

# Swine Health Business Plan

## Fiscal Years 2014 to 2018

### Animal and Plant Health Inspection Service Veterinary Services

## I. Program Description

### a. Program Objectives

The overarching purpose of APHIS swine health programs is to partner with the States, Industry, allied Federal agencies, and other stakeholders to 1) safeguard the health of the U.S. swine population, 2) facilitate trade in swine and pork products, 3) identify and address health issues that arise in swine, at the human-swine interface, and between wildlife and domestic swine. The objectives to support swine health are:

1. Enhance risk-based comprehensive and integrated surveillance in swine;
2. Continue emergency preparedness and response planning;
3. Collaborate in field disease investigation and control activities to protect swine health;
4. Contribute to zoonotic disease prevention and response;
5. Develop swine health studies and special projects to enhance swine health;
6. Enhance communication and outreach with all stakeholders.

### b. Program Components

Swine health components include the following:

- Comprehensive and integrated surveillance (CIS) and reporting for program diseases (pseudorabies virus (PRV) and swine brucellosis (SB)), endemic diseases, (influenza A virus in swine (IAV-S)), emerging diseases (porcine epidemic diarrhea (PEDv), and foreign animal diseases (classical swine fever (CSF));
- Emergency preparedness and response planning;
- Disease investigation and control activities in the field
- Zoonotic disease prevention and response;
- Swine health studies and special projects; and
- Outreach and communication with stakeholders.

### Comprehensive and integrated surveillance

CIS is designed to integrate existing and new animal health monitoring programs and surveillance activities into a national, comprehensive, and coordinated system. The swine health program has been working on the CIS initiative for the past few years. The swine CIS framework — composed of a veterinary diagnostic laboratory network, data storage and



management system, analytic and reporting tools, field operational resources, and a series of data collection “streams” — is functional. However, enhancement of the information technology (IT) system to support the CIS initiative is necessary for more efficient data collection, transfer, management, processing, and analysis. This component is intended to:

- Facilitate trade and enhance situational awareness of endemic, emerging, and foreign animal diseases through risk based targeted surveillance, certification programs, and or other disease monitoring mechanisms.
- Utilize pathway assessments and the TAIIO (tool for assessing intervention options) process that includes risk assessments and cost-benefit studies to provide information to optimize surveillance streams and sampling strategies in the most cost effective manner to achieve surveillance goals.
- Enhance situational awareness and address animal health issues through cooperative efforts with stakeholders, the Department of Homeland Security, and the Institute for Infectious Animal Diseases (IIAD) at Texas A&M University.
- Monitor diseases in feral swine populations that can impact domestic swine. Feral swine disease monitoring is being transitioned from opportunistic sampling for three swine diseases (PRV, SB, CSF) to more targeted risk-based sampling for five swine diseases (PRV, SB, IAV-S, CSF, porcine reproductive and respiratory syndrome (PRRS)) through cooperative efforts with APHIS-Wildlife Services and the initiation of an APHIS-based National Feral Swine Damage Management Program.

Planned expansion of CIS activities include validation of diagnostic tests and tissues for African swine fever (ASF) and foot-and-mouth disease (FMD), piloting ASF and FMD surveillance in CIS-swine, performance of a TAIIO analysis for CIS surveillance planning and development of performance metrics, continued revision of the CIS surveillance plan, development of a CIS-swine report for sharing with external stakeholders, and consideration of additional diseases to be added to CIS-swine. Enhancement of the IT system to support the CIS initiative is continuing to undergo development and refinement.

### **Emergency preparedness and response planning**

Natural and other disasters, foreign animal diseases (FAD) and emerging diseases can have devastating effects on the swine industry as well as national agriculture. A cooperatively developed strategic plan that will protect animal and human health and ensure situational awareness, disease containment and control, and business continuity needs to be in place and ready for rapid implementation. This component is intended to:

- Develop the ability to gather and analyze data to enhance situational awareness and provide statistically sound information to emergency managers to make better decisions under the pressure of disease outbreaks or disaster incidents.
- Develop collaborative plans for incident response that will include Federal, State, and local animal health professionals and producers to minimize disease spread and facilitate recovery in the face of disease outbreaks or natural or other disasters.
- Continue the cooperative development of a strategy to address business continuity issues and supply-chain concerns in the face of a serious swine health emergency (e.g., Secure Pork Supply (SPS) plan).

- Explore regulatory and nonregulatory measures that can protect swine health or certify absence of disease.
- Engage in regular, transparent communication and collaboration with internal and external stakeholders as appropriate.

Activities will focus on frequent collaboration with stakeholders on strategic emergency planning (including a framework for emerging disease), incident response, and development of training and educational materials. Activities may also include enhancement of the National Animal Health Laboratory Network (NAHLN) capabilities; enhancement of IT system messaging; development, regulation and use of diagnostics; and licensing of vaccines. Additional activities encompass the evaluation of regulatory and non-regulatory options for incident response to emerging diseases, foreign animal diseases and regulated swine diseases.

### **Disease investigation and control activities in the field**

APHIS is cognizant that Federal human resources can quickly be expended during field activities, especially when those activities are associated with disease investigation and control. Collaboration with State Animal Health Officials, accredited veterinarians, and producers to assist in meeting workforce demands will be essential. This component is intended to enhance the growth of cooperative networks of veterinary professionals and swine producers that can work together in investigation, response and control activities to support swine health. Activities will focus on the development of training materials, organization of training exercises, and the continued development of collaborative relationships with producers and animal health professionals at the State and local level.

### **Zoonotic disease prevention and response**

Zoonotic diseases account for more than 60 percent of the infectious diseases that pose a public health threat. About 75 percent of the new diseases that have affected humans over the past 10 years have originated from animals or products of animal origin. Swine can harbor several zoonotic disease agents - influenza A virus, swine brucellosis, trichinellosis, and toxoplasmosis to name a few. This component is intended to establish and safeguard APHIS collaboration with animal and public health partners at all levels to educate, investigate and resolve zoonotic disease issues associated with swine. Activities include management of the voluntary Trichinae herd certification program, and educational efforts and epidemiologic investigations in cooperation with federal, state and local public and animal health partners.

### **Swine health studies and special projects**

Accurate, up-to-date scientific knowledge, enhanced situational awareness, rapid disease detection and appropriate diagnostic tests are critical to APHIS' ability to respond to swine and human health events. This component will provide APHIS with scientifically based tools to support swine health. Proposed activities include the development and validation of various FAD and regulated swine disease diagnostic tests (including oral fluids); accumulation of information on the domestic and feral swine interface in the urban environment; standardization of testing protocols for new and emerging diseases; and

collaboration with the Agricultural Research Service and NAHLN labs to address scientific knowledge needs.

### **Outreach and communication with stakeholders:**

APHIS is enhancing communications and outreach with stakeholders by actively engaging them through various communications mediums. Communication allows stakeholders to provide feedback on program resources, products, and services. This component is intended to improve collaborative work with both internal and external swine health stakeholders. Activities include relevant studies as needed from the National Animal Health Monitoring system (NAHMS) and collaboration on SPS development; future emerging incident strategies; CIS-implementation; an NPIP-like swine health concept used to modify and certify current and future swine programs; and modifications that may be needed in current activities with regulated diseases or certification programs.

## **II. Funding Sources**

Swine health programs are funded through the swine health line. Appropriations for fiscal year (FY) 2013 totaled \$21,277,613. For FY 2014, swine health appropriated funding is \$22,250,000. Swine health funds support swine program activities including prevention, preparedness, response, surveillance, detection, monitoring, communication, containment and continuity of business.

Additional activities that are funded beyond the swine health line include the trichinae certification program (user fees), IAV-S surveillance, and APHIS feral swine initiative (\$1.385 million). The IAV-S funding is expected to be depleted in FY 2016.

## **III. Value of Swine Health Objectives**

Swine health programs and activities managed by APHIS are critical to the maintenance of swine and human health, the domestic food supply, and international trade. The U.S. pork industry is a significant component of the agriculture economy and the overall U.S. economy. In 2013, more than 69,000 pork producers nationwide marketed more than 111 million hogs equaling approximately \$15 billion gross. Overall, an estimated \$21 billion of personal income and \$35 billion of gross national product are supported by the U.S. hog industry. Finally, export trade is extremely important to the pork industry. Last year approximately 26 percent of pork production was exported, and exports of pork continue to grow.

APHIS swine health objectives and activities are devised to safeguard the swine industry and its trade through the periodic collection, analysis, and dissemination of science-based, statistically sound information on animal health, management practices, and productivity in the U.S. swine industry. Enhancement of CIS initiatives are designed to provide situational awareness of diseases and issues that may impact the U.S. swine population. CIS is also designed to facilitate rapid recognition of emerging diseases, foreign animal diseases, and other incidents of consequence to the swine industry so that a prompt situational assessment can be done and a response, if necessary, can be executed to achieve situation control and

minimize economic losses to the industry. Cooperative development of continuity of business plans are intended to address business continuity issues and supply-chain concerns in the face of a serious animal-health emergency.

#### **IV. Strategies By Objective**

APHIS' overall swine health strategy is to continue expanding the implementation of CIS-swine, improving analytical capabilities, developing shared field processes, and refining the system to meet industry needs and APHIS responsibilities in international disease reporting. Open communication and a close working relationships with industry and other external partners is needed to continue with forward progress. VS will collaborate with stakeholders to rapidly investigate and assess emerging swine disease incidents.

##### **Strategy 1. Enhance risk-based CIS in swine.**

###### **1a. FY 2014 activities**

- 1) Develop a pilot CIS-swine surveillance strategy and plan for later assessment through the TAI0 analysis;
- 2) Continue collaboration with States, Tribes, and industry on the use of premises identification for targeting surveillance;
- 3) Complete the transition from LotusNotes data entry and management in the APHIS-VS Kentucky Federal Brucellosis Laboratory;
- 4) Implement electronic messaging of NAHLN laboratory results to APHIS databases;
- 5) Complete a pathways assessment for swine viruses;
- 6) Complete surveillance planning for the FAD (ASF and FMD) surveillance pilot, and initiate FMD and ASF surveillance pilot studies; and
- 7) Modify the IAV-S testing strategy to be more efficient and more effective, and develop alternatives for funding IAV-S activities.

###### **1b. Outyear (FY 2015-2016) activities**

- 1) Complete a TAI0 analysis for CIS-swine surveillance based on disease risk assessments; based on the results, develop a final CIS-swine surveillance strategy and plan;
- 2) Evaluate regulatory and nonregulatory options for the enhancement of swine programs (brucellosis, PRV, emerging disease);
- 3) Complete FAD (ASF, CSF, and FMD) surveillance plan to meet OIE and stakeholder needs;
- 4) Modify CIS-swine strategies based on swine industry needs and National Agriculture Statistics Service (NASS) 2012 census data;
- 5) Continue efforts with NAHLN to develop Laboratory Management System to support CIS-swine;
- 6) If needed, implement a novel swine coronavirus surveillance plan;
- 7) Development of additional diagnostic tests (oral fluids, meat juice) for PRV, SB, CSF, ASF, and FMD surveillance;
- 8) Complete a SB surveillance plan to meet OIE and stakeholders needs;
- 9) Evaluate moving swine brucellosis testing to NAHLN labs;

- 10) Expand whole genome sequencing for additional swine pathogens;
- 11) Discuss an emerging disease framework with stakeholders; and
- 12) Institute additional means for monitoring swine health and swine production information.

**1c. Outyear (FY 2017-2018) activities**

- 1) Institute regular TAIIO analysis updates of CIS-swine;
- 2) Continue evaluation of regulatory and nonregulatory options for swine programs;
- 3) Continue collaboration with external partners for CIS-swine modifications and improvements;
- 4) Develop a concept paper on possible changes for the Swine Health Protection Act;
- 5) Incorporate Wildlife Services' feral swine project testing information into the CIS-swine report;
- 6) Develop additional disease specific surveillance pilots and plans for swine diseases based on assessment of needs and stakeholder input;
- 7) Implement any new diagnostic testing tools (e.g. ropes) for PRV, SB, CSF, ASF, FMD and other emerging diseases for surveillance purposes; and
- 8) Validation of additional biological sample types for ASF, CSF and FMD;

**Strategy 2.** Continue emergency preparedness and response planning.

**2a. FY 2014 activities**

- 1) Build capacity in NAHLN labs for FMD and ASF surveillance;
- 2) Develop additional enhanced passive surveillance streams in collaboration with internal and external partners;
- 3) Continue updating and revising the SPS draft document; and
- 4) Reprint and distribution training materials regarding feral swine and FADs in swine.

**2b. Outyear (FY 2015-2016) activities**

- 1) Initiate implementation exercises for continuity of business plan; and
- 2) Explore better ways to receive, process, and share data between the following databases and or data transfer systems: Emergency Management Reporting System (EMRS), the Laboratory Messaging System (LMS), Surveillance Collaboration Services (SCS) and the VS Kentucky Brucellosis Lab Oracle database.

**2c. Outyear (FY 2017-2018) activities**

- 1) Continue development of EPS surveillance data management; and
- 2) Continue to support implementation of SPS exercises and drills.

**Strategy 3.** Collaborate in field disease surveillance, investigation and control activities to protect swine health

**3a. FY 2014 activities**

- 1) Enhance involvement of VS field epidemiology services with States and industry as needed for swine disease investigations;
- 2) Clarify expectations for documentation of all epidemiologic investigation results; and

- 3) Initiate collaboration with industry on rapid response teams for emerging disease incidents.

**3b. Outyear (FY 2015-2016) activities**

- 1) State/Federal collaboration on implementation of changes to PRV and SB surveillance.

**3c. Outyear (FY 2017-2018) activities**

- 1) Continue development and implementation of additional EPS surveillance activities.

**Strategy 4.** Contribute to zoonotic disease prevention and response.

**4a. FY 2014 activities**

- 1) Continue collaboration with Agricultural Research Service (ARS) and public health officials on IAV-S surveillance development and molecular analysis of data;
- 2) Continue agreements with ARS to continue molecular analysis of IAV-S data;
- 3) Explore options for revisions to the voluntary trichinae certification program to meet impending international guidance changes from Codex and or OIE; and
- 4) Participate in international standard setting for trichinella and other zoonotic parasites in meat.

**4b. Outyear (FY 2015-2016) activities:**

- 1) Revise the current voluntary trichinae certification program to be consistent with any changes in international food safety or OIE standards for trichinae; and
- 2) Participate in international standard setting for trichinella and other zoonotic parasites in meat.

**4c. Outyear (FY 2017-2018) activities:**

- 1) Monitor usage of various classes of antimicrobials used in swine production and collaborate with other government agencies and stakeholders;
- 2) Swine staff participation in international standard setting for zoonotic parasites in meat (includes swine parasites).

**Strategy 5.** Develop swine health studies and special projects to enhance swine health

**5a. FY 2014 activities**

- 1) Continue NAHMS work with emerging diseases (porcine epidemic diarrhea), antibiotic resistance, and swine commodity specific studies;
- 2) Investigate capability of collecting swine premises identification tags in slaughter establishments and using tag information in real time for CIS-swine;
- 3) Develop/enhance an RT-PCR for PRV through collaborative agreement;
- 4) Coordinate ASF positive sample collection through international collaborators to complete a positive cohort study for ASF test validation;
- 5) APHIS Feral Swine Damage Management Project: APHIS will provide general guidance and support for diagnostic tests, testing, and sample collection strategy and

- begin the development of population and disease risk models to estimate potential impacts of feral swine on domestic agriculture animals, including swine; and
- 6) Develop a U.S. animal (swine) movement model and U.S. disease outbreak simulation models that can be used to evaluate the impact of time lags in disease detection, regional differences in size and length of outbreaks, and the impact of movement bans.

**5b. Outyear (FY 2015-2016) activities**

- 1) Conduct a pilot study to evaluate different premises identification number (PIN) tag modalities and their readability in plants;
- 2) Develop quantitative analytic processes for disease specific surveillance strategies;
- 3) Complete positive cohort studies for ASF and FMD diagnostic tests; and
- 4) Continue with activities (oversight and model development) associated with the APHIS Feral Swine Damage Management Project.

**5c. Outyear (FY 2017-2018) activities**

- 1) Develop a DNA microarray technology-based assay that could be used to expedite extraneous agent testing of viral master seeds and master cell lines used in the production of swine vaccines; and
- 2) Continue with activities (oversight and model development) associated with the APHIS Feral Swine Damage Management Project.

**Strategy 6.** Enhance communication and outreach with all stakeholders.

**6a. FY 2014 activities**

- 1) Conduct outreach to Industry, State, and Tribal partners regarding CIS-swine through organized meetings, webinars, conference calls, and collaboration in document development;
- 2) Collaborate with internal and external stakeholders on future emerging incident strategies;
- 3) Develop the format for a CIS-swine report that can be shared externally;
- 4) Continue stakeholder engagement with the SPS development; and
- 5) Continue discussions and collaboration regarding modifications in surveillance activities for regulated diseases.

**6b. Outyear (FY 2015-2016) activities:**

- 1) Explore an NPIP-like swine health program concept with States/Tribes/Industry;
- 2) Continue collaboration with States and industry to improve use of premises IDs for targeting surveillance; and
- 3) Revise the CIS-swine report based on feedback and generate annual report.

**6c. Outyear (FY 2017-2018) activities:**

- 1) Continue refining CIS reporting and information sharing with external stakeholders; and
- 2) Continue collaboration with external partners for CIS-swine modifications and improvements.