U.S. Department of Agriculture
Animal and Plant Health Inspection Service (APHIS)
Veterinary Services
Annual Update from the Cervid Health Team
Fiscal Year (FY) 2016

Voluntary Chronic Wasting Disease (CWD) Herd Certification Program

The APHIS National CWD Herd Certification Program (HCP) was implemented in 2014. It is a voluntary Federal-State-industry cooperative program administered by APHIS and implemented by participating States. The program provides uniform national herd certification standards that minimize the risk of spreading CWD in farmed cervid populations. Participating States and herd owners must comply with requirements for animal identification, fencing, recordkeeping, inspections/inventories, as well as animal mortality testing and response to any CWD-exposed, suspect, and positive herds. APHIS monitors the Approved State HCPs to ensure consistency with Federal standards through annual reporting by the States.

With each year of successful surveillance, herds participating in the HCP will advance in status until reaching five years with no evidence of CWD, at which time herds are certified as being low risk for CWD. Only captive cervids from enrolled herds certified as low risk for CWD may move interstate. Currently, 29 States participate in the voluntary CWD Herd Certification Program and have Approved HCPs. FY 2016 marks the fourth year that Approved States have submitted their CWD HCP annual reports to APHIS. In FY 2016 there were 2,704 enrolled cervidae herds: 2,129 deer, 447 elk and 128 mixed species herds. Of those, there were 2,331 certified cervidae herds: 1789 deer, 421 elk and 121 mixed species herds.

VS PCEP Evaluation

Veterinary Services (VS) conducted an internal evaluation of its Cervid Health Program in 2016 at the request of VS leaders. The evaluation used VS' Program Continuous Evaluation Process (PCEP), a standardized process designed to help VS leaders improve programs and services by examining (1) the program goals with respect to alignment with VS goals, stakeholder needs, program status and allocated resources; (2) the program strategies with respect to suitability for achieving program goals effectively and efficiently; and (3) the program value to stakeholders. A total of 49 stakeholders, including 40 stakeholders external to VS, were asked to provide input to the PCEP evaluation. Seven VS veterinary medical officers and one Wildlife Services veterinary medical officer met from May through June 2016 to complete the evaluation and to provide recommendations for the program. Recommendations and stakeholder input regarding the CWD Herd Certification Program (HCP) from the review were provided to the CWD Program Standards Working Group.

CWD in Farmed and Wild Cervids

Summary of CWD detections. As of September 30, 2016, CWD has been confirmed in wild deer and elk in 22 U.S. States, and in farmed cervids in 16 States. In total, 24 States have identified CWD in wild and/or farmed cervids. CWD has been reported in 77 farmed cervid herds in the

United States. Confirmation of the disease in free-ranging elk and white-tailed deer in Arkansas in 2016 marked the first reports of CWD in the wild cervid population in this State.

FY 2016 CWD Detections in Farmed Cervids: Seven new positive captive cervid herds were identified in FY 2016 (5 white-tailed deer and 2 elk). None of the seven positive herds were certified herds in the Herd Certification Program.

- **Texas: Two new herds**

  In February 2016, NVSL confirmed CWD in a 3½-year-old, natural addition whitetail buck that was hunter-harvested from a release site on a ranch in Medina and Uvalde counties. The deer originated from a breeding facility on the ranch. Based on the possible exposures, both the breeder pen and the release site were considered positive premises. The buck was genotype GG at codon 96 and tested positive on both lymph node and obex. Two more positive deer have been identified out of 349 animals in the herd that have been tested since February using post-mortem and/or ante-mortem samples. The breeding facility and the associated hunting facility tested at least 130 white-tailed deer for CWD as part of routine post-mortem surveillance within the five years prior to the first positive case. The positive herd was within 50 miles of another known positive farmed cervid herd at the time of diagnosis. The herd currently has approximately 780 whitetail deer under State quarantine.

  In April 2016, NVSL confirmed CWD in a 3 ½-year-old, natural addition white-tailed doe in Medina County. The doe was genotype GG at codon 96 and tested positive on both lymph node and obex. Subsequently, an additional 13 positive deer were identified by post-mortem and ante-mortem testing, including five 96GG, six 96GS, and two 96SS genotypes. The herd tested a total of 181 deer for CWD as part of routine post-mortem surveillance in the five years prior to the positive diagnosis. This positive herd is within 10 miles of the positive herd identified in Medina/Uvalde Counties in February 2016. Approximately 1000 white-tailed deer currently reside on the premises that remains under State quarantine. Federal indemnity was used to remove and test select animals to inform the epidemiological investigation and evaluate the performance of ante-mortem tests.

- **Wisconsin: Three new herds**

  NVSL confirmed CWD in a 3 year-old, natural addition buck on a white-tailed deer breeding/hunting facility in Three Lakes, Wisconsin in November 2015. The facility is located in Oneida County. The buck was positive on both obex and lymph node, but was not tested for genotype. One additional positive hunter-harvested 5-year-old buck was positive on both lymph node and obex (untested genotype). No CWD positive cervids have been found in wild or farmed cervids within 50 miles of the positive premises. The herd tested at least 129 deer for CWD as part of routine post-mortem surveillance were reported within the five years prior to the positive diagnosis. The herd consists of approximately 450 white-tailed deer and is under State quarantine. Federal indemnity was not provided for this herd.

In January 2016, NVSL confirmed CWD in a 2½-year-old, natural addition white-tailed buck in Iowa County, Wisconsin. The farm had been under quarantine since 2002 because it is located within 5 miles of CWD-detection in wildlife. Only a few deer are kept on the farm for exhibition. The buck was positive on both obex and lymph node, with an untested genotype. The herd was enrolled in an HCP program in 2002, but was not compliant at the time of diagnosis. Twelve valid CWD test results had been reported in the five years prior to the positive animal diagnosis. The herd's currently has an inventory of less than 10 CWD-susceptible species. Federal indemnity was not provided for this herd.

NVSL confirmed CWD in a white-tailed deer in Oconto County, Wisconsin in September 2016. The deer was a female, one-year-old natural addition that was found dead. The lymph node was CWD-positive but prion was not detected in the obex sample tested. The facility includes a separate breeding farm at the same location, with approximately 850 deer in the breeding farm and an estimated 1500 deer in the hunting preserve. This preserve is not on a Herd Certification Program. There have been 1078 deer tested from this preserve since 2010. A quarantine was issued. It will require 100% testing of all deer that die or are killed and are 12 months of age, in both operations. There are no plans to depopulate this farm at this time.

- **Iowa: One new herd**

NVSL confirmed CWD in an elk from a hunting preserve in Pottawattamie County, Iowa, in January 2016. An adjacent breeding facility owned by the same producer was depopulated for CWD in 2012. The breeding facility received exposed deer from another positive herd in Iowa. The hunting preserve tested 7 animals for CWD in 2012 (no other testing known). The hunt facility currently consists of white-tailed deer and elk and the plan is to hunt out the remaining animals. Federal indemnity was not provided for this herd.

- **Colorado: One new herd**

In June 2016, NVSL confirmed CWD in an elk from a facility in Eagle County, Colorado. The 9-year-old cow elk was born on another premises in Colorado, but had been at this Eagle County facility for the past 8 years. This facility consisted of a small herd used for personal meat production. Communication with state animal health officials indicated that only one other elk resided on the premises at the time of CWD detection. That animal was euthanized and tested "not detected" for CWD. The herd owner has no plans to raise elk in the future.

Retrospective Epidemiology of CWD in Farmed and Wild Cervids: VS initiated a retrospective CWD epidemiology assessment in partnership with State animal health and wildlife agencies in 2015, but the evaluation was postponed due to VS' highly pathogenic avian influenza response. As part of the Herd Certification Program annual reporting process, VS asked States to complete an epidemiology summary for all previously identified CWD-infected herds. Nine States responded to the request for data and completed positive herd summaries for a total of 25 herds.

VS also cooperated with the Association of Fish and Wildlife Agencies and the Southeastern Cooperative Wildlife Disease Study to request similar data on CWD surveillance and epidemiology in wild cervid populations. Fourteen States responded to the request for data. VS is summarizing the information we received.

Review of CWD Program Standards

VS convened a working group composed of State, Federal, and industry representatives in the summer of 2016 to review the CWD Program Standards. This working group met for a 3-day face-to-face meeting and several follow-up conference calls to identify sections of the CWD Program Standards that need revision and to provide options for how VS could revise those sections. VS also asked a group of CWD scientific experts to provide their opinions on several key scientific questions. The working group discussed the following topics: goals and outcomes for the CWD Program; purpose/use of the Program Standards; susceptible species; definitions of terms; ante-mortem testing; epidemiologic investigations; reporting; indemnity; surveillance in certified herd; fencing requirements; biosecurity requirements; and carcass disposal. A summary of the working group's discussions and VS' recommended changes to the CWD Program Standards will be distributed for comment at the 2016 USAHA meeting.

Guidance Document for Interstate Movement of Wild Caught Cervids

VS issued a guidance document, VSG 8000.1 Surveillance and Testing Requirements for Interstate Transport of Wild Caught Cervids in September 2016. This document clarifies the process for approval, establishes a recommended minimum standard for testing and a uniform process of disease risk assessment to help prevent the spread of cervid diseases such as CWD, bovine tuberculosis (TB), and brucellosis when wild cervids are captured for interstate movement and release. Prior to its finalization, we shared a draft with State Animal Health Officials and Wildlife Officials in States that have conducted these movements in the recent past for review and comment.

Live Animal Testing For CWD

VS cooperated with animal health officials in Wisconsin, representatives from VERGE, and the herd owner to perform ante-mortem collection of medial retropharyngeal lymph node (MRPLN) biopsies during a depopulation of a white-tailed deer herd in November 2015 as a proof-of-concept pilot project. Additionally, VS' National Veterinary Services Laboratories (NVSL) evaluated historical post-mortem MRPLN samples and used this data to develop laboratory protocols to test and interpret ante-mortem MRPLN samples. VS will collaborate with States and industry to develop a policy concerning the use of ante-mortem MRPLN biopsies using the protocols developed by NVSL.

In addition, VS continues to support research to develop and validate other live animal tests for CWD. A pilot project is in process in Ohio to evaluate the use of whole-herd rectal biopsy as an ante-mortem test in CWD-exposed white-tailed deer herds. The first whole-herd test was performed on 231 exposed white-tailed deer in 6 herds from February through March. The second whole-herd testing was completed in September and final results are pending. Genotyping was used to determine the timing of the second whole-herd test. To date, all biopsy results have been "not detected."

Cervid Tuberculosis

The CervidTB Stat-Pak and Dual Path Platform (DPP) VetTB Assay serologic tests were approved for use in captive and free-ranging North American elk, white-tailed deer, red deer, fallow deer, and reindeer effective February 4, 2013. In July 2014, the DPP test became both a primary and secondary test for TB in cervids. Animals that have two consecutive positive tests at least 30 days apart are classified as TB reactors, and APHIS provides indemnity to euthanize these animals for further diagnostic testing.

In FY 2016, 10,750 cervids were tested serologically for bovine TB. A total of 42,612 cervids have been tested since the introduction of the serological tests in 2013. In FY 2016, primary DPP serological testing identified 18 TB suspects; ten of these animals had negative tests when retested at least 30 days after the primary test and three animals have yet to be retested. Five were identified as TB reactors when they tested positive to the secondary DPP test. All five reactors were necropsied. Four mycobacterial culture results were negative and one culture result is pending.

In February 2016, the Scientific Advisory Subcommittee of the USAHA Tuberculosis (TB) Committee considered a proposal from VS to raise the DPP optical density (OD) cut-off value for reindeer from 200 to 500. Since the DPP was approved for use in the diagnosis of *Mycobacterium bovis* infection in reindeer in 2013, 179 animals were tested. Two animals were positive based on a cut-off of 200. Infection with *M. bovis* was not demonstrated in either animal. The TB SAS did not object to raising the DPP cut-off for reindeer from 200 to 500 in a low prevalence population. However, they recommended that if *M. bovis* were detected in reindeer, VS should evaluate DPP test performance in naturally infected reindeer. In March 2016, VS raised the OD cut-off value for reindeer from 200 to 500 making it consistent with the cut-off for elk, red deer and white-tailed deer.

National Animal Health Monitoring System Cervid Industry Study

Beginning early September 2014, VS, in cooperation with the National Agricultural Statistics Service, conducted the first national study of the U.S. farmed cervid industry. The study surveyed 3,000 producers from all States that have farmed cervids. The survey response rate was 42.5%, which is exceptional for a mail survey. The study provides baseline industry statistics, a description of current production practices and challenges, producer-reported disease occurrences, and an overview of health management and biosecurity practices. A report from the study is now available in electronic and printed formats at: http://www.aphis.usda.gov/nahms

Cervid Health Program Budget

The Cervid Health Program includes the CWD herd certification program and the cervid TB program. It is funded through the Equine, Cervid, and Small Ruminant Line Item. In FY 2016, the Cervid Health Program was appropriated $3.0 million by Congress for cervid health activities. This funding was generally allocated as follows: $800,000 for indemnity for CWD and cervid TB; $200,000 for USDA Wildlife Services research and $150,000 for pilot projects to evaluate live animal diagnostic tests for CWD, and the remaining funding primarily supported Cervid Health Team and VS field activities.