to advance diagnostic tests that are critical to the Agency's ability to respond to swine and human health events. Specifically, APHIS and industry stakeholders continued validating tests for the use of oral fluids in swine foreign animal disease diagnostics involving CSF, ASF, and FMD.

The Swine Health program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world by preventing and/or mitigating the spread of agricultural pests and diseases. It has the expertise and infrastructure to work with the swine industry, universities, and Federal and State partners to collect, analyze, and disseminate vital swine health

information to those who might act. In FY 2020, the program will continue to develop and maintain swine surveillance protocols to assure the availability of safe and plentiful swine and swine products.

Overall, base funding for the Swine Health program currently supports salaries and benefits, contracts, and agreements, as well as other normal operating costs such as travel, supplies, and rent, and utilities.

a) Reduction for surveillance activities (-$5,047,000 and 16 staff years)

APHIS requests a decrease of $5.047 million for the Swine Health program in FY 2020. At the proposed funding level, the Agency will reduce lower risk surveillance activities, such as the sow/boar surveillance program. The Agency has conducted this surveillance primarily as part of continuing pseudorabies and swine brucellosis surveillance; commercial swine have been free of both of these diseases for many years. In addition, APHIS will reduce the funding it provides to support State swine health activities; continue to fill only the highest priority vacancies; and reduce or delay other operating expenses. The Agency will continue to address the highest program priorities within the established funding level.

8) Veterinary Biologics program ($16,417,000 and 101 staff years available in 2019).

APHIS' Center for Veterinary Biologics (CVB) regulates veterinary biological products under the Virus-Serum-Toxin Act to ensure that they are pure, safe, potent, and effective. Organizations develop these products to prevent, diagnose, and treat animal diseases in a wide variety of animal species. These products are critical for protecting American agriculture, facilitating trade, and enhancing agricultural economic opportunities. The CVB develops regulations concerning the production and licensing of veterinary biologics, evaluates pre-licensing dossiers and issuance of licenses and permits, tests products submitted for licensure, inspects facilities and products, approves product certifications, investigates non-compliance, and conducts post-marketing surveillance to ensure that manufacturers comply with all relevant regulations and policies. This comprehensive regulatory approach is the most effective way to ensure that only quality, Federally-licensed, veterinary biological products are available to U.S. consumers and U.S. export markets.

Before the Agency began regulating these products, farmers and animal health officials found products to be ineffective or contaminated with harmful diseases, including foreign animal diseases (FADs). While most of the time required in the licensing process is in the control of the potential licensee in developing manufacturing processes and conducting required studies, the CVB analyzes data and conducts confirmatory testing before issuing licenses. To reduce the burden on the regulated industry, CVB expedited turnaround times for the licensing process, streamlined information collection required under specific circumstances, and implemented electronic submissions for most required regulatory submissions. In FY 2018, APHIS received 222 applications for new and renewal licenses/permits, and issued 60 licenses/permits for the prevention, diagnosis, management, or cure of existing or new/emerging animal diseases. In addition, the Agency licensed 94 manufacturers and permittees for approximately 1,708 active veterinary biological product licenses/permits for the control of 230 animal diseases.

APHIS inspects manufacturing facilities to ensure that they produce biologics according to regulations. In FY 2018, the program conducted 62 on-site inspections, 27 percent of which supported a new establishment/facility or product license for the industry. Licensed veterinary biologics are vital since manufacturers can use them to make products to diagnose, prevent, or treat animal diseases, or improve existing biologics. In addition, the Agency investigates cases of possible regulation violations and receives adverse event reports regarding veterinary biological products. These events, which may or may not be caused by the product, occur after the product is used. APHIS gathers this information to better learn how products are used in field conditions and applied to the evaluation process to assure that pure, safe, potent, and efficacious products are available.

The United States and foreign countries require import and export certificates to certify that products are prepared according to the Virus-Serum-Toxin Act. In FY 2018, APHIS reviewed/processed 2,333 Certificates of Licensing and Inspection and reviewed/processed 1,045 export certificates for veterinary biological products. The Agency processed all export certificates within four days, and all certificates of licensing and inspection within 28 days. Timely processing helps ensure that markets

are accessible for manufacturers who export their product. APHIS also helped to ensure there were no FAD events related to the importation of 50 million biologics products.

APHIS annually inspects approximately 50 biologics sites to assure compliance and unlicensed entities investigated either move towards licensure of the product in question or cease the objectionable activity. This program has the expertise and infrastructure to work with animal health industries, universities, and State and Federal partners to collect, analyze, and disseminate vital animal health information to those who might take action.

APHIS also continued the implementation of the single-tier labeling rule in regard to veterinary biologics in FY 2018. Under this rule, the product's efficacy descriptions changed from a system that reflected any of four levels of effectiveness to a single, uniform label claim. This simpler format better communicates product performance, saves time and money for the manufacturer, and makes U.S. labeling more consistent with other products in international markets.

APHIS' National Centers for Animal Health (NCAH) Portal allows real-time communication and data exchange between the agency and biologics manufacturers, eliminating the time and costs of deliveries. By the end of FY 2018, 86 percent of licensed firms were using the NCAH Portal. This resulted in CVB receiving 96 percent of marketing documents, 91 percent of biographical summaries, 76 percent of licensing correspondence, and 56 percent of inspection and compliance correspondence via the NCAH Portal. Also, in FY 2018, CVB added submission of export certification and facility documents to the NCAH Portal. During the fourth quarter of FY 2018, the NCAH Portal received 64 percent of export certificates and 95 percent of facility documents.

The Veterinary Biologics program supports USDA's goal to deliver efficient and effective programs by ensuring that veterinary biologic products that enter the market are pure, safe, and effective for use in protecting animal health. The program will continue this important work in FY 2020.

Overall, base funding for the Veterinary Biologics program currently supports salaries and benefits of personnel, and contracts and agreements, as well as normal operating costs such as supplies, travel, rent, and utilities to conduct program activities.

9) A net increase of $9,690,000 and 12 staff years for the Veterinary Diagnostics program ($39,540,000 and 151 staff years available in 2019).

Laboratory and diagnostic services are essential components of the U.S. animal health infrastructure. The Veterinary Diagnostics line item provides partial funding for the National Veterinary Services Laboratories (NVSL), which consists of laboratories in Ames, Iowa, and Plum Island, New York. The World Organisation for Animal Health and the Food and Agriculture Organization recognize NVSL as an international reference laboratory for significant animal diseases such as highly pathogenic avian influenza and foot-and-mouth disease (FMD). It provides diagnostic test services ranging from a single laboratory test to comprehensive laboratory services covering many pathogens for suspected domestic and foreign animal disease (FADs) outbreaks. The line item also supports the National Animal Health Laboratory Network (NAHLN), which is an animal disease surveillance and monitoring system that interconnects Federal and State laboratory resources to improve the security of the nation's livestock by providing disease diagnostics both daily and during outbreaks.

The NVSL is often on the forefront of emerging and re-emerging diseases including porcine epidemic diarrhea virus, Senecavirus A (SVA), and bluetongue. Their diagnostic testing and confirmation of surveillance samples improves the security of the nation's livestock. In FY 2018, the NVSL managed more than 483,800 diagnostic tests and approximately 43,500 accessions (one or more diagnostic samples received from the same submitter on the same day). NVSL also tested 2,344 diagnostic accessions to support FAD investigations in FY 2018. Since 2014, APHIS has experienced a sevenfold increase in investigations largely due to the emergence of SVA. SVA is an infectious, but non-fatal, disease that primarily affects pigs. Because SVA symptoms mimic FMD, APHIS must provide a diagnosis to exclude FMD in each case.

The Veterinary Diagnostics line item also provides support for limited infrastructure in NAHLN laboratories; NAHLN program staff and infrastructure costs; the APHIS Laboratory Portal, which provides secure communication for NAHLN laboratories and proficiency test management for NAHLN and non-NAHLN APHIS-approved laboratories; personnel to provide information

management system support for electronic messaging; and online quality management training the NAHLN laboratories use to maintain qualifications for participating in the network. The NAHLN serves as a vital early warning system for foreign and emerging animal diseases. As of October 2018, the NAHLN consisted of 59 Federal, state, and university veterinary diagnostic laboratories in 42 States. These laboratories work with the NVSL reference laboratories to test for 14 economically devastating and/or potentially zoonotic diseases such as FMD, influenza in avian and swine species, bovine spongiform encephalopathy, and classical swine fever.

The NVSL trains NAHLN laboratory personnel to ensure proficiency and standardization for performing diagnostic tests for economically devastating and/or potentially zoonotic diseases. The NAHLN program staff conducts exercises to prepare participating laboratories for animal disease outbreak scenarios; this enables the laboratories to remain proficient in animal disease testing. It also enables them to generate a rapid, local preliminary diagnostic result while confirmatory testing is performed at the NVSL. The program has made it a priority to increase the number of NAHLN laboratories that are capable of electronically messaging test result data to APHIS. In FY 2018, 43 laboratories were capable of such electronic messaging. APHIS projects that number to increase to 45 in FY 2019, 55 in FY 2020, and 58 in FY 2021.

APHIS continues to work with the Department of Homeland Security (DHS) and USDA's Agricultural Research Service (ARS) to transition from the Plum Island Animal Disease Center (PIADC) in New York to the state-of-the-art National Bio-and Agro-Defense Facility (NBAF) under construction in Manhattan, Kansas, and to transfer ownership and operations of NBAF from DHS to USDA. The PIADC, home to APHIS' Foreign Animal Disease Diagnostic Laboratory (FADDL), is the only U.S. laboratory permitted to work with FMD. FADDL also is the custodian of the North American FMD Vaccine Bank. The NBAF will provide larger and more technologically sophisticated facilities, including the first biosafety level-4 biocontainment facility in the United States. This capacity will enable USDA to conduct diagnostics and research, and develop countermeasures for high-consequence, potentially lethal zoonotic livestock diseases. The NBAF will provide a national capability for exotic infectious, vector borne and zoonotic disease research involving large livestock. It also will provide capabilities to conduct research, develop vaccines and anti-virals, as well as enhanced diagnostic and training to guard against foreign animal, emerging and zoonotic diseases.

In preparation for the transition, APHIS is developing a workforce plan for subject matter experts in foreign, emerging, and zoonotic diseases to conduct diagnostics. The Agency will face a significant loss of expertise in this area, and this plan will help preserve and transfer the U.S. FAD diagnostic institutional knowledge to the NBAF. While the agencies prepare for the transfer of ownership and operations of NBAF to the USDA, DHS will complete the construction of NBAF and decommission the PIADC. The transfer will take place after the facility construction and commissioning is complete, anticipated to occur in May 2021. Planning efforts will continue until the facility is fully operational in 2023.

The Veterinary Diagnostics program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world. The diagnostics testing conducted under this line item can rapidly confirm the presence or absence of a particular animal disease and can promptly provide decision makers with vital information that could have significant trade impacts and prevent or mitigate the spread of significant animal diseases.

a) Reduce NAHLN activities (-$5,110,000)

With the requested decrease, the program will continue working with the NAHLN-participating laboratories on the highest-priority animal health issues but will reduce the funding the agency provides to support their infrastructure needs, primarily related to quality management systems and their ability to electronically message test results. The Veterinary Diagnostics program will redirect this funding to support the agency's critical need of transferring PIADC science program operations to the NBAF.

b) Increase for NBAF science program transition activities (+$14,800,000 and 12 staff years)

APHIS is requesting an increase of $14.8 million, consisting of $11.8 million to support science program transition activities to NBAF and $3 million to address partnership and innovation

activities. This increase, in addition to the $3 million base funding amount in the FY 2018 appropriation, would provide APHIS with total NBAF funding of $17.8 million in FY 2020.

Of the requested increase for science program transition activities, APHIS will use $9 million to purchase laboratory and information technology equipment. The BSL-4 facility at NBAF will increase laboratory capacity to study FADs and emerging diseases with high consequence to animal and public health. In addition, the Agency is unable to transfer its current equipment at the PIADC to the NBAF due to biosafety and logistical reasons. APHIS will purchase the scientific and laboratory equipment necessary for commissioning the NBAF and will establish the initial laboratory diagnostic functions. APHIS will also purchase information technology equipment and software for laboratory functions at NBAF.

Of the requested increase $1.2 million is for recurring costs for the Agency's science program. APHIS has prioritized certain positions for hiring in 2020, or before. Some of these positions will be placed at NBAF since they are critical to developing standard operating procedures, ordering equipment and supplies, developing the International Organization for Standardization (ISO) accreditation paperwork, and assisting with the select agent registration process. Most of the positions will train on FADDL-specific assay protocols and instrumentation systems at the FADDL, before transitioning to NBAF between 2021 and 2023, and will directly support the critical mission objectives of diagnostic testing, reagent production, and management of the North American FMD Vaccine Bank. The overarching responsibilities of all priority hires include the validation of the space for work flows and laboratory practices for both select agent registration and ISO 17025 accreditation, as well as proficiency in the required equipment care, use, and calibration to meet ISO accreditation and biosafety standards. This request also includes two support staff personnel.

The request also includes an increase of $500,000 to continue establishing and maintaining a workforce development program to develop personnel to fill NBAF positions through continued service agreements. This program is critical because subject matter expertise and international recognition in FAD diagnostics take years to develop, yet only a small percentage of the current workforce at the FADDL with that expertise have indicated they will relocate to the NBAF in Kansas. Based on the time required to develop expertise in this area, APHIS anticipates a significant expertise gap, particularly during the first 5-10 years of operations at NBAF. This development program will help preserve and transfer the U.S. FAD diagnostic institutional knowledge to the NBAF. While we can train diagnosticians to perform specific tests such as the polymerase chain reaction or the enzyme-linked immunosorbent assay, interpreting unclear results and troubleshooting diagnostic assays when they do not perform properly requires a high level of expertise. Subject matter experts must complete this work for specific diseases. APHIS and ARS initiated this process in FY 2017 with the $3 million Congress provided to APHIS and $1 million they provided to ARS. While the agencies will need most of these costs each year leading into 2022, some costs associated with the workforce development program may extend into future years to ensure employee coverage.

In addition, the request includes $350,000 for retention and relocation costs. The FADDL must maintain the capability to diagnose FADs until the diagnostic testing program at NBAF is fully operational, validated, and accredited. The agency will need retention incentives with service contracts to maintain up to 11 positions identified as critical for baseline operations until 2023. The agency also needs funding to cover relocation costs for FADDL employees that will transfer to the new facility, as well as costs associated with frequent trips during the early transition years for oversight and planning.

The request also includes $750,000 to allow APHIS to begin document scanning and archiving 60 years of paper files, manuals, and notebooks. APHIS cannot remove these items from the PIADC due to biosafety concerns, and FADDL does not have staff available for this activity. APHIS will contract this work to a company specializing in document scanning technology.

In addition to APHIS science program funding, APHIS is requesting a $3 million increase to address partnership and innovation activities. Within APHIS, NAHLN and FADDL will partner with industry and academia to address critical needs for foreign animal disease preparedness, including those the NAHLN Methods Technical Working Group identified and the NAHLN

Coordinating Council recommended. These critical needs include improved testing technologies such as whole genome sequencing and multiplexed assays, field deployable and point of care diagnostic platforms, and increased sampling strategy options with pooled sample types to enhance early detection, and improved preparedness efforts through validation of protocols with additional equipment and reagents to ensure sufficient availability during an outbreak situation. In addition, partnerships on projects could take advantage of the NBAF Biologics Development Module.

ARS is requesting an additional $27.5 million for FY 2020, which consists of $20 million for operations and maintenance of the new facility under USDA ownership, and $7.5 million for ARS' science program transition activities. In addition to this funding, ARS is requesting a $3 million increase for partnership and innovation activities. Each agency will require additional funding as we near closer to when the facility is fully operational, anticipated to be December 2022. Without the necessary funding, the program would not be able to transition these functions and the timeline would be delayed. All costs are closely associated with and largely dependent on the DHS timeline for construction, commissioning, and select agent registration. Therefore, it will be critical to allocate these funds as no-year funds.

10) A decrease of $779,000 for the Zoonotic Disease Management program ($16,523,000 and 64 staff years available in 2019).

The Zoonotic Disease Management (ZDM) program collaborates with local, State, Tribal, national and international partners to promote healthy animals, people, and eco-systems by addressing zoonotic diseases. This collaborative approach is known as "One Health". Zoonotic diseases are those that pass between animals and people. APHIS provides leadership in addressing the animal health component of One Health by contributing animal health expertise, infrastructure, networks and systems to collaborate with local, State, Tribal, national and international partners. Program personnel develop strategies, policies, and training to help animal health stakeholders effectively engage with public health counterparts, provide guidance, facilitate information exchange, and enhance responses to One Health issues. By enhancing the ZDM program's efforts to address the animal health component of One Health, APHIS is can protect animal health and marketability, while also promoting public health.

In collaboration with other One Health partners, the program provides leadership to address the animal health components of zoonotic diseases. For example, according to a 2011 Centers for Disease Control and Prevention analysis *Salmonella* bacteria causes an estimated 1.2 million human illnesses, 19,000 hospitalizations, and 370 deaths annually in the United States. It has been estimated that Salmonella infections transmitted through animal contact cause 11 percent of all salmonellosis annually. In FY 2018, APHIS collaborated with Centers for Disease Control and State Departments of Public and Animal Health to investigate several multistate outbreaks of human *Salmonella* infections linked to contact with live poultry in backyard flocks, especially chicks and ducklings obtained from mail-order hatcheries. These outbreaks resulted in a total of 334 people infected with the outbreak strains of *Salmonella* reported from 47 States. To prevent infections linked to live poultry, APHIS applied a One Health approach for control and prevention. This approach unifies animal and human health needs and considers the environments at the hatcheries where poultry are produced, the agricultural retail stores where poultry are sold, and the customers who own and raise poultry.

APHIS also partners with the Food and Drug Administration (FDA) to develop practical mitigation strategies to limit or reduce the prevalence of antimicrobial resistance (AMR). AMR is the ability of a microbe in an animal to resist the effects of medication previously used to treat them. The ZDM program works with State and Federal partners, veterinarians, and producers to promote the judicious use of antimicrobials, which will support a strong, healthy, and thriving U.S. animal agriculture system. This work includes surveillance at the farm level, collection of antimicrobial drug use data, and efforts to promote stewardship of antimicrobial drugs by animal owners and veterinarians. In FY 2018, the program completed two studies of on-farm antimicrobial use and stewardship: one on swine operations, and one on cattle feedlot operations. The program will use data collected from these studies as a benchmark for studying changes in antimicrobial use over time related to the FDA Veterinary Feed Directive. Internationally, the program provided comments on several chapters of the World Animal Health Organization (OIE) Terrestrial Animal Health Code related to AMR. APHIS

also collaborated with the FDA to provide input to the OIE ad hoc group in charge of developing a global database on antimicrobial drug use.

This program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world by developing strategies that address zoonotic diseases and reduce AMR prevalence. In FY 2020, APHIS will continue to provide leadership in addressing the animal health component of zoonotic diseases, and collaborate with State and Federal partners, veterinarians, and producers to promote the judicious use of antimicrobials, which will support a strong, healthy, and thriving U.S. animal-agriculture system as well as public health.

Overall, base funding for the ZDM program currently supports salaries and benefits, as well as other normal operating expenses such as travel, supplies, equipment, and rent, and utilities to conduct program activities.

a) A decrease associated with AMR activities (-$779,000)

APHIS requests a decrease associated with on-farm surveillance of AMR. At the requested funding level, APHIS will continue to promote judicious use of antibiotics, and leverage remaining resources across agencies in the areas of surveillance, research, education, and extension/outreach.

B) A decrease of $7,364,000 and an increase of 30 staff years for Safeguarding and Emergency Preparedness/Response – Plant Health

1) Agricultural Quarantine Inspection program ($31,330,000 and 372 staff years available in 2019).

APHIS conducts predeparture agricultural quarantine inspections of passengers and cargo traveling from Hawaii and Puerto Rico to the continental United States to prevent the introduction of non-native agricultural pests and diseases into the mainland. Hawaii and Puerto Rico have pests and diseases harmful to agriculture that are not established in the continental United States. For example, a variety of economically devastating fruit flies – particularly the Mediterranean fruit fly (Medfly) and Oriental fruit fly – and scale pests are present in Hawaii, and Puerto Rico experienced its first Medfly outbreak in FY 2015, along with an outbreak of the old world bollworm. Plant and plant products such as fruits and other commodities can easily carry these pests long distances and would cause significant economic damage to the mainland United States. In addition to the citrus industry that may be at risk (with a production value of more than $3 billion, according to USDA's National Agricultural Statistics Service, Citrus Fruits 2018 Summary), cut flower and nursery stock production is also at risk from the pests and diseases present in Hawaii and Puerto Rico. Additionally, two significant cotton pests, pink bollworm and the cottonseed bug, are present in Puerto Rico and could be brought into the United States on cargo shipments without an effective inspection program. The pre-departure inspection program facilitates tourism and agricultural trade between Hawaii and Puerto Rico and the mainland United States while protecting farmers and producers in the continental United States from the entry of various plant pests and diseases.

Because of the significant risks associated with numerous fruits, vegetables, and other plant products from Hawaii and Puerto Rico, APHIS inspects all baggage of passengers leaving these islands (approximately 11.9 million passengers in FY 2018). The program has maintained a passenger compliance rate of more than 97 percent for the last several years. APHIS conducts these activities as the national plant health regulatory authority in the United States charged with protecting the health and value of agricultural resources. With respect to commercial cargo, the program oversees treatments and conducts inspections in Puerto Rico for mangoes, cotton, tomatoes, cut flowers, and a variety of other commodities to allow them to be transported and sold in the continental United States. In Hawaii, the program oversees treatments for and inspects a variety of commodities destined for the continental United States, including papayas, bananas, sweet potatoes, herbs such as basil, cut flowers, and ginger root.

The Agriculture Quarantine Inspection (AQI) program keeps interstate trade flowing smoothly and safely and allows for efficient processing of tourists, protecting both the economies of Hawaii and Puerto Rico and the agricultural health of the continental United States. The program reduces the impact of agricultural pests and diseases on farmers in the continental United States, minimizing production losses and pest control costs and preserving export markets for U.S. agricultural products. Without this program, the risk of pest or disease introduction from Hawaii and Puerto Rico to the

mainland United States would greatly increase. Additionally, many commodities would not be allowed entry to the continental United States without the inspections and treatments provided by the program, impacting Hawaiian and Puerto Rican producers. Maintaining the safeguards this program provides is essential, especially considering the increasing U.S. consumer demand for year-round fruits and vegetables.

The AQI program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world through preventing the spread of pests and diseases to new areas and through facilitating the movement of commodities in interstate trade.

Overall, base funding for the AQI program currently supports salaries and benefits of inspectors and other staff, as well as normal operating expenses such as rent, utilities, travel, and supplies to conduct program activities.

2) A decrease of $4,520,000 for the Cotton Pests program ($11,520,000 and 51 staff years available in 2019).

The Cotton Pests program, in cooperation with States, the cotton industry, and Mexico, works to eradicate the boll weevil and pink bollworm (PBW) from all cotton-producing areas of the United States and northern Mexico. For decades, these pests have cost cotton growers tens of millions of dollars each year in control costs and crop losses. APHIS provides national coordination, operational oversight, technology development (such as sterile PBW moths), and a portion of program funding. APHIS' partners have provided more than two-thirds of the funding for the boll weevil eradication effort and most of the operational funds for PBW eradication.

The program also maintains capabilities to address other cotton pests that could enter the United States. In addition, APHIS provides technical advice on trapping and treatment protocols to its partners in Mexico to aid their efforts to eradicate boll weevil and PBW. Without continued Federal funding, support and technical expertise for the final phase of the program, eradication would not be possible and previously eradicated cotton acreage would be vulnerable to reinfestation. Additionally, U.S. cotton production may be at risk of new pests approaching the country through the Caribbean Basin and Mexico.

APHIS' Cotton Pests program, along with the States and the cotton industry, have cooperatively eradicated BW from 99.5 percent of the 11 million acres of U.S. cotton. The last remaining affected area in the United States is a portion of the Lower Rio Grande Valley (LRGV) in Texas. The LRGV is the last zone within the United States where active boll weevil eradication efforts continue due to the neighboring Mexican cotton producing state of Tamaulipas and the area's security issues. In FY 2020, APHIS will continue to reduce the boll weevil population in the LRGV and partner with the U.S. cotton industry on boll weevil surveillance efforts for all U.S. cotton production. In addition, APHIS will continue to partner with the Mexican boll weevil eradication program to provide technical assistance and funding for their parallel program to the LRGV program.

APHIS' Cotton Pests program also partners with States and industry to address PBW. After many years of addressing PBW. On October 19, 2018, U.S. Secretary of Agriculture Sonny Perdue, in conjunction with industry partners, officially announced the successful eradication of PBW from all commercial cotton-producing areas in the continental United States. APHIS will continue to work with the U.S. cotton industry post-PBW eradication to monitor, at a lower level, the Southwest part of the United States to ensure the program quickly detects and addresses any potential reintroductions of the pest.

The program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world. According to the National Cotton Council of America, where boll weevil has been eradicated, the combined annual direct economic benefits from increased yields, reduced insect damage and lower insect control costs are more than $80 million. The value of this permanent stream of benefits exceeds $1.2 billion.

Overall, base funding for the Cotton Pest program currently supports salaries and benefits, cooperative agreements and programmatic contracts, as well as other normal operating expenses such as travel, rent, and utilities to conduct program activities.

a) Reduction for program activities (-$4,520,000)

APHIS is requesting a decrease of $4.520 million for the Cotton Pests program since the program declared eradication of PBW and will require fewer resources. The Agency will continue to monitor for the presence of PBW and maintain a sterile PBW moth colony in case a reinfestation occurs. The program will also use remaining funding to continue to address the boll weevil in areas of Texas near the border with Mexico.

3) A decrease of $1,517,000 and 5 staff years for the Field Crop and Rangeland Ecosystem Pests program ($9,326,000 and 77 staff years available in 2019).

The Field Crop and Rangeland Ecosystem Pests (FCREP) program protects U.S. agricultural crops and rangelands from the establishment or spread of invasive or economically significant pests. In doing so, it facilitates safe international trade and domestic commerce, preserves economic opportunities for U.S. farmers and ranchers, and fosters healthy ecosystems in rangelands and other areas. APHIS conducts survey and suppression activities in western States to reduce grasshopper and Mormon cricket (GMC) infestations that could cause significant economic losses for livestock producers by requiring them to buy supplemental feed or sell their livestock at reduced prices. In addition, the Agency develops treatments for land managers to remove imported fire ant (IFA) from their products and prevent re-infestation; conducts regulatory activities to prevent Karnal bunt (KB) and IFA from "hitchhiking" on regulated articles (i.e., nursery stock and farm equipment) to uninfested areas of the United States and foreign countries through trade; and, conducts survey, treatment, and regulatory activities for witchweed infestations in North and South Carolina to protect U.S. corn production. This program directly protects more than 230,000 acres of wheat and corn worth more than $18 million. It indirectly protects all U.S. wheat and corn production, which was worth approximately $57 billion in 2017 (National Agricultural Statistics Service, USDA, Quick Stats), from the spread of KB and witchweed.

When grasshopper populations reach outbreak levels, they can decimate grasslands. APHIS' GMC program monitors and protects 661 million acres of rangeland each year worth a total of nearly $8.7 billion according to a 2012 economic analysis University of Wyoming researchers prepared through a cooperative agreement with APHIS. Each year, APHIS conducts surveys in 17 States for GMC, collecting data at more than 28,000 survey points in FY 2018, to determine where potential outbreaks could occur and where treatments might be necessary. The program also addresses witchweed, a parasitic plant that can significantly damage corn, sorghum, and sugarcane. If witchweed were to spread throughout the Corn Belt, crop yields for corn and sorghum could decrease by 10 percent and trade in commodities from these areas could be negatively impacted. Predictive models published in scientific journals, suggest that APHIS' IFA program is preventing up to 10 additional States from becoming infested. APHIS will continue conducting annual surveys and other activities to manage these pests in FY 2020.

Additionally, as part of the FCREP program, APHIS coordinates an annual voluntary survey of the grain delivered to elevators to check for KB across the country and conducts regulatory activities to prevent the spread of the disease from the remaining infested area in Arizona. Based on the program's quarantine and survey data, APHIS issues export certificates that are required by countries importing U.S. wheat. These certificates demonstrate to trading partners the safety of U.S. wheat exports, retaining export markets and facilitating wheat movement into international markets. If KB funding was eliminated, the disease could enter the grain market system and directly impact almost every State. Many trading partners will not accept U.S. wheat exports unless the commodity is certified to be from areas where KB is not known to occur. Working with cooperators, APHIS has reduced the wheat production areas regulated for KB from all or portions of four States to approximately 190,292 acres in Arizona since 1996. APHIS will continue survey and regulatory activities aimed at keeping KB from causing damage and/or trade disruptions in FY 2020.

The FCREP program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world through its efforts to prevent these pests and diseases from impacting agricultural production or trade.

Overall, base funding for the FCREP program currently supports salaries and benefits, cooperative agreements, and programmatic contracts. Other funding supports normal operating expenses such as rent, utilities, travel, supplies, and equipment to conduct program activities.

a) Reduction for Grasshopper and Mormon Cricket and Roseau cane activities (-$1,517,000 and 5 staff years)

APHIS requests a reduction of $1,017,000 to reduce grasshopper and Mormon cricket activities in FY 2020. Because the number of treatments required varies each year depending on factors such as rainfall and temperature, as well as GMC population levels, the program can sustain a reduction.

APHIS also proposes to remove $500,000 for control of pests that affect Roseau cane in the Mississippi River Delta wetlands. APHIS is using the funding Congress provided in FY 2018 for a 2-year agreement with Louisiana State University, which will be completed in FY 2020.

4) Pest Detection program ($27,446,000 and 190 staff years available in 2019).

The Pest Detection program serves as the early warning system for the detection of plant pests of economic and environmental significance in the United States. The program helps farmers and producers by documenting the status (or absence) of plant pests and diseases that could impact trade opportunities, both interstate and international. It also helps APHIS' state-level partners by providing funding and infrastructure to conduct surveys for high-risk pests that may affect their state. The information the program collects provides the basis for APHIS' emergency response and regulatory efforts that preserve economic opportunities for farmers and safeguard U.S. agricultural and natural resources. Specifically, the program identifies and prioritizes plant pest and disease threats; develops scientifically sound pest survey protocols; procures essential survey materials (traps, lures, etc.); cooperates with State partners to conduct the pest surveys; and, shares data with States about significant pest detections.

APHIS provides national coordination for the program and develops policies and procedures for commodity-based and resource-based pest surveys. These surveys enable APHIS and cooperators to target high-risk hosts and commodities, gather data about pests specific to a commodity, and provide accurate assessments of pest distribution, including pest-free areas. Negative data from program surveys supports U.S. market access for several important commodities by demonstrating that the pests are not present. Examples include data showing that major pests such as the Khapra beetle, a serious pest of wheat and grain, and the European grapevine moth, a pest of grapes, are not present in the United States. Additionally, while many entities are involved in protecting crops and resources, APHIS' role is to verify that U.S. products do not pose risks to other countries. For example, when a survey first detected the pale cyst nematode in Idaho, the program had data demonstrating negative survey results in other potato-producing states that kept export markets open for U.S. potatoes. According to the USDA National Agricultural Statistics Service (NASS), the value of the market that remained open was $239 million in 2017 (NASS Crop Values 2018 Summary). Without funding, APHIS would be unable to conduct surveys for high-risk pests or provide funding to cooperators for these surveys. As a result of APHIS' funding, highly skilled, national cadres of surveyors are in the field on a daily basis looking for high-risk pests. In FY 2018, the program and its cooperators conducted surveys in 52 States and territories for 259 individual pests, pathogens, and noxious weeds. The program also conducted 273 commodity- and taxon-based surveys, with an average of more than five pests per survey. APHIS and State cooperators conduct surveys for multiple pests at each location for efficiency and economy of survey.

Early pest detection is important to avert economic and environmental damage; once a pest becomes established or spreads significantly, the mitigation costs can reach millions of dollars, in addition to lost farm revenues and damage to ecosystems. The Pest Detection program communicates and develops partnerships through cooperative agreements with State departments of agriculture and natural resources, universities, industry partners, tribal and local governments and communities, non-profit organizations, and individuals in all 50 States.

The program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world by helping to support exports and detecting the presence of new pests and diseases before they can spread and cause damage.

Overall, base funding for the Pest Detection program currently supports salaries and benefits, and cooperative agreements, as well as other normal operating expenses such as travel, rent, utilities, and supplies to conduct program activities.

5) Plant Protection Methods Development program ($20,686,000 and 131 staff years available in 2019).

The goal of the Plant Protection Methods Development (PPMD) program is to develop scientifically viable and practical tools for exotic plant pest exclusion, detection, and management. The program plays an essential role in APHIS' mission by developing tools for the detection of exotic plant pests in survey programs; developing molecular diagnostic tests and identification tools for pest identification; developing integrated pest management methods, including biological control, to help eradicate or manage invasive pests; and developing treatments to support interstate and international trade.

APHIS' nationwide pest detection surveys and pest management programs depend on accurate and effective tools. The PPMD program supports development of pest trapping, identification, and survey technologies. Digital pest identification tools and molecular diagnostics developed through PPMD funding supports both domestic programs and import pest identification responsibilities. APHIS uses these tools to conclusively identify exotic species introductions in order to take appropriate regulatory actions. The program also develops pest management techniques that APHIS national programs use to manage or eradicate invasive pest threats.

The PPMD program aims to develop new, or improve existing, tools each year to enhance APHIS' safeguarding capabilities. For pest identification, the program continues to design, develop, and deliver digital, media-rich, identification tools for APHIS to support trade and domestic, port, and offshore pest identification responsibilities. In FY 2018, the Agency released new and updated products to identify exotic bees, invasive aquatic weeds, and noxious weed seeds. The program also enhanced the imageID tool to assist with the identification of pests intercepted at ports, adding more than 15,000 images in FY 2018 for a total of 130,000 images.

The PPMD program also maintains its own quarantine and/or rearing facilities for biological control agents in Arizona, California, Colorado, Massachusetts, Michigan, Texas, and Guatemala. APHIS partners with USDA's Agricultural Research Service, the U.S. Fish and Wildlife Service, State departments of agriculture, universities in 30 States and territories, and 2 Native American Tribes, to evaluate and establish biological control agents for invasive plants, pests and diseases. Some key program targets include Asian citrus psyllid, brown marmorated stink bug, emerald ash borer, Asian longhorned beetle, hemlock woolly adelgid, spotted wing drosophila, mile-a-minute-weed, Dalmatian toadflax and Russian knapweed. As of the end FY 2018, the program's rearing facility in Mission, Texas produced a cumulative total of 8.9 million biological control agents targeting the Asian citrus psyllid since releases began in 2011. Before the release of agents in South Texas, 43 immature psyllids per survey were found on citrus in residential areas. After biological control releases began, the presence of psyllids has gradually decreased. As a result, the program detected only three immature psyllids per survey, representing a 93 percent reduction of insect population.

The program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world by developing tools to preserve economic opportunities for farmers and industries that engage in interstate commerce and international trade, and safeguard U.S. agricultural and natural resources from invasive plant pests. In FY 2020, the program will continue working to develop new tools and pest detection methods for the highest priority pests and diseases.

Overall, base funding for the PPMD program currently supports salaries and benefits, contracts, and agreements, as well as other normal operating expenses such as travel, rent, and supplies to conduct program activities.

6) A net decrease of $1,327,000 and an increase of 35 staff years for the Specialty Crop Pests program ($178,170,000 and 718 staff years available in 2019).

The Specialty Crop Pests (SCP) program protects U.S. farmers and producers of fruits and vegetables, tree nuts, horticulture, and nursery crops from adverse impacts associated with invasive pests, such as crop damage or threats to international trade and interstate commerce. APHIS works in coordination with State, Tribal, university, and industry partners to prevent or mitigate impacts from invasive pests of Federal regulatory significance. These efforts promote the ability of U.S. farmers and producers to export their products, prevent damage to specialty crop production, and protect natural resources, including forests and residential landscapes. Specialty crops are grown in all 50 States, and they have a high economic value. APHIS' SCP program directly protects production (including citrus, grapes, potatoes, nursery stock, and tree fruit) worth more than $9.4 billion in FY 2017, based on internal

analysis using data from the USDA's National Agricultural Statistics Service (NASS) and its Census of Agriculture. APHIS is currently using SCP resources to address the following pests and diseases: exotic fruit flies, a variety of citrus pests and diseases, pale cyst nematode (PCN), light brown apple moth (LBAM), plum pox virus (PPV), European grapevine moth (EGVM), glassy-winged sharpshooter (GWSS), and spotted lanternfly (SLF), among others.

The SCP program partners with affected industries, States, Tribes, academic institutions, and other Federal agencies to deliver domestic programs. Additionally, the program works with its counterparts in foreign countries to address pest risks offshore. For example, the SCP program works with Mexico and Guatemala to mitigate the risk of exotic fruit flies entering the United States. The program has kept the United States free of Mediterranean fruit fly (Medfly) and Mexican fruit fly (Mexfly) for many years by conducting preventative releases of sterile insects to disrupt normal population growth in at-risk areas; detecting and responding to outbreaks when they occur; and maintaining a barrier against the natural spread of the Medfly in Mexico and Central America. Records indicate that Medfly has infested 300 cultivated and wild fruits. The Mexfly also has a wide-ranging host list and presents a particular threat to the Texas citrus industry due to its proximity to infested areas in Mexico. APHIS and cooperators maintain 160,000 fruit fly traps in vulnerable areas to ensure that any introductions of exotic fruit flies are detected quickly. In FY 2018, the program responded to seven new exotic fruit fly outbreaks. Without the program's efforts to detect and eradicate these outbreaks when they occur, many important crops would become impossible to grow due to fruit fly infestations. APHIS will continue activities to prevent, detect and respond to any outbreaks that occur in FY 2020.

APHIS also works with citrus producing States and industry groups to support industry's ability to grow and market U.S. citrus despite the presence of devastating diseases such as citrus greening, or huanglongbing (HLB). Through the Citrus Health Response Program, APHIS supports cooperators' in citrus producing States with the on-the-ground operations, such as surveys, regulatory inspections, and outreach to affected growers and the public, as well as methods development activities at other USDA agencies. APHIS conducts inspections of Florida citrus shipments destined for export to the European Union and other countries, allowing citrus producers to take advantage of export opportunities. Because of the ongoing threat HLB poses, APHIS, other Federal agencies, State partners and the citrus industry work together on the HLB Multi-Agency Coordination (MAC) group to identify and implement tools to combat the disease. The MAC Group has funded research to quickly identify practical tools that can aid the citrus industry to combat HLB. Growers and commercial firms are using one in three of the tools funded through HLB-MAC projects. APHIS is hopeful that the solutions found through this effort will continue to help citrus growers manage the disease, while research into long-term solutions for HLB continues. APHIS will continue to address HLB and other citrus diseases in FY 2020.

While Federal response activities take place in concentrated areas where the infestations occur (e.g., PCN in Idaho or LBAM in California), they also protect all at-risk States producing specialty crops. For example, the SCP program works to address the PCN in Idaho and conduct nationwide surveys for the pest. The nationwide survey demonstrates to trading partners that potato producing areas outside of the quarantined area are not affected by PCN, protecting fresh potato export markets worth $239 million in FY 2017 (NASS' Crop Values 2017 Summary). The program also addresses PPV in New York. PPV is a devastating viral disease of stone fruit and addressing it in New York protects more than 1 million acres of stone fruit across the United States. Without the SCP program, a variety of export markets for U.S. specialty crops would be at risk—the program protected trade worth more than $8.9 billion in 2017.

To protect the U.S. grape and wine industries, APHIS has partnered with California grape growers to eradicate EGVM and prevent the spread of GWSS into grape-producing areas. In the collaborative effort against EGVM, APHIS provided funding, expertise, and operational support for surveys and regulatory efforts to find and prevent the spread of the target pests, while industry funds and conducts the necessary control treatments (with technical guidance from APHIS and State officials). APHIS and its' State, county, and industry partners declared EGVM eradicated in FY 2016, following an intensive, 6-year cooperative effort. Eradicating this pest dramatically lowers growers' production costs and protects or expands export opportunities. Continued surveys help APHIS ensure that this pest is not present and protect the Federal and industry investment in the eradication effort.

The SCP program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world through its efforts to prevent and mitigate the damage caused by pests and diseases that affect fruit and vegetable, nursery stock, and nut production.

Overall, base program funding supports salaries and benefits, cooperative agreements, as well as other normal operating expenses such as supplies, equipment, and rent to support program activities.

a) Increase of $7,000,000 and 35 staff years for spotted lanternfly control efforts.

APHIS and Pennsylvania first detected and addressed the spotted lanternfly (SLF), an invasive insect that damages many types of fruit and ornamental trees, in 2014 in the southeastern portion of Pennsylvania. Using emergency funds from the Commodity Credit Corporation in FY 2018, the program expanded intensive survey and control efforts targeting the pest in Pennsylvania after determining that the pest population was expanding. Through these activities, APHIS and cooperators conducted intensive surveys to determine the magnitude of the infestation and found that it extends into New Jersey, Delaware, and Maryland. APHIS is also addressing a smaller infestation in Virginia. In FY 2018, the program conducted visual surveys at more than 34,000 points (each survey point consists of five or more trees in a given location) to determine the outer edge of the infestation. Following the visual surveys, APHIS assessed 4,187 properties covering 22,975 acres and completed treatments on 339 properties covering more than 13,000 trees. This $7 million request would allow APHIS to continue these efforts to control SLF and prevent the pest from affecting specialty crop production areas with apples and grapes. The affected States have approximately 34,000 acres of apple production with a value of $211 million in 2017 and 16,300 acres of grape production valued at more than $44 million in 2017 (NASS QuickStats).

b) Reduce Federal funding for specific pest and disease programs (-$8,327,000)

APHIS is requesting decreases totaling $8,327,000 to reduce the Federal contributions towards specific pest and disease programs. State and industry partners are beneficiaries of these programs, and APHIS will shift certain activities to program partners for a more equitable share of program costs. The reductions consist of the following:

Reduction of $4.327 million for the Glassy-winged Sharpshooter Program, reducing the Federal portion of the program from 53 percent to 42 percent.

Reduction of $3 million for the European Grapevine Moth Program, reducing the Federal portion of the program from 100 percent to approximately 55 percent.

Reduction of $1 million for the Pale Cyst Nematode Program, reducing the Federal portion of the program from 97 percent to approximately 82 percent.

7) Tree and Wood Pests program ($56,000,000 and 301 staff years available in 2019).

America's forests are valuable resources that provide jobs and recreation opportunities and create habitat for wildlife. They provide economic opportunities and ecosystem services worth an estimated $1.2 trillion. Through the Tree and Wood Pests (TWP) program, APHIS addresses devastating pests such as the Asian longhorned beetle (ALB), emerald ash borer (EAB), and European gypsy moth (EGM). Numerous native hardwood tree species that are common throughout U.S. forests and urban landscapes are hosts to these pests. When forest pests like EAB kill large numbers of trees in urban and suburban areas, they can cause tremendous, wide-ranging impacts to communities, landscapes, and commerce. In addition, exports of forest products such as logs and timber could be at risk due to trade restrictions put in place by other countries. Nationwide, APHIS programs protect 596 million acres of forested land by preventing the spread of damaging pests. Without Federal funding, forest pests would spread more rapidly throughout the United States, and responding to newly introduced pests would become increasingly difficult.

APHIS cooperates with State and local agencies and organizations in 48 States to conduct various activities to manage and, when feasible, eradicate forest pests. These activities include conducting surveys, implementing control measures, developing methods and processes to combat pests, and conducting outreach efforts to prevent pest spread. APHIS' role in the TWP program is to oversee the regulatory framework to prevent the human-assisted movement of these pests and to provide national oversight and coordination for program activities to detect and eradicate or manage the pests. In FY

2020, APHIS will continue addressing ALB outbreaks in Massachusetts, Ohio, and New York and pursuing biological control options as a long-term EAB management strategy. In addition, APHIS, along with the Forest Service and the EGM Slow-the-Spread Foundation, will continue to work to slow the spread of EGM and eradicate isolated populations, keeping this pest from becoming a larger issue.

Overall, base funding for the TWP program currently support salary and benefits, contracts, and cooperative agreements, as well as other normal operating expenses such as rent, supplies, travel, and equipment to conduct program activities.

C) Safeguarding and Emergency Preparedness/Response – Wildlife Services

1) Wildlife Damage Management program ($108,376,000 and 589 staff years available in 2019).

The Wildlife Damage Management (WDM) program resolves human/wildlife conflicts and protects agriculture, human health and safety, personal property, and natural resources from wildlife damage and wildlife-borne diseases in the United States. This program protects livestock from predators, manages damage from invasive species, such as feral swine and brown tree snakes; conducts a national rabies management program; and manages damage, conflicts and zoonotic diseases that various wildlife species cause, such as beavers, double crested cormorants, and other migratory birds. APHIS conducts these activities under the authority of the Animal Damage Control Act, which allows the Agency to control mammals and birds that are a nuisance or serve as reservoirs for zoonotic diseases. These activities benefit farmers, ranchers, other private landowners, businesses, and Federal, State, county, and city government offices. APHIS carries them out with appropriated funding the Agency receives as well as funding from other Federal, State and local cooperators. Regarding the protection of agriculture, APHIS prevents and reduces livestock predation through technical and direct control assistance provided to producers. The Agency's cost-benefit analyses have shown that for each dollar spent on livestock protection, APHIS saves producers between $2 and $7 in losses. In FY 2018, under a fully operational program, the Agency helped producers protect approximately 15.8 million head of livestock. APHIS maintains specially trained staff around the nation to provide direct control assistance, which can be necessary when the problem cannot be resolved through technical assistance. In those situations, APHIS provides direct control through on-site wildlife management using methods and approaches to solve the specific wildlife conflict.

In FY 2018, APHIS responded to 72,458 requests for technical assistance, and will continue to support cooperators by providing technical assistance in FY 2020. For example, if a rancher is experiencing predators killing his cattle and sheep, or if a farmer is having trouble with fish-eating birds damaging their catfish and other aquaculture crops, the Agency will provide technical assistance. This could include providing advice, information, recommendations, and materials (and in some cases the necessary equipment) to the producer, farmer or rancher to resolve the wildlife-caused damage themselves.

In the Southeastern United States and Northern Great Lakes area, double-crested cormorants continue to impact both sport fisheries and aquaculture production. In FY 2020 APHIS employees will continue to assess damage to catfish rearing facilities, recommend depredation control permits for aquaculture producers, and provide direct assistance to producers by dispersing cormorant roosts from these facilities. The agency selectively removes some birds to alleviate damages and works in conjunction with the U.S. Fish and Wildlife Service to develop longer term solutions that allow producers to conduct their own control work.

Rabies management remains a significant effort for protection of wildlife, livestock and human health. According to the Centers for Disease Control and Prevention, approximately 90 percent of reported rabies cases in the United States are in wildlife. APHIS continues to serve as the lead Federal agency to prevent the further spread of wildlife rabies, with the goal of eliminating rabies in carnivores in the United States using the oral rabies vaccination program. This program has led to the elimination of canine rabies in coyotes in the United States, the near elimination of gray fox rabies from Texas, and the containment of raccoon rabies in the eastern United States. Each rabies variant is spread predominantly by one wildlife species, but all variants can infect and kill mammals, including humans if left untreated. Societal and environmental changes are leading to more chances for people and pets to be exposed to wildlife, particularly in urban and suburban areas. In FY 2018, APHIS and cooperators distributed nearly 10 million oral rabies vaccine baits: 9 million was in the eastern

United States to combat raccoon rabies, and 1 million was in Texas to prevent the reemergence of rabies in coyotes and gray foxes along the border with Mexico.

APHIS' wildlife disease biologists provide technical assistance, conduct surveillance, and maintain control of more than 40 wildlife diseases, pathogens, and syndromes, as well as collaborate with domestic and international academic and research institutions regarding wildlife disease surveillance. Ongoing surveillance of avian influenza in wild bird populations is critical to manage and determine threats to the U.S. poultry industry. By providing these specialized and coordinated services, APHIS supports USDA's goal of maximizing the ability of American agricultural producers to feed and clothe the world.

APHIS protects natural areas and native wildlife from invasive species, such as feral swine. APHIS' National Feral Swine Damage Management Program has made significant progress in its first four years of implementation. In FY 2018, APHIS conducted cooperative, cost-share operational programs on approximately 192 million acres in 39 States and 3 Territories, directly protecting 93 threatened and endangered species and habitats. These efforts support the Agency's goal to reduce the estimated $2 to $2.5 billion of feral swine damage in the United States each year. In the last four years of the program, APHIS and partners successfully eliminated feral swine from seven States -- Idaho, Maryland, Minnesota, New Jersey, New York, Washington and Wisconsin. In FY 2018, APHIS monitored these States to ensure feral swine do not reestablish themselves in those areas and conducted disease surveillance and monitoring to protect the health of domestic swine. In FY 2020, the Agency will continue to provide surveillance and monitoring in States.

Overall, base funding for the WDM program currently supports salary and benefits, supplies, and equipment, as well as other normal operating expenses such as cooperative agreements, rent, and travel, to conduct program activities.

a) National Feral Swine Program

APHIS established the National Feral Swine Damage Management program in FY 2014 to minimize the impacts of feral swine damage. APHIS partners with other Federal, State, and local entities to achieve the overall program goals. Since the agency established the program, APHIS and its partners have successfully eliminated feral swine from seven States. APHIS continues to monitor these States to ensure feral swine do not reestablish themselves in those areas and conduct disease surveillance and monitoring to protect the health of domestic swine. Additionally, APHIS has been successful in eliminating feral swine through localized, accelerated projects, which are designed to quickly reduce a feral swine population in an area of high density. In FY 2020, APHIS will use approximately $30 million of the line item to support the effort.

2) Wildlife Services Methods Development program ($18,856,000 and 125 staff years available in 2019).

The Wildlife Services Methods Development (WSMD) program works with cooperators to conduct research to develop and implement socially responsible methods to prevent and mitigate damage caused by wildlife and invasive species on agricultural productions, and to detect and prevent wildlife diseases that may impact animal health and agricultural biosecurity. APHIS provides the only dedicated Federal leadership in managing wildlife problems and developing methods to resolve human-wildlife-agricultural conflicts. These methods enable APHIS, cooperators, and individuals to protect crops, livestock, natural resources, property, and public health and safety.

Many non-lethal methods that Federal, State, and private sector wildlife professionals use today stem from APHIS' research. In FY 2018, APHIS' National Wildlife Research Center (NWRC) initiated 151 new studies and published 175 scientific papers in 85 professional scientific journals. NWRC scientists also made 248 presentations to scientific and stakeholder audiences. Examples of methods developed include a potential new toxicant and delivery system for managing feral swine populations; a repellent application for blackbirds who cause extensive crop damage and lower yields at harvest for sunflower growers; and modifying an effective non-lethal tool for managing wolves to be an effective method for coyote control. Each of these examples has reduced damage to property, agriculture, human health and safety, and/or native wildlife and ecosystems.

Additionally, the WSMD program develops data to register products that enable the private sector to further manage human-wildlife conflicts. An example of this type of technology transfer is the APHIS' registration of a contraceptive to control the white-tail deer population with the U.S. Environmental Protection Agency and the Food and Drug Administration. The program also explores ways to reduce the spread and transmission of zoonotic diseases and develops disease diagnostic methods. In FY 2018, NWRC research determined the prevalence of antimicrobial resistance (AMR) bacteria in raccoons and deer mice in feedlots and determined that raccoons have the potential to be a carrier of AMR bacteria to and from feedlots. In addition, the program develops strategies to monitor wildlife pathogens, assesses risks to agriculture and human health and safety, and assists APHIS' operational programs with surveillance and monitoring.

The program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world by developing and evaluating new tools and strategies to manage wildlife damage, including managing the expanding feral swine population, registering safe toxicants, and developing new methods for improving trapping and oral bait delivery systems. These methods are essential to cooperators and preserve businesses and regional employment opportunities. In FY 2020, the WSMD program will continue to serve as an international leader in non-lethal research to reduce wildlife damage.

Overall, base funding for the WSMD program currently supports salary and benefits, contracts, and cooperative agreements, as well as other normal operating expenses such as, supplies, equipment, travel, and rent to conduct program activities.

D) Safeguarding and Emergency Preparedness/Response – Regulatory Services

1) Animal Plant Health Regulatory Enforcement program ($16,224,000 and 116 staff years available in 2019).

The Animal and Plant Health Regulatory Enforcement (APHRE) program provides investigative, enforcement, and regulatory support services to the Agency's four regulatory programs and Agricultural Quarantine Inspection activities carried out through the Department of Homeland Security's Customs and Border Protection. APHRE investigates alleged violations of Federal laws under its jurisdiction and pursues appropriate enforcement actions through administrative, civil or criminal procedures.

The APHRE program ensures compliance through comprehensive investigations, sound enforcement actions, and strong educational efforts. The program uses monetary penalties and alternative enforcement actions, including non-monetary settlement agreements, and works with USDA's Office of the Inspector General and Office of the General Counsel, and/or the U.S. Department of Justice to pursue administrative, civil, or criminal action, as appropriate, in response to alleged violations of APHIS-administered laws. Program activities serve to deter individuals and companies from engaging in acts to cause extensive economic damage and/or excessive expenses related to eradication or mitigation efforts designed to protect the American agriculture system. In FY 2018, APHRE initiated 1,237 new cases, issued 274 official warnings, issued 471 pre-litigation settlements resulting in the collection of $777,333 in stipulated penalties, and obtained administrative orders assessing $321,699 in civil penalties. The Agency considers a case complete after it issues an official warning or voluntary settlement to which the recipient agrees, finds there is insufficient evidence to support enforcement action, or refers a case to the USDA Office of the General Counsel.

APHIS' regulatory enforcement program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world as the program's actions help deter practices that may lead to devastating pest and disease introduction.

Overall, base funding for the APHRE program supports salaries and benefits and contracts, as well as other normal operating expenses including travel, supplies, printing, rent, and utilities to conduct program activities.

2) Biotechnology Regulatory Services program ($18,875,000 and 96 staff years available in 2019).

The biotechnology industry—estimated at $246 billion worldwide—develops innovative products that can greatly benefit the public. Every day, American farmers and consumers benefit from USDA's role in bringing biotech products to the marketplace. On the plant health side, farmers benefit from

genetically engineered (GE) crops through improved yields while consumers benefit from improved traits, such as healthier oils and reduced exposure to potential carcinogens. However, before any of these products can be brought to market, it is essential to demonstrate, through rigorous, scientific review, that they do not pose a risk to America's agricultural and natural resources.

APHIS ensures new GE crops will not pose plant health risks when released into the environment. APHIS' reviews and regulatory determinations support producers of new and innovative GE technologies in their efforts to enter commerce and the worldwide marketplace. These controls instill confidence in the public and in our trading partners that GE products produced in the United States are safe and of the highest quality. According to the USDA Economic Research Service, farmers use biotechnology to grow more than 90 percent of the soybeans, corn, and cotton in the United States.

APHIS ensures that developers, growers, and others take the important steps to prevent unauthorized releases of GE organisms. Depending on the characteristics of the GE organism, the developer files an application in the form of either a permit or a notification. A permit is more restrictive than a notification and is generally issued for GE organisms that may pose a greater plant pest risk. A notification is a streamlined permit for GE organisms that APHIS has familiarity with and are less likely to pose a plant pest risk. In FY 2018, APHIS authorized more than 1,500 permits and notifications in 41 States (plus Puerto Rico) for 130 different species of organisms.

When reviewing notifications and permit applications, APHIS requires that developers are in compliance, meaning they meet conditions to ensure the GE organisms are confined and do not persist in the environment when the field trial is completed. To ensure that GE organisms meet standards outlined in the permit or notification, APHIS inspects fields, equipment, and other facilities. In FY 2018, APHIS and the States (authorized by APHIS) conducted more than 700 site inspections, 43 of which were unannounced inspections. Approximately 92 percent of those inspected were in compliance with APHIS biotechnology regulations.

Once a developer can demonstrate a GE plant does not pose a risk to plant health, the developer can petition for determination of nonregulated status (also known as deregulation) of the plant. In the last five years, APHIS has implemented solutions to significantly improve the efficiency and predictability of the Agency's petition process without affecting the quality of decision-making. In FY 2018, APHIS reviewed and deregulated two petitions - one GE canola and one GE cotton.

APHIS' review and deregulation of these GE crops are essential in making these products available in the marketplace. Agricultural biotechnology gives farmers and producers more tools to address pest, disease, and weed management issues, contributes to the adoption of no-till and low-till practices, and helps safeguard crops against disease. USDA expects the cumulative number of determinations of nonregulated status to increase from 129 in FY 2018, to 135 by the end of FY 2020. In FY 2020, APHIS will continue to devote resources to meet target timelines of 13 to 15 months for petitions that do not require an environmental impact statement. This program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world by increasing agricultural opportunities and supporting economic growth.

APHIS takes a coordinated and collaborative approach to ensure the safe development of products derived through genetic engineering. This includes work with the Environmental Protection Agency and the Food and Drug Administration consistent with the principles of the Coordinated Framework for the Regulation of Biotechnology; partnering with the National Plant Board to allow State inspectors to conduct inspections of field release sites, which ensures cost-effective use of resources; working with international partners to enhance the coordination of regulatory approaches for the safe use of GE organisms; and provides capacity building assistance to developing countries for the regulation of GE crops.

Overall, base funding for the BRS program currently supports salaries and benefits, contracts, and agreements, as well as other normal operating costs, such as travel, equipment, and supplies to conduct program activities.

E) Safeguarding and Emergency Preparedness/Response – Emergency Management

1) Contingency Fund ($470,000 and 5 staff years available in 2019).

The APHIS Contingency Fund is the Agency's resource to immediately implement short-term, coordinated, emergency activities that are relatively small in scale and not otherwise supported by the Agency's other appropriated commodity line items. APHIS uses this fund to respond to small, isolated pest and disease outbreaks before they can spread and cause significant economic and financial damage to producers across the United States. Specific examples include addressing outbreaks of the European grapevine moth in California, rabies in the Eastern United States and Texas, contagious equine metritis in Kentucky and other States, giant African land snail in Florida, feral swine in New Mexico, and cattle fever ticks in Texas.

This line item supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world by allowing APHIS programs to promptly address small scale outbreaks. By doing so, the Agency decreases the likelihood of pest and disease spread that could cripple otherwise healthy agricultural production systems and export markets.

Overall, base funding for the program currently supports salaries and benefits, equipment, contracts, and agreements, as well as other normal operating costs, such as travel, and supplies to conduct program activities.

2) Emergency Preparedness and Response program ($40,966,000 and 199 staff years available in 2019).

The Emergency Preparedness and Response (EPR) Program improves APHIS' capability to prevent, prepare for, respond to, and recover from animal and plant health emergencies. Program personnel develop strategies, policies, and procedures for incident management and response coordination that meet national and international standards. The program's goal is to respond to animal health events within 24 hours from the time the Agency decides that it is appropriate to be involved in the response effort. The Agency met this goal in FY 2018 and anticipates continuing to meet this goal in future years. Program personnel participate in joint Federal, State, and local animal health and all-hazards exercises to improve response capabilities and perform reviews afterwards. In addition, the program personnel work with major commodity groups to ensure the continuous movement of livestock products during emergencies. Effective preparation for and rapid response to animal health events requires continuous planning, followed by training and exercises. This program enables APHIS to achieve a high state of readiness and be able to respond rapidly and effectively to emergency events, thus lessening the impact of those events on producers, consumers, taxpayers, and the overall economy. With its expertise and infrastructure, this program is uniquely positioned to coordinate responses at the Federal, State, and local levels, and to disseminate vital animal health information to those who might act. Also through this line item, APHIS and the Centers for Disease Control and Prevention (CDC) jointly manage the Federal Select Agent Program (FSAP), which oversees the possession, use, and transfer of biological select agents and toxins that have the potential to pose a severe threat to public, animal or plant health or to animal or plant products.

The EPR program supports coordinators in each of the 10 Federal Emergency Management Agency (FEMA) regions for Emergency Support Function #11: Agriculture and Natural Resources (ESF #11). These coordinators work with local, State, Tribal, Territorial, Insular Area Governments, and other Federal agencies during actual and potential incidents to respond to animal and agricultural health issues; provide technical expertise to support animal and agricultural emergency management; ensure the safety and defense of the Nation's meat, poultry, and processed egg products; and ensure the protection of natural and cultural resources and historic properties. In addition, APHIS provides technical support to FEMA for the care of pets and service animals during disasters.

The EPR program bolsters and deploys its emergency response capabilities in several ways. For example, the program maintains emergency qualifications system dispatchers, who coordinate the delivery of emergency resources. In FY 2018, APHIS dispatched 1,697 responders to 46 incidents or events, including 11 responses for which FEMA activated ESF #11 coordinators. APHIS dispatched employees to respond to virulent Newcastle disease, spotted lanternfly, European cherry fruit fly, wildlife/tick and highly pathogenic avian influenza (HPAI) surveillance, several oil spill responses, and Hurricanes Maria, Nate, and Florence. The EPR Program also supports the Voluntary Emergency Ready Response Corps, a pool of APHIS employees who are trained to fill commonly requested emergency response positions, as well as provides occupational safety and health support and physical and operational security support for emergency responses.

APHIS participates on the Biosurveillance Indications and Warning Analytic Community steering committee to increase understanding of agricultural threats across the Federal government, providing context for threats that may also affect human health and/or the U.S. economy. Through this interaction, APHIS leverages tools to augment other agency global biosurveillance initiatives.

APHIS also serves as a liaison between State and local officials to protect pets, breeders, and exhibitors regulated by the Animal Welfare Act (AWA) to enhance coordination on animal disease preparedness efforts. The agency works through ESF #11 (Agriculture and Natural Resources) and ESF #6 (Mass Care, in coordination with FEMA) to support pet owners in disasters. In addition, APHIS invests in the Zoo and Aquariums All Hazards Preparedness, Response and Recovery Fusion Center to help the exotic animal industry during emergencies. This Center reaches corners of the exotic animal industry that APHIS has had difficulty reaching. In addition, APHIS uses a 24/7 call- and text message line for facilities licensed and registered under the AWA to address their recovery needs. This tool enabled the agency to facilitate timely solutions to problems facing these facilities during the three major hurricanes that recently occurred, preventing irreparable harm to the impacted animals.

In addition, APHIS and the Centers for Disease Control and Prevention (CDC) jointly manage the Federal Select Agent Program (FSAP). The FSAP administers the select agents and toxins regulations in coordination with the Federal Bureau of Investigation. Any individuals or entities possessing, using, or transferring select agents or toxins must register them with APHIS (if the agent affects animal or plant health) or the CDC (if the agent affects human health). Facilities must meet requirements that ensure the safety and security of the agents and toxins and to prevent their release. APHIS and CDC inspect facilities that use or transfer these agents to ensure compliance, and they also inspect each other's facilities to eliminate potential conflicts. APHIS' Agriculture Select Agent Services ensures that facilities address non-compliances appropriately, and initiate enforcement actions when warranted. APHIS and CDC maintain a joint database to improve reporting and workload management capabilities. This database's secure portal reduces errors as well as timelines for submitting amendment requests and responding to APHIS requests for information.

This program supports USDA's goal to maximize the ability of American agricultural producers to prosper by feeding and clothing the world by preventing and/or mitigating the spread of agricultural pests and diseases. This program accomplishes this goal through early detection of and rapid response to various animal health events. The program will continue these efforts in FY 2020, with the infusion of trained responders that have been added since the historic HPAI outbreak.

Overall, base funding for the Emergency Preparedness and Response Program currently supports salaries and benefits of personnel and contracts, as well as other normal operating costs such as travel, supplies, rent, and utilities to conduct program activities.

(2) Safe Trade and International Technical Assistance:

A) Agriculture Import/Export program ($15,599,000 and 81 staff years available in 2019).

APHIS's Import/Export program protects U.S. agriculture by facilitating the safe trade of animals and animal products. APHIS collaborates with multiple partners including other Federal agencies, States, foreign governments, industry, and academia to conduct import risk analyses that evaluate the animal health status of countries and regions requesting approval to export animals and/or animal products into the United States. APHIS' animal health experts ensure that U.S. import requirements safeguard U.S. livestock health through an evaluation process and negotiate requirements for the export of U.S. animals and animal products worldwide. APHIS bases these requirements on compliance with international standards, sound scientific principles, and fair trading practices for animals and animal products. APHIS also sets quarantine and testing requirements under which animals and animal products can be imported or exported. These requirements help ensure that global markets can be accessed, expanded, or maintained with little or no risk to U.S. animal production and human health. Additionally, APHIS conducts activities related to the 2008 Farm Bill amendments to the Lacey Act, which prohibit the importation of any plant, with limited exceptions, that are taken or traded in violation of domestic or international laws. The Act requires a declaration for imported shipments of most plants or plant products.

1) Imports

Safeguarding against the importation of significant animal diseases is vital to protecting U.S. industries, producers, and consumers. APHIS bases its regulations that minimize the risk of introducing animal diseases on evaluations of the animal health status of countries or regions. The Agency evaluates the animal health status of regions that wish to export animals and/or animal products to the United States through completing a risk assessment that documents the evaluation process and final conclusions. Based on the conclusion of the evaluation, the Agency may recognize the animal health status of the region and lift the import prohibitions related to the disease in question. These changes in regional animal health status allow U.S. importers to streamline processes associated with importing products from these countries. APHIS also recognizes that disease risks may be mitigated by treatments or processes applied to animal products, and import permits allow evaluation of these risk mitigations. In FY 2018, APHIS conducted eight site visits in various regions to confirm that the regions' surveillance, prevention, and control measures are sufficient to minimize the likelihood of an introduction of foreign animal diseases into the United States. The Agency continues to ensure that import regulations are effective and science-based, and to work with U.S. businesses and importers to facilitate safe trade. For example, the Agency is working to improve traceability of imported animals by implementing the use of identification scanners at the Mexican border that will upload ear tag information into our traceability databases. APHIS also continues to develop more regulatory flexibility, including removing the import permit requirement for certain low risk and exempted animal origin ingredients and products. In FY 2018, APHIS issued 16,377 import permits for live animals, animal products, organisms, and vectors. These include new permits, renewals, and amendments.

2) Exports

APHIS negotiates science-based conditions, including export protocols, with trading partners for various commodities that protect their country while also facilitating trade. In FY 2018, APHIS negotiated or re-negotiated 98 export protocols for animal products (16 new markets, 47 re-opened markets, 17 expanded markets, and 18 retained markets). This includes retaining market access for poultry exports in numerous countries that imposed restrictions due to outbreaks of avian influenza and Newcastle disease. APHIS also negotiated 107 export protocols for live animals (38 new or reopened markets in 29 countries, 21 retained markets in 15 countries, and 48 expanded markets in 27 countries), including new markets for cattle to Bangladesh and Ghana, and horses to China. Additionally, APHIS develops information packages and questionnaire responses from various countries to open, maintain, or expand various export markets.

APHIS endorses export certificates for live animals and inedible animal-origin products, documenting the animal health status and facilitating export to all markets. APHIS continued to increase the number of animal health export certificates issued electronically in FY 2018 by expanding the system's capabilities. APHIS has digital signature capabilities, a certificate upload feature, and is working to expand the number of countries and commodities for which electronic certification is available. This includes establishing bilateral pilot projects with Mexico and expanding the ongoing project with Canada to allow or extend exports with electronically issued and digitally signed certificates. In FY 2018, APHIS endorsed more than 326,000 export health certificates for animal products, livestock, poultry, germplasm, and pets.

3) Lacey Act

APHIS conducts activities related to the Lacey Act. The Lacey Act prohibits the importation of any plant - with limited exceptions - taken or traded in violation of domestic or international laws. The Act requires a declaration for imported shipments of most plants or plant products. A 2012 United Nations Environmental Programme study estimated the value of illegal logging, including processing, to be between $30 to $100 billion dollars, or 10 to 30 percent of the global wood trade. The Lacey Act amendments are designed to help combat this illegal logging, often connected to organized crime, by encouraging importers to research their supply chains and be aware of the laws governing products they purchase in other countries. APHIS works with an interagency group to implement the provisions. APHIS' role is to manage the declaration requirement, provide guidance to importers regarding the declaration, perform compliance checks, and provide enforcement agencies with information to assist their investigations. APHIS collected approximately 850,000 declarations in FY 2018. The Agency will continue conducting these activities in FY 2020.

This program supports USDA's goal to promote American agricultural products and exports. In FY 2020, the program will continue to conduct import risk analyses activities and set quarantine and testing requirements to protect U.S. agriculture while facilitating safe trade of animals and animal products.

Overall, base funding for the Agriculture Import/Export program currently supports salaries and benefits of personnel, contracts, and agreements, as well as other normal operating costs such as travel, supplies, rent, and utilities to support program activities.

B) Overseas Technical and Trade Operations program ($22,115,000 and 55 staff years available in 2019).

Through the Overseas Technical and Trade Operations (OTTO) program, APHIS helps U.S. farmers, ranchers, and producers export their products to other countries by resolving concerns over animal and plant health issues that affect trade in agricultural products. Exports are crucial to economic viability of U.S. farmers, ranchers, and producers. According to USDA's Economic Research Service, the United States exports 20 percent of its agricultural production. However, agricultural trade is subject to costly disruptions related to animal and plant health issues. APHIS works to continually support economic opportunities by keeping markets open for U.S. agricultural products. Working with other Federal partners, such as the U.S. Trade Representative's Office and USDA's Foreign Agricultural Service, APHIS provides the technical expertise to successfully address animal and plant health regulatory issues associated with trade negotiations for new markets and to reopen markets when they are closed or threatened due to pest or disease issues.

In addressing animal and plant health trade issues, APHIS uses its strong scientific base and team of technical experts located in the United States and abroad to advocate on behalf of U.S. agriculture. APHIS officials negotiate animal and plant health requirements for exports to other countries, ensuring requirements are proportional to risk without being excessively restrictive; assist U.S. exporters in meeting foreign regulatory requirements; provide technical information to support the safety of U.S. agricultural products destined for foreign markets; and safeguard the United States from foreign agricultural pests and diseases. Highlights of FY 2018 successes include retaining access for U.S. soybeans to China, a market worth more than $12 billion in 2017, and access for live poultry to Indonesia, a market worth $22 million in 2017, as well as a market threatened by outbreaks of poultry diseases in the United States.

Even for markets that are open to U.S. agricultural products, APHIS must continually address issues to keep trade flowing smoothly. APHIS works with foreign counterparts to clarify or streamline certification requirements, making it easier and less costly for U.S. exporters to move their products overseas. When shipments are held up at foreign ports, APHIS works with its counterparts to resolve the issues and secure the release of the shipments. In FY 2018, APHIS successfully secured the release of more than 270 shipments worth more than $50 million.

APHIS fosters a successful trading environment for U.S. exports by working to ensure that the same rules apply to countries around the world through international standard setting. APHIS emphasizes the use of scientific principles as a basis for international trade decisions and works with international standard setting bodies such as the World Organisation for Animal Health and the International Plant Protection Convention. By gaining support for scientific decision making internationally and following international standards when considering what can be imported into the United States, APHIS increases U.S. agricultural exports.

The OTTO program supports USDA's goal to promote American agricultural products and exports. Agricultural trade is essential for U.S. farmers, ranchers, and producers, and APHIS' technical and regulatory trade activities support their export opportunities. In FY 2020, APHIS will continue to support international trade opportunities for America's animal and plant products while ensuring that U.S. agriculture is safe from pests and diseases.

Overall, base funding for the OTTO program currently supports salaries and benefits of personnel, contracts, and agreements, and travel, as well as other normal operating costs such as supplies, rent, and utilities to support program activities.

(3) Animal Welfare:

A) Animal Welfare program ($30,810,000 and 232 staff years available in 2019).

The Animal Welfare Act (AWA) requires animals bred for commercial sale, used in research, transported commercially or exhibited to the public receive Federal standards of care and treatment. APHIS' Animal Welfare Program ensures the humane care and treatment of animals covered by the AWA through inspection, learning opportunities and enforcement actions. Since the AWA became law in 1966, APHIS has protected millions of regulated animals used in research, exhibition, and the pet trade as well as those transported in commerce.

Before issuing a license, APHIS works closely with potential licensees to ensure they understand the requirements of the AWA regulations and standards and will be able to maintain compliance after obtaining a license from the Agency. In FY 2018, APHIS conducted approximately 800 pre-licensing inspections, and issued 735 new licenses.

For licensed and registered facilities, the Agency determines on-going compliance by conducting unannounced inspections. During these inspections, APHIS officials examine and inspect all areas of animal care and treatment covered under the AWA. The Agency reviews the animals, premises, facilities, husbandry practices, program of veterinary care, records, and animal handling procedures. APHIS confirms that the animals receive adequate housing, transport, veterinary care, and meet husbandry standards as described in the AWA. In FY 2018, APHIS conducted 10,342 inspections and found 98 percent of all facilities to be in substantial compliance with the AWA.

Whenever possible, APHIS takes a coordinated and collaborative approach to improve the welfare of animals. Using non-regulatory methods such as education, training, and outreach to stakeholders to convey critical and current animal welfare information, APHIS has been able to reduce inspection frequencies (while staying within legal requirements) for facilities that have implemented strong animal welfare programs and routinely demonstrate substantial compliance during unannounced inspections. This allows the Agency to remain focused on addressing the egregious alleged violators of the AWA, representing approximately four percent of all licensees/registrants.

When APHIS inspectors discover conditions or records that are noncompliant with AWA regulations, the Agency may establish a deadline for corrective action and increase frequency of unannounced inspections to determine whether the facility made the necessary modifications. Continued, serious noncompliance may warrant an investigation that can result in sanctions ranging from monetary penalties to suspension or revocation of the facility's license, after notice and an opportunity for a hearing. The welfare of animals nationwide is subject to significant media attention and passionate public engagement. The American public holds APHIS accountable for ensuring all regulated animals are healthy and treated humanely. Without this program, the Agency would be unable to enforce the AWA, and the health and welfare of millions of animals would be severely compromised.

Overall, base funding for the Animal Welfare program currently supports salaries and benefits of personnel and travel, as well as other normal operating costs such as contracts, supplies, and equipment to support program activities.

B) Horse Protection Program ($705,000 and 6 staff years available in 2019).

APHIS' Horse Protection program strives to eliminate the cruel and inhumane practice of soring which involves applying caustic chemicals and/or mechanical devices to a horse's pasterns, causing the horse to experience pain or distress while walking or moving. Soring changes the gait of a horse so that the animal steps higher, allowing its rider to gain a competitive edge at horse events. APHIS has the Federal responsibility to uphold the Horse Protection Act (HPA), which prohibits sore horses from being shown, sold, or transported.

There are an estimated 200,000 Tennessee Walking and Racking Horses in the United States, with potential show winnings reaching as high as $2.5 million. The management of horse shows, exhibitions, sales and auctions have statutory responsibility under the HPA to prevent unfair competition and must identify and disqualify sored horses prior to participating in HPA-covered events. USDA-certified horse industry organizations (HIO) train and license third party inspectors, known as Designated Qualified Persons (DQPs). DQPs conduct horse inspections at horse shows, exhibitions, sales, and auctions affiliated with these organizations. In FY 2018, DQPs attended 261 HPA events and inspected 51,347 horse entries. In total, DQPs identified 649 HPA noncompliances, and management disqualified 596 entries. This represents a nearly 90 percent increase in DQPs' detection of HPA noncompliances relative

to FY 2017, when DQPs inspected 47,373 horses and detected 337 instances of noncompliance with the HPA.

APHIS attends a select number of HPA-covered events each year to observe DQP performance and inspect horses for HPA compliance. In FY 2018, APHIS attended 64 horse events, inspected 1,638 horses, and identified 160 instances of suspected noncompliance with the HPA. APHIS' presence at horse show events serves as a deterrent; without this program, the Agency would expect to see an increase in the abusive practice of soring.

APHIS has made significant efforts to increase transparency regarding inspection techniques and results. In FY 2018, APHIS presented one training session in conjunction with industry inspectors. The session provided refresher training to existing DQPs and USDA inspectors, and initial training for those interested in becoming DQPs. Agency representatives also attended two HIO training clinics to provide support and clarification regarding HPA requirements. Additionally, in February 2018, APHIS held two shoeing and inspection clinics for walking horse owners, trainers and exhibitors to enhance understanding of the regulatory requirements and inspection processes.

APHIS' Animal and Plant Health Regulatory Enforcement program worked with the Office of the General Counsel to obtain 47 administrative orders assessing $56,200 in civil penalties and disqualifying 44 individuals from participating in activities regulated under the HPA. Although APHIS experienced a slowdown in enforcement in FY 2018, in part, due to constitutional challenges to the appointment of administrative law judges who preside over administrative proceedings under the HPA, APHIS is actively engaged in pursuing administrative enforcement action involving 90 respondents for alleged violations of the HPA.

Overall, base funding for the Horse Protection program currently supports salaries and benefits of personnel, and travel, as well as other normal operating expenses such as necessary contracts, agreements, and equipment for completing programmatic functions.

(4) Agency-Wide Programs:

A) APHIS Information Technology Infrastructure program ($4,251,000 available in 2019).

The APHIS Information Technology Infrastructure (AITI) program provides funding for the hardware, software (including licensing and support costs) and telecommunications infrastructure that gives Agency employees office automation tools, Internet access, and access to mission-critical programs and administrative applications. The funding for this program supports the stable and secure information infrastructure for those mission-critical applications and the day-to-day business of APHIS. The AITI priorities are to continually improve sharing of information across the Agency; improve coordination and accessibility of information, processes, and resources available to enable APHIS employees to provide day-to-day services, and support programs in emergencies; and improve APHIS' cyber-security.

APHIS works with USDA's Office of the Chief Information Officer to support the program goals and manage information technology in a manner consistent with both USDA and Federal requirements. APHIS also works with other Federal partners, including the Department of Homeland Security's Customs and Border Protection and the Department of Health and Human Services' Centers for Disease Control and Prevention to ensure that AITI provides interoperability and required availability for partner agencies, as needed for program delivery.

In support of the Federal Information Technology Acquisition Reform Act and the Data Center Optimization Initiative, APHIS is working to decrease its footprint by transitioning to a more efficient infrastructure, such as cloud services and inter-agency shared services. Cloud computing can provide the Agency with many benefits to improve how it manages data, develops applications, controls costs, manages infrastructure and delivers solutions. Leveraging the capabilities of cloud computing can provide a better way to meet business needs, requirements and compliance.

APHIS continues to review system security patching rates for the APHIS Enterprise Infrastructure workstations and servers to determine the percentage of systems kept current with the latest security patches. In FY 2018, APHIS IT maintained the current version of National Institute of Standards and Technology and Federal Information Security Management Act testing standards to continue protecting our cyber security infrastructure and reducing vulnerabilities of our systems. In addition, the APHIS IT security monitoring system continues to track improper use of personally identifiable information data

stored in the APHIS infrastructure, helping to protect confidential information that could potentially identify a specific individual such as citizenship, legal status, gender, race and/or ethnicity.

In addition to security, accessibility to information technology tools is vital to the operations of the Agency. In FY 2018, AITI maintained its 99.97 percent availability for its key computing systems as well as a 20.6 minute service-desk response time for the occasions when personnel experience difficulties accessing computing systems, making this the seventh consecutive year of high availability and quick response times. In addition, AITI re-emphasized the avoidance of misuse and/or abuse of IT systems to Agency employees in support of continued cyber security strengthening efforts.

Overall, AITI expenditures fund day-to-day operations for the Agency's IT infrastructure, including software license renewals and support, as well as other normal operating costs, such as supplies and equipment.

B) Physical and Operational Security program ($5,146,000 and 5 staff years available in 2019).

APHIS oversees and implements precautionary measures to ensure continued, efficient mission operations, and protection from disruption, degradation, or destruction of its facilities through the Physical and Operational Security (POS) program. The program provides year-round security measures, such as physical security upgrades, alarms, badging and identification systems, guard services, security assessments, safety and risk assessments, workplace violence training, and investigations of both internal and external threats. These measures protect APHIS employees, as well as visitors and stakeholders from harm, acts of terrorism, and violence. In addition, this program supports part of USDA's contribution to the U.S. Department of State's continuing implementation of the Capital Security Cost Sharing program, which provides safe and secure workplaces for all government employees located overseas.

The POS program provides numerous types of security training using a variety of formats to Agency employees. In FY 2018, the program provided instructor-led classroom training for more than 2,150 Agency employees, including seminars and exercises relating to active shooter situations, situational awareness, illegal drugs, workplace violence prevention, self-defense, terrorism, local crime trends, and travel safety. The program also provided workplace violence training seminars and multiple security briefings for employees who work along the international border or in foreign countries. To enhance preparedness and response, APHIS continues to require active shooter training for all employees through on-line and/or classroom based training. In addition, the agency planned and delivered 12 live active shooter training exercises at various APHIS facilities. These exercises involved more than 1,300 employees, and the scenario-based active shooter training exercises provided an interactive exercise for all personnel and participating local law enforcement officers. The POS program investigates, assesses, and mitigates all internal and external threats, directed at agency facilities, programs and personnel. These threats include death threats, terrorist threats, and assaults, among others. In FY 2018, APHIS investigated 139 external threats to agency employees, and 31 workplace violence incidents. The POS program also works to ensure the safety of employees working at or near the Mexican border, and throughout Mexico, Panama, and Guatemala.

Additionally, the POS program ensures the safety of APHIS employees who enforce the Animal Welfare Act (AWA) and Horse Protection Act (HPA). APHIS security specialists investigate threats and respond to requests for protection throughout the country for agency veterinarians, inspectors, and investigators who are enforcing regulations in challenging environments. Regarding safeguarding APHIS employees entering private property, the POS program provided security during 12 inspections of regulated AWA entities, 71 HPA events, and provided protection for more than 20 personnel representing Federal agencies at a multi-day AWA hearing. The POS program also worked across the agency to develop standard operating procedures for security support for AWA and HPA inspections and investigations. In FY 2018, the program completed physical security assessments at 184 facilities. Of those facilities assessed, the POS program provided 99 facility security upgrades and repairs, to ensure that the buildings are compliant with Homeland Security Presidential Directive-12 (HSPD-12) and the Interagency Security Committee (ISC) recommendations. The HSPD-12 and ISC directives create the standard for secure and reliable forms of identification for facility/network access and compliance regarding physical security at Federal facilities. Additionally, the POS program was responsible for issuing, activating, or updating approximately 7,000 personal identification verification (PIV) cards, bringing APHIS employees in compliance with PIV use.

The program also works with other USDA agencies, the U.S. Department of Justice, U.S. Department of Homeland Security, the U.S. Department of State, and local law enforcement agencies to ensure that the appropriate organization takes the lead, contributes to program costs, and integrates security where employees are co-located overseas. APHIS maintains a presence overseas to facilitate agricultural trade and monitor pest and disease threats. The Security Embassy Construction Counterterrorism Act's Capital Security Cost Sharing Program requires the Agency to help fund the construction of New Embassy Compounds based on the number of authorized positions. In FY 2018, the POS program worked with the U.S. Department of State to establish a security baseline for APHIS facilities overseas. In FY 2018, APHIS had approximately 350 full-time employees based in countries around the world. This program provides safe and secure diplomatic facilities for the Agency's overseas personnel. This program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world. In FY 2020, the program will ensure continued mission operations and protection from disruption, degradation, or destruction of its facilities.

Overall, base funding for the POS program currently supports contracts, programmatic agreements, and personnel costs, as well as other normal operating expenses such as travel and supplies. In addition, this program supports the mandatory cost share with the Department of State for the Capital Security Cost-Sharing program.

C) Rental and Department of Homeland Security (DHS) Security Payments ($42,567,000 available in 2019).

APHIS personnel are in every State working to carry out our mission and the Rental and DHS Security Payments program assists the agency in strategically managing the payment portfolio of approximately 230 General Services Administration leases, DHS security payments, as well as other leased, owned, and agreement funded facilities. For example, the funding for this program ensures that APHIS programs and employees can effectively and efficiently carry out all mission-related activities, including surveillance for animal and plant pests and diseases, pest and disease eradication programs, diagnostic and methods development work at laboratories, animal welfare inspections, and wildlife damage management activities. Without funding for rent and security payments, APHIS would have to cover these costs by reducing program activities, decreasing levels of service, and diverting fiscal resources from other appropriated line items.

This program supports USDA's goal of maximizing the ability of American agricultural producers to prosper by feeding and clothing the world. In FY 2020, the program will continue to ensure mission operations while effectively managing its space portfolio.

Overall, base funding for the program currently maintains rent payments in support of program activities.

PROPOSED LEGISLATION

Animal Welfare

Current legislative authority to be amended:

Establish a new user fee that would offset a portion of the appropriation for the enforcement of the Animal Welfare Act.

APHIS carries out activities designed to ensure the humane care and treatment of animals covered under the Animal Welfare Act. These activities include licensing, registration and inspection of certain establishments that handle animals intended for biomedical research, sold as pets, transported in commerce, or used for exhibition purposes. Regulated entities already pay minimal fees for licenses, but they do not cover the full cost of the activity or the cost of the inspections.

A mandatory user fee would allow fees collected from regulated entities to be used to finance activities related to the review and maintenance of licenses and registrations, and inspections conducted under the Act.

Table APHIS-12. Change in Funding (thousands of dollars)

Item	2020	2021	2022	10 Year Total
Discretionary Budget Authority	$9,100	$9,220	$9,350	$97,600
Discretionary Outlays.....	8,600	8,650	8,700	88,250

Biotechnology Regulatory Services

Current legislative authority to be amended:

Establish a new user fee that would supplement appropriations for the regulation of biotechnology derived products.

Under the authority of the Plant Protection Act, APHIS regulates the introduction—meaning the importation, interstate movement, and field-testing—of organisms derived through biotechnology that may pose a plant pest risk. APHIS reviews information and data, provided during an application process, to issue authorizations, to determine if the genetically engineered (GE) organism may pose a plant health risk during the requested activity. Following this review, APHIS may issue authorizations allowing the specific activity under appropriate confinement conditions to protect plant health. APHIS operates a compliance and inspection program to ensure developers meet conditions designed to confine GE organisms in the environment during field trials, importation and interstate movement subject to the issuance of an authorization.

The authority will allow fees collected from the application process to finance activities related to the compliance management and inspection of those regulated biotechnology products under Agency authorizations. APHIS would like to develop legislation using, as a guide, the authorities provided to other regulatory agencies.

This is not a mandatory program and therefore no offsets are provided.

Table APHIS-13. Change in Funding (thousands of dollars)

Item	2020	2021	2022	10 Year Total
Discretionary Budget Authority	$4,400	$4,520	$4,650	$50,600
Discretionary Outlays.....	4,150	4,200	4,250	43,750

Veterinary Biologics

Current legislative authority to be amended:

Establish a new user fee that would supplement appropriations for the regulation of veterinary biologics products.

Under the authority of the Virus-Serum-Toxin Act of 1913 (P.L. 430 of 1913, as amended by 21 U.S.C. Section 151-158), APHIS regulates veterinary biologics (vaccines, bacterins, antisera, diagnostic kits, and other products of biological origin) to ensure that those products produced in or imported into the United States are not "worthless, contaminated, dangerous, or harmful." APHIS' licensing activities allow manufacturers to market their products. APHIS reviews license applications for production facilities and biological products and operates a compliance and inspection program to ensure that its regulations governing veterinary biologics are met. Under this proposal, APHIS would amend its current authority to allow the collection of a user fee.

Many government agencies have used user fees to address funding gaps. Through the Animal Drug User Fee Act, the Food and Drug Administration (FDA) addressed serious financial constraints and supplemented its appropriated funding. APHIS would like to amend its current authority and develop legislation similar to FDA's Act to allow the collection of such a user fee. This fee would enable APHIS to continually adjust its resources invested in veterinary biologics licensing to the workload generated by the industry, which has steadily increased production and product development.

The industry would directly benefit as reductions in the time required to receive a license would enable the industry to recover the cost of product development faster. Consumers, who rely on veterinary biologics for animal health, whether in animal agriculture or the public, would also benefit through decreased loss of animals from disease. In addition, the fee would better position APHIS to approve biologics during an animal health emergency.

APHIS seeks to ensure that veterinary biologic manufacturers comply with all laws, regulations, and policies. The user fee would act as a fee-for-service, where the industry would invest in APHIS to increase its ability to more quickly review product license requests. Additional performance enhancements may be achieved in areas such as licensing, testing, and product release turnaround times.

This is not a mandatory program and therefore no offsets are provided.

Table APHIS-14. Change in Funding (thousands of dollars)

Item	2020	2021	2022	10 Year Total
Discretionary Budget Authority	$9,770	$10,063	$10,365	$112,002
Discretionary Outlays.....	9,282	9,560	9,850	106,432

GEOGRAPHIC BREAKDOWN OF OBLIGATIONS AND STAFF YEARS

Table APHIS-15. Geographic Breakdown of Obligations and Staff Years (thousands of dollars, staff years (SY))

State/Territory/Country	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	2020 Budget	SY
Alabama	$5,033	35	$4,587	27	$5,307	34	$6,193	41
Alaska	651	2	556	1	628	1	653	1
Arizona	8,695	59	9,839	53	10,090	58	9,911	58
Arkansas	4,344	23	4,053	20	4,591	26	4,956	29
California	78,426	126	89,184	141	91,404	148	85,964	148
Colorado	55,150	351	56,522	341	59,685	375	58,257	381
Connecticut	1,278	6	1,285	5	1,299	7	1,310	7
Delaware	1,210	3	1,040	4	1,050	3	1,510	3
Florida	47,345	262	47,670	239	49,000	278	49,163	281
Georgia	6,851	48	6,366	40	6,887	54	7,169	57
Hawaii	25,487	281	25,912	283	26,671	290	26,545	290
Idaho	10,177	66	9,026	64	9,544	67	8,813	67
Illinois	3,521	28	3,712	28	3,782	31	3,660	31
Indiana	3,967	24	4,111	26	4,266	29	4,209	29
Iowa	64,531	330	73,028	319	74,406	368	68,500	368
Kansas	5,014	25	4,020	25	4,274	29	19,559	29
Kentucky	5,172	34	4,786	28	5,144	36	5,104	36
Louisiana	3,219	23	4,280	25	4,750	30	4,609	33
Maine	1,382	10	1,390	9	1,417	14	1,410	14
Maryland	249,800	767	282,321	814	291,223	837	289,901	837
Massachusetts	18,783	112	20,214	100	20,527	120	20,481	120
Michigan	6,527	52	6,576	45	6,756	55	6,685	55
Minnesota	24,837	156	21,886	160	22,488	171	22,263	171
Mississippi	8,999	54	8,671	47	9,280	64	10,080	71
Missouri	10,534	56	10,026	47	10,143	58	9,813	58
Montana	6,195	40	6,190	41	6,838	42	7,015	42
Nebraska	5,134	25	4,027	23	4,212	28	4,279	28
Nevada	2,516	21	2,537	20	2,592	23	2,551	23
New Hampshire	16,937	22	16,988	20	17,072	24	17,002	24
New Jersey	3,162	18	3,976	18	4,186	20	4,668	20
New Mexico	4,967	41	5,220	36	5,309	43	5,283	43
New York	25,836	122	36,826	126	37,148	127	41,235	127
North Carolina	37,791	228	41,703	214	42,567	238	42,196	238
North Dakota	2,825	20	2,742	16	2,815	22	2,860	22
Ohio	16,429	78	16,912	75	17,289	80	17,232	80
Oklahoma	5,108	39	5,705	43	6,605	47	7,080	54
Oregon	6,417	28	6,778	27	7,213	30	7,177	30
Pennsylvania	11,194	42	17,975	50	18,142	52	21,471	52
Rhode Island	344	1	354	1	356	1	347	1
South Carolina	3,426	25	3,346	22	3,768	28	4,054	31
South Dakota	3,244	16	2,656	15	2,781	17	2,754	17
Tennessee	9,465	43	7,608	40	8,091	45	8,156	45
Texas	64,561	371	58,192	342	63,282	388	59,933	397
Utah	6,976	46	7,017	42	7,167	48	7,054	48
Vermont	1,317	10	1,217	9	1,251	10	1,261	10
Virginia	8,515	29	8,783	31	9,357	34	10,698	34

State/Territory/Country	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	2020 Budget	SY
Washington	8,121	33	8,668	29	8,997	36	9,026	36
West Virginia	2,405	16	2,606	16	2,702	18	2,717	18
Wisconsin	3,692	23	3,990	23	4,160	25	4,186	25
Wyoming	4,331	33	3,727	30	4,215	36	4,313	36
U.S. TERRITORIES:								
District of Columbia	19,863	73	20,629	72	20,799	78	20,645	78
Guam	848	2	873	3	879	3	879	3
Puerto Rico	8,850	114	8,968	113	9,234	120	9,007	120
Virgin Islands	214	1	231	1	233	1	238	1
INTERNATIONAL REGIONS								
AFRICA:								
South Africa	634	1	713	2	713	2	713	2
Senegal	635	1	735	1	735	1	735	1
Other	383	1	159	-	159	1	159	1
ASIA/PACIFIC:								
China	1,429	2	1,602	2	1,602	2	1,602	2
Japan	1,156	1	1,412	2	1,412	1	1,412	1
South Korea	464	1	500	1	500	1	500	1
Other	2,368	5	2,645	5	2,645	5	2,645	5
CARIBBEAN:								
Dominican Republic	768	1	600	1	600	1	600	1
Other	178	-	131	-	131	-	131	-
CENTRAL AMERICA:								
Guatemala	26,213	2	21,283	2	21,283	2	21,283	2
Panama	18,456	4	14,944	7	14,944	7	14,944	7
Other	934	1	1,081	1	1,081	1	1,081	1
EUROPE/NEAR EAST:								
Austria	485	-	321	-	321	-	321	-
Belgium	1,376	1	1,376	2	1,376	2	1,376	2
Other	805	2	689	2	689	2	689	2
NORTH AMERICA:								
Canada	165	-	238	-	238	-	238	-
Mexico	7,537	2	7,112	2	7,112	2	7,112	2
SOUTH AMERICA:								
Brazil	784	1	835	2	835	2	835	2
Chile	233	-	248	-	248	-	248	-
Other	2,277	2	1,915	2	1,915	2	1,915	2
Obligations	1,008,896	4,521	1,066,044	4,421	1,102,410	4,878	1,110,574	4,929

Note: Total direct obligations; does not include advances and reimbursements or Agricultural Quarantine Inspection User Fees.

CLASSIFICATION BY OBJECTS

Table APHIS-16. Classification by Objects (thousands of dollars)

Item No.	Item	2017 Actual	2018 Actual	2019 Estimate	2020 Budget
	Personnel Compensation:				
	Washington D.C.	$80,275	$82,205	$83,117	$84,084
	Personnel Compensation, Field	268,747	275,208	278,261	281,499
11	Total personnel compensation	349,022	357,413	361,378	365,584
12	Personal benefits	121,957	120,731	122,006	123,470
13.0	Benefits for former personnel	492	571	571	571
	Total, personnel comp. and benefits	471,470	478,714	483,954	489,624
	Other Objects:				
21.0	Travel and transportation of personnel	29,091	29,579	30,129	30,832
22.0	Transportation of things	2,380	2,117	2,217	2,567
23.0	Rent payments, Comm. and Utilities	63,314	65,263	65,563	65,518
24.0	Printing and reproduction	506	627	677	676
25	Other contractual services	3,104	11,722	11,882	12,479
25.1	Contractual Services Performed by Other Federal Agencies	60,040	78,286	78,386	78,423
25.2	Related Expenditures	4,853	4,651	4,651	4,651
25.3	Repair, Alteration or Maintenance of Equipment, Furniture or Structure	7,959	8,085	8,085	8,085
25.4	Contractual Services – Other	41,508	49,102	50,052	51,746
25.5	Agreements	235,543	242,667	264,233	264,536
25.6	IT Services and Supplies	6,193	12,501	12,501	12,491
25.7	Operation and maintenance of equipment	12,125	7,722	7,722	7,551
25.8	Subsistence and support of persons	636	644	644	644
26.0	Supplies and materials	42,593	44,230	50,830	51,342
31.0	Equipment	19,910	22,679	23,429	23,589
32.0	Land and Structure	100	-	-	-
41.1	Grants, subsidies and contributions	497	366	366	331
42.0	Insurance claims and indemnities	7,072	7,088	7,088	4,812
	Total, Other Objects	537,426	587,330	618,456	620,950
99.9	Total, new obligations	1,008,896	1,066,044	1,102,410	1,110,574
	DHS Building Security Payments (included in 25.3)	$2,789	$2,810	$2,824	$2,850
	Position Data:				
	Average Salary (dollars), ES Position	$181,334	$183,124	$185,871	$188,659
	Average Salary (dollars), GS Position	$72,212	$84,962	$86,236	$87,530
	Average Grade, GS Position	9.46	9.45	9.49	9.50

STATUS OF PROGRAMS

Safeguarding and Emergency Preparedness/Response

Current Activities

American agriculture faces many threats from foreign and domestic pests and diseases, which have the potential to negatively impact animal and plant agricultural production, trade, and the economy. APHIS monitors and responds to potential diseases of livestock and wildlife, invasive species, and conflicts between humans and wildlife as it strives to assure its stakeholders that it is on guard against the introduction or re-emergence of animal and plant pests and diseases that could limit agricultural production.

When a pest or disease is detected in the United States, APHIS works cooperatively with other Federal, State, Tribal and industry partners to conduct animal and plant health monitoring programs to rapidly diagnose them and determine if there is a need to establish new pest or disease management programs. APHIS, in conjunction with States, Tribes, industry, and other stakeholders, protects American agriculture by eradicating harmful pests and diseases or, where eradication is not feasible, by minimizing their economic impact. The Agency monitors endemic pests and diseases through surveys to detect their location and through inspection to prevent their spread into non-infested parts of the country. APHIS conducts diagnostic laboratory activities that support the Agency's veterinary disease prevention, detection, control, and eradication programs. The Agency also provides and directs technology development to support plant protection programs and cooperators at the State, national, and international levels.

APHIS also develops methods to control animals and pests that are detrimental to agriculture, wildlife, and public safety.

The Agency maintains a cadre of trained professionals prepared to respond immediately to potential animal and plant health emergencies. Program personnel investigate reports of suspected exotic pests and diseases and take emergency action if necessary. To facilitate these efforts, APHIS develops pathway studies and thoroughly investigates the progression of outbreaks to determine the origin of animal and plant pests and diseases. APHIS also actively engages State, Tribal, and local governments, and industries to advance their emergency preparedness and response capabilities.

APHIS conducts operations to ensure the humane care and treatment of vulnerable animals covered under the Animal Welfare Act and the Horse Protection Act. The Agency also balances a regulatory system that safeguards agriculture while fostering innovative research and development in the field of biotechnology.

Selected Examples of Recent Progress - Animal Health:

Animal Health Technical Services

APHIS' Animal Health Technical Services (AHTS) program develops and enhances tools for acquiring and managing information vital for improving global market access for U.S. livestock and animal products. Incorporating national surveillance standards into data management applications allows the program to compile animal health information nationally, thus leveraging the work of animal health professionals nationwide to meet local, State, and national veterinary health objectives. Disease transmission and spread models, developed by the Agency, allow improved planning and management of animal health incidents. Moreover, the National Veterinary Accreditation Program (NVAP) within the AHTS program trains private veterinarians to help producers meet export requirements and disease program standards. Ultimately, this allows U.S. animals and animal products to compete in the global economy.

Animal Disease Traceability (ADT)

The national ADT framework allows Federal, State, Tribal, and private animal health professionals to work together to identify diseased animals, quickly trace their movements, and control disease spread to protect the livestock industry, whose production value was approximately $69 billion in 2017 (National Agricultural Statistics Service, USDA). Knowing where diseased and at-risk animals are located helps preserve animal health; ensure a rapid response in case of an animal disease event; reduce animal illnesses and deaths if outbreaks occur; and decrease the cost to producers, consumers, and the government. This system also assures States and our trading partners that USDA is can rapidly contain an animal disease event. Each year, APHIS provides cooperative agreement funds to States to help them establish and maintain their own ADT programs. Currently all States receiving program funds have approved ADT strategic plans in place with APHIS.

This program continues to progress toward developing a system that is effective, flexible, and increases the timeliness of retrieving traceability data. In FY 2018, APHIS continued to work with States and industries to increase the volume of electronically generated and stored Interstate Certificates of Veterinary Inspection (ICVI), which are the primary documents the Agency uses to obtain animal movement information. To strengthen these capabilities, the ADT program began several IT initiatives to provide mechanisms for State and Federal animal health officials and accredited veterinarians to gather data electronically from the start of the data collection process instead of keying data or scanning paper records into electronic databases. The enhancements of existing mobile solutions, web-based interfaces, and a message service will move data between State and Federal data stores. Providing these tools and services minimizes the burden of manually recording animal information by producers and accredited veterinarians when they ship livestock to other States, while improving efficiencies in data collection, retrieval and sharing process. Electronically gathered and stored ICVIs are easier to search than paper documents and increase the efficiency of animal health officials. APHIS is currently in the process of developing the technical requirements and contracting deliverables for each of these proposals.

APHIS measures the success of the ADT program by conducting trace tests. The trace tests document a State's ability to properly administer, record, and retrieve documents pertaining to official livestock identification and interstate movement. The Agency has established national baselines for these tracing activities, which animal health officials typically conduct during a disease event. Based on the results of these tests, States/Tribes have improved their ability to retrieve the requested animal identification information, and are now able to do so successfully 99.5 percent of the time. Prior to implementation of the national baseline for tracing activities, the combined times for three standard types of traces was 490 hours. That combined total dropped to 123 hours in FY 2015 and has continued to decline through FY 2018 to a total of 47 hours. APHIS bases these times only on traces for animals that

have an official USDA identification tag. Animals that do not have official identification take significantly longer to trace or are untraceable.

In FY 2018, APHIS created a State and Federal ADT Working Group to assist in reviewing the ADT regulation, examine the feedback from the recent public stakeholder meetings, and provide input based on their experiences with disease traceability issues. In FY 2018, the ADT working group provided input towards updated program goals for advancing animal disease traceability. APHIS presented the goals to stakeholders at the National Institute for Animal Agriculture Traceability Forum in September 2018. These goals include: advancing the electronic sharing of data among federal and state animal health officials, veterinarians, and industry stakeholders; using electronic identification tags for animals requiring individual identification to improve the transmission on data; enhancing the ability to track animals from birth to slaughter through a data tracking system; and elevating the discussion with states and industry to work toward a system where private veterinarians electronically transmit animal health certificates to state animal health officials. APHIS will continue to engage in further discussion with stakeholders and initiate actions in support of these goals.

Information Management

Many of the APHIS information management systems are available to States and Tribal Nations to support their traceability plans and other animal health activities. APHIS conducts evaluations of existing data systems and applications to determine if they modify and enhance them or if they should develop new systems and applications. In FY 2018, APHIS conducted a feasibility and affordability analysis of the Mobile Information Management System which supports the agency's cattle fever tick eradication program operations. As a result of the analysis, the agency completed a project that modified and enhanced the Mobile Information Management System. These enhancements allow for real-time scanning of animal identification tags, improving the ability to track and monitor animal movement particularly along the U.S. Mexico border. The agency also evaluated the pilot phase of Palantir, a data integration software application for improving animal health data management. Additionally, APHIS finalized and implemented the Information Technology Governance Framework (ITGF) in FY 2018. The ITGF is a group of policies that establish a set of rules and processes that govern IT investment. The ITGF provides a uniform and transparent way of doing business and relies on the cooperation and collaboration of both the IT and the Agency.

Modeling

APHIS uses epidemiologic and economic models to improve the understanding of historical events, estimate future consequences, and inform strategic, logistical, and budgetary decisions by evaluating the effectiveness of varying interventions related to animal health. In FY 2018, APHIS continued to develop and update foot-and-mouth disease (FMD), classical swine fever, and avian influenza models for contingency planning, evaluating potential control strategies, estimating potential consequences of disease introduction and spread, and analyzing surveillance and response activities for recent outbreaks.

In FY 2018, APHIS continued to address challenges by developing models designed to advance our understanding of disease epidemiology for the purposes of emergency preparedness and management. In collaboration with the Agricultural Research Service's Foreign Animal Disease Research Unit, APHIS analyzed experimental data for FMD transmission, persistence, and infection dynamics in order to inform parameter development in disease-spread and control models. In FY 2018, APHIS populated the Australian Animal Disease Spread Model with U.S. data to support regional-level simulations of livestock disease, the first phase in evaluating this model for domestic use. This model is very efficient, allowing for more disease spread and control scenarios to be completed, and contains advances in State-level parameterization that allows for more utility. APHIS also completed a modification and enhancement to the Animal Disease Spread model to make it more user-friendly and available for State and local level emergency response planning. In FY 2018, to effectively plan for next generation modeling at the national level, APHIS initiated a project with Texas A&M University to identify technical specifications, data requirements, and computing efficiencies necessary to sustain the functionality of future disease-spread and control models.

National Veterinary Accreditation Program (NVAP)

More than 66,000 highly trained accredited veterinarians act as the first line of defense for reportable domestic and foreign animal diseases. The voluntary NVAP authorizes private veterinary practitioners to work cooperatively with Federal veterinarians and State animal health officials to report when they suspect these diseases to be present. This provides the first step in rapid diagnosis, quarantine, and other control measures to safeguard our nation's animal and human health. Accredited veterinarians also provide official animal, flock, and herd health certifications, disease testing, and traceability practices for billions of animals each year. Mandatory training and renewal of accreditation provide increased knowledge of animal disease surveillance, prevention, zoonosis, judicious use of antimicrobials, animal welfare, and disaster preparedness. APHIS currently hosts 31 web-based supplemental training modules for

accredited veterinarians. In FY 2018, accredited veterinarians completed approximately 140,000 web modules, with more than 5,000 modules completed at veterinary conferences nationwide.

Aquatic Animal Health

The Aquatic Animal Health program protects the health and value of U.S. farm-raised aquatic animals and natural resources by carrying out activities consistent with the National Aquatic Animal Health Plan (NAAHP), which calls for surveillance and testing of high-consequence aquatic animal diseases. The NAAHP helps the Federal government develop policies and programs to address aquatic animal diseases for the benefit of aquaculture and aquatic animal resources. The USDA, the U.S. Department of Commerce, and the U.S. Department of the Interior implement the plan. This program's efforts position commercial producers in domestic and international trade markets, valued at $1.6 billion in 2017 (USDA Census of Agriculture), and helps the commercial aquaculture industry demonstrate adherence to sound practices for aquatic animal health.

In FY 2018, APHIS and the National Aquaculture Association continued to implement the Commercial Aquaculture Health Program Standards (CAHPS), which supports improved health management, protection and expansion of aquaculture business opportunities, promotion and facilitation of trade, and improved resource protection. The CAHPS provides leverage in trade negotiations by establishing a non-regulatory framework to improve and verify the health of farm-raised aquatic animals. This effort positions commercial producers in domestic and international trade markets, and helps the aquaculture industry demonstrate adherence to sound aquatic animal health practices.

APHIS continued to participate in projects to determine how CAHPS principles can best be used in various aquatic production operations and states. Two projects continued this fiscal year that involved Atlantic salmon, cultured in Maine or Washington. APHIS established two additional cooperative agreements – one in Idaho with rainbow trout producers and one in Florida with a commercial koi carp and goldfish producer. Initial projects have afforded template development and standardization of CAHPS processes and have allowed feedback from industry and state partners on improved application. They have also generated interest from the Canadian Food Inspection Agency (CFIA), which has indicated that it would recognize facility CAHPS participation, testing history, and ongoing surveillance to support premise or facility freedom for specific pathogens. APHIS continues to work with trading partners and industry to promote CAHPS as a cost-efficient and risk-based method for demonstrating disease freedom by site or establishment and geographical zones. Producers who participate in a CAHPS may also be able to reduce testing over time based on of history, surveillance, and biosecurity.

In FY 2018, there were several detections of pathogens listed by the World Organisation for Animal Health (OIE) in U.S. cultured fish, mollusks, and crustaceans. In fish, koi herpesvirus was detected on several farms and infectious salmon anemia virus (ISAV), the non-pathogenic variant, was detected in wild and farmed Atlantic salmon. *Bonamia exitiosa* was detected in oysters from the northeast and *Vibrio parahemolyticus*, which causes acute hepatopancreatic necrosis disease, was detected on a shrimp farm. Additionally, APHIS continued to work with domestic industry on other priority pathogens such as Aeromonas hydrophila, a major fish and amphibian pathogen In June 2018, APHIS and collaborators completed a year-long survey to determine regulatory costs and challenges in the trout and salmon sector. Results from this project support the need to harmonize state and federal regulations and demonstrates how a nationally-recognized CAHPS program could help to reduce regulatory burden of fish health testing for movement and trade.

In recent years, APHIS has added several aquatic animal pathogens to the National Animal Health Laboratory Network (NAHLN) repertoire of standardized testing, including ISAV and spring viremia of carp virus. Incorporating these pathogens has helped standardize aquatic animal pathogen testing and build our Nation's capacity to respond to aquatic animal disease outbreaks and maintain or expand U.S. export markets. APHIS also developed and administered protocols and proficiency tests for these NAHLN pathogens. In FY 2018, the Agency again required proficiency testing panels for NAHLN and APHIS-approved laboratories performing export testing to determine a laboratory's capability to conduct specific diagnostic tests and produce correct results.

APHIS completed a three-year surveillance study in FY 2016 involving salmon in Alaska and Washington State. As part of this study, the Agency worked with the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the States of Washington and Alaska, and the Northwest Indian Fisheries Commission to determine the risk that ISAV poses to wild Pacific salmon and coastal economies. All 4,962 samples submitted for ISAV testing were negative. The results of this effort provide sound evidence to support the absence of ISAV in represented populations of free-ranging and marine-farmed salmonids on the northwest coast of the United States. In FY 2018, APHIS and these partners published a manuscript in the Journal of Fish Diseases to provide results of the study and recommend that the U.S. Pacific Northwest continue to operate as free from ISAV, with continued biosecurity practices to support a strong health status.

Avian Health

The Avian Health program protects the U.S. poultry industry, valued at $43 billion in 2017 (USDA, National Agricultural Statistics Service), while facilitating agricultural trade in poultry and poultry products. This program consists of the surveillance, prevention, and control of avian diseases; disease threat planning and response; international avian health activities; and modeling activities. APHIS' surveillance programs detect foreign, zoonotic, and domestic diseases that could substantially impact domestic production and the economy. Surveillance information facilitates trade and protects public health by demonstrating that certain diseases do not exist in poultry populations. Prevention and control programs minimize the disease threat and protect the value of poultry markets. The Agency also maintains regulations and national program standards and guidelines that direct avian health activities at the Federal, State, and Tribal levels. Maintaining these standards supports interstate and international commerce by providing assurances about the health of avian species and products that are moved or traded. In addition, APHIS uses models to improve the understanding of historical events, estimate consequences, and inform decisions by evaluating the effectiveness of varying interventions. This program has the expertise and infrastructure to work with avian health industries, universities, and State and Federal partners to collect, analyze, and disseminate vital avian health information to those who might take action.

Surveillance, Prevention, and Control of Avian Diseases

To ensure the U.S. poultry industry maintains its competitiveness worldwide, it is essential to quickly detect and address endemic, emerging, and foreign disease threats. To quickly detect avian diseases, APHIS conducts surveillance in domestic poultry, live bird marketing systems (LBMS), and wild birds. The Agency helps prevent and/or control the spread of avian diseases through collaboration and education, as well as regulatory enforcement. The agency designed this prevention and control activities to quickly diagnose disease, improve biosecurity conditions, and minimize the effects of avian influenza (AI) on the LBMS and commercial poultry industry.

The National Poultry Improvement Plan (NPIP) is a cooperative Federal-State-industry program that helps participants guard against disease incursion and enhance the marketability of poultry and poultry products. Hawaii officially joined the NPIP in March 2018. Currently, the NPIP AI prevention and control program involves the participation of all 50 states and Puerto Rico; more than 95 percent of commercial broiler, turkey, and egg industries; and 100 percent of the primary poultry breeding industry. Approximately 100 authorized and approved laboratories provide diagnostic testing for the program. The NPIP hosted three diagnostic laboratory training workshops in FY 2018 to enhance education for *Mycoplasma*, *Salmonella*, and AI. In addition, USDA published a final rule in August 2018 to link the NPIP biosecurity principles to Federal highly pathogenic avian influenza (HPAI) indemnity and compensation payments. Commercial poultry operations now must have successfully audited biosecurity plans by August 2020 to be eligible for indemnity and compensation payments.

The LBMS is a network of U.S. live poultry markets and their production and distribution systems, which provides fresh poultry meat to consumers. As of September 30, 2018, 38 States and the U.S. Virgin Islands had live bird markets that participate in the Agency's AI prevention and control program. State cooperators help conduct surveillance and diagnostic activities for the LBMS. When these tests yield presumptive positive results, APHIS confirms the presence and strain of AI. LBMS testing prevents and controls the disease in markets and among producers and distributors that supply those markets. Since the H5/H7 low pathogenicity avian influenza (LPAI) LBMS prevention and control program began in 2004, the number of AI-positive premises has decreased steadily. In FY 2017, the program conducted approximately 138,000 AI surveillance tests in the LBMS; FY 2018 data will be available after the agreements with States conclude on March 31, 2019. In FY 2018, there were no detections of H5/H7 LPAI in the United States LBMS. However, there was one detection of virulent Newcastle disease (vND), formerly known as exotic Newcastle disease (END), in a live bird market in California.

APHIS conducts AI surveillance in commercial poultry under the National H5 and H7 LPAI Control Program. Although most of the testing is performed locally, APHIS' National Veterinary Services Laboratories provides reagents for testing and performs confirmation and identification testing of presumptive positive specimens. In FY 2017, APHIS performed approximately 2 million AI surveillance tests through NPIP cooperative agreements; FY 2018 data will be available after the agreements with States conclude on March 31, 2019. From October 1, 2017 - September 30, 2018, there were five confirmed LPAI detections in U.S. commercial poultry.

On May 18, 2018, APHIS confirmed vND in backyard exhibition chickens in Los Angeles County, California. vND is a highly contagious and fatal viral disease affecting all avian species. This was the first case of vND in the United States since 2003. By September 30, 2018, USDA had confirmed 150 cases in California: 97 in San Bernardino County, 31 in Los Angeles County, 21 in Riverside County, and 1 in Ventura County. However, vND has still not been found in U.S. commercial poultry since 2003. APHIS intensified its efforts in September and identified

additional cases within existing disease-control areas and quickly euthanized affected flocks. These actions will help prevent additional disease spread and eradicate the disease more quickly. The California Animal Health and Food Safety Laboratory System tests samples, and APHIS' National Veterinary Services Laboratories in Ames, Iowa, confirms all findings. APHIS worked closely with the California Department of Food and Agriculture to respond to these findings, conduct epidemiological investigations, and conduct additional surveillance and testing in the areas.

In FY 2018, APHIS coordinated the collection and laboratory analysis of approximately 21,000 wild bird samples. National wild bird surveillance in conjunction with on-farm wildlife investigation helped determine the emergence of the HPAI H7N9 virus that affected domestic poultry in the Southeast during 2017 and introductions of the H5 virus from wild birds to domestic poultry since 2002. In addition, the agency continued to collaborate with researchers in China on HPAI surveillance and at Mississippi State University on ecological-genetic studies.

Regulatory enforcement is critical to contain HPAI. To deter the entry of HPAI in FY 2018, APHIS investigated five cases involving avian health issues. As a result, the agency issued four Official Warnings to subjects who illegally imported poultry hatching eggs into the United States in violation of the Animal Health Protection Act.

Disease Threat Planning and Response

Also in FY 2018, the NPIP established the U.S. Poultry Primary Breeder AI Compartmentalization program, and this program began implementing biosecurity improvements at the primary breeder level. Primary breeders breed pedigree stock, which is kept on high-level biosecure farms. Compartmentalization represents a major shift from the traditional paradigm of disease control in that it defines the health status of a subpopulation of animals by common biosecurity and management principles rather than a shared geographic boundary. APHIS' voluntary compartmentalization program, which involves those breeders that employ strict AI-targeted biosecurity measures into an officially-recognized certification program, support the trade of poultry and poultry products if the United States encounters an AI outbreak. Participating breeders must meet the program's extensive biosecurity, personal training, disease monitoring, and laboratory infrastructure requirements, which are designed from evidence-based principles known to prevent AI virus introduction and spread. APHIS administers the program and serves as the regulatory authority that international trading partners can trust to verify that a participant meets the requirements.

APHIS provides services that support agency and interagency emergency management activities, and protect the health, safety, and security of agency personnel. Respirators serve a vital function in this regard by protecting workers from significant hazards including insufficient oxygen and harmful pollutants in dusts, fogs, smokes, mists, gases, vapors and sprays. The Occupational Safety and Health Administration requires all employees to be fit tested before using a respirator in the workplace, and to be retested at least every 12 months to make sure that the respirator still fits properly. In FY 2018, APHIS trained 12 employees as fit-testers, increasing the total number of trained fit-testers to 153. In addition, 450 personnel were fit-tested for respiratory protection for use in responding to an AI outbreak. In addition, the Agency maintained and calibrated the 32 fit-testing units and purchased two additional units to ensure they are consistently available to support fit-testing requirements. In FY 2018, APHIS equipped the fit-testing units with self-contained breathing apparatus masks to increase the variety of uses. In addition, APHIS also began to record fit-testing information in the APHIS Emergency Qualifications System for more rapid access during emergency response.

In FY 2018, APHIS supported the Zoo and Aquariums All Hazards Preparedness, Response, and Recovery (ZAHP) Center in the launch of Secure Zoo, which is modeled after the APHIS- and industry-driven Secure Foods family. Secure Foods is an APHIS-funded collaborative effort to provide business continuity during a foreign animal disease outbreak. The Secure Zoos Strategy addresses the challenges that foreign animal diseases pose to the managed wildlife community through mitigation, protection, response, and recovery efforts. After launching Secure Zoo, ZAHP shifted to making these efforts more sustainable by industry. In addition, the ZAHP invited proposals and micro-grant reimbursement for preparedness projects, which will provide insight into stakeholder concerns and how to address them. Also in FY 2018, ZAHP helped facilitate a grassroots effort in Texas to build a more standardized emergency response model in the regulated exhibitor community.

International Avian Health Activities

Overseas, APHIS facilitates agricultural trade, works with agricultural officials, monitors agricultural health, and supports efforts in sanitary and phytosanitary standard-setting. In addition, the agency works with the USDA's Foreign Agricultural Service and the U.S. Trade Representative's Office to maintain a coordinated, strategic approach to resolving avian health issues that affect U.S. exports. Further, APHIS coordinates with the World Organisation for Animal Health (OIE) and other international organizations to assist with disease prevention, management, and eradication activities in HPAI-affected regions. In FY 2018, APHIS delivered more than 22 capacity-building activities in the areas of biosecurity, poultry disease diagnostics, quality assurance in the

laboratory, poultry and wildlife surveillance, and Incident Command System (ICS). As an example, APHIS, in conjunction with the OIE regional representative in Botswana, determined that the most urgent priority in the Southern African Development Community (SADC) region was creating awareness and building capacity in surveillance and detection, especially in wildlife. In the spring of 2018, APHIS and cooperators provided training on practical tools for HPAI surveillance in wild birds and live bird markets in spring. This training used existing SADC infrastructure, and trained officials who trained others. Approximately 20 participants from South Africa, Madagascar, Uganda, Lesotho, Mozambique, Angola, Democratic Republic of Congo and Zimbabwe participated in this activity. In addition, APHIS' office in Japan delivered a training in zoning for HPAI. The primary objective of this training was to increase understanding and utilization of zoning as disease control strategy for avian diseases, consistent with principles of the OIE Terrestrial Animal Health Code, and provided the up-to-date science-based knowledge on surveillance, zoning, and compartmentalization for avian disease control. More than 40 participants from Japan, South Korea, Taiwan, and ASEAN countries (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) participated in this training.

In addition, APHIS sponsors and staffs the Emergency Management Center (formerly the Crisis Management Center for Animal Health) at the Food and Agriculture Organization (FAO) of the United Nations, in Rome, Italy. APHIS provided one full-time veterinarian for this Center, which helps countries respond to and contain animal disease threats. The Center provides assessments, guidance, and resources to enable rapid response to animal disease outbreaks in countries where the United States would have difficulties placing personnel or responding bilaterally. This approach reduces the threat of disease outbreaks from becoming widespread and evolving into pandemics. APHIS also ensures that U.S. trading partners adhere to the sanitary and phytosanitary rules of the World Trade Organization and other international standard-setting organizations, as the United States and FAO-Rome expand their cooperating relationships and establish new partnerships.

Modeling Activities

APHIS uses modeling to identify efficiency opportunities and facilitate informed decisions. In FY 2018, the agency completed a pilot study with Colorado State University using geospatial modeling to identify geographic areas within one State at high risk for the introduction of AI into poultry operations. As part of that study, modelers mapped commercial poultry farms and avian population densities across the contiguous United States using novel methods. In addition, they developed models predicting the spatial and temporal distribution of wild birds in the United States as a precursor to designing national models to identify potential high-disease risk areas of co-occurrence between wild birds and domestic poultry. APHIS also contracted with a company that provides statistical services to customers in the avian industries to acquire data to update the cost estimates in models determining egg layer, turkey, and broiler indemnity values for breeder and meat birds.

Cattle Health

The Cattle Health Program protects and improves the quality, productivity, and economic viability of the U.S. cattle industry, valued at approximately $111 billion (National Agricultural Statistics Service, 2017). The Cattle Health Program has two major goals: to rapidly detect and respond to diseases that could significantly affect the U.S. cattle and bison population, and prevent the spread of any newly detected disease in the United States as well as endemic domestic cattle and bison diseases of concern.

APHIS activities in the Cattle Health Program include surveillance, disease prevention, disease investigation, and outbreak response actions. In addition, APHIS maintains regulations, national program standards, and guidelines that direct activities at the Federal, State, Tribal, and local levels. Establishing and maintaining these standards is a vital responsibility that supports interstate and international commerce by providing assurances about the health of cattle or bison being moved or traded.

In FY 2018, APHIS continued to conduct surveillance for foreign, emerging, and endemic diseases, including bovine tuberculosis (TB), brucellosis, and bovine spongiform encephalopathy (BSE). In addition, the Agency conducted surveillance for disease vectors, such as the cattle fever tick (CFT). The Agency conducts surveillance through cattle testing at slaughter facilities, livestock markets, shows, sales, buying stations (first point testing), on-farm, and rendering facilities (operations that collect dead, dying, disabled, and diseased animals). APHIS also continued working with neighboring countries to exclude foot-and-mouth disease, new world screwworm, and other cattle diseases. The following are examples of the Agency's efforts to protect cattle health during FY 2018.

Bovine tuberculosis

Bovine TB primarily affects cattle, but has the potential to affect other animal species and humans as well. APHIS' surveillance for this disease includes testing live cattle and using slaughter surveillance data from the USDA's Food Safety and Inspection Service (FSIS). APHIS also works with Mexico to implement a joint strategic plan to control

and eradicate bovine tuberculosis in both countries. Since the bovine TB program began in 1917, it has significantly decreased the prevalence of the disease in U.S. livestock. Today the prevalence rate in cattle herds is less than 0.001 percent. In FY 2018, 147 Federal and State-inspected slaughter establishments submitted 6,250 samples for program testing. Through these surveillance efforts, the program detected TB in 15 animals: four adult cases from Michigan, one adult and one feeder case from South Dakota, one adult and four feeder cases from Texas, two adult cases from Wisconsin, and two feeder cases in Mexican cattle.

In FY 2018, APHIS identified four TB affected beef herds through live animal surveillance: two in Michigan, one in Nebraska, and one in South Dakota. APHIS also identified one TB affected dairy herd in Texas. APHIS uses a mix of depopulation and test-and-removal strategies to address bovine TB-affected herds. These strategies consider herd size, potential indemnity costs, State and owner preferences, genetics, and the probability of removing infection. The two Michigan herds were depopulated with State funding. The South Dakota herd was depopulated with Federal funds while feeder cattle on the premises were sent to FSIS inspected slaughter facilities. The Nebraska herd was depopulated with Federal funds. A TB affected cattle herd in Indiana, identified in FY 2017, was depopulated with Federal funds after a test-and-remove herd management plan continued to detect TB infected animals. The Texas dairy is currently under a test-and-remove herd management plan.

The Cattle Health Program has five State bovine TB classifications. A higher prevalence rate results in more restrictive movement requirements. The classifications are, in descending order: accredited free, modified accredited advanced, modified accredited, accreditation preparatory, and non-accredited. Michigan is currently composed of two classification zones: accredited free and modified accredited status. At the end of FY 2018, 49 States, two Territories (Puerto Rico and the U.S. Virgin Islands), and one zone were TB accredited free.

Bovine brucellosis

Bovine brucellosis is an infectious disease that can cause decreased milk production, weight loss, abortions, infertility, and lameness, and negatively impact the livelihood of cattle producers and the supply of meat and dairy products. Because of the Federal and State brucellosis eradication efforts, all 50 States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands have been free of brucellosis since July 2009. States with brucellosis in wildlife work with APHIS to implement a State brucellosis management plan (BMP). Each BMP explains the basis for the area identified; describes the epidemiologic assessment and surveillance activities to determine if wildlife populations are affected; and describes surveillance and mitigation activities for cattle, bison, and wildlife. Although the United States is considered free of brucellosis, there continues to be a presence of brucellosis in free-ranging bison and wild elk in the Greater Yellowstone Area (GYA). APHIS provides expertise to land and wildlife management agencies to manage brucellosis in the GYA, which includes parts of Idaho, Montana, and Wyoming.

In FY 2018, APHIS tested approximately 2 million head of cattle for brucellosis under the market cattle identification national slaughter surveillance program. The Agency, in conjunction with States, also tests cattle and domestic bison on farms or ranches for movement, private sale, issue of herd certification, and for show or exhibition purposes. In FY 2018, the program certified 308 herds as brucellosis-free cattle herds. Since many producers no longer have to incur the cost of maintaining annual whole herd testing for certification, the number of certified-free herds varies year to year based on the producers' need for livestock movement. In support of the program, producers worked with accredited veterinarians to collect samples and state laboratories test the samples.

There was one new brucellosis affected herd detected in FY 2018. In November 2017, a beef herd in Idaho was detected during their annual certification tests. APHIS placed this herd under quarantine and it is currently under a test-and-remove herd management plan. There is no indication that brucellosis has spread outside the GYA. This area is APHIS' main focus for brucellosis in livestock because the disease is endemic there in wild elk and bison.

Bovine spongiform encephalopathy

In FY 2018, the Agency tested 21,307 cattle for BSE resulting in 394,832 points, exceeding the World Organization for Animal Health's (OIE) international surveillance standards (21,429 points per year). In FY 2018, APHIS adjusted all the sample contracts and cost per samples under delivery and quantity contracts, replacing the blanket purchasing agreements for greater efficiency. This reduces the number of sampling contractors while improving the geographic distribution and quality of samples collected. Only six cases of BSE have ever been identified in the United States. In FY 2018, an atypical case of BSE was confirmed in Florida. Unlike classical BSE, atypical BSE generally occurs in older cattle, arises spontaneously in all cattle populations, and is not the result of contaminated feed. As a result, the detection has not had any effect on U.S. export markets or OIE's international recognition of the United States as low risk for BSE.

Cattle fever tick

The Federal-State Cattle Fever Tick Eradication Program is a partnership between APHIS and the Texas Animal Health Commission. The cattle fever tick (*boophilus annulatus*) and the southern cattle tick (*B. microplus*) are vectors for spreading babesiosis, also known as cattle fever. Even when not transmitting this disease, CFT can cause blood loss, damage to hides, and an overall decrease in the condition of livestock. Mortality in cattle without prior exposure to the disease ranges from 70 to 90 percent. The Agency focuses on controlling the spread of tick species that transmit the infectious agent through the inspection of livestock before they leave quarantined areas, surveillance at local markets, inspection of hunter-killed white-tailed deer and other exotic ungulates, and horseback river trail patrols to capture stray and smuggled Mexican livestock who may carry ticks into the United States.

The United States remains free of cattle fever. There is a permanent quarantine buffer zone established between Texas and Mexico. Bordering Mexican states harbor tick species, which carry the disease, and tick-infested wildlife or livestock near the U.S./Mexico border can bring the ticks into the United States. Tick eradication activities consist of identifying and quarantining infested premises and treating livestock and wildlife. Approved treatment methods for ticks include: dipping or spraying cattle with coumaphos, a pesticide that targets ticks and mites; feeding corn treated with an anti-parasitic drug called ivermectin to deer found in wildlife; and injecting cattle with Doramectin, a derivative of ivermectin, used for the treatment and control of internal parasitosis, ticks, and mites found in cattle. To release a quarantine area, every infested premise must have all cattle treated for at least nine months, including inspections and treatments every two weeks.

In FY 2018, APHIS conducted 137,565 individual animal inspections and 97,303 treatments throughout South Texas. For FY 2018, the quarantine zone and the free area of Texas contained 110 newly quarantined premises, compared to 165 in FY 2017. When fever ticks have been found on livestock or wildlife that resided on the premises for more than 14 days, that premise is designated as infested. A premise may also be considered affected when there has been probable cause to investigate a quarantine zone for fever ticks. Probable cause for investigation includes adjacent premises bordering an exposed or infested premise; or premises separated by roads, double fences, or fordable streams.

Screwworm

APHIS and its cooperators have eradicated screwworm from the United States, Mexico, Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and down to the southern-most portion of Panama. APHIS' international efforts prevent the reestablishment of screwworm in the United States by collaborating with Panama and Colombia, to maintain a biological barrier zone in the Darien Gap, a narrow 102-mile stretch of jungle along the border of Colombia and Panama. The program relies on field operations and a sterile insect technique, a process where APHIS and cooperators produce and sterilize insects at a jointly managed facility in Panama and release them in the barrier zone to mate with wild insects, thereby preventing reproduction. This is a proven method to eradicate insect populations. The United States also has access to the sterile flies in the event of an outbreak in U.S. territory. APHIS produces approximately 20 million sterile flies per week at its Panama rearing facility. In response to higher levels of screwworm cases in the barrier zone over the last several years, the program supplemented the areal release of sterile insects with ground releases in FY 2016 and FY 2017. Program officials also evaluated the sterile insects produced and determined the sterile insect strain had declined in fitness. As a result, the program began producing sterile insects from a cryogenically preserved strain in FY 2017 and continued releasing them in FY 2018 with good results. In FY 2018, there were nine positive screwworm cases in the barrier zone, a significant reduction over the 30 positive cases in FY 2017 and 64 positive cases the year before. APHIS will continue to maintain the barrier zone in Panama to prevent the spread of and reintroduction of screwworm.

Equine, Cervid and Small Ruminant Health

The Equine, Cervid, and Small Ruminant Health (ECSRH) program protects the health and improves the quality, productivity, and economic viability of the equine, cervid, sheep, and goat industries. APHIS activities include monitoring and surveillance, investigation and response, and disease prevention and preparedness actions taken when they identified health issues. The Agency's monitoring and surveillance activities detect foreign, emerging, zoonotic, and domestic diseases that could substantially impact the economy. APHIS also works with international and domestic trading partners to facilitate safe trade in equine, cervids, and small ruminants and their products and ensure that cases of diseases of trade concern are reported to the World Organisation for Animal Health (OIE). In 2018, the ECSRH Program conducted disease surveillance and/or monitoring for the following diseases: scrapie, bovine tuberculosis (TB), chronic wasting disease (CWD), vesicular stomatitis virus (VSV), contagious equine metritis (CEM), equine piroplasmosis (EP), and equine infectious anemia (EIA).

Sheep and Goat

The National Scrapie Eradication Program (NSEP) focuses on improving the health of the national sheep flock and goat herd, reducing scrapie-associated economic losses and increasing international marketing opportunities. Regulatory scrapie slaughter surveillance efforts began in FY 2003, and were designed to identify scrapie infected flocks and herds by sampling animals at slaughter. Since the surveillance program began, the program has collected more than 600,000 samples at slaughter. When first measured in FY 2002, the rate of cull sheep sampled at slaughter that tested positive for classical scrapie was 1 in 500 (0-2%).

In FY 2018, APHIS collected samples from 43,625 sheep and goats for scrapie testing, detecting three positive (0.0068%) cases. These figures are based on sample submissions and testing completed by September 30, 2018. FY 2018 values are expected to change when testing is completed for all animals sampled in FY 2018. In October 2017, a non-classical scrapie case was detected in a sheep from Virginia sampled at slaughter. As a result, the non-classical scrapie affected flock was placed on a 5-year monitoring plan. Unlike classical scrapie, non-classical scrapie (Nor98-like) is either not laterally transmissible or is transmissible at a very low rate and the OIE and APHIS have determined that it is not a disease of trade concern. In April 2018, scrapie was detected in a sheep from North Carolina sampled at slaughter. There was insufficient positive tissue available to conclusively determine if the case was classical or non-classical scrapie using standard testing. The flock was depopulated and no other sheep in the flock subsequently tested positive for scrapie. In August 2018, classical scrapie was detected through slaughter surveillance in a goat from Pennsylvania. All scrapie susceptible sheep and goats exposed to that goat are awaiting depopulation, and APHIS will monitor the herd of origin for five years.

The NSEP has a voluntary flock certification component, the Scrapie Free Flock Certification Program (SFCP). Participation in the SFCP enables producers to enhance the marketability of their animals by protecting them from scrapie and provides participants an avenue to export sheep and goats. At the end of FY 2018, 264 flocks were enrolled in the SFCP. Of these, 47 were export certified (scrapie-free), 54 were export monitored (working toward scrapie freedom), and 163 were select monitored (reduced scrapie risk).

Cervids

APHIS has announced a pilot project to evaluate the DPP test for TB in mule and sika deer for FY 2019. The DPP has been approved since 2012 as a primary test for elk, red deer, white-tailed deer, and fallow deer and will now be evaluated as a primary and secondary test for TB in mule and sika deer. The project will utilize serum samples that designated accredited veterinarians submitted for herd TB certification purposes. The project will collect samples from 306 animals for each species and submit them in a manner consistent with APHIS guidelines. The agency will consider them to be official TB tests.

Additionally, at the request of the United States Animal Health Association (USAHA) Tuberculosis Subcommittee, APHIS performed an analysis of TB testing in farmed cervids in the United States from 2011 to 2017. USAHA requested this analysis to describe TB testing in farmed cervids during this time period and to inform policy makers regarding possibly extending testing intervals from 3 to 5 years in the Agency's voluntary herd accreditation program. Based on the preliminary analysis of data, testing could potentially be reduced by approximately 40 percent per year, and the probability of detecting an infected animal in a given year would be reduced to detecting one infected animal in 5,461, to one animal in 3,096 (95 percent probability). Further analysis will continue in FY 2019.

To aid in the eradication of bovine TB, APHIS provides a voluntary herd accreditation program for captive cervids and requires testing before interstate movement. In FY 2018, the program tested 11,475 animals utilizing a blood test Dual Path Platform test and 2,807 animals by the skin test single cervical for TB. Eleven TB suspects were identified and seven of these animals were classified as TB reactors upon follow-up testing. A reactor animal is an animal that has tested positive to a 2nd TB confirmation test. The program determined six of the seven reactors were negative for *Mycobacterium bovis.* Post mortem test results on the last reactor is currently pending.

APHIS' voluntary national CWD Herd Certification Plan (HCP) helps States, Tribes, and the cervid industry control CWD in farmed cervids by allowing the interstate movement only from certified herds. Currently, 28 States participate in the national CWD HCP and the program used an immunohistochemistry test method to test 21,584 farmed cervids for CWD. In FY 2018, APHIS identified 15 new CWD positive farmed cervid herds (14 deer herds and 1 reindeer herd). The reindeer herd in Illinois was the first confirmed case of CWD in a reindeer in North America. APHIS provided Federal indemnity to depopulate seven of the 15 newly identified deer herds in FY 2018. The Agency also provided funding for the test and removal of 161 high risk animals that were in close proximity to reactors. The remaining herds in FY 2018 are under State quarantines. The Agency determines the use of Federal indemnities within the CWD program on a case-by-case basis.

Equines
APHIS collaborates with Federal, State, and industry partners to protect the equine industry from diseases that threaten animal and human health. The United States is the world's second leading exporter of horses by value, accounting for 17 percent of the $2.7 billion worldwide market value (Global Trade Atlas 2017). In a study conducted by the American Horse Council, the industry's 7.2 million horses contribute approximately $50 billion in direct economic impact to the U.S. economy (American Horse Council National Economic Impact Study 2017).

APHIS works with State animal health officials and industry to protect and improve the health of our domestic herd. APHIS provides expertise to equine industry organizations and assists in the development of the National Equine Health Plan. The plan functions as a roadmap for owners, veterinarians and industry organizations to coordinate with State and Federal animal health officials to recognize, prevent, control and respond to diseases. By integrating the roles of the State and Federal health officials with industry stakeholders, both equine health and the industry are improved; this helps decrease the impact of infectious diseases on the horse economy. These activities improve trade and facilitate equine movement, which are vital to maintaining the industry's economic value.

In FY 2018, APHIS coordinated with States to provide disease-specific technical guidance, epidemiological expertise, diagnostic assistance, and national-level situation reporting to respond to findings of equine diseases of high impact or concern. Specifically, APHIS conducted national disease surveillance for EIA, EP, VSV and CEM. In FY 2018, positive detections of EIA and EP, identified during routine surveillance, led to investigations and response activities. APHIS collaborated with States and other Federal agencies in the reporting of equine cases of certain zoonotic diseases such as: Eastern equine encephalitis, Western equine encephalitis and West Nile virus. In FY 2018, APHIS maintained certification and annual proficiency testing for 24 equine viral arteritis laboratories, 12 EP laboratories, and 13 CEM laboratories. In addition to certifying and conducting annual proficiency testing for 414 EIA laboratories, APHIS created and implemented national guidance for the submission and testing of almost 1.3 million EIA samples submitted annually by accredited veterinarians. Additionally, APHIS provides veterinary support and consultation to the U.S. Department of the Interior's Bureau of Land Management Wild Horse and Burro Program through an interdepartmental cooperative agreement.

National Veterinary Stockpile
The National Veterinary Stockpile (NVS) is a component of APHIS' Surveillance Preparedness and Response Services Logistics Center and serves as the primary source of materials, supplies, and equipment for the response to, control of, and containment of significant animal disease outbreaks. NVS has two primary objectives: to deploy countermeasures, within 24 hours of approval, against the most damaging animal diseases including highly pathogenic avian influenza, foot-and-mouth disease (FMD), virulent Newcastle disease, and classical swine fever; and, to assist States, Tribes, and Territories with planning, training, and exercises for the rapid request, receipt, processing, and distribution of NVS countermeasures during an event. To prepare for an incident response, the NVS program works with States, Tribes, and Territories to develop their logistics plans, conduct logistics training, and organize full-scale logistics exercises.

The NVS continuously evaluates their inventory of supplies and replaces expired inventory. In FY 2018, the NVS acquired additional poultry depopulation equipment. The NVS program successfully provided shipments of personal protective equipment, supplies and equipment to the virulent Newcastle disease response program in California, as well as activated a contract for personnel to assist with depopulation, disposal, and decontamination to address a low pathogenic avian influenza outbreak in California within 24 hours. APHIS will be reviewing the recent virulent Newcastle disease and low pathogenic avian influenza responses to identify opportunities for program improvements.

The NVS program seeks opportunities to, coordinate, and support activities with States. In FY 2018, the program focused its activities on State preparedness and conducted exercises with Montana, North Dakota, Ohio, and Wyoming. NVS personnel facilitated planning and training exercises to identify resource gaps and improve state preparedness plans. As a result, more Federal, State, Tribe, and Territory officials are better prepared to respond logistically to animal disease outbreaks. In addition to outreach activities, the NVS program partnered with other agency personnel to conduct training and drills to improve communication, collaboration, and integration during a logistics emergency response. These activities enabled the Agency, as well as participating stakeholders and partners, to refine their preparedness procedures. The Agency will continue to conduct exercises and trainings in the deployment of resources and response preparedness to animal health events in FY 2019 and FY 2020.

Also in FY 2018, APHIS continued to update and maintain the North American FMD Vaccine Bank (NAFMDVB) as part of the agency's animal health readiness initiative. The NAFMDVB is vaccine stockpile that APHIS, Mexico, and Canada cooperatively manage. Each country contributes funding to acquire vaccine and maintain a stockpile of

vaccine concentrate, from which FMD vaccine is derived. A portion of NVS funding was pooled with other appropriations from APHIS and partners in the Bank to acquire a new antigen for FMD preparedness and to perform critical quality control testing of other newly acquired antigens held in the Bank. The Commissioners of the Bank are working to ensure that the Bank can continue to maintain adequate stocks of vaccine concentrate and to conduct necessary quality assurance testing.

Swine Health

APHIS' Swine Health Program protects the health and improves the quality, productivity, and economic viability of the swine industry. The 2017 production value of the swine industry was approximately $19 billion (National Agricultural Statistics Service). In addition, the program facilitates trade in swine and pork products, and addresses swine health issues at the human-swine interface and between wildlife and domestic swine. APHIS activities include comprehensive and integrated swine surveillance, emergency preparedness and response planning, disease investigation and control activities, zoonotic disease prevention and response, swine health studies and special projects, collaborations on emerging issues, and outreach and communication with stakeholders. In addition, the Agency maintains regulatory and programmatic guidelines that direct activities at the Federal, State, and Tribal levels. Establishing and maintaining national standards support interstate and international commerce by ensuring the health of animals and products being moved or traded.

APHIS collects swine samples from various surveillance streams as part of a comprehensive integrated surveillance approach to detect various swine diseases that could substantially affect domestic producers and the national economy. Comprehensive integrated surveillance includes field work and epidemiological investigations, designated surveillance streams, a veterinary diagnostic laboratory infrastructure, data management systems, and methodologies for data analysis and reporting. APHIS collects samples and data from the following surveillance streams: veterinary diagnostic laboratories, slaughter plants, high-risk producer premises, livestock markets, and feral swine during population elimination projects. Surveillance testing supports the swine industry by assuring trading partners and other stakeholders of the status of swine diseases in the United States.

This comprehensive surveillance approach has enabled APHIS to maintain effective surveillance using a risk-based approach that targets high-risk samples and reduces surveillance costs. In FY 2017, APHIS tested 185,236 samples for pseudorabies virus (PRV); 161,491 for swine brucellosis; 888 for influenza A virus – swine (IAV-S); and 9,504 for classical swine fever (CSF). Of the samples tested for CSF, the Agency's Foreign Animal Disease Diagnostic Laboratory on Plum Island, New York tested 5,429 samples, and the National Animal Health Laboratories Network tested 4,075 samples. The testing received as of November 1, 2018, continued to confirm that all commercial swine herds were free from swine brucellosis and PRV, and that CSF remains eradicated from the United States. However, swine brucellosis and PRV continue to be found in non-commercial herds following exposure to feral swine. In FY 2017, two non-commercial herds tested positive for PRV test-positive, and seven non-commercial herds tested-positive for swine brucellosis in six States.

In all positive cases, APHIS and States investigate and quarantine infected herds, conduct outbreak testing to determine disease levels, and depopulate or remove infected animals to eliminate disease risk from these herds. These efforts protect commercial herds that may be exposed to infected backyard herds. With PRV and swine brucellosis eliminated from U.S. commercial swine herds, the Agency is modernizing surveillance activities to reflect a comprehensive, risk-based, and science-based approach to support trade efforts while reducing burdens on States and producers. In FY 2018, APHIS implemented a streamlined cull sow-boar slaughter sampling process for PRV and swine brucellosis surveillance, lowering sampling levels while maintaining stakeholder assurance that the U.S. commercial swine herd is free of PRV. The Agency modified sampling criteria to improve early detection of these diseases in higher risk herds. Influenza A virus in swine (IAV-S) infection is common in the swine industry, and the Agency characterizes selected samples that producers submit to diagnostic laboratories to assess variations in influenza viruses that affect swine. In FY 2017, APHIS performed 289 investigations in swine for foreign animal diseases (FAD), and all were negative.

APHIS has the responsibility under the Swine Health Protection Act to license and inspect swine production facilities that feed cooked garbage to swine, and to search for unlicensed facilities that may illegally feed raw garbage to swine. This practice could transmit infectious diseases such as African swine fever, FMD, or CSF to swine. By ensuring that food waste fed to swine does not threaten domestic swine, APHIS protects the commerce, health, and welfare of U.S. citizens. In FY 2017, the Agency supported 6,161 inspections of licensed premises and 21,614 searches for non-licensed facilities, leading to the identification of 114 non-licensed feeders. APHIS worked with States to either bring unlicensed facilities into compliance or force them to cease their illegal activities.

In FY 2018, public health officials reported 14 human variant influenza cases linked to swine exposure in multiple States. State public health and animal health officials, with support from APHIS and the Centers for Disease Control and Prevention, investigated all outbreaks. The Agency offers assistance to States and industry to identify the isolates from the swine associated with these outbreaks, if warranted. Joint animal health and public health investigations support the One Health concept and strengthen APHIS's ability to respond when both animal and human health might be compromised. Genetic sequences from these samples and other swine isolates are entered into GenBank. GenBank is a publicly accessible genomic database that provides the scientific community with updated, comprehensive DNA sequence information to support diagnostic test and vaccine development. Swine can harbor several zoonotic disease agents, such as IAV-S, swine brucellosis, and trichinellosis. Also in FY 2018, APHIS agreed to provide USDA oversight, as required by the World Animal Health Organization (OIE), to an industry-led negligible risk compartment for trichinella based on the Pork Quality Assurance Plus program. Compartmentalization represents a major shift from the traditional paradigm of disease control in that it defines the health status of a subpopulation of animals by common biosecurity and management principles rather than a shared geographic boundary. Establishing this compartment would allow the U.S. pork industry to access and protect international markets for fresh pork without the need for other mitigations such as individual carcass testing or freezing. APHIS provided industry with guidance on the surveillance testing required to establish the compartment. The testing is funded by APHIS and will be conducted by the Agricultural Research Service through an interagency agreement in FY 2019.

In FY 2018, APHIS supported special projects to advance scientific knowledge, situational awareness, rapid disease detection, advance information technology to support comprehensive surveillance and to advance diagnostic tests that are critical to the Agency's ability to respond to swine and human health events. Specifically, APHIS and industry stakeholders continued validating tests for use of oral fluids in swine FAD diagnostics (CSF, ASF, and FMD). This work is scheduled for completion in FY 2019.

Veterinary Biologics

APHIS' Center for Veterinary Biologics (CVB) regulates veterinary biological products under the Virus-Serum-Toxin Act to ensure that these products are pure, safe, potent, and effective. Organizations develop these products, which include vaccines, bacterins, antisera, diagnostic test kits, and analogous products to prevent, diagnose, and treat animal diseases in a wide variety of animal species. The CVB develops regulations concerning the production and licensing of veterinary biologics, evaluates pre-licensing dossiers and issuance of licenses and permits, tests products submitted for licensure, inspects facilities and product, approves product certifications, investigates non-compliance, and conducts post-marketing surveillance to ensure that manufacturers comply with all relevant regulations and policies. This comprehensive regulatory approach is the most effective way to ensure that only quality, Federally-licensed veterinary biological products are available to U.S. consumers, available for U.S. export markets, and also plays an essential role in protecting animal health and agriculture.

Licensed Products and Inspections

APHIS licenses and inspects facilities to ensure that all veterinary biological products produced and distributed in, imported into, or exported from, the United States are of the highest quality, and are not worthless, contaminated, dangerous, or harmful. Before the Agency began regulating veterinary biologics, farmers and animal health officials found products to be ineffective or contaminated with harmful diseases, including foreign animal diseases (FADs). While most of the time required in the licensing process is in the control of the potential licensee in developing manufacturing processes and conducting required studies, the CVB analyzes data and conducts confirmatory testing before issuing licenses. To reduce the burden on the regulated industry, CVB has expedited turnaround times, streamlined information collection required under specific circumstances, and implemented electronic submissions for the majority of required regulatory submissions. These efficiencies have reduced the overall staffing needs for CVB, at least until the growing biologics industry requests outpace the Agency's resources.

In FY 2018, APHIS received 222 applications for new and renewal licenses/permits, and issued 60 licenses/permits for the prevention, diagnosis, management, or cure of existing or new/emerging animal diseases. In addition, the Agency licensed 94 manufacturers and permittees for approximately 1,708 active veterinary biological product licenses/permits for the control of 230 animal diseases. These products are critical for protecting American agriculture, facilitating trade, and enhancing agricultural economic opportunities. APHIS also continued the implementation of the single-tier labeling rule in regards to veterinary biologics in FY 2018. Under this rule, the product's efficacy descriptions changed from a system that reflected any of four levels of effectiveness to a single, uniform label claim. This simpler format better communicates product performance, saves time and money for the manufacturer, and makes U.S. labeling more consistent with other products in international markets. In addition, APHIS clearly defined policy to allow the use of platform and prescription vaccines. These innovative policies allow

stakeholders the flexibility to quickly change vaccines to match emerging and changing pathogen threats with very limited risk to people, animals or the environment.

APHIS' National Centers for Animal Health (NCAH) Portal allows real-time communication and data exchange between APHIS and biologics manufacturers, eliminating the time and costs of deliveries. By the end of FY 2018, 86 percent of licensed firms were using the NCAH Portal. This resulted in CVB receiving 96 percent of marketing documents, 91 percent of biographical summaries, 76 percent of licensing correspondence, and 56 percent of inspection and compliance correspondence via the NCAH Portal. In FY 2018, CVB added submission of export certification and facility documents to the NCAH Portal in March and June, respectively. During the fourth quarter of FY 2018, the NCAH Portal received 64 percent of export certificates and 95 percent of facility documents. The total number of submissions CVB received from the NCAH Portal increased 24 percent from 28,443 submissions in FY 2017 to 35,243 submissions in FY 2018.

The United States and foreign countries require import and export certificates to certify that products are prepared in accordance with the Virus-Serum-Toxin Act. In FY 2018, APHIS reviewed/processed 2,333 Certificates of Licensing and Inspection, and reviewed/processed 1,045 export certificates for veterinary biological products. The Agency processed all export certificates within 4 days, and all certificates of licensing and inspection within 28 days. Timely processing helps ensure that markets are accessible for manufacturers who export their product. APHIS also helped ensure there were no FAD events related to the importation of more than 50 million doses of biological products.

APHIS annually inspects an average of at least 50 biologics sites to assure compliance. More than 99 percent of the unlicensed entities investigated either move towards licensure of the product in question or cease the objectionable activity. This program has the expertise and infrastructure to work with animal health industries, universities, and State and Federal partners to collect, analyze, and disseminate vital animal health information to those who might take action. APHIS also inspects manufacturing facilities to ensure that they produce biologics according to regulations. In FY 2018, APHIS conducted 62 on-site inspections, 27 percent of which supported a new establishment/facility or product license for the industry. Licensed veterinary biologics are vital since manufacturers can use them to make products to diagnose, prevent, or treat animal diseases, or improve existing biologics. In FY 2018, APHIS also performed 159 regulatory actions, issued 56 violation notices, and conducted 22 investigations of possible regulation violations. In addition, the Agency received 229 adverse event reports regarding veterinary biological products. These events, which the product may or may not cause, occur after the product is used. APHIS gathers this information to better learn how producers use the products in field conditions and applied them to the evaluation process to assure that pure, safe, potent, and efficacious products are available.

Collaborative Efforts

In FY 2018, APHIS provided expertise and training at a joint Institute for International Cooperation in Animal Biologics education program. The program was made available to educate domestic and international industry personnel and foreign officials on U.S. regulatory processes. There were 152 registrants including 42 international attendees from 20 countries. The program promotes U.S. policy as a regulatory model for both established and developing markets, and it improves worldwide marketability of USDA-licensed biologics. APHIS also participated in harmonization efforts with major trading partners including Japan and the European Union through the International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products. Additionally, CVB participates in the Veterinary International Conference on Harmonization's (VICH) Outreach Forum. This forum promotes the use of VICH harmonized guidelines in countries with developing regulatory systems for veterinary medicinal products.

APHIS also updated its procedures for implementing the National Environmental Policy Act (NEPA) in FY 2018 to better align with current science and Agency practices. Since APHIS issued the previous guidance in 1995, there have been numerous advances in science and technology, and changes in how the Agency approaches pest and disease management. The revised regulations took effect on June 25, 2018. The changes clarify and modify APHIS' categories of action, and establish an environmental documentation process to use in emergencies. In addition, they allow APHIS to continue analyzing impacts on the environment, while eliminating the need to prepare specific NEPA documentation for several routine program activities. The revisions will support CVB's new streamlined process for licensing veterinary biologics and will lead to cost savings in this area. The Agency expects that the new NEPA process will improve the efficiency of licensing veterinary biologics.

Veterinary Diagnostics

Laboratory and diagnostic services are essential components of the U.S. animal health infrastructure. The Veterinary Diagnostics line item provides partial funding for the National Veterinary Services Laboratories (NVSL), which

consists of laboratories in Ames, Iowa, and at Plum Island, New York. The NVSL is recognized by the World Organisation for Animal Health and the Food and Agriculture Organization as an international reference laboratory for significant animal diseases such as highly pathogenic avian influenza and foot-and-mouth disease (FMD). The NVSL provides diagnostic test services ranging from a single laboratory test to comprehensive laboratory services covering many pathogens for suspected outbreaks of domestic and foreign animal diseases (FADs). This line item also supports the National Animal Health Laboratory Network (NAHLN), which is an animal disease surveillance and monitoring system that interconnects Federal and State laboratory resources to improve the security of the nation's livestock by providing disease diagnostics both daily and during outbreaks.

NVSL

Diagnostic testing and confirmation of surveillance samples improves the security of the nation's livestock. In addition, NVSL is often on the forefront of emerging and re-emerging diseases including porcine epidemic diarrhea, Senecavirus A (SVA), bluetongue, and rabbit hemorrhagic disease virus. In FY 2018, the NVSL managed more than 483,800 diagnostic tests and approximately 43,500 accessions (one or more diagnostic samples received from the same submitter on the same day). In late FY 2017, NVSL had launched an electronic submission format through a web-based portal that made the VS 10-4, Specimen Submission, the most common submission form, available to customers. In FY 2018, NVSL expanded this portal to include VS 6-35, Report of Thoracic Granulomas in Regular Kill Animals, VS 10-3, Request for Salmonella Serotyping Form, and VS 17-31, Equine Import Testing Form. This was a critical customer service advancement, making it easier for submitters to submit samples and reducing data entry errors at the laboratory. The laboratories produced and filled more than 109,600 reagent orders in FY 2018, representing approximately 600 different types of products used in veterinary diagnostic testing. Many of these products are only available to stakeholders through APHIS. In support of diagnostic testing and the development of vaccines for use in the prevention of animal diseases, NVSL produced more than 558,500 milliliters of cell culture material, representing a broad spectrum of approximately 35 cell culture lines. The Agency also validated new test methods and platforms, and provided training and assistance to domestic and international laboratories.

In FY 2018, NVSL conducted testing on 2,344 diagnostic accessions to support FAD investigations and also supported international capacity building and collaborative activities in Argentina, Australia, Bangladesh, Brazil, Canada, Dominican Republic, England, India, Israel, Japan, Mexico, Morocco, Nigeria, Romania, South America, Ukraine, Uganda, and United Kingdom. In collaboration with the Canadian Food Inspection Agency, APHIS worked on a strategy to improve and harmonize available diagnostic methods to enhance North American African swine fever preparedness. Since 2014, APHIS has experienced a seven-fold increase in the number of investigations largely due to the emergence of SVA. SVA is an infectious but non-fatal disease that primarily affects pigs. Because SVA symptoms mimic FMD, APHIS must provide a diagnosis to exclude FMD in each case. SVA is emerging with new disease pathology in young pigs and has been reported in at least 21 states as well as Australia, Brazil, and New Zealand. The program received and tested 11,849 classical swine fever (CSF) surveillance samples in FY 2018. Of this total, NVSL tested 7,549 samples, and NAHLN laboratories tested 4,300 samples.

APHIS conducts proficiency testing of Federal, State, and university-sponsored laboratories to ensure that they use standardized, rapid diagnostic techniques and to maintain the credibility of U.S. diagnostic test results in the international marketplace. In FY 2018, APHIS provided 33 types of proficiency panels to international, Federal, State, and private laboratories, both within and outside the NAHLN network. APHIS made the necessary controls and reference strains available for approximately 200 diseases to help other laboratories develop and validate diagnostic tests. User fees cover the cost of some reagents and proficiency panels.

NAHLN

The Veterinary Diagnostics appropriation also provides support for limited infrastructure in NAHLN laboratories; NAHLN program staff and infrastructure costs; the APHIS Laboratory Portal, which provides a secure means of communication for NAHLN laboratories and proficiency test management for NAHLN and non-NAHLN APHIS-approved laboratories; personnel to provide information management system support for electronic messaging; and online quality management training the NAHLN laboratories use to maintain qualifications for participating in the network. The NAHLN serves as a vital early warning system for foreign and emerging animal diseases. The NVSL trains NAHLN laboratory personnel to ensure proficiency and standardization for performing diagnostic tests.

In FY 2018, the network laboratories performed approximately 145,700 diagnostic tests to support APHIS' animal health surveillance and response programs for NAHLN scope diseases. This number includes the NAHLN CSF testing numbers stated above. Surveillance numbers for FY 2018 are similar to those recorded for FY 2017, but, there was an overall increase in testing numbers from FY 2017 due to the increase in FAD investigations (FMD/SVA) and testing associated with the virulent Newcastle disease outbreak response. The NAHLN program

staff conduct exercises to prepare participating laboratories for animal disease outbreak scenarios; this enables the laboratories to remain proficient in animal disease testing. It also enables them to generate a rapid, local preliminary diagnostic result while confirmatory testing is performed at the NVSL. In FY 2018, the NAHLN laboratory in California supported a response to virulent Newcastle disease in exhibition birds as well as an outbreak of low pathogenic avian influenza. As of the end of FY 2018, the NAHLN consisted of 59 State, Federal, and university veterinary diagnostic laboratories in 42 States. These laboratories work with the NVSL reference laboratories to test for 14 economically devastating and/or potentially zoonotic diseases such as FMD, influenza in avian and swine species, bovine spongiform encephalopathy, and classical swine fever.

APHIS has established various communication mechanisms that enable the NAHLN coordination office to efficiently exchange information between and among member laboratories and State and Federal officials. One method for gathering input on the network's function includes the NAHLN Coordinating Council, which is comprised of NAHLN laboratory directors, State animal health officials, and officials from APHIS and the National Institute of Food and Agriculture. This Council approved 15 Level 1 laboratories, 28 Level 2 laboratories, and 7 Level 3 laboratories in FY 2018. The laboratory designation system reflects different levels of capabilities for surveillance, preparedness, and emergency response preparation. A NAHLN laboratory designated as Levels 1, 2, and 3 receives infrastructure support from USDA, and also conducts fee-for-service testing for USDA.

The NAHLN Coordinating Council made electronic messaging a priority in the assessment for FY 2018 designation. To maintain a designation, qualifying laboratories must undergo annual reviews to demonstrate adherence to NAHLN policies and procedures, and adjust levels accordingly. Based on the level of infrastructure funding provided to Level 1, 2, and 3 NAHLN laboratories, the laboratories maintained a high level of required quality standards, increased their capacity of electronic messaging, and increased the capacity to provide early detection and surge testing by increasing testing capacity. A USDA Executive Committee will continue to review and implement the NAHLN strategic and operational plans, and the Coordinating Council will continue to provide a forum to discuss the NAHLN's needs. The program has made it a priority to increase the number of NAHLN laboratories that are capable of electronically messaging test result data to APHIS. In FY 2018, 43 laboratories were capable, and APHIS projects that number will increase to 45 in FY 2019, 55 in FY 2020, and 58 in FY 2021. The commitment is to have all Level 1 and Level 2 laboratories messaging their NAHLN-approved assay results by the end of FY 2019. This accounts for the large increase in the projected number of laboratories for FY 2020.

National Bio and Agro-Defense Facility (NBAF)

In FY 2018, APHIS continued to work with the Department of Homeland Security (DHS) and USDA's Agricultural Research Service (ARS) to plan for the move from the aging Plum Island Animal Disease Center (PIADC) at Orient Point, New York, to the state-of-the-art NBAF that DHS is building in Manhattan, Kansas. The PIADC, home to the Foreign Animal Disease Diagnostic Laboratory (FADDL), is the only U.S. laboratory that is permitted to work with virulent foot-and-mouth disease virus (FMDv). In addition, FADDL is the custodian of the North American FMD Vaccine Bank. The NBAF will be a key national asset to protect the U.S. animal agriculture industry. It will be the first and only facility in the United States with large animal Biosafety Level (BSL)-4 containment capability, and will be the only U.S. laboratory allowed to work with virulent FMDv.

USDA and DHS have been working closely together to plan for transfer of management and oversight of NBAF from DHS to USDA when construction and commissioning of the facility is complete. USDA and DHS currently expect facility construction and commissioning to conclude in May 2021. At that point, NBAF systems and components will be operable and there will be a phasing in of live agent work. Before this initial occupancy date, however, USDA will need to fully test the facility during an endurance testing period beginning in December 2020. This requires significant staff on site to test the animal handling and animal disposal capability, operate multiple laboratories at the same time, and utilize many other NBAF components. To accomplish these tasks and still meet current timelines, USDA will accelerating hiring in FY 2020. After the transfer, ARS will manage the building and facilities. Both ARS and APHIS will have leadership responsibilities on operational aspects of the facility and for their own science programs. The NBAF will be online and fully operational in December 2022; the NBAF transition will continue through the closure of PIADC in August 2023. USDA is confident it can effectively and efficiently operate this state of the art facility.

Preparation for DHS' transfer of NBAF to USDA has required substantial planning. Since January 2018, USDA has held regular meetings to develop an organizational and governance structure for NBAF, and identify roles and responsibilities for each agency. In preparation for the transition, USDA formed multiple transition working groups to develop the detailed Work Breakdown Structure for NBAF stand up and steady state by USDA rather than DHS. Planning efforts will continue until the facility is online and fully operational.

Also, in FY 2018, APHIS and ARS continued efforts to develop a workforce of subject matter experts in foreign, emerging, and zoonotic diseases to conduct diagnostics in preparation for the NBAF transition. Workforce development is critical given the significant loss of expertise expected during the transition and the need to transfer the U.S. FAD diagnostic institutional knowledge to the NBAF. While we can train diagnosticians to perform specific tests, interpreting unclear results and troubleshooting diagnostic assays when they do not perform properly requires a high level of experience. APHIS developed the NBAF Scientist in Training Program to meet the workforce needs for subject matter experts in foreign animal and zoonotic diseases. APHIS accepted eight students into the first cohort from four different universities. In May of 2018, APHIS and ARS began recruitment actions for 24 key positions USDA planned to fill in FY 2018; four of which belong to APHIS. APHIS recruited for all four positions in FY 2018. The NBAF Coordinator started in FY 2018; the remaining three will begin in FY 2019. APHIS continues to recruit for additional key positions needed for the operational stand up, outside of the initial priority positions identified.

Zoonotic Disease Management

The Zoonotic Disease Management Program enhances State, national, and international collaborative efforts to promote healthy animals, people, and ecosystems by addressing diseases that pass between animals and people. This integrated approach is known as "One Health." One Health is a collaborative, multisectoral, and trans-disciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.

According to the U.S. Centers for Disease Control and Prevention (CDC) and the World Animal Health Organization (OIE), 60 percent of human pathogens are zoonotic and 75 percent of emerging diseases are zoonotic (including ebola, zika, MERS, and SARS), most originating from animal reservoirs. These statistics support the value of a One Health approach. APHIS provides national leadership in addressing the animal health component of the One Health approach. In doing so, the Agency contributes animal health expertise, infrastructure, and networks in combination with those of human and environmental health to provide holistic solutions to complex One Health problems. The Agency collaborates with industry and State partners to develop strategies, policies, and training to help stakeholders effectively engage with public health counterparts, provide guidance, facilitate information exchange, and enhance responses to One Health issues. By enhancing APHIS' efforts to address the animal health component of One Health, the program protects public health and improves animal health and marketability.

Zoonotic Disease Engagement, Investigation, and Response

APHIS works with international, national, State, and industry partners to address zoonotic diseases, such as *Salmonella* and variant influenza. *Salmonella* bacteria causes an estimated 1.2 million human illnesses, 19,000 hospitalizations, and 370 deaths annually in the United States (according to a 2011 Centers for Disease Control and Prevention analysis). Although most salmonellosis outbreaks result from foodborne transmission, they can also result from contact with animals and animal environments. It has been estimated that Salmonella infections transmitted through animal contact cause 11 percent of all salmonellosis annually. In FY 2018, APHIS collaborated with CDC and State Departments of Public and Animal Health to investigate several multistate outbreaks of human *Salmonella* infections linked to contact with live poultry in backyard flocks, especially chicks and ducklings obtained from mail-order hatcheries. These outbreaks resulted in a total of 334 people infected with the outbreak strains of Salmonella reported from 47 states. To prevent infections linked to live poultry, APHIS applied a One Health approach for control and prevention. This approach unifies animal and human health needs and takes into account the environments at the hatcheries where poultry are produced, the agricultural retail stores where poultry are sold, and the customers who own and raise poultry. Additionally, APHIS provided epidemiologic and laboratory support to the CDC outbreak investigations, and distributed educational and outreach materials directed to the consumer, backyard flock owner, feed stores, and mail-order hatcheries. APHIS continues to assist this segment of the poultry industry through a voluntary *Salmonella* monitoring program and publication of best management practices to mitigate Salmonella contamination at poultry hatcheries.

Typically, influenza A viruses in swine do not infect humans, but rare human infections have been reported, usually after direct or indirect exposure to pigs. Influenza viruses that normally circulate in pigs are called "variant" influenza viruses when they are found in people. Because of its complex ecology and risk of interspecies transmission, influenza requires a One Health approach to prevent, detect, and respond to the spread of influenza between pigs and people. In FY 2018, a total of 14 human infections were reported to the CDC. APHIS continues to work with CDC, State public and animal health officials, and academia to investigate these detections and provide diagnostic results. APHIS, CDC, and State laboratories rapidly share diagnostic sequence findings.

Antimicrobial Resistance

Antimicrobial resistance (AMR), as it relates to the Zoonotic Disease Management program, is the ability of a microbe in an animal to resist the effects of medication previously used to treat them. To combat AMR, APHIS also uses a One Health approach involving multidisciplinary coordination from public health and animal health sectors, and private sector organizations and stakeholders. APHIS works with its State, Federal, and industry partners to promote the judicious use of antimicrobials, which will support a strong, healthy, and thriving U.S. animal agriculture system as well as public health. Additionally, APHIS collaborates with State Departments of Agriculture, diagnostic laboratories, and public health officials to address AMR infections in humans that have been found to have an animal component.

In FY 2018, APHIS continued to work with other USDA agencies to develop practical mitigation strategies to reduce AMR prevalence. These strategies cover a broad array of efforts to address AMR in human and animal health, including AMR surveillance at the farm level, collection of antimicrobial drug use data, and efforts to promote stewardship of antimicrobial drugs by animal owners and veterinarians. In FY 2018, APHIS completed two studies of on-farm antimicrobial use and stewardship: one on swine operations, and one on cattle feedlot operations. APHIS will publish the reports of these two studies in FY 2019. APHIS also completed a beef cow-calf study in FY 2018, which collected data on antimicrobial use and stewardship in cow-calf operations, and sampled for AMR in pathogenic and commensal organisms. APHIS collaborated with other USDA agencies, including the Food and Drug Administration's (FDA) Center for Veterinary Medicine (CVM), and the CDC to produce a review article for the World Organisation for Animal Health describing the One Health AMR activities performed in the U.S. within each agency.

APHIS epidemiologists continued to support the development of on-farm antimicrobial use metrics that academic partners developed, collaborating to review and audit the researchers' methods and data streams. This activity is in support of the FDA-CVM approach to measure the use of antimicrobial drugs in food producing animals. APHIS also provided updates on activities to partner agencies that measured progress in completing work associated with the National Action Plan for Combating Antimicrobial Resistance. In addition, APHIS, in conjunction with FDA, completed the first year of a pilot program for collecting antimicrobial susceptibility data from veterinary diagnostic laboratories. The pilot was successful in meeting its objective of identifying a method to collect, analyze, and report standardized data from veterinary diagnostics laboratories across the country. In FY 2019, APHIS will continue the pilot program and collaborate with FDA and others to expand the number of labs providing data, expand the options for reporting to include a graphic interface for real-time data reporting, and expand the analysis of the data to include sequencing.

In FY 2018, APHIS developed a whole genome sequencing AMR pipeline to analyze bacterial isolates. APHIS initiated a study of 17 common *Salmonella* serotypes across all major animal groups, which incorporated antimicrobial susceptibility testing. APHIS collaborated with multiple State animal and public health departments to investigate multi-state outbreaks of *Salmonella* in dairy calves. The retrospective study helped develop whole genome sequencing pipelines for analysis and also provided additional data to better discover the outbreak's origins and spread. APHIS also worked closely with the CDC to investigate human outbreaks of drug resistant bacterial organisms stemming from animal origins. APHIS analyzed multiple outbreaks of various *Salmonella,* and shared the results with public health partners.

APHIS participated in several international AMR activities in FY 2018. APHIS provided comments on several chapters of the OIE Terrestrial Animal Health Code related to AMR. Additionally, APHIS and FDA provided input to the OIE ad hoc group developing a global database on antimicrobial drug use. APHIS also continued its work on to combat AMR at the international level. In FY 2018, APHIS participated in the biannual in-person Transatlantic Task Force on Antimicrobial Resistance at the U.S. CDC in March 2018, sharing information on animal health initiatives between the United States and European Union. APHIS will continue to review AMR related statements and positions that stakeholders and other governmental and nongovernmental agencies promulgate that may have implications for animal agriculture.

Pandemic and Animal Disease Preparedness

In FY 2019, APHIS provided animal health subject matter expertise to the North American Plan for Animal and Pandemic Influenza, which strengthens trilateral preparedness and response capabilities for human and animal health in Mexico, Canada, and the United States. Additionally, APHIS collaborated in several cross sector meetings and conference calls to discuss methods to improve data sharing and emergency and risk communications.

APHIS works to strengthen emergency preparedness and response to avian influenza and other zoonotic diseases using a One Health approach. APHIS, along with animal and public health officials from the CDC and State level, identified ways to use a risk-based approach to influenza like illness monitoring and the reasons for delays in exchange of information, with the goal of increasing efficiency and effectiveness of health monitoring for avian responders. In FY 2018, APHIS worked with States to review response protocols for a potential pandemic strain of avian influenza, hosting a tabletop exercise with animal and public health officials from 37 States. This exercise was the first to consider how animal health and public health officials would modify existing response protocols, yielding specific actions for State and Federal agencies to strengthen multisector response in future outbreaks.

In FY 2018, APHIS and Food Safety and Inspection Service met with state animal health officials and industry representatives to share information and strategies related to pre-harvest food safety process improvements and address a Government Accountability Office recommendation to develop a framework for certain pre-harvest food safety process events. The overall goal is to improve food safety and reduce pathogen transmission between animals and humans. The focus of the workshop was to begin these discussions on process improvement.

Global Health Security

The Global Health Security Agenda (GHSA) is a growing partnership of over 50 nations, international organizations, and non-governmental stakeholders to help build countries' capacity to help create a world safe and secure from infectious disease threats and elevate global health security as a national and global priority. Effective coordination and collaboration across all levels of the human, livestock, security/defense, foreign affairs, environment and wildlife health sectors are vital to accomplish the GHSA vision. In support of the GHSA, APHIS works with Federal partners to protect the United States from infectious animal disease threats.

APHIS coordinates USDA efforts related to antimicrobial resistance, zoonotic disease, biosafety and biosecurity, national laboratory systems, real time surveillance, and workforce development, ensuring interagency collaboration and communication in addition to interfacing with other U.S. government agencies. APHIS works with other U.S. government agencies to strengthen the areas that were identified as having less than sustainable capacity, including the coordination and collaboration necessary for an effective One Health response to a disease outbreak.

The major accomplishment of GHSA is the development of a voluntary country evaluation process that assesses a country's ability to prevent, detect, and respond to infectious disease threats. In FY 2018, APHIS was able to support two requests for animal health capacity building activities and provided animal health training to government officials from four countries. Additionally, APHIS helped to establish the new framework for GHSA 2024 which was presented in November 2018.

Selected Examples of Recent Progress - Plant Health:

Agricultural Quarantine Inspection

Through the Agricultural Quarantine Inspection (AQI) program, APHIS and the Department of Homeland Security's (DHS) Bureau of Customs and Border Protection (CBP) safeguard U.S. agricultural and natural resources from the introduction of invasive pests and diseases. To exclude foreign pests and diseases, APHIS assesses the risks associated with international trade and specific imported agricultural products and develops import regulations to protect U.S. agriculture. In addition, the Agency conducts off-shore pest risk reduction activities including pre-departure inspections of passenger baggage and cargo destined for the continental United States from Hawaii and Puerto Rico and foreign commodity pre-clearance programs; trains agricultural inspectors and detector dog teams to work at U.S. ports of entry; inspects and takes action as necessary on imported plant propagative materials; monitors the fumigation of arriving containers and cargo where necessary to mitigate pest risks; conducts trade compliance activities to detect potential violations of APHIS' import regulations and prevent smuggling; and provides the scientific support necessary to carry out these activities and those carried out by CBP, including, among other things, the authoritative and timely identification of pests necessary to determine whether regulatory actions on imported products are required.

APHIS receives appropriated funding for pre-departure inspections of passengers and cargo traveling from Hawaii and Puerto Rico to the continental United States to prevent the introduction of non-native agricultural pests and diseases into the continental United States while facilitating the movement of travelers and agricultural goods. Because of the high volume of travelers from these islands to the continental United States, along with the risks associated with numerous fruits, vegetables, and animal products associated with these areas, APHIS inspects all passenger baggage leaving these islands. When inspectors identify an item that poses a specific risk, they take immediate action to prevent the entry of materials that could harbor the pest or disease in question. This action prevents damage to the country's agricultural industry and negates the need for costly control and eradication

programs. APHIS also partners with industry groups and State and Commonwealth counterparts to facilitate the safe movement of cargo. In Hawaii, the State Department of Agriculture conducts nursery inspections and certifies nursery stock for shipment to the continental United States.

In addition to the appropriated funding, APHIS collects AQI User Fees under the authority of The Food, Agriculture, Conservation, and Trade Act of 1990, to recover costs for services provided by APHIS and CBP associated with preclearance inspections of passengers and the port-of-entry arrival of commercial vessels, trucks, loaded railroad cars, aircraft, and passengers entering the United States from a foreign destination. APHIS inspectors oversee the preclearance of commodities by inspection or treatment, or by monitoring systems approaches for pest mitigation, and managing trust fund agreements with the exporting country and exporter or exporter groups fund these activities. In most cases, exporters of the pre-cleared commodity cover the costs of this APHIS service through trust funds established for this purpose.

Cooperative Program Management

APHIS works with CBP to protect America's agricultural resources and food supply through inspecting international passenger baggage, cargo, and conveyances. APHIS and CBP share management of the program through working groups and close day-to-day collaboration. Senior leadership of both Agencies meet frequently to develop joint plans and coordinate their efforts in priority areas of enhancing security, clear and balanced decision-making, streamlining effective outreach and communication, and improving organizational structure and leadership to support the shared work in the agriculture safeguarding mission. APHIS and CBP improved communication at ports of entry through data system integration improvements, which facilitated the processing of 60,146 diagnostic requests of potential pests or diseases and responses for 24,811 notifications requiring mitigation to reduce pest risks on incoming cargo. In FY 2018, APHIS and CBP developed a Risk Based Sampling (RBS) cargo inspection program to target higher risk plant pests potentially entering the country and utilize current inspection resources more efficiently. APHIS also trained 95 new CBP agriculture specialists, conducted basic agricultural threat training for 1,488 first-line CBP officers, and provided agriculture fundamentals training for 66 CBP import specialists. In addition, APHIS certified 13 experienced CBP agriculture specialists to deliver the military cooperator inspector training to the Department of Defense to use in preventing agricultural pests and diseases from returning to the United States with military equipment and personnel returning from overseas posts in FY 2018. Additionally, APHIS trained 31 canine teams, 16 agriculture field trainers, and 10 agriculture canine team supervisors for CBP.

Pre-Clearance Inspections

One of the most effective ways to facilitate the safe movement of commodities into the United States is to address pest threats where they originate. In FY 2018, APHIS conducted commodity pre-clearance programs in 22 countries with 72 commodities to reduce the pressure on our domestic safeguarding system. Additionally, this offshore work, which importers fully fund, allows inspected, pre-cleared perishable products to enter through U.S. ports of entry without plant health inspection-related delays. In FY 2018, APHIS facilitated and expedited the safe trade movement of more than 1.78 billion pounds of fresh fruits and vegetables and nearly 1.1 billion plants and bulbs, a 10 percent increase over the previous year.

APHIS also works with the U.S. Department of Defense (DOD) to inspect and expedite the entry of military passenger baggage, cargo, personal property and heavy equipment returning to the United States, helping to prevent the unintentional movement of foreign animal and plant pests and diseases. In FY 2018, APHIS recertified 106 military agriculture pre-clearance programs for DOD's European Command,which includes Europe and Africa. These pre-clearance programs resulted in the successful clearance of 15,697 household goods shipments, 7,989 unaccompanied baggage shipments, 10,758 privately owned vehicles, and 292,056 pieces of military cargo including equipment, rolling stock, track vehicles, and munitions into the United States. Designated APHIS personnel delivered agricultural preclearance training and certification to military personnel, Stateside and in locations in the Middle East, Central Asia, Europe, South America, and Africa. In FY 2018, APHIS trained more than 500 DOD Central Command personnel in the United States deploying to missions overseas.

Offshore Risk Reduction

To help protect U.S. plant health from pests that could move into our country with high-demand, large volume commodity imports, APHIS conducts certain inspections and certifications overseas to verify that treatment or production facilities meet our standards and regulatory requirements. In FY 2018, APHIS inspected and certified three niger seed heat treatment facilities, 15 *Pelargonium* (geranium) production facilities, one new Dracaena production facility in Costa Rica, and two tomato plantlet facilities in Mexico. Niger seed, mainly used for bird seed, is produced in Asia and Africa. While niger seed is not a noxious weed, shipments of the seed may be contaminated with noxious weed seeds and imported shipments must be treated to prevent the noxious weed seeds from germinating. The genus *Pelargonium* includes popular geranium plants, which can carry serious plant diseases.

Geranium plants are a host for *Ralstonia solanacearum* race 3 biovar 2, which the Agricultural Bioterrorism Protection Act of 2002 listed as a select agent due to its severe threat to plant health. The pathogen causes Southern wilt of geranium, brown rot of potato, and bacterial wilt of tomato and eggplant—commercially important crops in the United States. By ensuring that these offshore geranium production facilities meet or exceed minimum production and sanitation standards, APHIS safeguards American agriculture by mitigating the risk of *R. solanacearum* before geranium cuttings reach our shores. APHIS and the nursery industry have successfully worked together on this program for many years. Dracaena (a genus containing many types of house plants) and tomatoes can also pose disease risks. These offshore programs allow for the import of desirable products into the United States while mitigating the pest risks.

Pre-Departure Inspections

APHIS inspected the baggage of approximately 11.9 million passengers before they left Hawaii and Puerto Rico and intercepted 271,014 prohibited items and 1,681 quarantine-significant pests in FY 2018. APHIS evaluates the effectiveness of its pre-departure program by measuring the percentage of passengers destined for the continental United States from Hawaii and Puerto Rico that comply with agriculture quarantine regulations. In FY 2018, more than 97 percent of passengers were in compliance (calculated by determining how many passengers are carrying prohibited items through random sampling and comparing it to the actual number of prohibited items intercepted through inspections). To facilitate interstate trade between Hawaii and Puerto Rico and the continental United States, APHIS conducts commodity certification and inspection programs. In FY 2018, the program conducted 84,460 inspections of regulated agricultural commodities shipped from Hawaii and approximately 16,318 inspections of regulated agricultural commodities shipped from Puerto Rico. In addition, the program oversaw or conducted 2,959 cargo treatments in Hawaii and 2,095 cargo treatments in Puerto Rico. APHIS continues to conduct methods development activities that expand the treatments available to allow additional fruits and vegetables to be shipped from these islands to the continental United States.

Port-of-Entry Inspections and Pest Interceptions

In FY 2018, more than 181 million passengers and pedestrians entered the United States by air, bus, ship, train, or on foot. CBP agriculture specialists inspected the baggage of 19.5 million of these travelers for agricultural risks through manual inspection, x-ray technology, or detector dogs. The program also conducted secondary agricultural inspections of 538,626 of the 89 million passenger vehicles entering the United States from Canada and Mexico in FY 2018. In addition, inspectors cleared 27,067 ships and more than 1.2 million cargo, mail, and express carrier shipments, intercepting 80,753 pests. Of the travelers inspected, the Agency found approximately 96.8 percent of international air passengers, 97.2 percent of southern border vehicles, and 93.9 percent of northern border vehicles to be in compliance with agriculture quarantine regulations.

Plant Inspection Stations

Importations of nursery stock, and other propagative plant materials, can serve as significant pathways for invasive pests and diseases. To reduce the risks associated with such imports, APHIS requires that certain imported plant materials enter the United States through plant inspection stations, which are located at ports of entry throughout the country at major international airports and seaports, and at major crossings along the U.S.-Mexican border. Specialists at these stations inspect shipments to ensure that imported plants and seeds do not contain pests and diseases of regulatory significance. In addition, they enforce the regulations that apply to the import and export of plant species protected by the Endangered Species Act and the Convention on International Trade in Endangered Species of Wild Fauna and Flora. In FY 2018, inspectors cleared more than 18,500 imported shipments containing more than 1.67 billion plant units (cuttings, whole plants, or other propagative materials) and 632,122 kilograms of seeds of woody plants. Through these inspections, APHIS employees intercepted 1,173 quarantine significant pests at the plant inspection stations. In addition, the stations conducted 795 treatments or other actions to remediate pests on more than 9 million plant units and 7,952 kilograms of seed.

Plant Germplasm Quarantine

APHIS' Plant Germplasm Quarantine Program (PGQP) provides quarantine services for importing plant cultivars and germplasm safely to prevent foreign pathogens from entering our agricultural production areas and environment. In FY 2018, PGQP released the following from quarantine: 32 bamboo clones, six gooseberries, 123 grass clones, one kiwi, 35 pome fruits, 43 potato clones, 49 potato true seed lots, 78 rice seed lots, 39 stone fruit clones, 12 sugarcane clones, four sweet potatoes, and three woody ornamentals. Of those released, the following were due to therapy performed on the infected imported plants: five of the six gooseberries, 15 of the 35 pomes, nine of the 39 stone fruit clones, 12 of the 43 potato clones, five of the 12 sugarcane clones, and two of the four sweet potatoes. New crops imported in FY 2018 included oak trees, a fig, and cassava. Notable shipments included 61 rice seed lots to Mississippi, 195 *Prunus* seedlings to the ARS Prunus Repository in California, 173 Hibiscus plants to the Korean

Embassy, and a pine bonsai for former Secretary John Kerry. The program prohibits entry into the United States on these high-risk crops in commercial quantities, but importers can bring in small quantities through an APHIS-approved plant quarantine program, like the one at PGQP. This year, PGQP began implementing next generation sequencing (NGS) to test imported plants for pathogens. Some of this year's grass releases were the first to be tested by NGS, found free of viruses, and then released. The program initiated preliminary experiments using NGS to detect potato and pome viruses in positive control samples.

Pest Identification

When pests are detected in cargo, the program must identify them to determine if they are considered quarantine significant under APHIS regulations (i.e., they are exotic and could pose a significant threat to U.S. plant health, therefore regulated by APHIS as a result) and if the program can allow the cargo entry into the United States (and what, if any, mitigation measures would be required). In FY 2018, APHIS National Identification Services processed and identified 140,822 pests, with 69,891 being quarantine significant pests. To reduce the pests that CBP must submit to APHIS for identification and speed up the inspection process for shipments with no quarantine pests, APHIS and CBP established the Cargo Release Authority (CRA) program in 2006. Through the CRA program, APHIS provides training and job aids that allow CBP agriculture specialists to recognize frequently intercepted, easily identifiable, low-risk organisms and release the cargo if the organism is not a quarantine significant pest. APHIS grants CRA after the agriculture inspector has successfully identified a particular pest a certain number of times and submitted documentation to APHIS. In FY 2018, a total of 81 CBP Agriculture Specialists earned 683 CRAs. Since the inception of the CRA program, APHIS has provided CRA training to 2,152 CBP Agriculture Specialists and granted a total of 15,379 CRAs to CBP Agriculture Specialists.

Risk Analysis

APHIS' Plant Epidemiology and Risk Analysis Laboratory (PERAL) develops pest risk analyses and epidemiological approaches to pest exclusion. In FY 2018, PERAL completed 331 risk analyses associated with imports, exports, invasive pest threats, and programmatic requirements. This total includes 33 analyses to open, expand, or maintain export markets for U.S. producers. The laboratory's work also included evaluations of 250 new or exotic pests for potential risk to U.S. agriculture, 23 risk assessments, and 38 revisions of risk assessments for import requests from foreign countries. These pest risk analyses identify potentially harmful plant pests and diseases that need to be mitigated before APHIS would allow the imported products in the United States.

Smuggling Interdiction and Trade Compliance (SITC)

SITC's core responsibility is to analyze, identify, and close potential smuggling pathways into U.S. commerce. SITC uses a multi-pronged approach that focuses on traces for non-compliant import materials, coordinating with investigative organizations across USDA and CBP, and extensive outreach to industry to increase compliance with APHIS' regulatory requirements. SITC works closely with CBP to identify and target potential agricultural risks at the ports of entry before they enter U.S. commerce and pose a threat to U.S. agriculture. In coordination with CBP, APHIS conducted 10 port-of-entry operations that focused on specific pathways, prohibited commodities, and higher risk countries of origin. In FY 2018, APHIS seized 1,501 prohibited agricultural items in retail commercial locations, 560 items from internet sales, and 1,406 from courier surveys. Those seizures totaled 678,453 pounds of prohibited and/or restricted plants and plant products and meat and meat products valued at $2.5 million. Additionally, APHIS conducted 28 recalls due to multiple wooden hand crafted products with bark that did not meet treatment and entry requirements, posing a risk for borers (insects that bore into trees and that could pose risks to U.S. forests). APHIS also conducted a recall for decorative bird nests containing noxious weeds. Total seizures as a result of recalls weighed 29,041 pounds and were worth an estimated value of $248,871.

Phytosanitary Export Certification

APHIS facilitates the export of agricultural shipments by tracking plant health import requirements for approximately 200 countries and provides certifications to U.S. exporters to help ensure that U.S. products meet other countries' requirements. More than 2,100 Authorized Certification Officials at the Federal, State, and county levels can access countries' certification requirements on-line and conduct inspections to issue phytosanitary certificates. These certificates facilitate the entry of commodities into foreign markets. The program employs a web-based Phytosanitary Export Database. This database, which is free to exporters, enables them to research requirements and better prepare for shipping. In addition, this program uses a Phytosanitary Certificate Issuance and Tracking (PCIT) database that allows exporters to apply for certificates, schedule inspections, and pay certification fees. PCIT also collects State and county cooperator fees in addition to the USDA fees for phytosanitary certificates. In FY 2018, APHIS collected more than $42 million for certificates and remitted more than $21 million to State and County cooperators for certificates they issued. Currently, 34 States and 33 counties use this feature. PCIT also enables APHIS to capture export application information, document inspection and certification

information, print an original phytosanitary certificate on secure paper, and generate export reports. Additionally, the Agency is continuing its effort with international counterparts to begin exchanging phytosanitary certificates electronically. APHIS recently worked with the International Plant Protection Convention to establish an electronic hub that countries can access to exchange export certificates with trading partners. The hub provides a central point for document exchange that eliminates the need for countries to establish electronic connections with each trading partner individually. Recent studies by industry have shown that paperwork errors slow down exports, leading to the majority of costly delays. The United States began using the hub in May 2018 and is already actively exchanging certificates with Argentina, Chile, and New Zealand, with more than 30,000 phytosanitary certificates received and more than 10,000 sent. In August 2018, APHIS conducted a case study with Argentina, in which there was no back-up paper certificate. Argentina allowed the case study shipment to enter the country without any problems. APHIS will conduct more case studies in conjunction with industry participants to identify any remaining obstacles to fully implementing paperless exchange with participating countries. In FY 2018, APHIS, State, and county officials issued more than 725,000 Federal export certificates for agricultural shipments.

Cotton Pests

The Cotton Pests program works with growers, the cotton industry, states, and Mexico to eradicate the boll weevil (BW) and pink bollworm (PBW) from all cotton-producing areas of the United States and northern Mexico. Collectively, the BW and PBW are the most destructive pests of cotton worldwide. The Cotton Pests program also maintains preparedness capabilities to address other cotton pests that could enter the United States. APHIS provides national coordination, operational oversight, and technology development (such as sterile moth production for PBW eradication), while program partners have provided more than two-thirds of the funding for the BW eradication effort and most of the operational funds for PBW eradication. APHIS also provides technical advice on trapping and treatment protocols to its partners in Mexico for their eradication efforts.

According to an analysis completed by the Mississippi Boll Weevil Management Corporation, the BW has cost cotton growers more than $13 billion since it entered the United States in the late 19th century. APHIS began an area-wide BW eradication program in 1983. The BW eradication effort involves mapping cotton fields, using pheromone traps to evaluate weevil presence, and applying pesticides. PBW eradication uses PBW-resistant cotton, mating disruption techniques, insecticide treatments, and sterile moth releases. Once these pests are eradicated, the programs will conduct long-term surveillance to guard against re-infestation and take action if re-infestation occurs. After the BW and PBW are eradicated from an area, cotton growers rely far less on insecticides, thus reducing their production costs. Over the course of the eradication effort, the program has increased these growers' global competitiveness, primarily through reduced production costs and increasing yields.

To date, APHIS and cooperators have eradicated BW from 99.5 percent of the 14 million acres of U.S. cotton. The Lower Rio Grande Valley (LRGV) is the last zone within the United States where boll weevil persists. The LRGV is impacted by the neighboring Mexican cotton producing State of Tamaulipas and the area's security issues. In FY 2018, APHIS continued to work with partners in overcoming program challenges. The Agency, along with the Mexican cotton industry, and U.S. cotton industry are working together to eradicate BW from Tamaulipas. For example, APHIS is in its third year of an agreement with the North American Plant Protection Organization to assist the Tamaulipas BW Eradication Program by funding ultra-low volume Malathion and aerial treatment expenses. The Mexican cotton industry has also limited the amount of cotton acreage planted in Tamaulipas to keep these treatment expenses as low as possible, and the Texas Boll Weevil Eradication Foundation (TX-BWEF) provided regional management of the area and technical assistance through the use of their smart device application for trapping and treatment activities. Tamaulipas employees running this application on their smart phones allow TX-BWEF managers to monitor trap deployment, trap servicing, and treatment activities in real time. The Mexican cotton industry in Tamaulipas has also assessed their growers for program expenses and this assessment is non-refundable.

In FY 2018, APHIS began meeting every six weeks with Mexico's National Service for Agrifood Health, Safety and Quality (SENASICA) to discuss the boll weevil program in Tamaulipas. SENASICA plans to increase their involvement in the Tamaulipas program in FY 2019 and has developed an organized program operational structure to do so.

FY 2018 saw an increase in BW captures, up to 77,410 in the LRGV, compared to 30,201 in FY 2017. In addition, captures were up in Tamaulipas with 54,316 BWs captured in FY 2018, compared to 17,163 in FY 2017. Plow down dates were not adequately enforced in Mexico in 2017, which resulted in hostable material being available for BW. Tamaulipas started 2018 with very high early season BW captures due to this lack of plow down. This resulted in an overall increase in BW captures in both LRGV and Tamaulipas in 2018. Beginning June 2018, APHIS started conducting frequent meetings with SENASICA to discuss increased transparency and oversight of the BW program

in Tamaulipas. SENASICA is increasing their involvement in 2019 and developed an organized program operational structure to do so. The operational structure change includes stationing more of SENASICA employees in Tamaulipas for program oversight and operations, cotton plow down enforcement in September, and more streamlined operations. In September 2018, SENASICA informed APHIS that all fields had been plowed down. In addition, the Mexican cotton industry has limited planting to 10,000 Hectares in 2019 and has instituted a non-refundable assessment to use for program expenses.

In the United States, although the volume of acreage planted with cotton varies from year to year, the PBW commonly caused cotton losses of 20 percent or more in affected areas. Since the PBW control program began in 1967, APHIS and cooperative program partners have eradicated the PBW from Southern California, Arizona, large areas of New Mexico, and the El Paso/Trans Pecos region of Texas. APHIS issued a federal order releasing Arizona, California, New Mexico and Texas from the PBW quarantine on September 26, 2018. The federal order also designated generally-infested areas in South Florida where PBW populations have been found. These regulated areas do not produce cotton. On October 19, 2018, U.S. Secretary of Agriculture Sonny Perdue, in conjunction with industry partners, officially announced the successful eradication of PBW from all commercial cotton-producing areas in the continental United States.

In FY 2019, APHIS will continue to reduce the BW population in the LRGV and partner with the U.S. cotton industry on BW surveillance efforts for all U.S. cotton production areas. APHIS will also partner with SENASICA's Mexican BW eradication program in Tamaulipas to provide technical assistance and funding for their parallel program to the LRGV program, and will continue to provide technical assistance to the Laguna region of Coahuila and Durango to help reduce BW pressure. We are committed to monitoring for BW to ensure we detect any reintroductions quickly. APHIS will continue to work toward successful eradication of BW in the United States in the coming years. By controlling and eradicating these two devastating cotton pests, APHIS protects continued export opportunities for U.S. cotton growers and significantly lowers production costs.

Field Crop & Rangeland Ecosystems Pests

The Field Crop and Rangeland Ecosystem Pests (FCREP) program protects U.S. agricultural crops and rangelands from the establishment or spread of invasive or economically significant pests, facilitates safe international trade and domestic commerce, preserves economic opportunities for U.S. farmers, and fosters healthy ecosystems in rangelands and natural lands. To accomplish these goals, APHIS provides national coordination, threat assessment, and strategies to prevent pests and diseases such as Grasshoppers and Mormon crickets, Imported Fire Ants, Karnal bunt, and witchweed from spreading and impacting export markets for U.S. farmers. These programs help protect resources that small, rural communities depend on for income.

Grasshoppers and Mormon crickets (GMC)

Through the FCREP program, APHIS cooperates with Federal, State, Tribal, and local agencies, organizations, and institutions to conduct survey and suppression activities in western States to reduce damage that GMC outbreaks cause, protecting resources valued at nearly $8.7 billion (according to a 2012 Economic Analysis prepared by University of Wyoming through a cooperative agreement with APHIS). Uncontrolled GMC infestations could cause significant economic losses for U.S. livestock producers by reducing animal food supply in rangeland and therefore forcing producers to buy supplemental feed or sell their livestock at reduced prices. Besides feeding on grass, GMC can also devastate cultivated crops such as alfalfa, wheat, barley, and corn. Infestations often cover vast acreage, and landowners may need Federal support to control them. The program helps land managers by providing population information, helping to predict where grasshopper populations could develop into outbreaks, and providing technical assistance about options for dealing with problem-level populations. By providing ongoing information, and advice to land managers and conducting control treatments where necessary and possible, this program helps protect 661 million acres of rangeland across the western United States.

In FY 2018, APHIS conducted surveys in 17 States for GMC, collecting data at more than 28,000 survey points. Grasshopper populations remained below outbreak levels in many areas in FY 2018, and subsequently, APHIS conducted fewer treatments than in FY 2017. Based on the results of the surveys and needs of land managers, the program treated approximately 5,260 acres of rangeland, which protected rangeland forage and wildlife habitat on approximately 19,402 acres. APHIS conducted several small treatments in Arizona for grasshoppers and in Washington and Idaho for Mormon cricket populations. APHIS continued conducting treatment trials on private rangelands in New Mexico. If successful, the trials will result in a new treatment option for grasshoppers and Mormon crickets. To date, large areas originally treated in 2015 have seen grasshopper populations remain below treatment thresholds and preliminary evidence suggests minimal impact on non-target arthropods. Before conducting any treatments, APHIS confirms the species of the grasshopper as some do not cause damage to rangeland and

others can even provide ecological benefits by eating weeds (leaving grasses for grazing livestock). APHIS continued to update the programmatic environmental assessment that covers all 17 States that could experience GMC outbreaks. The Agency completed the last such assessment for the GMC program in 1987. This updated document will facilitate treatments and help APHIS ensure that it is taking appropriate action to prevent grasshopper treatment impacts on wildlife habitat and wetlands, among other things.

Imported Fire Ant (IFA)
FCREP activities also prevented the spread of IFA into new areas. This pest is a public nuisance and causes approximately $6.3 billion in annual damage to homeowners, industry, and agricultural commodities, such as corn and soybean (according to a 2006 Texas A&M University study). IFA infests more than 366 million acres in Puerto Rico and 14 States: Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Each of these States/territories is under a partial or full-state quarantine. The program provides treatment guidelines for land managers to help them remove IFA from their products and prevent the human-assisted spread of IFA on regulated articles. To do so, the program evaluates the efficacy of regulatory treatments for preventing IFA spread and works with States, industry, and other Federal agencies to develop insecticides and biological control agents. In FY 2018, the program and state cooperators expanded the use of the rapid identification test kit for IFA. This assay, which uses a type of dip-stick test, provides identification of red imported fire ants (*Solenopsis invicta*) and hybrids in as little as 5-minutes, without having to ship specimens to an identifier. Previously, shipments with suspicious ants would be held at agricultural checkpoints for up to 24 hours until the identification was made. The dip-stick test uses as few as five specimens to provide the results quickly. APHIS provided the test kits to State departments of agriculture in FY 2018 for additional field-testing. In FY 2019, State departments of agriculture will be able to purchase the kits for future. Additionally, APHIS updated an interactive IFA quarantine map with features that display the quarantine boundaries to assist nursery owners and others in determining if they are located in the quarantine area. During the wildfire season of 2018, when wildfires impacted pasture for livestock in many States, the map allowed shippers of hay to determine whether they had to meet IFA quarantine shipping requirements and, in doing so, helped prevent the spread of IFA to new areas through the movement of hay. APHIS met the program's performance target of no IFA infestations established outside of regulated areas that could be attributed to the movement of regulated articles infested with fire ants. In FY 2018, the quarantine area expanded into new counties in Tennessee and North Carolina due to natural spread of the pest.

APHIS and cooperators completed releases of several species of phorid flies as biological control agents to target IFA in FY 2018. In FY 2019, APHIS and cooperators from USDA's Agricultural Research Service will continue to evaluate other potential biological control agents for IFA, with a particular focus on identifying species that would be suited to areas where the phorid flies could not establish due to climate conditions.

Karnal bunt
The FCREP program also addresses Karnal bunt, a fungal disease of wheat that was first detected in the United States in 1996. Many U.S. trading partners will not accept U.S. wheat unless it is certified to originate from areas where Karnal bunt is known not to exist. The program prevents the disease from entering the grain market system, spreading beyond the areas of Arizona where it is currently found, and directly affecting most other States. In 2017, farmers across the country planted approximately 46 million acres of wheat and harvested 1.7 billion bushels of wheat with a value of over $8 billion (National Agricultural Statistics Service, Crop Values 2017 Summary). By keeping Karnal bunt contained to portions of one State, the program protects this wheat production across the country. In FY 2017, at the request of the grain and dairy industry, APHIS evaluated wheat, durum wheat, and triticale grown in Karnal bunt-regulated areas that are harvested for silage. APHIS' pathway analysis determined that the crops grown for silage posed a negligible risk of spreading Karnal bunt. As a result of this evaluation, APHIS created a new market for straw produced in Karnal bunt-regulated areas in FY 2018, while still preventing the spread of the disease. USDA's Economic Research Service estimated in 2010 that, without the program's efforts, there would be a cumulative reduction of national net farm income of $8 billion over the next eight years. In FY 2018, 31 wheat-producing States participated in the Karnal bunt national survey. The program anticipates testing more than 800 samples for the year, with no positive samples reported as of October 2018. Based on this national survey, the program certifies wheat exports free of Karnal bunt, assuring trading partners about the safety of U.S. wheat exports, retaining export markets, and facilitating wheat movement into domestic and international markets. In 2017, the United States exported wheat with a value of nearly $6.1 billion (National Agricultural Statistics Service, Crop Values 2018 Summary); without the Karnal bunt program to certify these exports, wheat trade would be disrupted.

Witchweed
Another concern for the FCREP program is witchweed, a parasitic plant that can significantly damage corn, sorghum, and sugarcane. If witchweed were to spread throughout the Corn Belt, it could decrease crop yields for corn and sorghum by 10 percent and could negatively impact trade in commodities from these areas. Since program activities began in 1957, APHIS and cooperators have successfully eradicated witchweed from 99 percent of the infested areas in North Carolina and South Carolina. These activities consist of frequent field inspections, treatment of infested acres (tillage, ethylene injections to stimulate seeds to sprout, and hand-pulling and herbicide application), conducting post-eradication surveys, and addressing any new infestations. The program surveyed a total of nearly 49,000 acres in 2017 for witchweed. Approximately 1,266 acres were infested at the beginning of the season, and 142 acres were newly infested or re-infested during the season. In 2017, APHIS treated 1,701 acres. Because witchweed seeds can remain viable in the soil for up to 15 years, and a host plant must be present for witchweed germination, year-to-year fluctuations in the number of acres infested are common. By preventing the spread of this damaging weed, the program indirectly protects more than 90 million acres of corn valued at $48 billion in 2017 (National Agricultural Statistics Service, Crop Values 2018 Summary).

Pest Detection
The goal of the Pest Detection Program is to document the presence or absence of plant pests and diseases of Federal regulatory significance in the United States. This documented information serves as the basis of APHIS' regulatory efforts and pest management programs that preserve economic opportunities for farmers (i.e., interstate commerce and international trade) and safeguard U.S. agricultural and natural resources. The program works with Federal agencies, state departments of agriculture, Tribes, academic institutions, and industry partners in all 50 States and several U.S. Territories to conduct these program activities.

APHIS and its State cooperators carry out plant pest surveys through the Cooperative Agricultural Pest Survey Program. APHIS provides national coordination for the program and develops policies and procedures for commodity- and resource-based surveys. These surveys enable APHIS and cooperators to target high-risk hosts and commodities, gather data about pests specific to a commodity, and provide accurate assessments of pest distribution, including pest-free areas. Early pest detection is important to avert economic and environmental damage; once a pest becomes established or spreads significantly, the mitigation costs can reach millions of dollars. This is in addition to lost farm revenues and damage to ecosystems. Additionally, while many entities are involved in protecting crops and resources, APHIS verifies that U.S. products do not pose risks to other countries. Pest surveys conducted through the program demonstrate absence of a pest, and are used in some cases to help address importing countries' phytosanitary requirements and retain access to many foreign markets.

In FY 2018, APHIS and cooperators conducted a total of 273 commodity- and taxon-based surveys in 50 States and 3 territories (APHIS conducted 155 surveys and the States conducted 118 surveys). The program targeted 128 high-risk priority pests of national concern for survey in corn, oak, pine, small grains, soybean, and nursery crop commodities, as well as exotic wood boring bark beetles and cyst nematodes, among others, representing 96 percent of the target pests suggested for survey in the 2018 Pest Surveillance Guidelines. Including pests of State priority, the program targeted 259 unique pests for survey in FY 2018, surpassing its performance target of 240. Surveys consisted of multiple pests for efficiency and economy of survey, with an average of 5.2 pests per survey, 23 pests per State, and 4-5 surveys per State. Along with surveys conducted through the FY 2018 Farm Bill Plant Pest and Disease Management and Disaster Prevention program, APHIS and cooperators added 193 additional taxon and specialty crop commodity surveys resulting in the targeting of 466 unique pests in the overall pest surveillance effort.

APHIS and it cooperators, including information reported to APHIS through entry in the National Agricultural Pest Information System database, detected and confirmed 12 new or re-introduced species in the United States through Pest Detection surveys. Examples include: *Calacarus citrifolii* (Citrus gray mite), *Enema pan* (a dynastine beetle), and *Fibroidium abelmoschi* (a powdery mildew fungus) in Hawaii; *Erwinia aphidicola* (a plant pathogenic bacterium) and *Ustilago esculenta* (a fungal smut pathogen) in California; *Aleuroplatus validus* (a whitefly) and *Aceria litchi* (Lychee mite) in Florida; *Dichromothrips smithi* (Orchid thrips) in Pennsylvania; Sugarcane streak mosaic virus in Louisiana; and *Aeneolamia albofasciata* (a froghopper) in Arizona. When the program detects new pests, APHIS evaluates the pest and works with the State to determine the next steps in the response, which could include regulatory and control measures. In addition to the annual surveys and pests that the program detects each year, the Pest Detection program increases awareness of invasive plant pests and diseases and ensures that trained professionals are in the field, monitoring the health of U.S. agricultural production areas, forests, and rangelands.

The program's target for FY 2018 was to detect, through the surveys, 88 percent of the significant pest introductions before they spread from the area of original colonization and caused significant economic or environmental damage. The program exceeded their target in that all (100 percent) new detections were localized at the time of their detection in FY 2018. The program did not detect any of the high-risk pests of national concern that were targeted for survey through the two programs, demonstrating freedom from these high-risk pests nationally.

Plant Protection Methods Development

The goal of the Plant Protection Methods Development (PPMD) program is to develop scientifically viable and practical tools for exotic plant pest exclusion, detection, and management. These tools preserve economic opportunities for farmers and industries that engage in interstate commerce and international trade, and safeguard U.S. agricultural and natural resources from invasive plant pests. The program plays an essential role in APHIS' mission by developing tools for detecting exotic pests in survey programs; developing molecular diagnostic tests and identification tools for pest identification; developing integrated pest management methods, including biological control, to help eliminate or manage invasive pests; and developing phytosanitary treatments to support interstate and international trade. A major focus of this program is to develop and implement biological control technologies that allow for the use of natural enemies alone, or in combination with other control tactics, to effectively mitigate the impacts of introduced, invasive insect pests, weeds, and plant pathogens, while minimizing impacts to the environment.

The PPMD program aims to develop new, or improve existing, tools each year to enhance APHIS' safeguarding capabilities. For pest identification, the program continues to design, develop, and deliver digital, media-rich, identification tools for APHIS to support trade and domestic, port, and offshore pest identification responsibilities. In FY 2018, the Agency released new and updated products to identify exotic bees, invasive aquatic weeds, and noxious weed seeds. The program also enhanced the *image*ID tool to assist with the identification of pests intercepted at ports, adding more than 15,000 images in FY 2018 for a total of 130,000 images.

APHIS advanced new technologies for pest detection and management, including the use of unmanned aerial systems and detector canines. The Agency is optimizing unmanned aerial systems for a number of applications, including detecting signs of Asian longhorned beetle infestation in trees and for releasing sterile insects in pest eradication programs. The program began deploying canines to detect Mexican fruit fly, coconut rhinoceros beetle, and citrus greening to support pest detection in management programs.

Other advances in domestic pest programs include methods to support two new emergency programs, spotted lanternfly in Pennsylvania and European cherry fruit fly in New York. APHIS has identified attractant chemicals for lure and traps for spotted lanternfly, and has developed effective insecticide application methods for host trees that the program is applying in the eradication program. The Agency developed a systems approach for European cherry fruit fly to allow fruit movement from quarantine areas to support impacted growers.

The PPMD program also supports methods development for ongoing pest program issues. Advances include the evaluation of new automated systems to improve the efficiency of Mexican fruit fly rearing for the eradication program, and a new method to provide a more reliable method for determining the mating status of invasive fruit flies, which helps the program decide if it should establish a quarantine in eradication programs. The Agency also developed improved DNA diagnostics to more efficiently identify Asian gypsy moth in traps and new attractants for a new detection trap for Asian longhorned beetle.

The PPMD program also maintains its own quarantine and/or rearing facilities for biological control agents in Arizona, California, Colorado, Massachusetts, Michigan, Texas and Guatemala. APHIS partners with USDA's Agricultural Research Service, the U.S. Fish and Wildlife Service, State departments of agriculture, universities in 30 States and territories, and two Native American Tribes to evaluate and establish biological control agents for invasive plants, pests, and diseases. Some key program targets included Asian citrus psyllid, brown marmorated stink bug, emerald ash borer, Asian longhorned beetle, hemlock woolly adelgid, spotted wing drosophila, mile-a-minute-weed, Dalmatian toadflax and Russian knapweed.

A biocontrol rearing facility in Mission, Texas, produced a cumulative total of 8.9 million biological control agents for Asian citrus psyllid (vector for citrus greening) since releases began in 2011. Assessments of area-wide management in south Texas showed a 92 percent reduction in the Asian citrus psyllid population since the program started in 2011. The program also showed that augmented releases of several native predatory insects reduced ACP populations and could be incorporated into an ACP control program.

Research on emerald ash borer biological control agents has identified species climatologically adapted to cooler or warmer U.S. regions to better target biocontrol releases, and has shown that a biological control agent and native predators are protecting the next generation of white ash in eastern forests.

Specialty Crop Pests

The goal of the Specialty Crop Pests (SCP) Program is to protect U.S. fruits and vegetables, tree nuts, horticulture, and nursery crops from adverse impacts associated with invasive pests, such as crop damage or threats to international trade and interstate commerce. APHIS works with State, Tribal, university, and industry partners to develop and implement practices, policies, and regulations that prevent or mitigate impacts for invasive pests of Federal regulatory significance. These activities include verifying pest distribution, identifying and mitigating risk pathways to prevent long distance spread of the pests, developing and implementing diagnostic tools and pest mitigation strategies, and communicating with the public to gain support for program strategies. These efforts help U.S. farmers export their products, prevent damage to specialty crop production (helping to ensure the availability of fresh fruits and vegetables), and protect natural resources, including forests and residential landscapes. Among the pests and diseases the program currently addresses are exotic fruit flies, a variety of citrus pests and diseases, the glassy-winged sharpshooter (GWSS), pale cyst nematode (PCN), the light brown apple moth (LBAM), and the European grapevine moth (EGVM). Overall, the program directly protects specialty crop production worth more than $9.4 billion in 2017 [based on APHIS analysis using National Agricultural Statistics Service (NASS) data]. The program indirectly protects additional specialty crop production worth more than $21 billion by preventing the spread of these damaging pests and diseases to new areas. Without the SCP program, U.S. trading partners might not accept a variety of U.S. fruits and vegetables. The value of trade in specialty crops that could potentially be disrupted was $8.9 billion in FY 2017, according to an internal APHIS report using data from the Global Trade Atlas.

Grapes

The SCP program targets several devastating pests and diseases, including GWSS and EGVM, that could affect grape production and impact export markets. Thirteen States produce grapes commercially, with California accounting for more than 83 percent of the total acres in production in 2017 (NASS Noncitrus Fruits and Nuts 2017 Summary). In August 2016, APHIS declared the successful eradication of EGVM from California and lifted quarantine regulations from the remaining 446 square miles of Napa and Sonoma Counties. In FY 2018, APHIS, the California Department of Food and Agriculture (CDFA), and industry partners continued the second year of a three year post-eradication surveillance monitoring effort for EGVM in 38 participating counties. APHIS and cooperators found no infestations FY 2018. As a result, APHIS plans to conclude post-eradication surveillance efforts for EGVM at the end of FY 2019, if there are no additional infestations detected.

APHIS also continued the successful, cooperative GWSS program designed to suppress populations of this pest where established in grapes, citrus, and nursery stock. GWSS is a vector for Pierce's disease, which is lethal to grapevines, and the program's suppression and regulatory activities work to prevent the spread of the vector and disease across California. Higher pest populations associated with warmer temperatures and dry conditions in the State have challenged the GWSS program over the last several years. In FY 2018, the program continued to conduct surveys and other regulatory activities including inspections of nursery stock and bulk citrus for the pest in 49 California counties, and continued area-wide suppression activities in affected agricultural production areas of four California counties. With citrus growers' voluntary suppression treatments, the program covered more than 40,000 acres. Of the more than 34,000 shipments of nursery stock from infested areas, State inspectors did not reject any shipments due to GWSS. Together, the EGVM and GWSS programs directly protected 829,000 acres of grape production worth more than $5.7 billion in the State of California in 2017 (NASS 2017 Crop Year Summary).

Citrus

Citrus fruits are high-value specialty crops and a nutritious food for consumers across the world. The United States is the fourth largest exporter of citrus by volume and value, according to the International Trade Centre. APHIS supports the citrus industry's continued ability to produce, harvest, process, and ship citrus fruits and nursery stock despite the presence of diseases such as citrus canker, citrus greening or Huanglongbing (HLB or citrus greening), and citrus black spot. In FY 2018, APHIS and cooperators in citrus-producing States surveyed more than 600,000 acres of citrus across the country, providing timely information about the presence of pests and diseases to growers and State government partners. This information allows growers to take necessary actions to manage their groves and allows APHIS and States to update quarantine boundaries and regulations to prevent the spread of serious citrus pests and diseases through the movement of regulated materials. Based on the results of surveys during FY 2018, APHIS adjusted quarantine boundaries in Florida, California, Louisiana, and Texas for HLB, Asian citrus psyllid (ACP), citrus black spot, or citrus canker. The areas quarantined for HLB in California expanded in FY 2018 due to

the detection of additional infected trees in Los Angeles and Orange Counties. In FY 2018, APHIS and cooperators conducted risk-based surveys in residential and commercial citrus areas in California to ensure they detect the disease quickly if it is present. In areas affected by citrus pests and diseases, APHIS' flexible regulatory protocols have minimized the impact of the quarantines on growers, who can move citrus out of quarantined areas to packinghouses if they follow mitigation procedures to prevent the disease or its insect vector from spreading. Nearly 16,000 businesses moved regulated host materials such as citrus fruit and nursery stock under compliance agreements with APHIS in FY 2018.

APHIS and cooperators continued extensive surveys that establish citrus black spot free production units and low prevalence areas for citrus canker in Florida for export packing to the European Union. APHIS also continued to support area-wide management of the ACP, an insect vector that spreads HLB, in Florida by providing survey data every three weeks to the growers participating in Citrus Health Management Areas (CHMAs). Citrus growers participating in CHMAs, which the Florida Department of Agriculture and Consumer Services manages, coordinate the applications of pesticides to suppress ACP populations in commercial citrus groves. Although the yield was predicted to increase for the first time in many years, Hurricane Irma significantly impacted Florida's citrus growing areas in September 2017. Due to the hurricane, growers faced losses of between 30 and 70 percent. The first crop report for the current harvest period has a substantial increase over last year with 79 million boxes estimated, which would exceed the totals for the past two years. APHIS is working closely with citrus nurseries that suffered hurricane damage and is planning extensive survey for citrus black spot in the coming months to detect any hurricane-assisted spread of this disease. APHIS also is working closely with growers to implement forthcoming changes to export requirements for citrus to the European Union.

APHIS also supports area-wide management efforts in Texas with the Texas Department of Agriculture. The Agency has been actively managing three citrus canker quarantines around Texas. APHIS provides assistance to the CDFA to aggressively respond to positive detections of HLB and implement an area-wide management approach for ACP population control. In FY 2018, APHIS continued a biological control program targeting ACP. This program, which employs a predatory wasp against ACP, augments current management methods, especially in residential areas in California, Arizona, Louisiana, and Texas, where use of chemical pesticides is undesirable. Biological control efforts in Texas have reduced the ACP population by more than 50 percent and by as much as 99 percent around California release sites. Projects funded by the HLB Multi-Agency Coordination Group produce and release 12 million biological control agents annually to help reduce ACP populations in residential and urban areas. APHIS also releases biological control agents in areas of Mexico (Baja California and Tamaulipas) adjacent to citrus production areas in California and Texas to suppress ACP populations and prevent them from spreading into the United States. APHIS works with citrus nurseries across the United States to ensure that nursery stock produced in areas quarantined for citrus diseases is free from the pests ensuring that clean plants are moving between the states and available for citrus producers and residential use. These citrus health activities directly protect citrus production on approximately 700,000 acres in the United States worth approximately $3.3 billion for the 2017-2018 growing season (NASS 2017 Citrus Fruits Summary). Without APHIS' activities, citrus exports could be at risk each year. In 2017, the value of U.S. citrus exports totaled just over $1 billion (Foreign Agricultural Service).

Tree Fruit and Nursery Stock

APHIS protects a wide variety of specialty crops (especially tree fruit and citrus) through exotic fruit fly exclusion and detection activities. One of the Agency's key strategies is maintaining a barrier against the spread of the Mediterranean fruit fly (Medfly) northward from Central America. Medfly is one of the most destructive agricultural pests in the world, attacking more than 300 cultivated and wild fruits and vegetables. APHIS and cooperators produced an average of 1.3 billion sterile Medflies per week in FY 2018 to maintain the barrier in Mexico, Guatemala, and Belize, and to release in high-risk areas of California and Florida on a preventive basis. In FY 2018, the international, cooperative program continued to face Medfly outbreaks in the free area. While the number of detections remained considerably higher than the target of no more than 50 detections, there was progress in that detections decreased from 485 in FY 2017 to 159 in FY 2018. In addition to continued high levels of Medfly outbreaks, the cooperative program faced currency fluctuations that impacted program resources in Guatemala. Based on the reduced purchasing power, the program adjusted its strategy and shifted certain areas from the Medfly-free area to low prevalence zones, which are less resource intensive because. As a result, the Medfly free area in Mexico, Guatemala, and Belize decreased from 149,110 square kilometers to 147,247 square kilometers. An APHIS technical working group will evaluate the current strategy and Medfly-free area to determine the best use of resources in FY 2019 to continue preventing the northward spread of Medfly into Mexico and closer to the United States.

Domestically, APHIS and State cooperators maintain the cooperative Preventive Release Program, which releases sterile fruit flies in high-risk areas to prevent any introduced Medflies or Mexican fruit flies (Mexflies) from reproducing and establishing a population in the United States. APHIS and cooperators also maintain a detection network of approximately 150,000 traps in California, Florida, Puerto Rico, Texas, and added 10,000 in New York, for a total of 160,000. When outbreaks occur, APHIS and cooperators implement immediate emergency response activities to eradicate them. In FY 2018, the program responded to seven new fruit fly outbreaks and completed eradication for four of these outbreaks during the fiscal year. The remaining three include a Medfly outbreak and an Oriental fruit fly outbreak in California and the first ever detection of the European cherry fruit fly in the United States. APHIS and California completed eradication of the Medfly outbreak in early October and expect to eradicate the Oriental fruit fly outbreak in winter 2019. The Federal quarantine for European cherry fruit fly covers approximately 91 square miles in Niagara County, New York, adjacent to affected areas in Canada. This temperate fruit species differs from the tropical species that APHIS more typically detects and eradicates in Florida or California by having only one life cycle per year, whereas other species have many lifecycles per year and can usually be eradicated within several months. APHIS declares an outbreak eradicated if there are no detections within three lifecycles. APHIS is continuing to evaluate the best methods for controlling this species, which could pose risks to cherry production in New York and to other cherry-producing States, if it spreads. APHIS produced and released an average of 123 million sterile Mexflies per week in Texas and northern Mexico in FY 2018 to support eradication and control programs in that region. APHIS eradicated all of the Mexfly outbreaks in Texas. There currently are no Mexican fruit fly quarantines in the Lower Rio Grande Valley of Texas. During the year, APHIS and cooperators managed quarantines covering 924 square miles across the United States. As the program completed operations, they released many of these areas from quarantine. At the end of FY 2018, 214 square miles remain under quarantine (related to Oriental fruit fly in California and European cherry fruit fly in New York).

The Dominican Republic experienced its first Medfly outbreak ever in 2015. With technical advice from APHIS, the Dominican Republic implemented a response program and declared eradication in July 2017. To reduce the risks of exotic fruit fly outbreaks in the Caribbean, APHIS and cooperating countries in the region increased surveillance for exotic fruit flies, especially Medfly. In FY 2018, 15 Caribbean countries participated in these efforts. APHIS will continue this effort in FY 2019, providing an early warning network for the occurrence of this damaging pest close to U.S. shores. APHIS' exotic fruit fly prevention and eradication activities protect producers of citrus, stone fruits, vegetables, and a variety of other specialty crops from damages associated with the pests, increased production costs, and export restrictions.

APHIS and cooperators also work to address plum pox virus (PPV) and light brown apple moth (LBAM) to protect producers of tree fruit and other specialty crops. APHIS is monitoring areas along the Niagara River that border an area in Canada with a PPV infestation. In September 2015, a single PPV-positive tree was detected in Ulster County, New York, which is more than 200 miles away from previously affected areas. Since this detection, APHIS and cooperators continue to conduct surveys in the Hudson Valley, Adirondack, and Niagara regions of New York but have not found any additional positive trees. APHIS completed a trace-back investigation on the single infected tree. While APHIS traced the tree back to the nursery where it was purchased and to the nursery's source, this information yielded no actionable information since at least a decade had passed since the plant was produced. APHIS has declared New York eradicated of PPV, but will continue surveys in and around the one-square mile area quarantine for several more years. APHIS continues to support yearly PPV detection surveys through Farm Bill Section 10007 to ensure that any PPV would be found if it appeared in other States.

In FY 2018, APHIS and the State of California continued to monitor for LBAM across California and found that the pest had not spread to any new counties in FY 2018. The quarantined area continues to include 22 counties in California. APHIS requires entities shipping regulated products out of the quarantined area to take measures to prevent the spread of LBAM to new areas. APHIS continues to evaluate pathways through which LBAM could spread and ensure that California products can move safely. In FY 2016, the Oregon Department of Agriculture identified a small, limited infestation in the Willamette Valley (Polk County). The State implemented an emergency eradication program and has not detected any additional infestations. In September 2018, Oregon Department of Agriculture confirmed one moth from a trap in Douglas County, about 130 miles from the previous infestation in Polk County. APHIS will work with Oregon State officials in FY 2019 to conduct further trapping to determine the extent of the find.

APHIS protects natural resources and nursery stock production and trade by limiting the spread of *Phytopthora ramorum* (*P. ramorum*) from quarantine areas and affected nurseries through regulatory strategies and adoption of mitigations and changes to cultural practices. *P. ramorum,* which causes sudden oak death, can be moved through host nursery stock and can affect a variety of forest trees. APHIS and State efforts have kept the disease from

impacting natural resources, outside of 15 counties in California and a small area in Curry County, Oregon, for more than 10 years. Over the last several years, APHIS has streamlined the *P. ramorum* regulatory framework for nurseries shipping host nursery stock interstate through two Federal Orders that relieved regulatory requirements on 2,800 low-risk nurseries. Since March 2014, the program is only regulating nurseries outside the quarantine areas that are positive within the preceding three years and that ship host nursery stock interstate. Because of the presence of *P. ramorum* in the surrounding environment, nurseries within the quarantine area that ship interstate must meet annual certification survey and sampling requirements to prevent the movement of potentially infested material. Any interstate shipping nurseries that test positive must participate in a compliance program using disinfestation protocols to eliminate the pathogen and implement required mitigations focused on critical control points to reduce the risk of reintroduction. Currently, 19 nurseries are participating in the program. Along with the streamlined regulatory program, APHIS and State cooperators have targeted inspection efforts toward the highest risk nurseries.

Through all of these activities, APHIS directly protects nursery stock production worth approximately $1.5 billion (2012 Census of Agriculture) and tree fruit production worth approximately $1.4 billion (APHIS internal analysis based on NASS data). By preventing pests and diseases like exotic fruit flies, PPV, and LBAM from spreading to new areas, the program indirectly protects more than $10.4 billion in fruit and nursery stock production (APHIS internal analysis based on NASS data).

Potatoes

APHIS addresses two major potato pests, the pale cyst nematode (PCN) in Idaho and the golden nematode (GN) in New York. APHIS and cooperators have confined each to a relatively small area, and continued survey and regulatory efforts protect export markets for U.S. potatoes from 36 States. In FY 2018, APHIS tested 29,547 soil samples in Idaho for the PCN eradication effort and 5,996 soil samples from neighboring States for detection of potato cyst nematodes. PCN has not been detected outside of Idaho, and fumigations of infested fields in Idaho have reduced PCN populations by 99 percent since the pest was first detected in 2006. Based on survey results in FY 2018, APHIS released 1,113 acres of fields that had been regulated. The program detected no new infested fields, and did not add any new acres to the regulated area in FY 2018. The PCN program regulates a total of 8,220 acres, which includes 3,043 acres that are infested. In FY 2018, the program conducted eradication treatments on three infested fields, on a total of 430 acres. In the treated fields that no longer show PCN viability according to a greenhouse bioassay test, producers can plant potatoes with continued monitoring by APHIS and cooperators to ensure PCN is not present. During the greenhouse bioassay, the program tests the viability of nematodes found in the soil. If the nematodes are found to be non-viable (they fail to reproduce under favorable conditions in the presence of a host), the fields from which they came are eligible to return to potato production. These fields remain regulated but benefit from reduced sanitation requirements. One grower planted potatoes on alternating halves of his eligible field in FYs 2015, 2016, and 2017 and intensive surveys to check for viable PCN following harvests did not detect any viable PCN. The program is awaiting results from the FY 2018 planting season. If no viable nematodes are found after three years of full-field potato plantings, the field will be eligible for full deregulation. The program also is continuing to develop new mitigation tools for PCN that may serve as alternatives to methyl bromide fumigations or provide additional control following fumigation. These include the use of trap crops (planting a crop similar to potatoes that will stimulate nematodes to hatch but not allow them to reproduce) and fungus and biological control agents as control tools. APHIS and cooperators planted the trap crop on 71 acres in FY 2018, and will have treatment results in FY 2019.

In FY 2018, APHIS and New York cooperators continued an effective survey and regulatory program targeting GN with a focus on deregulation of all eligible land. In FY 2018, APHIS tested approximately 4,000 soil samples for the GN program in New York and 3,195 samples from neighboring States for potato cyst nematodes. The program continued conducting more than 500 regulatory treatments to ensure that equipment moving out of the affected area does not pose a risk for spreading the GN. In FY 2010, the program began a review of its regulatory strategy using the experience of the more recently established PCN program. Adopting strategies used in the Idaho program, the GN program is transitioning to focus on fields that are either infested or associated with infested fields rather than political boundaries such as townships. Over the last several years, these changes have allowed the program to reduce the quarantined area by 85 percent by removing a total of 1,102,131 acres from quarantine, allowing a number of farmers to grow their crops without continued golden nematode restrictions. The program completed the evaluations necessary to deregulate an additional 193,730 acres in FY 2017 and issued a Federal Order to deregulate the acreage on in FY 2018. The program uses both greenhouse and in-field bioassay for deregulation of formerly infested fields. In FY 2018, nine potato production fields continue to undergo eradication activities for GN. One of these fields planted GN-susceptible potatoes for six consecutive years with zero viable cysts detected, demonstrating for the first time that eradication of GN is possible. This field was included in the acres the program deregulated in FY 2018 and is now free to grow potatoes without Federal restriction. The program continues monitoring the

remaining fields undergoing eradication. The fields remain regulated, some because of proximity to infested fields, but benefit from relaxed sanitation requirements and enhanced crop options.

Together, these efforts to address PCN and GN directly protected potato production worth more than $400 million in FY 2018 in and around impacted areas. These programs indirectly protect one million acres of potato production nationwide worth $4.5 billion (NASS Crop Values 2017 Report). Total U.S. exports of potatoes were worth approximately $239 million in 2017 (NASS Crop Values 2017 Report). Without these programs in place, trading partners might not accept U.S. potatoes.

Tree & Wood Pests

The Tree and Wood Pests (TWP) program protects forests, private working lands, and natural resources from the Asian longhorned beetle (ALB), emerald ash borer (EAB), gypsy moths, and most recently shot hole borers (SHB). Numerous native hardwood tree species that are common throughout the United States are vulnerable to these pests. APHIS cooperates with Federal, State, Tribal, and local agencies, organizations, and institutions to conduct survey, regulatory, control, and outreach activities in 48 States to manage and, in some cases, eradicate these pests. Conserving forests enhances the economic vitality of rural communities by supporting forest-related industries, recreation and tourism, and the overall livability of communities. The value of forest products and ecosystem services that APHIS protects per program dollar spent is approximately $21,000. In addition, trees in residential areas lower cooling bills, filter pollutants from the air, decrease runoff, and improve residents' quality of life.

Asian longhorned beetle

The ALB threatens forest resources nationwide, as roughly 30 percent of U.S. trees are potential ALB hosts. The program's ALB eradication activities prevent multi-billion dollar losses to the maple syrup, timber, tree nursery, trade, and tourism industries. ALB was first detected in Brooklyn, New York, in August 1996, and was later found in other areas of New York, Illinois, New Jersey, Massachusetts, and Ohio. The program has successfully eradicated ALB from Chicago, Illinois; Islip, Staten Island, and Manhattan, New York; Jersey City, Middlesex County, and Union County, New Jersey; and Batavia and Stonelick Townships, as well as Monroe Township, Ohio. The program continues to conduct activities in regulated areas of New York, Ohio, and Massachusetts.

APHIS' eradication strategy for ALB includes surveys, regulatory inspections and quarantine restrictions, removal of infested and high-risk trees, and chemical treatment applications. APHIS conducts several cycles of surveys to determine the scope of infestation, establish a quarantine area, identify trees to remove or treat, determine if the pest has spread outside of the established quarantine area, and determine when to release an area from quarantine. A survey cycle is the time it takes to complete a survey of a given area, which can take several years depending on the size of the area, the density and type of trees in the area, and type of landscape or land use. Four years is the minimum amount of time between that last detection of the pest in a given area and the completed final survey cycle, when APHIS can declare eradication. APHIS provides ongoing support to evaluate new methods and protocols to combat regulated pests and tailors project responses to site-specific conditions, resulting in a more efficient program.

In FY 2018, the program concluded field work for its long term study of investigating the use of targeted seasonal treatments in Ohio. This study involves identifying 100 percent of the host trees within 20 meter diameter study plots. During the growing season, the program applies treatments to 50 percent of the randomly selected host trees. Evidence of ALB activity may be more apparent when only half of the trees are treated, as it will increase the likelihood that a small, latent beetle infestation will be discovered by subsequent surveys. After three consecutive years of seasonal treatment, the program will compare these host trees to control areas where they did not apply treatments to test the success. This approach also allows the program to fully utilize and investigate low-risk sites since they will not use them as untreated control areas. In FY 2016, the program developed a cost analysis of treating high risk host trees versus removing them for Ohio. In FY 2017, the cost analysis revealed there is no cost advantage to treatment of wood lot trees, but there may be cost advantages to treatments for a limited set of larger diameter landscape trees. In FY 2019, the Agency will analyze information from the treatment study, in concert with the cost analysis to guide development of future control strategies

In addition, APHIS began investigating the use of unmanned aerial systems (UASs) equipped with digital cameras as an additional survey tool in FY 2018. If successful, the Agency could use UASs to examine trees too risky to climb or in otherwise difficult to access areas, improving safety for program personnel and lowering the cost to survey these types of trees.

Emerald ash borer

Another forest pest of program concern is the EAB. In 2002, this pest was first detected in Michigan and has since been detected in 34 additional States and the District of Columbia. In FY 2018, APHIS and cooperators confirmed the first EAB infestations in Vermont, South Dakota, Maine and Rhode Island. Arkansas and Wisconsin (locations of previously found infestations) and Vermont implemented full state quarantines. In FY 2018, the program continued to use a risk-based model to determine the best places to focus survey and trapping efforts along a 100 mile leading edge of the quarantine. APHIS, along with Federal, state, and local agencies and stakeholder groups, continues to mitigate the human-assisted and natural spread of the pest and is continuing development of a biological control initiative designed to effectively manage EAB populations.

The program's biological control initiative provides a promising strategy, using several species of parasitic wasps for long-term EAB management. In FY 2018, the program continued conducting trial releases of parasitic wasps and released close to one million parasitic wasps in 25 States and the District of Columbia: Arkansas, Colorado, Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Wisconsin. APHIS and cooperators also assessed the impacts of the wasps on EAB populations and tree health at and near release sites. They have recovered the wasps in 17 states, demonstrating that the biological control agents are reproducing and becoming established in the areas released.

In FY 2018, the program continued the national survey, placing 12,000 traps in 16 states along the leading of the quarantine and providing additional traps to 25 states that conducted EAB surveys. Based on survey results, and the detection of infestations in unregulated areas of previously affected States, the program expanded the quarantine area to approximately 858,250 square miles. In FY 2018, APHIS maintained more than 1,000 compliance agreements with businesses that handle EAB host materials. With these agreements, the program regulates the treatment and movement of host materials from quarantined areas. EAB has spread to an extent beyond what a regulatory program can control. To more efficiently address EAB, APHIS is initiating proposed rulemaking to deregulate EAB and redirect resources for controlling the spread of this devastating pest to expanding the application of biological control for EAB and exploring ways to preserve ash resources. On September 19, 2018, APHIS published a proposed rule in the *Federal Register* to remove the EAB Domestic Quarantine Regulations. APHIS will review all comments before making a final determination.

Gypsy Moths

European Gypsy Moth (EGM) is a destructive pest for some of North America's most beautiful and popular deciduous trees, including maples, oaks, and elms. This pest is established in all or parts of 20 northeastern, mid-Atlantic, and Midwestern States, as well as the District of Columbia. APHIS and State cooperators conduct regulatory activities in the quarantine area to prevent the human-assisted spread of the pest and the establishment of gypsy moth populations in non-quarantine areas. These efforts include inspection, treatment, and certification of regulated articles for movement from quarantine to non-quarantine (non-infested) areas. The program issues compliance agreements and conducts public outreach to ensure that businesses and residents in infested areas comply with regulations to prevent long-distance spread of the pest. EGM also spreads naturally into areas bordering the quarantined zone. APHIS monitors the transition zone along the 1,200 mile-long border of the quarantine area to ensure that newly infested areas are added to the quarantined zone and regulated effectively. Working with the Forest Service and the EGM Slow-the-Spread Foundation, APHIS and cooperators have greatly slowed the spread of EGM and eradicated isolated populations, preventing this pest from becoming a larger issue. In FY 2018, APHIS and State cooperators continued to conduct EGM surveys to detect, delimit, and eradicate any isolated populations.

Asian gypsy moth (AGM) is an invasive threat to North American urban and natural forests because of its broad host range, demonstrated damage potential, and its ability to compromise an effective management system that has taken nearly 100 years of research to assemble. AGM poses a particular risk to western areas because of its ability to hitchhike on shipping vessels from Asia. APHIS supports the exclusion of AGM through negotiations and support of offshore ship inspection and certification. Due to an increase in AGM egg masses that were intercepted on ships in 2012, APHIS, the Department of Homeland Security's Customs and Border Protection, and the Canada Food Inspection Agency conducted increased outreach to the maritime shipping trade over the last several years.

To gain more cooperation from the National Plant Protection Organizations (NPPOs) of the countries where AGM is present, as well as the certifying agencies in each country, APHIS coordinated joint U.S./Canada technical trilateral meetings with Japan, China, Korea and Russia in FY 2018. These meetings have been ongoing for many years: Russia since 1992, Japan since 2007, Korea since 2010, and China since 2011. APHIS also is working with NPPOs of countries such as Chile and New Zealand that regulate AGM to harmonize the programs in an effort to send a

unified message to the stakeholder, specifically the maritime shipping industry. As a result, the rate of compliance to the AGM requirements—that vessels calling on U.S. ports after visiting Asian ports during the risk period present a valid certificate of inspections for AGM--is at an all-time high, exceeding 92 percent.

In FY 2014, APHIS and cooperators made a single detection of AGM in South Carolina. Although delimiting surveys in response to this detection discovered an additional single moth in FY 2015, the program detected no additional moths between FYs 2016 and 2018. In FY 2015, the program discovered one moth in Georgia. Surveys over the next three years found no additional moths during delimiting activities in Georgia. As a result, APHIS determined these areas were free of the pest at the end of FY 2018. In FY 2015, there were a total of 14 AGM moth detections in Oregon and Washington. In FY 2016, the program treated a total of 19,100 acres on eight different sites in those States using Farm Bill Section 10007 funds. The program detected no AGM during post-treatment delimiting surveys during the past three fiscal years. As a result, APHIS determined the 2016 treatments were successful and these areas were free of the pest at the end of FY 2018.

Shot Hole Borers
Various non-native shot hole borers have been detected in several states and hosts, including numerous woody trees in forests and urban landscapes, cultivated tea, and avocado. Shot hole borers also are called ambrosia beetles because they have a symbiotic relationship with ambrosia fungi, which they vector from tree to tree. The fungi disrupt the vascular system of impacted trees. In recent years the polyphagous (PSHB) and Kuroshio shot hole borers (KSHB) and diseases they cause have been devastating riparian habitats in southern California and urban areas in other parts of California. At California's request, APHIS and the U.S. Forest Service (USFS) helped establish a working group, led by USFS, with the goal of strategically addressing the shot hole borers in California.

In addition to the PSHB and KSHB, the pathogen *Ceratocystis,* which is vectored by a non-native shot hole borer (ambrosia beetle), causes Rapid Ohi'a Death (ROD). The host, `ōhi`a lehua (*Metrosideros polymorpha*), is the most common native tree in Hawaii and has considerable cultural, biological, ecological, and economic significance. The causal agents of ROD grow in the sapwood of infected trees and kill the trees within weeks of the appearance of symptoms. A consortium of partners have developed a strategic plan for ROD, and an early detection and rapid response program is underway.

In FY 2018, APHIS supported six projects addressing management of shot hole borers in several states, including ROD in Hawaii.

Selected Examples of Recent Progress – Wildlife Services

Wildlife Damage Management
APHIS provides Federal leadership and expertise to resolve wildlife conflicts. Specifically, APHIS works to protect agriculture, human health and safety, property, and natural resources from disease and damage caused by wildlife. Cooperator participation and support is critical to the success of the Wildlife Damage Management (WDM) Program. APHIS' wildlife biologists coordinate activities in every State with Federal and State agencies, Tribes, local governments, private homeowners, farmers, ranchers, and other property owners to protect lands.

Agriculture
Feral swine are a harmful and destructive invasive species whose geographic range is rapidly expanding and populations are increasing across the nation. These invasive animals cause significant damage to property, agricultural animal health and crops, natural resources, public health and native ecosystems. The University of Georgia, using a broader data set than previously available, has more recently estimated feral swine damage nationwide to cost at least $2 to $2.5 billion annually, exceeding previous estimates of $1.5 billion annually based on a more limited data set. To address this growing problem, APHIS initiated the National Feral Swine Damage Management Program in 2014 with the goal of reducing damage and risk to agriculture, natural resources, property, animal health, and human health and safety in the United States and its Territories. The Agency's strategy is to provide resources and expertise at a National level, while allowing flexibility to manage operational activities from a local or State perspective. Collaboration with other Federal, State, Tribal, and local entities, universities, and organizations, along with landowners and others experiencing damage, is essential for controlling the spread of feral swine and suppressing or, where possible, eliminating populations.

In FY 2018, APHIS conducted cooperative, cost-share operational programs on approximately 192 million acres in 39 States and 3 Territories, directly protecting 93 threatened and endangered species and habitats. Over the past 3 years of the program, APHIS and partners successfully eliminated feral swine from nine States – Idaho, Iowa, Maine, Maryland, Minnesota, New Jersey, New York, Washington and Wisconsin. We anticipate eliminating feral swine from additional States (e.g., Colorado, Nevada, New Mexico, Utah, Illinois, and Vermont) over the next

several years. After APHIS eliminates feral swine in a given State, the Agency continues to monitor these States for an additional 2 years to ensure feral swine populations do not reestablish. In collaboration with our partners, APHIS conducts disease surveillance and monitoring to protect the health of domestic swine, other livestock, and people by collecting 7,958 samples from feral swine during FY 2018 to assess disease risks. The Agency, along with university partners, is working to develop a feral swine toxicant and reproductive inhibitors to achieve permanent sterility in feral swine. Other activities include conducting several economic analyses to better assess feral swine damage to agriculture, livestock, and limited resource farmers; collecting and analyzing environmental DNA to detect feral swine presence through genetic markers in water; and maintaining a National Feral Swine Genetic Archive to assess the movement of feral swine and determine source populations.

Livestock losses attributed to predators cost producers more than $137 million annually, according to the most recent surveys by National Agriculture Statistics Service. APHIS prevents and reduces livestock predation through technical assistance (education and outreach) to producers, and operational management programs. In FY 2018, APHIS provided assistance to more than 12,000 livestock producers. APHIS and cooperators fund livestock protection activities on a cost-share basis.

APHIS plays a major role in wolf and grizzly bear damage management in the United States. APHIS personnel work with State wildlife agencies, the U.S. Fish and Wildlife Service, and tribes to conduct wolf damage management programs, and provide additional services to capture and mark wolves and grizzly bears for research and population monitoring purposes. Upon request, APHIS may remove depredating wolves to resolve conflicts. In FY 2018, APHIS responded to 580 reports of wolf depredation by providing a combination of direct control and technical assistance. This included more than 841 livestock animals killed in addition to other animals killed, injured, harassed, and threatened by wolves. To avoid or reduce predation, APHIS provides technical assistance to producers on preventative measures to supplement direct control activities, which producers then implement themselves. In FY 2018, APHIS conducted 436 predator management workshops. APHIS estimates that these efforts help protect more than 15.8 million head of cattle, sheep, and goats valued at more than $2.5 billion.

Black vulture populations have increased in both abundance and range over the past 30 years. The Migratory Bird Treaty Act, enforced by the U.S. Fish and Wildlife Service (FWS), protects black vultures, which prey on livestock. Under the Migratory Bird Act, the public cannot kill, destroy, or remove birds, their nests, or their eggs without a Migratory Bird Depredation Permit from FWS. APHIS works collaboratively with FWS recommending short and long-term options to provide producers with relief from damage. If removing vultures is necessary, APHIS assists producers in obtaining a depredation permit from FWS. With cooperator funding, APHIS conducted direct control in 23 States in FY 2018, removing approximately 8,216 black vultures and dispersing approximately 62,425 black vultures, in addition to providing technical assistance to guide private management efforts.

Fish-eating birds, especially double-crested cormorants, can have major impacts on the U.S. aquaculture industry. According to the National Marine Fisheries Service, annual fish production in the United States is valued at $1.4 billion, and APHIS' National Wildlife Research Center estimates that the aquaculture industry incurs approximately $25 million in costs associated with bird damage and damage prevention. APHIS provides operational and technical assistance to aquaculture producers, specifically on roost management of double-crested cormorant, harassment of fish-eating birds on catfish facilities, and helping farmers acquire depredation permits that the FWS requires under the Migratory Bird Treaty Act. Work is concentrated at lower Mississippi valley and southeastern aquaculture facilities in the fall and winter. During this timeframe in FY 2018, APHIS removed more than 1,350 and dispersed more than 240,000 double-crested cormorants from 79 roosts in three States. In 2017, APHIS helped FWS produce an Environmental Assessment, which allowed FWS to resume issuing depredation permits to individual aquaculture producers in FY 2018.

The National Wildlife Disease Program provided technical assistance, and conducted surveillance and management for more than 40 wildlife diseases, pathogens, and syndromes, and responded to 28 emergency events including virulent Newcastle Disease, oil spills, and hurricanes. Additionally, the program participated in a foot and mouth disease exercise, and implemented the National Interagency Wild Bird Avian Influenza Early Detection System. International activities included collaboration with the Chinese Academy of Science on wildlife disease issues; with Mississippi State University on emergence of avian influenzas in China, with U.S. Geological Survey's National Wildlife Health Center, Korea, and Japan on an Asian-Pacific One Health Program; and conducted surveillance for Japanese encephalitis virus in Guam.

Human Health and Safety

Rabies is one of the oldest known viral diseases, yet it remains a significant wildlife-management and public-health challenge. APHIS is the lead Federal agency to prevent the further spread of wildlife rabies, with the goal of

eliminating rabies in carnivores in the United States using oral rabies vaccination (ORV). In FY 2018, APHIS and cooperators distributed nearly 10 million ORV baits, including 9 million in the eastern United States, to combat raccoon rabies in 16 States and 1 million in Texas to prevent the reemergence of rabies in coyotes and gray foxes along the border with Mexico. This is a continuation of the strategic distribution of more than 190 million baits since the program began in 1995. These programs have eliminated canine rabies in coyotes, resulting in the United States being declared canine rabies free in 2007; the near elimination of gray fox rabies from Texas; and containment of raccoon rabies in the eastern United States. An internal economic analysis projected a $1.1 billion economic impact over 22 years in the absence of the APHIS-led ORV program.

APHIS works with the Centers for Disease Control and Prevention and the Wistar Institute, an infectious disease and vaccine research institute, to streamline the use of a rapid rabies diagnostic field procedure to diagnose the disease within an hour. Since 2005, APHIS has conducted 94,444 rabies tests using this procedure, documenting 1,841 rabies cases that, in turn, facilitated science-based wildlife rabies management decisions. APHIS also coordinates with international partners through the North American Rabies Management Plan – which includes the United States, Canada, Mexico and the Navajo Nation – on surveillance activities, control programs, vaccine development, and field trials. In FY 2018, APHIS collected more than 3,200 raccoon blood and 2,200 tooth samples in 14 states to estimate rabies antibody levels and bait uptake in target species in or near ORV zones. An improved vaccine-bait combination holds promise for enhanced raccoon rabies control in the United States. Since 2011, APHIS has conducted 11 field trials in five states necessary to register the oral rabies vaccine (ONRAB®) targeting raccoon, skunks, foxes and coyotes. These studies have all been part of an effort to evaluate scientific evidence for effectiveness in wildlife populations and has been shown to have about twice the bait uptake by raccoons as the current licensed vaccine. In FY 2017, APHIS submitted efficacy data to the Center for Veterinary Biologics in support of the product's registration, which remained under review at the end of FY 2018.

Increased air traffic, faster and quieter aircraft, increased populations of federally protected species of birds, and increased populations of other wildlife all impact the safety of aircrafts, particularly in rural communities. Since 1988, bird and other wildlife strikes have destroyed more than 262 civilian and military aircraft and killed 282 people globally. With funding that Federal, State and local cooperators provide, APHIS works to reduce wildlife impacts on aircraft and human safety. APHIS estimates the value of damaged prevented from wildlife impacts is $99.4 million. In FY 2018, APHIS mitigated wildlife hazards by assisted nearly 900 civil and military airports worldwide which included 125 Department of Defense in domestic and international settings. Of those airports, APHIS biologists estimated that technical or direct management assistance resulted in a reduction, suppression or prevention of wildlife hazards at approximately 70 percent of those airports.

Property

Beaver damage in the southeastern United States has exceeded $3 billion over the last 40 years. To address and prevent costly beaver damage, APHIS provides assistance by removing beaver dams that clog waterways and flood roads and timber sources. On average, for every dollar spent in managing beaver damage, approximately $9 of resources are saved. With cooperator funding, APHIS conducted beaver damage management activities in 37 States in FY 2018.

Natural Resources

Non-native, invasive animals can devastate ecosystems. APHIS focuses on eliminating damage from brown treesnakes (BTS), nutria, and other invasive species. In Guam, BTS have eliminated most species of native birds, lizards, and bats, and continue to cause power outages leading to economic losses and public safety problems. In FY 2018, with funding other Federal departments and the Guam Department of Agriculture contributed, APHIS continued the multi-agency partnership to prevent BTS movement from Guam to other Pacific Islands, Hawaii, and the continental United States. It is through this partnership that the Agency intercepted 17,928 BTS in Guam during FY 2018.

Nutria damages wetlands, agricultural crops, and structural foundations such as dikes and roads. This South American rodent has destroyed tens of thousands of acres of marshlands critical to the health of the Chesapeake Bay. APHIS is leading the first large-scale North American effort to eradicate a mainland nutria population in the Chesapeake Bay through agreements with the U.S. Fish and Wildlife Service and other cooperators. Since 2002, in cooperation with Federal and State agencies and private landowners, APHIS has removed nutria from more than 250,000 acres of coastal marshland. APHIS rotates the monitoring of six watersheds, covering 450,000 acres, annually to prevent the re-infestation of the area. In FY 2018, APHIS monitored approximately 190,000 acres in three watershed areas and will continue monitoring and removing any remaining nutria. As a result of these efforts, marsh grasses and native muskrat populations are quickly recovering.

APHIS partners with various Federal and State resource agencies, private organizations, and community groups to conduct damage management that benefit protected bird species by preventing predation from other birds and mammals to nests, eggs, and juveniles. APHIS has estimated damages or damage threats to birds, including threatened and endangered species, to be more than $70 million annually. In FY 2018, APHIS conducted more than 1,265 conservation actions that benefitted protected species in 37 States, Guam, Virgin Islands, and Cuba (Guantanamo Bay).

Wildlife Services Methods Development

The Wildlife Services Methods Development (WSMD) Program develops effective and socially responsible methods and information to manage conflicts between people and wildlife to protect agriculture, natural resources, and human health and safety. This program provides research in support of the Agency's animal health programs such as feral swine, invasive species, wildlife disease, and population and reproduction control, among others. APHIS' National Wildlife Research Center (NWRC) provides the only dedicated Federal leadership in developing methods to manage wildlife-related damage problems. Scientists work on a variety of wildlife damage management problems including discovery, development, and technology transfer of products and management methods. The majority of NWRC studies involve partnerships with Federal and State agencies, non-governmental organizations, universities, tribal governments, and private sector businesses. In FY 2018, NWRC initiated 151 new studies and published 175 scientific papers in 85 professional scientific journals. NWRC scientists also made 248 presentations to scientific and stakeholder audiences.

Agriculture

The WSMD program develops methods to safeguard livestock from predators, manage invasive species, and minimize the impact of wildlife diseases. The following are examples of efforts to protect American agriculture, which includes protecting resources related to farming and ranching such as livestock, crops, animal products and other associated industries.

APHIS' National Feral Swine Damage Management Program aims to reduce feral swine damage to property, agricultural animal health and crops, natural resources, public health and native ecosystems. The Agency is moving to have a completed toxicant and delivery system available for use in 2021, which will serve as a critical component in the long-term success of reducing feral swine populations and the damage they cause. In FY 2018, NWRC completed an Environmental Protection Act approved study to test a potential new toxicant and delivery system for feral swine. Results showed the toxicant was effective (70 percent) and that the bait box delivery system was also successful at not impacting non-target species. Refinements to the bait formulation are ongoing. Genetic techniques have been used to establish indirect methods to determine feral swine diets, whether they are present in a given area, and also the origin of individuals or groups. Scientists have used quantitative methods to develop models for predicting the spread of feral swine in the continental U.S. and estimate the efficacy of different approaches to manage feral swine, which include both lethal and non-lethal (e.g. fertility control) methods. These valuable tools and information will assist in developing risk assessments and enable the Agency to make more informed management decisions regarding operational control programs for feral swine.

Blackbirds are an important economic pest to sunflower growers in the Prairie Pothole region of North Dakota, where they cause extensive crop damage and lower yields at harvest. Although anthraquinone-based repellants have been shown to be effective for blackbirds in laboratory trials, the challenge still exists to develop an effective application method for maturing sunflowers in the field. In FY 2018, NWRC studies showed that repellent application, even at higher concentrations than recommended on the label, using a drop nozzle system does not provide sufficient coverage on the achenes to deter consumption by blackbirds. In efforts to develop methods to haze birds from crops, NWRC tested different unmanned aerial vehicles (UAV) platforms in FY 2018 and found that fixed wing platforms are more effective than quadcopters. NWRC also have tested UAVs as a tool for crop damage surveillance and to determine the distribution of birds in crops, and developed an algorithm to identify blackbirds from UAV images that will facilitate automated surveillance.

Many human-wildlife conflicts are related to livestock depredation by carnivores, which can represent an important economic loss to affected stakeholders. Coyotes are the top predator of livestock in the contiguous United States. NWRC is investigating both predator management tools to prevent losses and facilitate coexistence. Producers often employ non-lethal tools to prevent livestock depredation, however, few of these tools have been experimentally tested and their promotion without science-based evidence of effectiveness can reduce trust from livestock producers and conservationists. The fladry method of using rope mounted along the top of a fence with strips of fabric that will flap in a breeze has been used as an effective non-lethal tool for managing wolves. In FY 2018, NWRC modified the original design of fladry to demonstrate how it can be an effective method for coyote control.

This evidence-based approach has encouraged stakeholder participation to help develop improved designs. In regard to lethal control, two toxicants (para-aminopropiophenone and sodium nitrite) have shown potential as being effective and humane for use in coyotes.

Identifying risk factors impacting aquaculture production is critical in formulating efficient, effective, and targeted management strategies and methods. In recent years, the number of acres producers use for catfish ponds has decreased. In FY 2018, NWRC research showed that in response to these changes, birds that eat farmed fish, in particular white pelicans, have adapted to these changes and are becoming more concentrated in the existing ponds. Double-crested cormorants continue to be a major economic burden to the aquaculture industry and NWRC has continued its efforts to better understand the roles that fish-eating birds have on production and disease transmission. In FY 2018, NWRC developed a method to estimate the age of cormorants using a stable biomarker. Use of this tool and others NWRC developed will assist managers in assessing the impacts and sustainability of control efforts of fish-eating bird species while complying with their protected status under the Migratory Bird Treaty Act.

Natural Resources

The NWRC is investigating genetic-based solutions to develop new tools that will protect natural resources from the impacts of invasive species. Where appropriate, the aim is for these tools to have the following characteristics: effective, low environmental burden, humane, socially acceptable, cost effective and easy to use, provide a good return on investment, production and commercial scalability, and regulatory clarity.

In 2017, NWRC researchers joined a consortium called Genetic Biocontrol of Invasive Rodents (GBIRd) that includes national and international partners with the aim of utilizing gene drive to manage invasive rodents. Gene drives allow biased inheritance of a particular gene to make it a dominant feature in a population. The vision of GBIRd is to utilize gene drive to create a self-limiting modified mouse that biases future generations to be all males, and thus cause eradication by attrition. In FY 2018, APHIS completed the necessary steps to demonstrate that the Agency's research facility meets the necessary security protocols. For example, NWRC constructed an arena within a simulated natural environment room and demonstrated its ability to contain free-ranging wild-caught mice. In addition, NWRC placed radio collars on wild-caught mice and released them outside the facility to determine where and how far a mouse might go if it were to escape. Tests showed that mice stayed within 100 meters of NWRC buildings and that there is about a 1.5 day window to recapture a mouse if it were to escape. These initial steps are essential in the research process and will allow future research efforts to continue. Additionally, in FY 2018, NWRC researchers collected mice from multiple islands and began determining the genetic sequences of the mice. NWRC has, and will continue to, perform testing of any genetically engineered strain(s) of mice that are developed. To date, the NWRC has completed this research with funding from the Department of Defense Safe Genes Program.

Human Health and Safety

Pathogenic and anti-microbial resistant (AMR) bacteria have become an increasing problem in both agricultural and human health facilities. In FY 2018, NWRC research determined the prevalence of AMR bacteria in raccoons and deer mice in feedlots, and determined that raccoons have the potential to be a carrier of AMR bacteria to and from feedlots. NWRC research showed that AMR bacteria prevalence was higher downstream from water treatment plants, suggesting that human sources of AMR pathogens are important.

Contamination of leafy green crops with pathogens can lead to human illness and expensive product recalls. In FY 2018, NWRC research showed that low levels of wildlife incursions into these crops do not pose a high risk of contamination. However, where contamination may occur, NWRC determined that the induction of certain viruses using a specific compound has potential to effectively control bacterial foodborne pathogens on fresh produce.

Partnerships and Technology Transfer

The Federal Technology Transfer Act of 1986 allows Federal laboratories and industry to form partnerships that enhance the development of new technologies and move them to the marketplace to meet public and consumer needs. APHIS regularly partners with Federal and State entities, private companies, international groups, and non-governmental organizations to encourage the development and licensing of new wildlife damage management products to manage wildlife conflicts. Most NWRC technology development activity and partnerships involve partnerships with universities and small businesses. Technologies pursued include development of devices, baits, formulations and vaccines. In FY 2018, NWRC furthered its partnership efforts to make sure its research and development activity had a path for commercial development and operational management with the following new activity: 8 Confidentiality Agreements, 7 Material Transfer Agreements, 14 Material Transfer Research Agreements, 3 Data Sharing Agreements, 3 Memoranda of Understanding, 1 Cooperative Research and Development Agreements, 4 Invention Disclosures, and 1 patent issued.

APHIS, along with Arkion Life Sciences, received the 2018 Federal Laboratory Consortium Mid-Continental Region Partnership Award for "Birds Don't Always Like What They See" through the development of anthraquinone (AQ)-based repellents for birds. This award recognizes federal government and private partnerships. The NWRC-Arkion collaboration has led to a suite of co-owned patents the U.S. Patent and Trade Office, as well as foreign governments, issued or has under review. Recent NWRC-Arkion research has shown that AQ can also cause avoidance behaviors in birds through visual cues related to the compound's absorption of the ultraviolet (UV) spectrum. As a consequence, repellent products and application strategies have been designed that 'trick' birds into overlooking food items or deter them from sitting or perching on items. NWRC research has also shown that if birds first come into contact with AQ, other less expensive compounds with similar UV spectral characteristics can be substituted for AQ, or subsequent applications of AQ can be made at lower application rates. The results of the NWRC-Arkion partnership not only impact wildlife conservation and crop and disease protection in the United States, but also food production in lesser developed countries.

Promoting a professional culture of excellence in wildlife damage management is the goal of a partnership between APHIS and Mississippi State University (MSU). The Wildlife Services National Training Academy (NTA), housed at MSU, is dedicated to enhancing safety, communication, and technical and administrative skills for all APHIS Wildlife Services personnel. The NTA academy provides standardized training for the mitigation of human-wildlife conflicts and safety related risks, and serves as a central repository for coordinated training throughout the United States. In FY 2018, the NTA provided or facilitated training for more than 580 APHIS employees from 47 states and two U.S. territories. The trainings covered 31 individual programs, primarily covering topics regarding safety and operations such as *fi*rearms use and safety, animal care and handling, utility terrain vehicles, watercraft, explosives, cannon-netting for birds, chemical immobilization and immobilization use, geographic information systems, unmanned aircraft systems and zoonotic diseases. The NTA also provided non-technical training in FY 2018 that included risk communication and conflict resolution.

Selected Examples of Recent Progress – Regulatory Enforcement:

Animal and Plant Health Regulatory Enforcement

Animal and Plant Health Regulatory Enforcement (APHRE) provides investigative, enforcement, and regulatory support services to the Agency's four regulatory programs and Agricultural Quarantine Inspection (AQI) activities carried out through the Department of Homeland Security, Customs and Border Protection. APHRE investigates alleged violations of Federal laws under its jurisdiction and pursues appropriate enforcement actions through administrative, civil, or criminal procedures.

In FY 2018, APHRE initiated 1,237 new cases, issued 274 official warnings, issued 471 pre-litigation settlements resulting in the collection of $777,333 in stipulated penalties, and obtained administrative orders assessing $321,699 in civil penalties. The Agency considers a case complete after it issues an official warning or voluntary settlement to which the recipient agrees, finds there is insufficient evidence to support enforcement action, or refers a case to the USDA Office of the General Counsel. Highlights from APHIS are described below.

To support animal health, APHRE initiated 166 cases, issued 104 official warnings, issued 33 pre-litigation settlements resulting in the collection of $96,895 in stipulated penalties from persons for violations of laws aimed at protecting animal health and American agriculture. In one case, APHIS negotiated a pre-litigation settlement in the amount of $39,062 for an alleged violation of the Agricultural Bioterrorism Protection Act relating to the release and infection of non-human primates with a select agent. In another case, APHIS negotiated a pre-litigation settlement in the amount of $7,500 for an alleged violation of the Animal Health Protection Act and animal disease traceability regulations relating to the interstate movement of beef and dairy cattle without interstate certificates of veterinary inspection.

To support plant health, APHRE initiated 43 cases, issued 15 official warnings, and negotiated 24 pre-litigation settlement agreements resulting in the collection of $57,444 in stipulated penalties. In one case, APHIS negotiated a pre-litigation settlement agreement in the amount of $10,000 for alleged violations of the Plant Protection Act. In that case, during multiple inspections over the course of two months, APHIS employees discovered Uruguayan lemons, Peruvian Hass avocados and clementines at four warehouses in Puerto Rico that were not allowed to enter to the continental United States due to potential plant pest risks. In another case, APHIS negotiated a pre-litigation settlement in the amount of $3,125. In that case, APHIS determined that over the course of five months, a company moved 1,061 regulated plant pests (multiple species of moth and butterfly in different stages of development) interstate from Arizona in violation of the Plant Protection Act.

To support AQI activities, APHRE initiated 1,008 cases, issued 111 official warnings, and issued 406 pre-litigation settlement agreements resulting in the collection of $590,344 in stipulated penalties. In one case, APHIS negotiated a pre-litigation settlement agreement in the amount of $12,000 when it determined that, on three separate occasions, a company failed to provide the Plant Protection and Quarantine office with required notification of vessel arrival into port. APHIS also issued multiple pre-litigation settlements involving the alleged improper safeguarding of regulated garbage, including settlements with civil penalties totaling $284,000; alleged agriculture hold violations with civil penalties totaling $180,249; and alleged passenger baggage violations with civil penalties totaling $86,125.

To support animal welfare, APHRE initiated 19 cases for alleged violations of the Animal Welfare Act (AWA), issued 44 official warnings, issued 8 pre-litigation settlements resulting in the collection of $32,650 in stipulated penalties, and obtained 14 administrative orders, assessing $265,499 in civil penalties. In one case, APHIS entered into a Consent Decision relating to multiple willful violations of the AWA, resulting in a $99,999 civil penalty. In another case, APHIS obtained an administrative order against an individual relating to alleged AWA violations occurring from March 2008 through January 2012, assessing a $30,000 civil penalty. APHIS also negotiated several pre-litigation settlement agreements, including one involving a research facility that agreed to the assessment of a $10,000 civil penalty to resolve multiple alleged AWA violations. Copies of enforcement records (such as initial decision and orders, default decisions, and consent decisions) are available on the USDA's Office of Administrative Law Judge's website: https://oalj.oha.usda.gov/.

To support horse protection, APHRE worked with the Office of the General Counsel and obtained 47 administrative orders assessing $56,200 in civil penalties, and disqualifying 44 individuals from participating in activities regulated under the Horse Protection Act (HPA). In one case, APHIS entered into a consent decision relating to entry of a single horse on nine occasions, resulting in an 18 month disqualification to one respondent, an 8 month disqualification to the other respondent, and a joint civil penalty of $19,800 to both respondents. APHIS experienced a decline in enforcement of both the HPA and the AWA. Several factors contributed to the change, including a constitutional challenge to the appointment of administrative law judges (ALJs), causing a continuance of nearly all AWA and HPA administrative proceedings. In June 2018, the U.S. Supreme Court issued its ruling on the appointment of ALJs; since then, hearings have been rescheduled, and APHIS has filed three new administrative complaints under the AWA.

To support biotechnology, APHIS initiated one case. As part of an internal collaborative effort to further the protection and safeguarding of plant health throughout the United States, the APHRE program worked closely with the Biotechnology Regulatory Services (BRS) program relating to a pattern of negligent field operation practices by a subject and involving the possible spread of genetically engineered corn. APHRE determined that the incidents were sufficiently resolved through several notices of findings, notices of non-compliance, and warning letters. APHIS also worked proactively with BRS to revise language used in regulatory correspondence.

Biotechnology Regulatory Services

APHIS balances a regulatory system that safeguards agriculture while fostering innovative research and development in the field of biotechnology. Under the authority of the Plant Protection Act (PPA), APHIS safeguards agriculture by overseeing certain genetically engineered (GE) organisms that might pose risks as plant pests. APHIS' biotechnology regulations implement the Plant Pest provision of the PPA and, under these regulations, the Agency may put specific requirements on field testing, importation, and interstate movement of regulated GE organisms to protect American agriculture and other plants from the risk of damage from potential plant pests until such time as APHIS determines they are unlikely to pose a plant pest risk.

Authorizations

Depending on the characteristics of the GE organism, a developer files an application in the form of either a permit or a notification, referred to as an authorization. A permit is more restrictive than a notification, and is generally issued for GE organisms that APHIS is less familiar with and thus may pose a greater plant pest risk. A notification is a streamlined authorization for GE organisms that APHIS has familiarity with and thus less likely to pose plant pest risks. In FY 2018, APHIS authorized more than 1,500 permits and notifications in 41 States (plus Puerto Rico) for 130 different species of organisms.

Risk Assessment and Petitions

When biotechnology developers can provide scientific information that demonstrates their GE organism is not a risk as a plant pest, they can request, or petition, APHIS to remove a GE organism from regulation. Before APHIS makes a regulatory decision, it conducts thorough scientific reviews and gathers data to determine if the new GE organism poses a risk to plant health. APHIS' reviews of the GE organism include analyzing both current, publicly

available scientific information and the technical data provided by the applicant. When considering this request, APHIS completes a scientific plant pest risk assessment, as well as an environmental review in compliance with the National Environmental Policy Act. If APHIS determines a GE organism does not pose a plant pest risk, the Agency makes a determination of nonregulated status (deregulation), and biotechnology developers can plant and move the organism without APHIS' oversight.

In FY 2018, APHIS reviewed and deregulated two petitions one GE canola and one GE cotton, bringing the cumulative total of APHIS deregulations to 129. In recent years, APHIS has identified and implemented solutions to improve the timeliness and predictability of the petition process while maintaining its high standard of scientific rigor and decision-making, allowing APHIS to complete the FY 2018 petitions in an average of 351 days (without requiring an Environmental Impact Statement to be completed). APHIS continues to provide the public with opportunities to review and comment on both the petition request and the scientific assessments of the GE organisms in the *Federal Register*.

Since 2011, APHIS' "Am I Regulated?" (AIR) process allows potentially regulated entities to ask the Agency if an organism is a regulated article by providing specific information including scientific data, the technology used, and other information about the GE organism. APHIS evaluates the description of the product and informs the developer if the Agency regulates or does not regulate the GE organism under its current biotechnology regulations. APHIS publishes their responses to AIR letters on its website. In FY 2018, APHIS responded to 14 AIR inquiries; since inception, the Agency has responded to more than 60 inquiries thus, facilitating movement of new products to farmers fields.

Compliance and Inspections

APHIS ensures developers, growers, and others take the important steps to prevent unauthorized releases of regulated GE organisms. The Agency requires developers to comply with notification performance standards or permit requirements to help ensure the GE organisms are confined and do not persist in the environment. To ensure that GE organisms meet standards outlined in the permit or notification, APHIS inspects fields, equipment, and other associated facilities. In FY 2018, APHIS and the States (authorized by APHIS) conducted more than 700 site inspections, 43 of which were unannounced inspections. Approximately 92 percent of those inspected were in compliance with APHIS biotechnology regulations.

Following recommendations from the USDA's Office of Inspector General's office, APHIS has taken steps in recent years to strengthen its oversight of regulated GE field trials. In FY 2018, APHIS continued to develop and implement an improved risk-based inspection selection process and enhanced compliance oversight of regulated GE field trials. As part of this effort, APHIS incorporated additional control measures into inspection and oversight activities based on analysis of information from monitoring reports submitted by regulated entities. The Agency also enhanced effectiveness of oversight while leveraging technology through virtual monitoring and evaluations of field trials, completing 27 virtual inspections. These virtual inspections focused on the review of post-harvest recordkeeping and oversight practices as well as field trials with compliance issues. APHIS also updated certain standard requirements for GE field trials authorized under permits, increasing consistency and improving clarity of requirements for regulated entities and increasing enforceability of requirements for the Agency.

Regulatory Changes

Advances in science and technology have altered the biotechnology landscape, enabling the development of products not envisioned when regulations were first established. APHIS is working to update the Agency's biotechnology regulations to better ensure that regulatory oversight is commensurate with plant pest risks. APHIS published a proposed rule in January 2017 and received more than 200 comments. After reviewing the comments received, USDA determined that additional stakeholder engagement would be appropriate to explore alternative policy approaches and withdrew the proposed rule. In FY 2018, USDA conducted extensive stakeholder outreach to engage in an open and robust policy dialog to more effectively address the issues raised in public comment. The Agency is currently developing a proposed regulatory framework and proposed revisions to the regulation.

Partnerships

On January 4, 2017, the Office of Science and Technology Policy (OSTP), in coordination with the USDA, the Environmental Protection Agency, and the Food and Drug Administration released two documents supporting modernizing the regulatory system for biotechnology products: Update to the Coordinated Framework; and a National Strategy for Modernizing the Regulatory System for Biotechnology Products (Strategy). Background on this effort and the documents are available at https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/stakeholder-meetings/cf_meetings. The agencies also commissioned a National Academies of Sciences, Engineering, and Medicine (NASEM) report, titled "Preparing for Future Products of Biotechnology." Released in March 2017, the

report describes the new types of biotechnology products likely to emerge over the next 5-10 years and assesses whether future products could pose different types of risks relative to existing products. Since the release of these documents, OSTP's Biotechnology Working Group (BWG) has met on a bi-weekly basis to implement objectives outlined in the Strategy document and recommendations from the NASEM study. Among these have been the development and recent release of a Beta version of a Horizon Scanning System to identify new and emerging products of biotechnology and the development of a Unified Portal that serves as a single point of entry for the regulated community and the public to obtain and access information on the Coordinated Framework and the U.S. biotechnology regulatory system. The BWG is targeting early FY 2019 for release of the web portal.

APHIS also works with international partners to enhance the coordination of regulatory approaches for the safe use of GE organisms, and provides capacity building assistance to developing countries for the regulation of GE organisms. These activities promote U.S. exports of GE products by ensuring that trading partners understand and accept the U.S. system for regulating GE organisms. For example, APHIS worked closely with Mexico and Canada on technical and regulatory biotechnology issues in bilateral, regional, and multi-lateral international venues in FY 2018. APHIS also meets with foreign visitors who are interested in understanding how the United States regulates the safe use of biotechnology-derived organisms. In FY 2018, APHIS gave briefings to 80 foreign visitors from 8 countries. In addition, the Agency serves as the U.S. government lead and the Chair of the Working Group on Harmonisation of Regulatory Oversight in Biotechnology in the Organization for Economic Co-operation and Development. The Working Group works to promote international harmonization in environmental risk/safety assessment and regulation of organisms produced through modern biotechnology. APHIS also coordinates with an interagency working group on issues related to the Cartagena Protocol on Biosafety, aimed at enhancing coordination of regulatory approaches and providing capacity building assistance for the regulation of GE organisms. This year, the organizers of the November 2018 Conference of the Parties to the Convention on Biological Diversity are considering documents related to synthetic biology that APHIS worked on with the State Department and interagency partners. This effort supports potential innovations in research, education, and commercial developments in diverse areas from medicine to agriculture. APHIS also participated in a two-week Agricultural Biotechnology and Biosafety Short Course at Michigan State University that allowed students from developing countries in Sub-Saharan Africa and Southeast Asia to learn about biotechnology research, policies and regulations, and trade issues.

Selected Examples of Recent Progress – Emergency Management:

Emergency Preparedness & Response

The Emergency Preparedness and Response (EPR) program improves APHIS' capability to prevent, prepare for, respond to, and recover from animal health emergencies. It develops strategies, policies, and procedures for incident management and response coordination that meet national and international standards. The EPR's program goal is to respond to an animal health event within 24 hours from the time APHIS decides that it is appropriate to be involved in the response effort. The program participates in joint Federal, State, and local animal health and all-hazards test exercises to improve response capabilities, and performs reviews afterwards. In addition, this program works with major commodity groups to ensure the continuous movement of livestock products during animal health emergencies. Effective preparation for and response to animal health events requires advance and continuous planning, followed by training and exercises to enable a rapid response. This line item funds activities that enable APHIS to achieve a high state of readiness and be able to respond rapidly and effectively to emergency events, thus lessening the impact of those events on producers, consumers, taxpayers, and the overall economy. Also through this line item, APHIS and the Centers for Disease Control and Prevention (CDC) jointly manage the Federal Select Agent Program (FSAP), which oversees the possession, use, and transfer of biological select agents and toxins that have the potential to pose a severe threat to public, animal or plant health or to animal or plant products.

The EPR program supports coordinators in each of the 10 Federal Emergency Management Agency (FEMA) regions for Emergency Support Function #11: Agriculture and Natural Resources (ESF #11). The coordinators work with local, State, Tribal, Territorial, Insular Area Governments, and other Federal agencies during actual and potential incidents to respond to animal and agricultural health issues; provide technical expertise in support of animal and agricultural emergency management; ensure the safety and defense of the Nation's supply of meat, poultry, and processed egg products; and ensure the protection of natural and cultural resources and historic properties. In addition, APHIS provides technical support to FEMA for preparedness for the care of pets and service animals during disasters. The EPR program also maintains Emergency Qualifications System (EQS) Dispatchers, who coordinate the delivery of emergency resources, as well as the APHIS security coordinator program.

Preparedness, Partnerships, & Planning

In FY 2018, APHIS continued to expand its animal health readiness capacity by increasing the number of first responders to enable the Agency to respond more rapidly and effectively to animal health emergency events. The EPR Program supports the National Incident Management System training for emergency responders. As of the end of FY 2018, 133 of the 144 (92 percent) National Incident Management Team Command and General Staff positions were filled, and 93 (70 percent) of the employees were fully trained. In addition, APHIS expanded training for its safety cadre to provide occupational safety and health support for emergency responses, and developed a security cadre to provide physical and operational security support for emergency responses. In FY 2018, APHIS developed the security coordinator training program. Approximately 20 APHIS employees are trained as security coordinators. The ESF #11 Coordinators also trained more than 1,000 ESF #11 Desk Officers. The training ensures readiness at the National and Regional Level outlining procedures and protocols for ESF #11, facilitating communication and continuity to ensure efficient coordination of resources during major disasters. In FY 2018, APHIS worked with FEMA in planning and preparedness activities for 18 scenarios including but not limited to New Madrid Seismic Zone, Nation State Threat, Wasatch Fault Zone, NORTHCOM Defense Support to Civil Authorities, Threat and Hazard Identification and Risk Assessment, Hurricane, Food Protection, Exotic Response, Spring Flooding, Super Bowl Consequence Management, Tribal Assistance Coordination.

APHIS also serves as a liaison between State and local officials to protect pets, breeders, dealers, and exhibitors regulated by the Animal Welfare Act (AWA) to enhance coordination on animal disease preparedness efforts. The agency works through ESF #11 (Agriculture and Natural Resources) and ESF #6 (Mass Care, in coordination with FEMA) to support pet owners in disasters. In addition, APHIS invests in the Zoo Animal All Hazards Preparedness, Response and Recovery Fusion Center to help the exotic animal industry in emergencies. During wildfires and two major hurricanes, APHIS used a 24/7 call-and text message line for facilities licensed and registered under the AWA to address their recovery needs. This relationship assured that the owners of these facilities were well informed and participated in efforts to prevent the impacts of foreign animal diseases. In addition, APHIS developed tools for the biomedical research community to help laboratories protect the animals and the research in the event of a disaster.

Preparedness Training and Exercises

In May 2018, APHIS hosted the Agriculture Response Management and Resources (ARMAR) exercise to test foot-and-mouth disease (FMD) response capabilities. This exercise included other federal, state, and local agencies, as well as animal agriculture industry groups. It focused on incident information, resource management, response policies, communications, and interagency coordination. Participants tested operational and logistical plans, developed or strengthened relationships and communications, and increased emergency response preparedness.

In FY 2018, ESF#11 Coordinators participated in the planning and execution of more than 40 FEMA and State-led exercises ranging from tabletops exercises to drills providing cross-functional coordination and assistance. These exercises covered various scenarios including hurricane response, large scale power outages, evacuation and sheltering, animal disease response, and radioactive release response.

Response Efforts and FAD Investigations

In FY 2018, APHIS conducted 1,993 foreign animal disease investigations, of which 1,691, or 85 percent, were vesicular. This is the most investigations conducted in a fiscal year. The high number of vesicular investigations resulted from the ongoing Seneca Valley A virus (SVA) disease in pigs in the United States and Canada, and the virulent Newcastle disease (vND) outbreak in California. Although SVA is not regulated, it mimics FMD, which is the highest consequence foreign animal disease in terms of regulatory intervention and economic consequences.

After APHIS confirmed the presence of vND in a small flock of backyard exhibition chickens in Los Angeles, California, in May 2018, the agency conducted response activities to contain and control the outbreak. APHIS contributed 611 personnel for deployments to California, with the average deployment being three weeks. APHIS National Incident Management Teams deployed for seven rotations.

In FY 2018, FEMA activated ESF-11 coordinators 11 times for incidents including but not limited to wildfires, flooding, and mudslides in California; lava flow and two hurricanes in Hawaii; Hurricane Isaac in Puerto Rico and the U.S. Virgin Islands, Hurricane Florence in the Carolinas, and 23 alerts. APHIS dispatched 1,697 responders to 46 incidents or events, including the 11 for which the coordinators responded. The Agency's dispatchers worked with the Incident Coordination Group and program contacts to mobilize resources within the requested timeframes. APHIS also dispatched employees to respond to vND, spotted lanternfly, European cherry fruit fly, wildlife/tick and highly pathogenic avian influenza (HPAI) surveillance, several oil spill responses, and Hurricanes Maria, Nate, and Florence. A total of 54 Voluntary Emergency Response Reserve Corps (VERRC) members were dispatched in FY

2018 in response to requests for resource support. The VERRC is a pool of APHIS employees who are trained to fill commonly requested emergency response positions.

APHIS' Wildlife Services Emergency Response System was active in various responses in FY 2018 including animal diseases, contaminant spills, and exotic invasive pest species. In addition, the program worked with Federal, State, and local government agencies to better characterize the spread of the East Asian tick in Virginia.

Safeguarding of Select Agents

The FSAP administers the select agents and toxins regulations in coordination with the Federal Bureau of Investigation (FBI). Any individuals or entities possessing, using, or transferring select agents or toxins must register them with APHIS (if the agent affects animal or plant health) or the CDC (if the agent affects human health). Facilities must meet safety requirements, including measures to ensure the safety and security of the products and prevent their release. APHIS and CDC inspect facilities that use or transfer these agents to ensure compliance, and each other's facilities to eliminate potential conflicts. APHIS' Agriculture Select Agent Services (AgSAS) ensures that facilities address all non-compliances, and initiate enforcement actions. As of September 30, 2018, 37 entities that contain select agents covered under APHIS authority are registered with AgSAS, and 42 entities that contain these agents are registered with CDC. In FY 2018, AgSAS received and processed more than 80 amendment requests consisting of administrative amendments, technical amendments that required on-site inspections, and amendments that were both technical and administrative. In addition, AgSAS conducted 46 inspections in which 12 were verification inspections, 18 renewal inspections, 5 compliance inspections, 2 maximum containment, and 9 other inspections that include amendments. APHIS issued corrective letters for deficiencies identified, and collaborated with entities to develop Corrective Action Plans to address serious noncompliance issues. The Agency conducted joint inspections with CDC, DHS, and the Department of Defense. In addition, AgSAS collaborated with the FBI to conduct Security Risk Assessment (SRA) to determine the suitability of individuals requesting to have access to select agents and toxins. Calendar year 2018 figures are not yet available; however in 2017, AgSAS facilitated 3,714 SRAs conducted by the FBI, and restricted the access of 17 individuals based on the results. In FY 2018, AgSAS supported entities and other partners during natural or man-made hazardous events, to ensure the safety and security of select agents and toxins during times of disaster.

In FY 2018, APHIS and CDC continued to institute changes in operations and policies in response to multiple incidents involving the possible release of select agents in 2014. The most significant improvement was the implementation of the joint CDC-APHIS select agent database and external portal for regulated entities. This system allows registered entities to provide information directly through a secure portal, eliminating data entry errors and reducing cycle time for submitting amendment requests and responses to APHIS information requests. The new system became operational in December 2017, and FSAP implemented individual modules as they became operational; piloting and testing the system, developing program guidance for its use, and providing training to staff and regulated entities. In FY 2018, FSAP also focused on several GAO recommendations related to program assessments. The primary activity, engaging staff at all levels, was the development of a Joint FSAP Strategic Plan and associated implementation and monitoring programs. FSAP also solicited external assistance to perform a joint workforce assessment and assessment of the FSAP organizational structure. Also in FY 2018, FSAP established regular coordination with USDA representatives overseeing the construction and stand-up of the National Bio- and Agro-Defense Facility (NBAF) in Manhattan, Kansas, to provide guidance on the select agent registration process. FSAP assigned staff liaisons to collaborate with NBAF project leadership, performed an on-site visit to review the facility design, and provided input into regulatory standards, the process, and timelines for select agent registration.

Modeling and Monitoring

In FY 2018, APHIS continued to enhance models for FMD, classical swine fever, and HPAI to evaluate the impact of alternative vaccination protocols, the effects of single or integrated alternative control strategies, and potential economic consequences of disease introduction and spread. Also in FY 2018, the agency developed an African swine fever model application to estimate the laboratory capacity necessary to meet the potential diagnostic demand for outbreaks. In addition, APHIS generated a vND model to describe the potential severity, directionality, and duration of simulated outbreaks introduced into backyard poultry operations in Southern California. The agency used disease-spread modeling to support State Animal Health Officials in their emergency preparedness activities, and to provide exercise organizers with realistic and epidemiologically-supported disease spread, detection, tracing, and surveillance options during the ARMAR FMD exercise.

Biosecurity

APHIS participates on the Biosurveillance Indications and Warning Analytic Community (BIWAC) steering committee to increase understanding of agricultural threats across the Federal government, providing context for threats that may also affect human health and/or the U.S. economy. Through this interaction, APHIS leverages tools

to augment other agency biosurveillance initiatives. APHIS also participates in National Biosurveillance Integration Center (NBIC) briefings on global emerging human, animal, and zoonotic diseases, including updates of HPAI spread through Europe; ASF detections in domestic and wild boar in Europe and China; and the first classical swine fever detection in Japan in 26 years. In addition, the BIOFEEDS tool continues to provide APHIS with global animal and zoonotic disease information for U.S. risk identification. NBIC integrates, analyzes, and distributes information about health and disease events to help ensure the nation's responses are well-informed, save lives, and minimize economic impact. APHIS officials provide context and global epidemiological perspectives to the updates, and situation updates to the NBIC Daily Monitoring List, which is distributed throughout the Federal government. These updates have included HPAI, low pathogenic avian influenza, New World screwworm, and vND.

Safe Trade and International Technical Assistance

Current Activities

APHIS monitors animal and plant health throughout the world and uses the information to set effective agricultural import policies to prevent the introduction of foreign animal and plant pests and diseases. APHIS and the Department of Homeland Security cooperate to ensure that these policies are enforced at U.S. ports of entry. APHIS also develops and conducts pre-clearance programs to ensure that foreign agricultural products destined for the United States do not present a risk to U.S. agriculture. The Agency engages in cooperative programs to control pests of imminent concern to the United States and to strengthen foreign plant protection and quarantine organizations. The Agency also provides scientific and technical support in resolving sanitary (animal) and phytosanitary (plant) trade barriers.

APHIS' negotiates animal and plant health certification requirements, assists U.S. exporters in meeting foreign regulatory requirements, ensures requirements are proportional to risk without being excessively restrictive, and provides any necessary technical information to support the safety of U.S. agricultural products destined for foreign markets.

Selected Examples of Recent Progress in Facilitating Safe Trade

Agriculture Import/Export

APHIS works with other Federal agencies, States, foreign governments, industry, and academia to protect U.S. agriculture while facilitating the safe trade of animals and animal products. APHIS' animal health experts ensure that U.S. import requirements safeguard U.S. livestock health and negotiate requirements for the export of U.S. animals and animal products worldwide. These requirements are based on compliance with international standards, sound scientific principles, and fair trading practices for animals and animal products. Moreover, APHIS sets quarantine, testing, and other requirements under which animals and animal products can be imported or exported. These requirements help ensure that global markets can be accessed, expanded, or maintained with little or no risk to U.S. animal production and human health.

APHIS also conducts activities related to the 2008 Farm Bill amendments to the Lacey Act, which prohibit the importation of any plants, with limited exceptions, that are taken or traded in violation of domestic or international laws. The Act requires a declaration for imported shipments of most plants or plant products. A 2012 study by the United Nations Environmental Programme estimated the value of illegal logging, including processing, to be between $30 to $100 billion dollars, or 10 to 30 percent of the global wood trade. The Lacey Act amendments are designed to help combat this illegal logging by encouraging importers to research their supply chains and be aware of the laws governing products they purchase in other countries. APHIS' role is to evaluate and implement existing regulations, provide guidance to importers regarding the required declaration, perform compliance checks, provide enforcement agencies with declaration information to assist their investigations, and maintain declaration records.

Imports

To facilitate imports, APHIS evaluates the animal health status of regions that wish to export animals and/or animal products to the United States. This evaluation process minimizes the risk of introducing animal diseases through importation and is consistent with international trade requirements. In FY 2018, APHIS completed several evaluations and published regulatory actions based on those evaluations in the *Federal Register*. These include notices to recognize Japan as free of classical swine fever, and the State of Chihuahua, Mexico, as free of cattle fever ticks. APHIS also published a notice concurring with the World Organization for Animal Health risk designations of three regions (Croatia, Poland, and the United Kingdom) for bovine spongiform encephalopathy and updated regulations to remove rinderpest as a regulated disease since it has been eradicated worldwide.

APHIS also conducted eight site visits within several regions in FY 2018 to confirm their surveillance, prevention, and control measures are sufficient to minimize the likelihood of introducing foreign animal diseases into the United

States. In FY 2018, APHIS implemented a review process for regions that have previously been granted animal health status recognition such as New Zealand, Chile, and Costa Rica. APHIS finished the review for New Zealand in FY 2018. Additionally, due to recent reports of outbreaks in the region, APHIS added China to the list of countries affected with African swine fever.

APHIS continues to ensure that import regulations are effective and science-based and to work with U.S. businesses and importers to facilitate safe trade. For example, the Agency is working to improve traceability of imported animals by implementing the use of identification scanners at the Mexican border that will upload ear tag information into our traceability databases. In FY 2018, APHIS issued 16,377 import permits for live animals, animal products, organisms, and vectors. These include new permits, renewals, and amendments. APHIS facilitated the World Equestrian Games in North Carolina, including the import and export of almost 800 horses from 75 countries for this special event.

APHIS continues to develop more regulatory flexibility, including removing the import permit requirement for certain low risk and exempted animal origin ingredients and products. APHIS removed the import permit requirement for certain U.S. Food and Drug Administration approved commodities that contain animal derived material, including pharmaceuticals, vaccines and medical devices. APHIS also continued collaboration with Canada to harmonize the trade protocols for thermally processed pet food, treats, and chews, resulting in removal of requirements for import permits and streamlining the required health certification.

Exports

To open, re-open, and maintain U.S. access to worldwide export markets, APHIS negotiates science-based conditions with trading partners for various commodities that protect their country while also facilitating trade. In FY 2018, APHIS negotiated or re-negotiated 98 export protocols for animal products (16 new markets, 47 re-opened markets, 17 expanded markets, and 18 retained markets). This includes retaining market access for poultry exports in numerous countries that imposed restrictions due to outbreaks of avian influenza and Newcastle disease.

APHIS negotiated 107 export protocols for live animals (38 new or reopened markets in 29 countries, 21 retained markets in 15 countries, and 48 expanded markets in 27 countries), including new markets for cattle to Bangladesh and Ghana, and horses to China. To complete export requests, APHIS conducted voluntary inspections of 1,314 U.S. manufacturing facilities to maintain, expand, or open export markets in many countries. APHIS also participated in industry stakeholder meetings, provided technical support for World Trade Organization cases, coordinated or supported six audits, and engaged in bilateral trade meetings with 16 countries. In addition, APHIS developed information packages and questionnaire responses from various countries to maintain, expand, or open export markets.

APHIS endorses export certificates for live animals and inedible animal-origin products, documenting the animal health status and facilitating export to all markets. In FY 2018, APHIS endorsed more than 326,000 export health certificates for animal products, livestock, poultry, germplasm, and pets. This was approximately 38,000 more than in FY 2017.

APHIS continued to increase the number of animal health export certificates issued electronically this year by expanding the system's capabilities. APHIS has digital signature capabilities, a certificate upload feature, and is working to expanding the number of countries and commodities for which electronic certification is available. This includes establishing bilateral pilot projects with Mexico and expanding the ongoing project with Canada to allow or extend exports with electronically issued and digitally signed certificates.

Lacey Act

In FY 2018, APHIS received approximately 850,000 Lacey Act declarations electronically or on paper. The number of declarations received in FY 2018 decreased from FY 2017 due to correcting a technical issue where the electronic system was sending the Lacey Act program information about products not subject to the declaration requirement. In FY 2018, APHIS continued focusing on developing and implementing the Department of Homeland Security's Customs and Border Protection's (CBP) Automated Commercial Environment (ACE) system for the Lacey Act program as well as improving the Lacey Act Web Governance System (LAWGS). ACE is part of a government-wide effort to streamline export and import processes for U.S. businesses. Importers file more than 90 percent of declarations through ACE. Along with increasing awareness and compliance among importers, ACE reduces unnecessary filings by allowing importers to incorporate information from several entries into a single entry. It also has the potential to reduce errors in Lacey Act filings by prescribing the types of responses allowed for certain fields and allowing APHIS to reject declarations with certain types of errors, forcing the importer to re-file with correct information. These improvements allowed APHIS to focus its analytical capabilities on potentially fraudulent

declarations through a pilot program designed to provide rapid queries of the database containing declarations along with publicly available information such as lists of critically endangered plants throughout the world, known natural growing distribution of plant species, and proper spellings of scientific names, among other things. In addition, APHIS developed a module in LAWGS that will further enhance compliance reviews by automating initial screenings of declarations and flagging certain types of issues for further review, which became operational in early FY 2019.

To continue building compliance capabilities, APHIS is working with the U.S. Forest Service to determine if APHIS could use existing wood identification tools in port environments to inspect imported shipments to determine if the species listed on the Lacey Act declaration is accurate. This is the second year of a two-year effort that will determine if the tools are practical and feasible for port-of-entry inspections or compliance checks. APHIS continued to work with importers to clarify and establish requirements for Lacey Act declarations for timber and timber products admitted into U.S. foreign trade zones (areas near ports of entry where imported goods are not subject to tariffs during storage, manufacturing, and exhibiting processes) and into bonded warehouses through numerous meetings and outreach events with the trade community. Because ACE does not currently recognize tracking numbers associated with imports to foreign trade zones, APHIS established a temporary solution through LAWGS to allow importers to file Lacey Act declarations. APHIS is working with CBP and other partner government agencies to develop a solution for foreign trade zone filers in ACE. Additionally, APHIS continued to work with its counterparts in other countries to establish cooperative relationships regarding ways to combat illegal logging and other activities the Lacey Act is designed to reduce.

Overseas Technical & Trade Operations

Through the Overseas Technical & Trade Operations (OTTO) program, APHIS helps U.S. farmers and ranchers export their products to other countries by resolving concerns over animal and plant health issues that affect trade of agricultural products. APHIS uses its technical expertise to develop science-based agreements with other countries for U.S. exports and international standards for trade. The Agency also collaborates with USDA's Foreign Agricultural Service, the Office of the U.S. Trade Representative, and other technical agencies to provide a coordinated effort on trade issues that affect U.S. producers. U.S. exports of agricultural products exceeded $143 billion in FY 2018, $3 billion more than in FY 2017.

In addressing sanitary and phytosanitary (SPS) barriers to trade, APHIS uses its strong scientific base and team of technical experts located in the United States and abroad to advocate on behalf of U.S. agriculture. These scientists build relationships with counterparts and use scientific principles to make the case for American agricultural exports and explain to foreign officials why U.S. commodities are safe to import. These conversations take place in ongoing, discussions, technical bilateral meetings, and multilateral fora. To strengthen APHIS' ability to respond quickly to trade issues, the Agency has scientists, including veterinarians and entomologists, stationed throughout the world in more than 30 countries to collaborate on animal and plant health issues with their foreign counterparts to support U.S. exports and science-based international plant and animal health standards that facilitate trade and reduce risk.

Examples of APHIS' efforts for new market access include: U.S. corn to Myanmar valued at $6 million; U.S. chipping potatoes to the Dominican Republic valued at $2 million; and U.S. ginseng seed to Chile valued at $1 million. Other recent successes include new access for U.S. lamb and goat meat to Japan and progress on new access for U.S. beef to Argentina. APHIS also achieved market expansion for both U.S. rough rice totaling $58 million and rice seed to Colombia totaling $30 million.

In FY 2018, APHIS and other USDA agencies worked quickly to retain access for U.S. soybeans to China, a market worth more than $12 billion in 2017, after China implemented broad new requirements covering plant health, food safety, and quality issues for imported grains. APHIS and industry partners developed and implemented new measures to address China's concerns within a 5-month period to keep this market open. APHIS also retained access for live poultry to Indonesia in FY 2018, a market worth $22 million in 2017.

APHIS continues to enhance U.S. efforts to retain markets threatened or lost due to outbreaks of avian health diseases including highly pathogenic avian influenza (HPAI), low pathogenic avian influenza (LPAI), and Virulent Newcastle Disease (vND). As part of this effort to advocate for U.S. poultry producers, APHIS met with officials from key trading partners in South America, the Middle East, and Asia and responded to individual countries' concerns through numerous venues. Key successes in FY 2018 include the limited scope of restrictions placed on the U.S. from the detection of vND in backyard exhibition flocks in California and the various detections of LPAI in the United States. APHIS' outreach to its counterparts in other countries on the U.S. surveillance system for avian influenza continues to lessen the impact of individual detections on U.S. poultry trade.

Even for markets that are open to U.S. agricultural products, APHIS must continually address issues to keep trade flowing smoothly. APHIS works with foreign counterparts to clarify or streamline certification requirements, making it easier and less costly for U.S. exporters to move their products overseas. When shipments are delayed at foreign ports, APHIS negotiates the overseas process to get products moving again. APHIS successfully secured the release of more than 270 shipments worth more than $50 million in FY 2018. These detained shipments included a shipment of poultry products destined for Afghanistan worth $5 million and a shipment of live cattle in Turkey worth more than $1 million.

Building relationships in emerging markets often involves field visits, or training of foreign government officials to build their capacity to put in place scientifically sound SPS requirements. In FY 2018, APHIS educated 283 foreign officials about the U.S. regulatory process by hosting them during 58 visits. APHIS also coordinated and prioritized 130 requests received for subject matter expertise, trainings, and other outreach-related activities. For example, APHIS worked with the Tuskegee University to train two groups of 50 veterinarians and/or government officials from 21 African countries in SPS Risk Assessment Trainings. Plant health officials from 21 countries attended the APHIS Plant Health Systems Analysis Course held in FY 2018. Additionally, APHIS provided three trainings in animal health with an emphasis in HPAI surveillance and emergency response to 44 government officials representing approximately 39 countries. These activities are designed to help other countries increase their regulatory capacity, which over the long term, help prevent the trans-national spread of serious pests and diseases as well as increase other countries' ability to engage in safe agricultural trade.

APHIS emphasizes the use of scientific principles as a basis for international trade decisions to help ensure that the same rules apply to countries around the world and foster a successful trading environment. To achieve this level playing field, APHIS works with international standard-setting bodies such as the World Organisation for Animal Health and the International Plant Protection Convention to encourage other countries to follow this model. By gaining support for scientific decision-making and following international standards when considering what can be imported into the United States, APHIS increases U.S. agricultural exports. In FY 2018, APHIS participated in a special thematic session on pest-free areas held in Geneva along with the March, 2018 World Trade Organization (WTO) SPS Committee meetings. The session allowed the United States to promote our system for establishing and managing pest-free areas for plant parasites and diseases (both for managing them within the United States and for taking action on imports from other countries) and encourage other WTO members to use similarly transparent and science-based systems to evaluate U.S. exports.

In an effort that began in FY 2015 and continues today, APHIS began comprehensive succession planning of its workforce, with special emphasis on developing its Foreign Service cadre. This recruitment and developmental process emphasizes applicants' animal and plant science backgrounds, focusing on increasing new officers' knowledge of all APHIS mission areas, and, increasing cooperation with other international partners like USDA's Foreign Agricultural Service. The training program further develops Foreign Service trainees' diplomatic, cross-cultural, and leadership skills. APHIS has recruited 17 new recruits under this program, augmenting its current overseas Foreign Service cadre, many of whom are eligible for retirement in the next five to ten years. The succession effort helps ensure that APHIS has trained staff to support U.S. exports and overseas animal and plant health programs. As a result of this recruitment and training program, APHIS has deployed 11 new Foreign Service personnel to Mexico, Japan, China, Brazil, Costa Rica, the Dominican Republic, Senegal, South Africa, and other locations in key markets for U.S. exports. In addition, APHIS has developed a process to evaluate the location of its overseas offices and the most effective way to support the Agency's mission, strengthening APHIS' ability to address SPS and other issues overseas in traditional and emerging markets.

Agricultural trade is essential for the U.S. export market, and may be subject to costly disruptions from animal and plant health barriers. Technical trade, capacity building, and regulatory activities support export opportunities for U.S. producers while providing fruit, vegetables, and animal protein sources to international markets. APHIS will continue to cultivate international trade opportunities for America's animal and plant products while safeguarding U.S. agriculture from pests and diseases.

Animal Welfare

Current Activities

The Agency ensures the humane care and treatment of certain animals and horses as required by the Animal Welfare Act of 1966 as amended (7 U.S.C. 2131-2159), and the Horse Protection Act (HPA) of 1970 as amended (15 U.S.C. 1821-1831) through inspection, education, and enforcement efforts. These activities include inspection of certain establishments that handle animals intended for research, exhibition, wholesale pet trade, or transported in commerce. During these inspections, APHIS reviews the animals, premises, facilities, husbandry practices, program

of veterinary care, records, and animal handling procedures. APHIS also administers the HPA, as amended, which prohibits the showing, sale, auction, exhibition, or transport of sore horses. Program personnel evaluate the performance of industry-licensed inspectors and conduct unannounced inspections at horse shows, exhibitions, sales, and auctions.

Selected Examples of Recent Progress in Animal Welfare:

Animal Welfare

APHIS' Animal Welfare Program has the unique Federal role of ensuring the humane care and treatment of animals covered by the Animal Welfare Act (AWA) through inspection, learning opportunities, and enforcement efforts. More than fifty years ago, in 1966, the AWA was signed into law. Since that time, APHIS, acting through the Animal Care Program and its predecessors, has protected millions of regulated animals used in research, exhibition, and the pet trade as well as those transported in commerce. In FY 2018, the program oversaw 8,676 licensees and registrants associated with 12,338 facilities.

Licensing Activities

The AWA requires all facilities that use animals regulated under the Act to obtain a license or registration with APHIS. Prior to issuing a license, APHIS works closely with potential applicants to ensure they understand the requirements of the AWA regulations and standards and demonstrates compliance with them. The Agency develops customized materials and presentations to focus on specific aspects at each facility, and, by regulation, allows facilities up to three inspections to demonstrate compliance prior to issuing a license. In FY 2018, APHIS conducted approximately 800 pre-licensing inspections, and issued 735 new licenses. The Agency determines on-going compliance by conducting unannounced inspections within three months of issuing the license. At the first unannounced inspection, 98 percent of these newly licensed facilities were in substantial compliance, with no critical or repeat AWA citations on the inspection report.

During 2016, APHIS conducted a review of the application processes required of AWA applicants. The review identified areas to reduce burden on new applicants, as well as allow applicants to submit approved revisions to initial applications through less costly and more efficient processes. The Agency also instituted a new process to assist applicants with calculating their licensing fees to promote consistency and reduce errors involving fee calculations; invested in a phone system that connects applicants with the appropriate staff in a more timely and efficient manner; and, created a system for distribution of work to build continuity of service and better balance the workload. In FY 2018, APHIS processed 97 percent of new applications within the improved timeframe, resulting in a 20 percent improvement in the overall time a new applicant for a license or registration must wait before engaging in regulated activities. Additionally, in FY 2018, the Agency implemented a renewal reminder call initiative that notifies that licensee when the license is close to expiration. This initiative resulted in a 24 percent decrease in the number of licenses that lapse as a result of the failure to submit a timely renewal application (from 475 lapsed licenses in FY 2017, to 363 lapsed licenses in FY 2018), and a cost savings associated with at least one full-time inspector by foregoing unnecessary re-licensing processes.

For licensed and registered facilities, APHIS inspectors perform primarily unannounced inspections to assess compliance with the AWA. During inspections, Agency officials examine and inspect all areas of animal care and treatment covered under the AWA. The Agency reviews the animals, premises, facilities, husbandry practices, program of veterinary care, records, and animal handling procedures. In FY 2018, APHIS conducted 10,342 inspections and found 98 percent of all facilities to be in substantial compliance with the AWA.

APHIS' compliance support program assists facilities struggling to achieve or sustain compliance with the AWA. The program conducts a root cause analysis of the compliance challenges, works with the licensee to develop an individual plan to address the non-compliances, and provides learning opportunities for facility employees. In FY 2018, the program expanded its compliance tools to include customized calls, visits, letters, and other types of extension bulletins to promote compliance at the forefront. APHIS completed approximately 570 non-inspection visits with regulated facilities to work through compliance changes in FY 2018, which was an increase of more than 312 percent compared to FY 2017. Of the facilities visited, APHIS sampled 20 percent and found more than 50 percent of those facilities to be in compliance during their most recent inspection.

In support of USDA Agricultural Research Service's (ARS) efforts to promote animal welfare and establish the fully functioning Institutional Animal Care and Use Committees at its animal research facilities, APHIS has registered 35 ARS research facilities under the AWA. After completing pre-compliance visits to assess welfare conditions at ARS research facilities in FY 2016, the Agency focused on monitoring the health and welfare of animals housed at ARS facilities through the use of our unannounced inspection process. In FY 2018, APHIS conducted 44 inspections at 35

ARS facilities. APHIS found all ARS registered facilities to be in compliance during the unannounced inspection process.

Enforcement Activities
When APHIS inspectors discover conditions or records that are noncompliant with the regulations, the Agency may establish a deadline for corrective action and increases frequency of unannounced inspections to determine whether the facility made the necessary modifications. Continued, serious noncompliance may warrant an investigation that can result in sanctions ranging from monetary penalties to suspension or revocation of the facility's license, after notice and an opportunity for a hearing.

To support animal welfare, APHIS initiated 19 cases for alleged violations of the AWA, issued 44 official warnings, issued 8 pre-litigation settlements resulting in the collection of $32,650 in stipulated penalties, and obtained 14 administrative orders, assessing $265,499 in civil penalties. In one case, APHIS entered into a Consent Decision relating to multiple willful violations of the AWA, resulting in a $99,999 civil penalty. In another case, APHIS obtained an administrative order against an individual relating to alleged AWA violations occurring from March 2008 through January 2012, assessing a $30,000 civil penalty. APHIS also negotiated several pre-litigation settlement agreements, including one involving a research facility that agreed to the assessment of a $10,000 civil penalty to resolve multiple alleged AWA violations.

Outreach/Stakeholder Activities
APHIS' Animal Welfare Program serves as a national resource for policy development and analysis, supports compliance efforts through non-regulatory methods such as education, training, and outreach to stakeholders to convey critical and current animal welfare information, and reviews and promotes science and technology related to improving the welfare of animals. It also maintains a team of animal welfare specialists to conduct additional visits to regulated facilities with specialized species.

APHIS' Animal Welfare Program continued to place emphasis on public outreach and learning opportunities. An example of the efforts using non-regulatory solutions to promote animal welfare include co-sponsoring the Canine Care Workshop, along with Missouri Department of Agriculture, to administer training and respond to questions from more than 175 breeders and industry leaders that resulted in the publishing of two technical notes. One note outlined the new incentive program that recognizes licensees/registrants who routinely monitor their activities and take appropriate and timely action to address noncompliant items. The second note provides helpful information so licensees/registrants can better fulfill the regulation requiring them to assess the health and well-being of their animals every day. The program also issued 10 newly-designed one-page, easy to use "Animal Care Aids" on species-specific preventative care focused on topics that place facilities at risk of noncompliance involving dogs and bears; published a new webpage explaining the requirements on the importation of dogs into the United States for purposes of resale, such as commercial sale or adoption, including information on obtaining a permit; revised the Animal Welfare Inspection Guide and made it available on the APHIS website; developed correspondence and an informational video on the role of the attending veterinarian and information on how to become an attending veterinarian; and completed necessary updates to the Animal Care Information System that allowed the Agency to repost animal species inventories on the public search tool.

Regulatory Changes
On June 1, 2018, APHIS published a final rule that amended the AWA regulations. The rule broadened the *de minimis* licensing exemption for persons maintaining four or fewer breeding female dogs, cats, or small exotic or wild mammals, and who sell the offspring for pets or exhibition, to include additional types of pet animals and domesticated farm-type animals. In addition, the rule added to the regulations a new licensing exemption for any person maintaining eight or fewer pet animals, small exotic or wild animals, or domesticated farm-type animals for exhibition. APHIS issued over 500 letters to AWA licensees to notify them of their potential eligibility for exemption from regulatory oversight. These actions will allow the Agency to focus its limited resources on situations that pose a higher risk to animal welfare and public safety.

In January 2018, the Agency sought input from stakeholders on whether we should recognize inspections (and similar reviews) by third-party programs when determining the frequency of federal inspections for facilities regulated under the AWA. APHIS held five in person listening sessions with approximately 500 participants, as well as three virtual listening sessions by telephone with the general public and state partners. Altogether, the Agency received and reviewed over 31,000 comments including over 7,000 unique comments. After considering the comments received, reviewing existing third party inspection and certification programs, and state regulatory frameworks, APHIS will not pursue the proposed program.

Horse Protection

Since 1970, APHIS has enforced the Horse Protection Act (HPA), a Federal law aimed at ending the cruel and inhumane practice of soring and preventing unfair competition by making it unlawful to show, sell, or transport sore horses. Soring is a practice in which people apply caustic chemicals and/or mechanical devices to a horse's pasterns, which cause the horse to experience pain or distress while walking or moving. This practice is used primarily in training Tennessee Walking Horses, racking horses and related breeds to produce a high stepping gait, which is prized at some competitive horse shows and other events. USDA conducts oversight of the program through evaluation of the performance of industry-licensed inspectors and conducting unannounced inspections at horse shows, exhibitions, sales, and auctions.

Inspection Activities

Under the HPA, the management of horse shows, exhibitions, sales, and auctions are responsible for ensuring that sored horses do not unfairly compete alongside horses that are not sore. If a horse is found to be sore, management has the responsibility of disqualifying them from participating in HPA-covered events. Management may use third-party inspectors that USDA-certified horse industry organizations (HIOs) train and license to inspect horses for compliance with the HPA. These third-party inspectors are known as Designated Qualified Persons (DQPs).

APHIS attends a select number of HPA-covered events each year to observe DQP performance and inspect horses for HPA compliance. In FY 2018, APHIS attended 64 horse events, inspected 1,638 horses and identified 160 instances of suspected noncompliance with the HPA. In FY 2018, the Agency continued to build its relationship with horse show management. This included hosting joint training with USDA inspectors and DQPs to promote consistency in compliance inspections, increasing direct communication with management to ensure they receive updates on USDA's HPA Disqualification List, providing quarterly updates on HIO inspection data and creating a "HIO Report Card" to assist management in making informed decisions when retaining HIO services.

In FY 2018, DQPs attended 261 HPA events and inspected 51,347 horse entries. In total, DQPs identified 649 HPA noncompliances, and management disqualified 596 entries; this represents a nearly 90 percent increase in DQPs' detection of HPA noncompliances relative to FY 2017, when DQPs inspected 47,373 horses and detected 337 instances of noncompliance with the HPA.

Enforcement Activities

APHIS' Animal and Plant Health Regulatory Enforcement program worked with the Office of the General Counsel to obtain 47 administrative orders assessing $56,200 in civil penalties, and disqualifying 44 individuals from participating in activities regulated under the HPA. In one case, APHIS entered into a consent decision related to entry of a single horse on nine occasions, resulting in an 18 month disqualification to one respondent, an 8 month disqualification to the other respondent, and a joint civil penalty of $19,800 to both respondents. APHIS is actively engaged in pursuing administrative enforcement action involving 90 respondents for alleged violations of the HPA. Following the U.S. Supreme Court's ruling on the challenge to the appointment of ALJs in June 2018, APHIS anticipates administrative proceedings will resume quickly.

Outreach/Stakeholder Activities

In FY 2018, APHIS presented one training session in conjunction with industry inspectors. The session provided refresher training to existing DQPs and USDA inspectors, and initial training for those interested in becoming DQPs. Agency representatives also attended two HIO training clinics to provide support and clarification regarding HPA requirements. Additionally, in February 2018, APHIS held two shoeing and inspection clinics for walking horse owners, trainers and exhibitors to enhance understanding of the regulatory requirements and inspection processes.

APHIS has made significant efforts to increase transparency regarding inspection techniques and results. This includes providing full inspection report data, including noncompliant items identified by type, and number of horses management disqualified from participating in HPA-covered events on the APHIS website: https://www.aphis.usda.gov/aphis/ourfocus/animalwelfare/SA_HPA.

Agency Management

Current Activities

The Agency Management programs support the daily operations of APHIS and provide for a safe and secure work environment. These programs provide the information technology, space and telecommunications infrastructure that gives Agency employees the tools they need to carry out their responsibilities. These programs also oversee and implement precautionary security measures for continued mission operations while ensuring the safety of APHIS people and facilities. In addition, these programs support APHIS' contribution to the U.S. Department of State's

continuing implementation of the Capital Security Cost Sharing Program, which provides safe and secure workplaces for all U.S. government employees located overseas.

Selected Examples of Recent Progress in Agency Management:

APHIS Information Technology and Infrastructure

APHIS' Information Technology Infrastructure (AITI) is comprised of the hardware, software, cloud computing and cyber-security infrastructure that provides Agency employees with office automation tools, Internet access, and access to mission-critical information technology (IT) programs and administrative applications. APHIS maintains, enhances, and operates the IT infrastructure to support Agency business, conduct research and analysis, carry out administrative processes, record program activities, and deliver program services. AITI objectives and priorities are to continually improve sharing of information across the Agency; improve integrity and accessibility of information, processes, and resources available to assist programs in emergencies; and improve APHIS' cyber-security. APHIS uses AITI funding to maintain annual software license and hardware agreements, cloud services, and for regular life-cycle replacement of enterprise hardware.

The FY 2018 accomplishments listed below support these objectives.

License Renewal

APHIS supported approximately 9,700 users with license renewals so they can access and legally use the enterprise software in conducting business.

Availability

APHIS supported internal and external stakeholders by providing optimal levels of service. The Agency continued to maintain 99.97 percent availability for its key computing systems this fiscal year. The AITI program also maintained applications availability outside of the normal operational hours, on weekends, and holidays to ensure availability of systems.

Cloud Services

APHIS continues to implement requirements of the Federal government's Data Center Optimization Initiative designed to facilitate the transition to more efficient infrastructure, such as cloud services and inter-agency shared services. This effort includes closing individual agencies' data centers. APHIS closed one of three data centers and awarded a contract to assist in cloud migration so that APHIS can close the remaining data centers. The target for the migration and closure of the remaining data centers is March 30, 2019.

Cyber-Security

APHIS maintained the current version of National Institute of Standards and Technology and Federal Information Security Management Act testing standards to continue protecting our cyber security infrastructure and reducing vulnerabilities of our systems. APHIS further increased its security by implementing a new intrusion prevention system to protect against malicious attacks.

Security Monitoring

The Agency renewed the upgraded security monitoring system that tracks improper use of personally identifiable information data stored in the APHIS infrastructure. This action helps protect confidential information that could potentially identify a specific individual such as citizenship, legal status, gender, race and/or ethnicity. In just one year, the software was able to identify vulnerabilities in APHIS forms that contain bank account, credit card, driver license, passport, social security and telephone numbers as well as date of birth details. Collectively, the numbers exceed over a million incidents of vulnerable information. The security branch is working with the human resources office to mitigate the identified vulnerabilities.

Physical Operational Security

APHIS oversees and implements precautionary measures to ensure continued, efficient mission operations, and protection from disruption, degradation, or destruction of its facilities through the Physical and Operational Security (POS) program. The program provides year-round security measures, such as physical security upgrades, alarms, badging and identification systems, guard services, security assessments, safety and risk assessments, workplace violence training, and investigations of both internal and external threats. These measures protect APHIS employees, visitors, and stakeholders from harm, acts of terrorism, and violence. In addition, this program supports part of the USDA's contribution to the U.S. Department of State's continuing implementation of the Capital Security Cost Sharing program, which provides safe and secure workplaces for all government employees located overseas.

The POS program provides numerous security trainings to Agency employees. In FY 2018, the program provided training to more than 2,150 Agency employees, including seminars relating to active shooter response, situational awareness, scenario-based role playing, illegal drugs, self-defense, terrorism, local crime trends, and travel safety. The program also provided workplace violence training seminars and multiple security briefings for employees who work along the international border or in foreign countries. In FY 2018, the program redesigned the Workplace Violence Prevention classroom training and developed a booklet to assist employees and supervisors with identifying and preventing workplace violence. To enhance preparedness and response, APHIS continued to require active shooter training for all employees through on-line and classroom based training. In addition, the POS program planned and delivered 12 live active shooter training exercises at the Agency's offices in Beltsville, Maryland; Gunnison, Colorado; Nashville, Tennessee; Gainesville, Florida; Penasco, New Mexico; Raleigh, North Carolina (2); Salmon, Idaho; Challis, Idaho; Minneapolis, Minnesota; Charleston, South Carolina; and Phoenix, Arizona. These scenario-based active shooter training exercises involved more than 1,300 employees and provided a dynamic, interactive exercise for all personnel, as well as participating local law enforcement officers. The APHIS active shooter training plan and materials have been vetted by 40 law enforcement agencies and the nation's leading active shooter private consulting firm. Additionally, in FY 2018 APHIS' training and exercise program was Peace Officer Standards and Training certified in the state of Idaho.

The POS program investigates, assesses, and mitigates all internal and external threats directed at Agency facilities, programs and personnel. These threats include death threats, terrorist threats, and assaults, among others. In FY

2018, APHIS investigated 139 external threats to its employees, and 31 workplace violence incidents. The POS program also works to ensure the safety of employees working at or near the Mexican border, and throughout Mexico, Panama, and Guatemala.

Additionally, the POS program ensures the safety of APHIS employees who enforce the Animal Welfare Act (AWA) and Horse Protection Act (HPA). APHIS security specialists investigate threats and respond to requests for protection throughout the country for APHIS veterinarians and inspectors who are enforcing regulations in challenging environments. With regard to safeguarding APHIS employees entering private property, the POS program provided security during 12 inspections of regulated AWA entities, 71 HPA events, and provided protection for more than 20 personnel representing Federal agencies at a multi-day AWA hearing. The POS program also worked across the agency to develop standard operating procedures for security support for AWA and HPA inspections and investigations.

In FY 2018, the program completed physical security assessments at 184 facilities. Of those facilities assessed, the POS program provided 99 facility security upgrades and repairs, to ensure that the buildings are compliant with Homeland Security Presidential Directive-12 (HSPD-12) and the Interagency Security Committee (ISC) recommendations. The HSPD-12 and ISC directives create the standard for secure and reliable forms of identification for facility/network access and compliance regarding physical security at Federal facilities. Additionally, the POS program was responsible for issuing, activating, or updating approximately 7,000 personal identification verification (PIV) cards, bringing APHIS employees in compliance with PIV use.

In FY 2018, the program provided post-hurricane (Maria) security support in Puerto Rico, conducting physical security assessments and supporting transportation of supplies to APHIS offices across the island in fall 2017, and assessed APHIS facilities directly affected by Hurricane Florence in North Carolina in September 2018. These assessments sought to determine physical damage, safety of personnel, locate personnel who had not been reached, and address any possible security threats from these storms. As a result, the program immediately addressed any building deficiencies before confirming that the facilities were back up to security standards.

The program also works with other USDA agencies, the U.S. Department of Justice, U.S. Department of Homeland Security, the U.S. Department of State, and local law enforcement agencies to ensure that the appropriate organization takes the lead, contributes to program costs, and integrates security where employees are co-located overseas. APHIS maintains a presence overseas to facilitate agricultural trade and monitor pest and disease threats. The Security Embassy Construction Counterterrorism Act's Capital Security Cost Sharing Program requires the Agency to help fund the construction of New Embassy Compounds based on the number of authorized positions. In FY 2018, the POS program worked with the U.S. Department of State to establish a security baseline for APHIS facilities overseas. In FY 2018, APHIS had approximately 350 full-time employees based in countries around the world. This program provides safe and secure diplomatic facilities for the Agency's overseas personnel.

Rental and Department of Homeland Security Payments

This account supports costs associated with leased, owned, and rented space the Agency uses to safeguard the health and value of U.S. agriculture and natural resources. The account funds approximately 230 locations associated with General Services Administration (GSA) leases, Department of Homeland Security (DHS) payments, as well as other leased, owned, and agreement funded facilities annually. The funding allows APHIS programs to continue carrying out mission-related activities, including surveillance for animal and plant pests and diseases, pest and disease eradication programs, diagnostic and methods development work at laboratories, animal welfare inspections, and wildlife damage management activities, without diverting fiscal resources from operations to cover these costs.

APHIS continued to take steps to better utilize space within its facilities and offices in FY 2018. For example, the agency continued to pursue a space transformation in the Raleigh hub with a pending lease award in early FY 2019. To maximize the available space at this hub, APHIS is incorporating a number of space management practices in accordance with USDA's design guidelines such as 36 square foot workstations, 120 square foot offices, and several small meeting areas. APHIS is also finalizing a space utilization review of the Riverdale hub. APHIS also supported the Department's goals of consolidation and colocation. For example, the agency collocated its New Mexico office with the Forest Service office in Albuquerque, New Mexico. Even with these efforts, the APHIS footprint increased overall by 27,399 square feet in FY 2018 due to establishing offices in support of emergency programs to address European cherry fruit fly and spotted lanternfly.

APHIS will continue efforts to strategically manage its space portfolio in FY 2020.

Multi-Agency Coordination (Mac) Group

Selected Examples of Recent Progress in Multi-Agency Coordination Group:

Huanglongbing

Huanglongbing (HLB) is a serious citrus disease that threatens U.S. citrus production valued at approximately $3.3 billion in 2017 (National Agricultural Statistics Service). HLB is widespread in Florida resulting in higher production costs, lower yields, and lower productive acreage. Additionally, the disease is present in all of Texas' citrus producing areas and residential areas of Los Angeles, Orange, and Riverside Counties in California. HLB's insect vector, the Asian citrus psyllid (ACP), is widespread in urban areas in southern California, threatening the State's more than $2 billion citrus industry. ACP is also present in Arizona, Nevada, Texas, Louisiana, Alabama, Georgia, Florida, and South Carolina. APHIS established the HLB Multi-Agency Coordination (MAC) response framework in December 2013 to help address the citrus industry's immediate and long-term needs in dealing with this devastating disease. In addition to APHIS, the MAC is comprised of representatives from USDA's Agricultural Research Service, National Institute of Food and Agriculture, and Office of Pest Management Policy; the Environmental Protection Agency; State departments of agriculture in Florida, Arizona, California, and Texas; citrus research organizations in California and Texas; and citrus industry organizations in Florida, California, and Texas. Since FY 2014, the HLB MAC group has funded a total of 59 projects carried out by State cooperators, universities, private companies, and Federal agencies. The projects have focused on strategies for vector control, therapies for infected trees, sustainability of new plantings, early detection technologies, best management practices for citrus groves, and support for the development of HLB-resistant citrus varieties.

In FY 2018, the HLB MAC funded 15 new projects, and supported several meetings convened to enhance research efforts on finding a cure for HLB. In FY 2018, the HLB MAC coordinated research efforts between citrus research funding organizations, enhanced collaboration between citrus breeders, and addressed barriers to efficient advancement of research programs. Additionally, HLB MAC continued to support projects on therapeutics for HLB-infected trees, including additional work on thermotherapy and field testing of new chemicals. HLB MAC also supported projects that field tested potentially resistant or tolerant citrus varieties. Early detection technologies for HLB remain a focus for the HLB MAC, especially in California. The HLB MAC supported projects to train HLB detector dogs and conducted a review of early detection technologies. Control of ACP continues to be a top priority for the HLB MAC. In FY 2018, the HLB MAC provided funding for projects on biocontrol efforts, attract and kill technologies, and completed a review of impacts of biocontrol on ACP populations.

Over the last several years, HLB MAC funded projects have:

- Tripled the production and release of ACP-killing wasps, from 4 million to 12 million per year. These wasps have reduced ACP populations by more than 50 percent in Texas and as much as 99 percent around California release sites.

- Removed nearly 6,000 acres of abandoned groves in Florida through a demonstration project showing that eliminating uncontrolled ACP habitat can help prevent pest and disease spread and prompting State legislation to incentivize further removal of abandoned groves.
- Trained and field tested canines to detect HLB in commercial and residential settings and will begin field testing the dogs in California in FY 2019.
- Applied thermotherapy to more than 3 million HLB-infected trees in Florida to extend trees' productive life by promoting new growth and slowing the progress of the disease.
- Helped move thermotherapy technology to market by delivering a prototype machine to growers who used the design to build their own machines and private companies who improved the technology and now offer thermotherapy services.
- Developed soil acidification technology that could be used on a broad scale to lower the pH of infected tree roots, helping to improve overall tree health and production.
- Saved growers from investing in ineffective technologies by researching and disproving claims that adding microbials to grove soil would improve tree growth.
- Field tested two antimicrobial treatments to improve the overall health and quality of infected trees. Florida then used that data to obtain a Section 18 exemption from the Environmental Protection Agency, allowing them to use antimicrobials on an emergency basis.
- Initiated a rapid propagation project to accelerate field testing of 35 varieties of HLB-tolerant mandarin and sweet orange trees, which will make them available 2 years earlier than traditional propagation practices.

Growers are using one out of every three HLB MAC-funded shovel-ready technologies today. The 2017 hurricanes interrupted what had promised to be the first increase in production in Florida in a decade as growers have implemented HLB MAC funded tools in their grove management. Early signs from the 2018 growing season are indicating a recovery from Hurricane Irma and an increase in production. APHIS will continue working closely with partners in industry, private research, state department of agriculture, and other government agencies to support continued development of tools to address HLB.

Emergency Activities Funded by Transfers From Commodity Credit Corporation

Selected Examples of Recent Progress in Transfers from Commodity Credit Corporation

Avian Influenza

In FY 2018, APHIS spent approximately $1.6 million in Commodity Credit Corporation funds to finalize payments to poultry producers impacted by the avian influenza (AI) outbreaks that began in 2015. During the outbreaks and responses, approximately 50 million birds were affected and either died from the disease or were euthanized. APHIS paid indemnity for commercial flocks affected by all highly pathogenic avian influenzas and for some low pathogenic forms of the disease when they posed a high risk of further mutation and impact on the flock. The Agency's actions in this emergency program served to safeguard U.S. poultry and egg producers and reduce the effects of AI on agriculture and public health, while also enhancing readiness for other animal health emergencies.

Bovine Tuberculosis

In FY 2018, APHIS spent $2.5 million in Commodity Credit Corporation funds (CCC) on tuberculosis (TB) eradication activities. In FY 2018, APHIS identified four TB affected beef herds: two in Michigan, one in Nebraska, and one in South Dakota. APHIS identified one TB affected dairy herd in Texas. APHIS used CCC funds to conduct test-and-remove protocols and depopulation activities in accordance with each herd's management plan. While the two Michigan herds were depopulated with State funding, all other herds were depopulated using Federal CCC funds.

The detection of these herds demonstrates the effectiveness of APHIS' surveillance system. To respond to TB detections, APHIS works closely with State animal health officials to quickly identify any cattle that may have come into contact with the infected herds, and conduct thorough trace back investigations. In addition, the States work closely with the herd owners involved, as well as the State dairy industry, to ensure the disease is quickly contained, and affected owners can return to normal business practices as soon as possible.

Spotted Lanternfly

Spotted lanternfly (SLF) is an invasive insect that damages a wide range of plants by feeding on them and depositing a sticky residue that facilitates growth of sooty mold and reduces photosynthesis, the process by which plants use sunlight to create foods, ultimately reducing the nutrients available to the plants. Crops at risk from SLF damage include grapes, apples, and hops, among others. SLF can move on non-agricultural pathways, such as rail cars and truck trailers as well as numerous materials that may be moved on those conveyances and even in private vehicles.

In FY 2018, APHIS and cooperators used $11.01 million in emergency funds to address an SLF infestation in the southeast portion of Pennsylvania (which extends into New Jersey Maryland and Delaware). The program used appropriated funds and funding available under Plant Pest and Disease Management and Disaster Prevention Program to address a smaller infestation in Virginia and to conduct surveys in other states. Additional states have reported isolated detections of the pest but have not detected any reproducing populations.

APHIS and the Pennsylvania Department of Agriculture developed an area-wide management strategy for SLF that includes control, survey, and outreach activities. The area-wide management strategy includes conducting visual detection surveys of all life stages of SLF on tree of heaven trees during fall and winter months at high-risk locations near infested areas. High-risk locations include grape vineyards, tree fruit orchards, wholesale and retail distributors of natural and artificial outdoor products, energy and transportation right-of-ways, construction companies and contractors, landscapers, logging operations and firewood dealers, and locations with high densities of tree of heaven. In FY 2018, APHIS conducted visual surveys at more than 34,000 points (each survey point consists of five or more trees in a given location) to determine the outer edge of the infestation. Following the visual surveys, APHIS assessed 4,187 properties covering 22,975 acres and completed treatments on 339 properties covering more than 13,000 trees. APHIS will evaluate the effectiveness of the control strategy through tracking population levels in summer 2019.

Farm Bill

The Agricultural Act of 2014 consolidated two of APHIS' Farm Bill programs under Section 10007: Plant Pest and Disease Management and Disaster Prevention Program (formerly Section 10201 of the Food, Conservation, and Energy Act of 2008) and the National Clean Plant Network (NCPN) (formerly Section 10202 of the Food, Conservation, and Energy Act of 2008). This authority was codified in Section 7721 of the Plant Protection Act. For FY 2018, the Farm Bill provided approximately $75 million for the consolidated program. These funds are subject to the sequester of mandatory funds ($4.95 million in FY 2018).

Through the program, APHIS funds projects for early plant pest detection and surveillance, identification and mitigation of plant pests and diseases, and technical assistance in the development and implementation of audit-based certification systems and nursery plant pest risk management systems. Since 2014, APHIS has funded more than 1,849 projects in 50 States and 3 U.S. territories with approximately $228 million, strengthening the Agency's and cooperators' abilities to protect U.S. agriculture and natural resources from foreign pest threats. In addition, the NCPN provides reliable sources of pathogen-free planting stock of high-value specialty crops. Since its inception in 2008, the NCPN, through its Cooperative Agreements Program, has provided about $44 million in support of 39 initiatives at 28 clean plant centers or programs and in 19 States and U.S. Territories. These initiatives span commodities ranging for fruit trees, grapes, citrus, berries, hops, sweet potato, and roses.

Plant Pest and Disease Management

APHIS and cooperators have identified six major strategies (the first with two sub-goals) to implement Plant Pest and Disease Management efforts: 1a) enhancing plant pest/disease analysis; 1b) enhancing plant pest survey; 2) targeting domestic inspection activities at vulnerable points; 3) enhancing pest identification tools and technology; 4) developing programs to safeguard nursery production; 5) enhancing outreach and education; and 6) enhancing mitigation capabilities. APHIS funded 466 projects in FY 2018, supporting a variety of Federal, State, academic, Tribal, and private entity stakeholders.

Enhance Plant Pest/Disease Analysis

Under this goal, APHIS supports projects that compile, synthesize, or evaluate data to inform or enhance risk and pathway analysis, surveillance methodology, or resource prioritization. Examples include the development of analytical models to identify and prioritize exotic pests for survey and response, enhancement of assessment models on the impact of exotic mollusks, development of integrative spatiotemporal risk maps of exotic fruit flies, and evaluating the risk of spread of *Phytophthora ramorum* through population genetic analysis. In FY 2018, the program provided approximately $2.2 million for 27 projects in this goal area.

Enhance Plant Pest Survey

Under this goal, APHIS supports surveys for multiple, high-risk pests in port environs, across pathways of introduction, and in specialty crop commodities nationally. These surveys protect and help small growers and nursery owners avoid control costs through a more rapid and thorough detection of pests that threaten their operations. One key project is the National Survey Supply Program that oversees timely procurement and delivery of quality survey supplies, such as traps and lures, to APHIS and State cooperators. In FY 2018, the National Survey Supply Program used Farm Bill funds to distribute more than 1.8 million different plant pest trap and lure units to all 50 states and 3 territories; and executed approximately 350 different trap and lure procurement orders. The orders

consisted of more than 100 different products to support the various detection and surveys that APHIS and State Cooperators conduct. These surveys complement those the Cooperative Agricultural Pest Survey conduct, and have expanded the number and scope of pest survey activities across the United States as well as help demonstrate our country's freedom from certain high-risk pests. In FY 2018, this program supported 193 multi-pest surveys and 276 unique pests targeted for survey in 48 States and one territory. These included commodity surveys of apple, grape, stone fruit, palm, solanaceous, small fruit and berries, and other orchard crops, as well as surveys for Asian defoliators, exotic woodborers, bark beetles and other forest pests, cyst nematodes, mollusks, and pathway surveys covering multiple agricultural systems. Overall, the program provided approximately $14.4 million for 162 projects in this goal area, including approximately 90 commodity- and taxon-based surveys targeting 80 different pests.

Targeting Domestic Inspection Activities at Vulnerable Points

Under this goal, APHIS supports domestic inspection activities at high risk sites (e.g., warehouses and parcel facilities), inspects regulated articles moving interstate, and uses trained canine detection teams to improve detection capabilities. Developing these cooperative efforts with State agriculture regulatory agencies helps minimize impacts to producers and distributors of agricultural commodities. In FY 2018, the program continued to support canine team efforts in California where 14 teams work at Express Couriers and U.S. Postal Service offices in 10 counties, and in Florida where 6 teams work at Express Couriers in 4 counties and are cross trained to detect giant African snails. With their keen sense of smell, dogs can detect hidden agricultural products at an accuracy rate higher than 90 percent. The program uses canine teams to enhance capacity for early detection and better response to exotic pests found during surveys; increases liaison between State and Federal cooperators by reviewing, developing, and implementing educational programs; provides additional resources at high-risk areas within the State for inspection; and benefits inspections at parcel service locations to enhance interdiction efforts. Overall, the program provided approximately $5.75 million for four projects in this goal area in FY 2018.

Enhance Pest Identification Tools and Technology

Under this goal, APHIS supports the ongoing development of improvements in pest identification and detection. This includes improved identification capacity and taxonomic understanding of groups of organisms, taxonomic support for surveys targeting high consequence pests, and the development of pest detection technology. Through this goal area, the program supports the Regional Identification Center for Bark Beetle and other wood boring beetles in Oregon, the Regional Pulse Crop Diagnostic Laboratory in Montana, and the Western States Lepidoptera Diagnostic Center. Other projects include training for state diagnosticians at National Plant Diagnostic Network laboratories, Fungal specimen imaging as a diagnostic reference tool for rusts and smuts, and the effort to enhance taxonomic and molecular diagnostics capacity for fruit flies, among others. APHIS spent approximately $6.2 million on 75 projects in support of this goal in FY 2018.

Developing Programs to Safeguard Nursery Production

Under this goal, APHIS supports projects to develop science-based best management practices and risk mitigation practices to exclude, contain, and control regulated pests from the nursery production chain, and developing and harmonizing audit-based nursery certification programs. These activities help small producers and distributors establish best management practices for mitigating pest risks, reducing operational costs, and enhancing the value of nursery stock they produce. Examples of projects funded in FY 2018 include continued support for the National Ornamentals Research Site at Dominican University of California, audit training for State and Federal personnel on Plant Pest Management Accreditation, an assessment of the virus status of legacy registered apple rootstock stoolbeds under certification, and harmonized systems approaches for nursery certification in the Pacific Northwest. The program also supported the Systems Approach to Nursery Certification (SANC) pilot program. SANC brings together the National Plant Board and nursery industry groups to promote audit-based programs for nursery stock to reduce the risks of pest spread. The program provided approximately $2.1 million for 21 projects in this goal area in FY 2018.

Enhancing Outreach and Education

Under this goal, APHIS works to engage the public in early detection efforts by strengthening existing volunteer networks. APHIS emphasizes efforts that can lead to behavior changes among the public and the regulated community to prevent the introduction or spread of high-consequence pests into and throughout the United States. FY 2018 projects in this goal area include raising invasive species awareness among the Kaibab Paiute tribal lands, supporting outreach campaigns informing the public of exotic pest threats associated with the movement of firewood, and a variety of programs across several States designed to engage youth in invasive species reporting efforts. Overall, the program provided approximately $3.75 million for 64 projects in this goal area in FY 2018.

Enhance Mitigation Capabilities
Under the goal of enhancing mitigation capabilities, APHIS provides technical assistance prior to, during, and immediately following a plant pest outbreak, develops new mitigation tools and strategies, and increases emergency preparedness through the development of New Pest Response Guidelines and Incident Command System training. Some of these efforts provided support for developing new methods or treatments for economically significant pests including exotic fruit flies, giant African snail, and Coconut Rhinoceros beetle. These projects also include an effort to explore the use of unmanned aircraft for sterile insect technique release, survey and treatment in response to invasive plant pests, including the Asian Long-horned Beetle. FY 2018 projects also included continued support for the coordinated response to spotted lanternfly, a plant pest detected in Pennsylvania for the first time in FY 2014. It threatens grapes, apples, and stone fruit, as well as more than 70 types of ornamental and woody trees. In FY 2018, Federal, State, and local officials in Pennsylvania continued efforts using tree-banding, egg scraping, pesticide applications, and host treatments and removals to control the pest. APHIS and cooperators are also continuing development of biological control programs against spotted lanternfly and other methods that may be crucial for long-term management of the pest. The program expanded activities to Delaware, New Jersey, and Virginia due to population finds in those States in FY 2018. APHIS spent approximately $28.5 million on 113 projects in this goal area in FY 2018.

National Clean Plant Network (NCPN)
In FY 2018, APHIS used $6.5 million in Section 10007 funds to provide NCPN support to qualified clean plant centers through a cooperative agreements program. The application process allowed stakeholders to offer input into projects proposed for funding through pre-proposals, which are designed to help clean plant centers prioritize and harmonize their resourcing requests. As a result, APHIS entered into 26 cooperative agreements with clean plant centers and related entities in 16 States and one U.S. territory (Puerto Rico). The clean plant centers that receive NCPN funding are using the resources to: 1) diagnose for harmful pathogens that cause disease in covered specialty crops; 2) apply therapeutic measures to eliminate these pathogens; 3) establish plantings of clean plant 'starter' material and make this material available to nurseries and growers; 4) work with nurseries and growers in education/outreach programs to communicate the economic value to industry of using clean nursery stock; 5) advance quality management initiatives to further strengthen confidence in program processes and products, and 6) engage in the process of establishing and governing a network of collaborative clean plant centers. These activities will result in clean plant centers providing additional sources of healthy planting stock for fruit trees, grapes, citrus, berries, and hops -- as well as sweet potato and roses. This healthy planting stock will be available to nurseries, growers, breeders, and others, ensuring that they have access to clean plant material necessary to sustain their businesses, maintain productivity, and improve the quality of their products.

Since the program's inception, the clean plant centers on an annual basis have helped the following commodities:

Fruit Trees
Maintain approximately 2,250 clean fruit tree accessions in foundations (blocks of pathogen-tested plant materials) that have delivered more than 500,000 cuttings, scions, and plantlets as well as more than 1.7 million buds to nurseries and growers.

Grapes
Maintain approximately 1,000 selections of clean grapevine accessions in foundations and distribute more than 700,000 clean grape-wood cuttings, buds, plants, or special seed to industry.

Berries
Diagnose and clean approximately 75 new berry accessions annually and maintain clean plant foundations that provide mother plants to industry that have produced nearly 30 million clean berry plants annually.

Citrus
Maintain approximately 1,000 clean citrus tree accessions in foundations and deliver 'starter material' to industry that has resulted in more than 60 million clean citrus trees over the past 9 years.

Hops
Maintain more than 50 clean hop selections in foundations that are used to accommodate about 30 percent of the world's need for clean hops. The program has distributed more than 5,000 clean propagative units to industry; each unit can be expanded rapidly to provide thousands of plants for planting annually.

Sweet potato
Add approximately 40 new sweet potato accessions annually to existing foundations, with 170 accessions currently available for use by industry in addition to numerous heirlooms and introductions maintained. Clean plant centers delivered more than 200,000 clean plants to industry in 2017-2018.

Roses
Continued advanced testing of approximately 600 rose selections currently maintained in foundations, with 6 acres currently housing rose clean plant material with a goal of reaching an industry need of 15 acres in foundational material.

Table APHIS-17. Summary of Key FY 2018 CCC Funded Emergency Activities

Emergency/Activity	Total Available [a]	Total Obligations
Avian Influenza	$100,163,552	$1,583,843
Bovine Tuberculosis	24,040,797	2,583,237
Novel Enteric Coronaviruses	3,889,587	2,143,117
Spotted Lanternfly	17,525,863	11,011,247
Farm Bill	70,269,649	66,105,054
Total	$215,889,448	$83,426,498

[a] Total Available includes account recoveries, where applicable.

ACCOUNT 2: BUILDINGS AND FACILITIES

LEAD-OFF TABULAR STATEMENT

Table APHIS-18. Lead-Off Tabular Statement

Item	Amount
2019 Annualized Continuing Resolution	$3,175,000
Change in Appropriation	-466,000
Budget Estimate, 2020	2,709,000

APPROPRIATIONS LANGUAGE

The appropriations language follows (new language underscored; deleted matter enclosed in brackets):

For plans, construction, repair, preventive maintenance, environmental support, improvement, extension, alteration, and purchase of fixed equipment or facilities, as authorized by 7 U.S.C. 2250, and acquisition of land as authorized by 7 U.S.C. 428a, $2,709,000, to remain available until expended.

PROJECT STATEMENT

Table APHIS-12. Project Statement (thousands of dollars, staff years (SY))

Item	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	Inc. or Dec.	SY	2020 Budget	SY
Discretionary Appropriations:										
Buildings and Facilities	$3,175	-	$3,175	-	$3,175	-	-$466	-	$2,709	-
General Provision 743 Fruit Fly Rearing Facility	47,000	-	-	-	-	-	-	-	-	-
Total Appropriations	50,175	-	3,175	-	3,175	-	-466	-	2,709	-
Recoveries	17	-	25	-	-	-	-	-	-	-
Balance Available, SOY	755	-	49,149	-	43,574	-	-325	-	43,249	-
Total Available	50,947	-	52,349	-	46,749	-	-791	-	45,958	-
Balance Available, EOY	-49,149	-	-43,574	-	-43,249	-	+42,456	-	-793	-
Total Obligations	1,798	-	8,776	-	3,500	-	+41,665	-	45,165	-

JUSTIFICATION – BUILDINGS AND FACILITIES

(1) A decrease of $466,000 for the Buildings and Facilities account ($3,175,000 available in FY 2019).

The Buildings and Facilities (B&F) program addresses APHIS' facility needs in support of the Agency's mission to protect the health and value of agriculture and natural resources nationwide. The program's goal is to systematically address the Agency's needs for maintaining and repairing existing facilities, as well as constructing new facilities. APHIS' Facility Condition Index (FCI) drives the projects; the FCI is the sum of the costs of needed repairs divided by the replacement value of the facility. APHIS strives to maintain an FCI for facilities assessed of less than 0.10, meaning that the cost to make repairs is less than 10 percent of the estimated replacement value for the facilities.

This program serves a vital role in maintaining APHIS' facilities so that employees can continue to carry out their responsibilities in a safe and efficient manner. The commitment to maintain the condition and functionality of facilities is an ongoing process that demands significant management of capital resources. The program manages the implementation of scheduled facility improvements, security, construction, and maintenance. Contractors perform inspections and tests to substantiate that the supplies or services furnished under the contract conform to contract requirements. In addition, a design firm validates that the work aligns with approved plans and specifications. APHIS typically identifies on-site certified personnel to perform the contracting services. The Agency's engineering staff attends on-site construction progress meetings, and APHIS collects performance data through contractor reports and on-site verification.

In FY 2018, APHIS awarded 39 design/construction tasks associated with projects at a cost of approximately $3.9 million and completed 18 construction projects. Approximately 40 percent of these repairs were major renovations and 60 percent were minor repairs. Among these projects were the modernization of an agency facility in Gainesville, Florida; deconstruction of a building in Ames, Iowa; and replacing a laboratory chiller at Moore Air Base in Edinburgh, Texas.

Without the B&F program, APHIS would be unable to centrally coordinate and prioritize these types of projects. As a result, necessary maintenance and repairs to facilities would not occur unless funded at the expense of an Agency operational activity. This would create program delays, possible environmental consequences, and noncompliance with State and local laws and codes. In addition, it would accelerate the pace of the deferred maintenance backlog and associated cost, which currently exceeds $88 million. Many of APHIS' facilities have specialized functions that support various Federal, State, and local government programs, stakeholders, and customers. B&F projects ensure that APHIS' programs can be conducted at safe, secure, sound, sustainable, and high-performance facilities that support APHIS' mission.

This program supports USDA's goal to ensure USDA programs are delivered efficiently, effectively, and with integrity. In FY 2020, the Agency will use funds to continue conducting the necessary maintenance, repairs, and renovations identified during the facility condition assessments at approximately 13 APHIS facilities.

Approximately 99 percent of the B&F funding supports indefinite delivery, indefinite quantity contracts (e.g., architect and engineering support) and construction contracts. These contracts, which provide for an indefinite quantity of supplies or services during a fixed time period, help streamline the contract process and expedite service delivery. The remaining funds support operating costs.

A) Reduction in funding for maintenance and repairs (-$466,000)

At the requested level, APHIS will reduce funding available for the maintenance and repair of its facilities. The program will continue to centrally coordinate and prioritize facility improvement projects using the remaining available funds.

GEOGRAPHIC BREAKDOWN OF OBLIGATIONS AND STAFF YEARS

Table APHIS-20. Geographic Breakdown of Obligations and Staff Years (thousands of dollars, staff years (SY))

State/Territory	2017 Actual	SY	2018 Actual	SY	2019 Estimate	SY	2020 Budget	SY
Arizona	$32	-	-	-	$86	-	$90	-
California	-	-	-	-	71	-	75	-
Colorado	90	-	$25	-	100	-	75	-
Florida	79	-	-	-	540	-	400	-
Idaho	34	-	194	-	-	-	-	-
Iowa	1,195	-	32	-	801	-	736	-
Maryland	88	-	132	-	90	-	100	-
Massachusetts	47	-	1,700	-	46	-	46	-
Michigan	-	-	12	-	-	-	-	-
Mississippi	-	-	-	-	71	-	71	-
Montana	-	-	20	-	-	-	-	-
New York	102	-	-	-	238	-	250	-
North Carolina	19	-	-	-	-	-	-	-
South Carolina	-	-	33	-	-	-	-	-
Texas	112	-	6,566	-	1,457	-	43,322	-
Utah	-	-	41	-	-	-	-	-
Wyoming	-	-	20	-	-	-	-	-
Obligations	1,798	-	8,775	-	3,500	-	45,165	-

CLASSIFICATION BY OBJECTS

Table APHIS-21 Classification by Objects (thousands of dollars)

Item No.	Item	2017 Actual	2018 Actual	2019 Estimate	2020 Budget
	Other Objects:				
25	Other contractual services	$1,798	$8,775	$3,500	$45,165
	Total Direct Obligations	1,798	8,775	3,500	45,165

STATUS OF PROGRAMS

The Buildings and Facilities (B&F) appropriation funds major, nonrecurring, construction projects in support of program activities, and recurring construction, alterations, and repairs of existing facilities. These projects and activities allow other programs and employees to focus on APHIS' mission of protecting the health and value of agriculture, and natural resources nationwide. The goal of the B&F program is to systematically address the Agency's needs for maintaining and repairing existing facilities, as well as constructing new facilities. APHIS assigns each facility with a Facility Condition Index (FCI), which is the sum of the costs of needed repairs divided by the replacement value of the facility, and uses the FCI scores to determine each year's projects. APHIS strives to maintain an FCI for facilities assessed of less than 0.10, meaning that the cost to make repairs is less than 10 percent of the estimated replacement value for the facilities.

This program serves a vital role in maintaining APHIS' facilities so that employees can carry out their responsibilities safely and efficiently. Maintaining the condition and functionality of these facilities is an ongoing process that demands significant management of capital resources. If the B&F program were not funded, APHIS would redirect resources from program activities for necessary maintenance and repairs to facilities. This would accelerate the pace of the deferred maintenance backlog and associated cost, which currently exceeds $96 million. Many of APHIS' facilities have specialized functions that support various Federal, state, and local government programs, as well as stakeholders and customers. B&F projects ensure that APHIS' programs can be conducted at safe, secure, sound, sustainable and high-performance facilities that support the Agency's mission.

APHIS' B&F program maximizes its efficiency through comprehensive construction projects. The Agency spends approximately 99 percent of its funding on indefinite delivery, indefinite quantity, and construction contracts. These contracts, which provide for an indefinite quantity of supplies or services during a fixed time period, help streamline the contract process and expedite service delivery. Remaining B&F funds support information technology projects (i.e., Facilities Capital Planning and Management software).

Facilities Condition Assessment

In FY 2000, APHIS began a comprehensive Facilities Condition Assessment program to: better understand the condition of facilities, strategically maintain them by identifying deficiencies and funding needs, stabilize the facilities repair backlog, predict maintenance needs, and implement financial management and capital asset improvement efforts. The consulting firm tasked with assessing APHIS' facilities has an automated process for assessing the relative condition of assets, and facilitating comparisons both within and among facilities. The consulting firm calculates an FCI for each facility by program and Agency. At the end of FY 2018, the FCI for the 47 facilities assessed was 0.13, meaning the cost to correct currently identified and anticipated deficiencies is 13 percent of the estimated replacement value for the 47 facilities. Of these 47 facilities, 26 scored above a 0.10 and 21 scored below a 0.10. The Agency strives to maintain an FCI below 0.10.

Summary of Current Projects

The B&F program implements scheduled improvements, and conducts security, construction, and maintenance activities. Contractors perform inspections and tests to substantiate that the supplies or services furnished under the contract conform to contract requirements. In addition, a third party design firm validates that the work aligns with approved plans and specifications. APHIS typically identifies on-site certified personnel to perform the Contracting Officer's Representative services. The Agency's engineering staff attends construction progress meetings in person, on-site, or virtually and APHIS collects performance data through contractor reports and on-site verification.

As of October 2018, APHIS' B&F Appropriation supports 12 active projects. In FY 2018, APHIS awarded 39 design/construction tasks associated with projects at a cost of approximately $3.9 million, and completed 18 construction projects. Approximately 40 percent of these repairs were major renovations and 60 percent were minor repairs. Among these projects were the modernization of an agency facility in Gainesville, Florida; deconstruction of a building in Ames, Iowa; and replacing a laboratory chiller at Moore Air Base in Edinburgh, Texas.

National Wildlife Research Center (NWRC) Field Station Modernization Project, Gainesville, Florida

In FY 2018, APHIS completed modernizations to the laboratory at the NWRC Florida Field Station. These updates expanded space, infrastructure, and capacity to support activities related to reducing damages from feral swine and emerging research needs. The agency completed renovations that addressed deficiencies (e.g., asbestos-containing materials, laboratory exhaust systems, fire alarm and suppression) and brought the facility into compliance with the Americans with Disability Act, and modernized business practices within the facility. The project began in FY 2013 with an architectural and engineering firm developing a program of requirements. The program awarded a contract in FY 2014, and work was completed in FY 2018.

National Centers for Animal Health, Out Building Deconstruction, Ames, Iowa

APHIS deconstructed Buildings #404, 405, 413, 414, 415, and 416 at the National Centers for Animal Health. APHIS awarded the deconstruction contract in FY 2017. Deconstructing these unused buildings supports the government-wide goal of reducing the Federal real property footprint. The full deconstruction was complete during the fourth quarter of FY 2018.

General Provision 743

The FY 2017 Consolidated Appropriations Act provided $47 million to APHIS, through a General Provision, within the Buildings and Facilities account for fruit fly rearing facilities. APHIS will use the funding to replace the Mexican fruit fly (Mexfly) rearing facility at Moore Air Base, in Edinburg, Texas. The current facility is more than 30 years old and, despite upgrades, it often incurs production losses due to aging infrastructure and building environmental problems that prevent the facility from meeting the capacity needed for sterile Mexfly releases. High temperatures and humidity in the facility facilitate the growth of mold in the heating, ventilation, and air conditioning system, and the interior of the building, including doors, door hardware, flooring, ceilings, air registers, and other hardware, is in need of repair or replacement. Once complete, the new facility will produce and rear sterile Mexflies, encompassing their entire lifecycle up to releases in the field. The proposed building design would increase size and capacity of the facility. APHIS plans to increase sterile Mexfly production from a current maximum of 150 million sterile Mexflies per week to approximately 400 million per week, the amount needed to exclude this pest from the Lower Rio Grande Valley, protecting Texas and other vulnerable areas of the United States. APHIS has developed a program of requirements for the facility and engaged the United States Army Corps of Engineers (ACOE) to manage the construction process through an interagency agreement. In FY 2018, APHIS provided approximately $4.5 million to ACOE to award and administer a contract for the design of the new facility. APHIS also used $200,000 for design and production of equipment for use at the new facility. USACE awarded the design contract on October 1, 2018. The design phase will take approximately one year.

AGENCY-WIDE PERFORMANCE

SUMMARY OF PERFORMANCE

The Secretary of Agriculture established the Animal and Plant Health Inspection Service (APHIS) on April 2, 1972, under the authority of the Reorganization Plan No. 2 of 1953 and other authorities. The mission of the agency is to safeguard the health, welfare and value of American agriculture and natural resources. APHIS employs a broad range of programs and unique authorities to deliver this mission. Together with its stakeholders, APHIS promotes the health of animal and plant resources to ensure abundant agricultural products and services for U.S. customers. APHIS monitors and responds to potential diseases of livestock and wildlife, invasive species, suspected acts of agricultural bio-terrorism, and conflicts between humans and wildlife as it strives to assure its stakeholders that it is on guard against the introduction or re-emergence of animal and plant pests and diseases that could limit agricultural production. The agency also balances a regulatory system that safeguard agriculture while fostering innovative research and development in the field of biotechnology. In addition, APHIS has protected the welfare of millions of animals used in research, exhibition, and the pet trade as well as those transported in commerce through inspection, education, and enforcement efforts.

APHIS contributes to three of the Department's Strategic Goals. The following table summarizes the results for the Departmental Key Performance Indicators (KPIs) for which APHIS is responsible.

Table APHIS - KPI-Preventing and mitigating spread of agricultural pests and diseases

KPI	2017 Actual	2018 Actual	2018 Target	2018 Result	2019 Target	2020 Target
Number of hours it takes to mobilize resources once it is determined that a Federal emergency response is needed to manage an agricultural outbreak (target of within 24 hours)	24 hours	24 hours	24 hours	Met	24 hours	24 hours
Percentage of high-risk plant pests for which early detection surveys are conducted	96%	96%	93%	Exceeded	95%	95%
Number of National Animal Health Laboratory Network (NAHLN) laboratories that have the capability to electronically message veterinary diagnostic test results to USDA	31	43	35	Exceeded	Retired	Retired

SELECTED PAST ACCOMPLISHMENTS TOWARD THE ACHIEVEMENT OF THE KPI OUTCOMES

APHIS mobilized resources and logistics support for the response to the outbreak of virulent Newcastle disease (vND) in California within 24 hours of determining that a Federal response was needed, helping to prevent additional disease spread and eradicate the disease more quickly. Virulent Newcastle disease is a contagious and fatal viral disease affecting the respiratory, nervous and digestive systems of birds and poultry and was confirmed in California on May 18, 2018. This was the first case of vND in the United States since 2003. As of December 2018, the disease has been found in back yard poultry only and not in the U.S. commercial poultry. APHIS is in the process of reviewing the response to identify opportunities for program improvements.

APHIS and cooperators targeted a total of 128 high-risk plant pests of national concern for survey in corn, oak, pine, small grains, soybean, and nursery crop commodities, as well as exotic wood boring bark beetles and cyst nematodes, among others. These pests represent 96 percent of the total target high-risk plant pests suggested for survey in FY 2018. Because of the surveys, APHIS demonstrated that none of the targeted high-risk plant pests were present in the United States.

In working with Purdue University, APHIS enhanced its current performance data tracking system by creating a tool to analyze the plant pest detection activities and related data. The web-based platform allows program cooperators access to the information in real-time. This enables ongoing evaluation of the data by all partners. Previously, the data was maintained in an extensive spreadsheet format and was not accessible to all cooperators.

NAHLN participants continued to develop their capabilities for electronic messaging of veterinary diagnostic test results to APHIS, increasing the number of laboratories with this capability from 31 in FY 2017 to 43 in FY 2018. Having the test results electronically transferred from the NAHLN labs directly into APHIS data repositories in real-time allows the agency to make informed decisions related to threat response or risk mitigation activities.

SELECTED ACCOMPLISHMENTS EXPECTED AT THE 2020 PROPOSED RESOURCE LEVEL

APHIS will continue to maintain and deploy countermeasures against the most damaging animal diseases within 24 hours and exercise emergency response capabilities with States, territories, and Tribal partners. In FY 2020, the agency will schedule tabletop exercises and trainings in the deployment of resources and response preparedness, ensuring that the agency its partners are prepared to respond quickly and effectively to animal health events.

APHIS will conduct surveys in 50 States and 3 territories for at least 95 percent of high-risk plant pests identified as having pathways into the United States. APHIS' Pest Detection program personnel will evaluate and analyze additional exotic pests, develop survey methodology, and develop pest lists, datasheets, and survey manuals in support of the 2020 National Pest Surveillance Guidelines. States will use this guidance to plan surveys in FY 2020, allowing for the continued documentation of the presence or absence of plant pests and diseases of Federal regulatory significance in the United States and preserving economic opportunities for farmers (i.e., interstate commerce and international trade).