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INTRODUCTION

CDFA’s Vision Statement...
To be recognized as the most highly respected agricultural agency in the world by leading and excelling in the programs and services delivered to meet the needs for the growing local and global food and agricultural system.
OUR MISSION

The CDFA Animal Health Branch (AHB) is the State’s organized, professional veterinary medical unit that protects California’s public health, animal agriculture and economy from catastrophic animal diseases and other problems that require statewide coordinated resources. The AHB implements programs that protect California’s public health and animal agriculture, and ensures the availability, affordability and wholesomeness of food.
The California Department of Food and Agriculture (CDFA), Animal Health Branch (AHB,) dates its origin back to the creation of the Office of the State Veterinarian in 1899 “to protect the health of all domestic animals of the state from all contagious and infectious diseases....”  This continues to be our primary mission, and the past year once again, has proven AHB to be recognized as one of the top-notch animal health agencies in the United States.  With the leadership of State Veterinarian and Animal Health and Food Safety Services Director, Dr. Annette Jones, the Branch has responded to and managed a variety of challenging disease incidents. Outstanding professional and support staff have been the backbone of AHB disease surveillance and response for years.  Our invaluable partnership with the California Animal Health and Food Safety (CAHFS) Services Laboratory System, the United States Department of Agriculture/Animal and Plant Health Inspection Services/Veterinary Services (USDA/APHIS/VS), industry organizations, academia, private practitioners and other state and federal agencies remain the solid foundation for essential collaborative working relationships.  These relationships have been notably influential in protecting California’s multi-billion dollar livestock industry from epidemic and foreign animal disease.

As a Branch, our highest priority remains the continued attempt to exclude foreign animal diseases from California.  In 2015, we witnessed the most devastating highly pathogenic avian influenza (HPAI) outbreak in history in the United States and California in commercial poultry operations.  This outbreak has spearheaded a massive HPAI-preparedness effort nationally, and the California Department of Food and Agriculture/Animal Health Branch is at the forefront of these efforts.  All AHB staff are working on Farm Readiness and Controlled Movement Teams, including but not limited to the following: Biosecurity, Epidemiology, Surveillance, Depopulation, Disposal, Cleaning and Disinfection, Product Movement and Permitting, Vaccination and Personal Protective Equipment.  All teams are tasked to provide quick, improved and efficient response to the next HPAI incident.  In addition, staff have been working diligently to bolster Standard Operating Procedures (SOPs) and refine Incident Management Teams to better manage a disease incident.

As with most animal health agencies across the country, our Branch currently faces unprecedented challenges. State and federal budgets are in flux and alterations in availability of program funding are stimulating projections that may change the nature and focus of Branch activities. Increased attrition of experienced staff through retirement present challenges that we will overcome with increased cross training of available staff and expansion of outreach and education.  The experience, dedication and institutional knowledge will be greatly missed of retirees Dr. Dan Rolfe (22 years); Karen Jones (23 years); Bonnie Smith (27 years); Dr. Richard “Pete” Peterson (31 years) and Dr. Jim Campbell (31 years).

The continued dedication and commitment of personnel to the AHB mission is appreciated and will ensure that emerging issues related to animal health, animal care, emergency management, food and agriculture security, production food safety, and public health and safety are appropriately met.  I continue to be proud to serve with so many competent colleagues and staff.  The Animal Health Branch is committed to continue protecting California as one of the most successful and productive agricultural regions in the world.  The following AHB Annual Report is designed to document the tremendous accomplishments and efforts in 2015 of the dedicated men and women who encompass the Animal Health Branch Team.

Kent Fowler, DVM
AHB Chief
The Animal Health Branch’s budget is over $12.5 million, and it is comprised of the General Fund, Federal Trust Fund, Reimbursements and the Agriculture Fund (continuously appropriated funding for the Equine Medication Monitoring Program) and Reimbursements.

The **General Fund** supports funding personnel costs including benefits, general expenses, printing, facility charges, communication costs, travel and other appropriate costs. **Reimbursement Funding** is for the brucellosis program – vaccine and related supplies. The **Agriculture Fund** is for the Equine Medicine Monitoring Program (EMMP) and that funding is monitored by the EMMP Advisory Committee.
The **Federal Trust Fund**, received from the USDA, supports various national surveillance and response for Animal Health activities. In 2015, AHB received funding for the California Animal Health Emergency Management System (CAHEMS), Animal Disease Traceability, and the Ultra High Frequency Tag Program. In addition, over $600,000 was received from USDA for Highly Pathogenic Avian Influenza Cooperative Agreement response activities. The majority of federal funding allocated to the AHB is in the form of an Umbrella Cooperative Agreement, and the following chart displays how those dollars are used by species.
DISTRICT REPORTS

ANIMAL HEALTH BRANCH DISTRICT MAP
Demographics

The Redding District is the largest of the four (4) Animal Health Branch (AHB) Districts encompassing 31% of California’s land area. Only 8% of the State population live in the District in twenty-four (24) counties: Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Marin, Mendocino, Modoc, Napa, Nevada, Placer, Plumas, Shasta, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yolo and Yuba. The population density varies considerably between counties from a low of 3.4 people per square mile to over five hundred (500) per square mile.

Beef cattle are the predominant species raised in the District. Four (4) years of drought and one of the worst fire seasons ever experienced in the north part of the state have had a significant impact on cattle grazing. The beef cattle numbers are at the lowest point in decades. In most areas, the ranchers have responded by increased culling in their breeding herds and decreasing the number of heifers retained as replacement animals. Dairy herd numbers appear to be fairly stable. The number of herds switching to organic production is increasing. The sheep population continues to be on a slow decline. It is difficult to get accurate information regarding swine and goat numbers. It is likely the number of meat goats is increasing based on visual observations and producer interest.
Education and Outreach

A major emphasis was placed on education and outreach activities this year covering a wide variety of topics, species and programs. A lot of the activity increased the awareness of the Animal Disease Traceability requirements. Personnel participated in several multi-agency compliance operations at border crossings. A pilot project was successfully initiated by Andy Femino, Livestock Inspector, utilizing our personnel at a border crossing following a large equine event in Reno. This allowed several hundred participants to be rapidly checked for compliance, preventing the large vehicular backups that have occurred in the past.

Education and outreach activities also involved avian health, the trichomonosis program, foreign animal disease preparation, scrapie eradication and identification, brucellosis and tuberculosis (TB) testing in raw milk dairies and swine programs. These efforts occurred in one-on-one meetings, focused groups, and public meetings. At different times, we met with industry leaders, producers, USDA/APHIS Wildlife Services, county agricultural commissioners, 4-H, and FFA groups. Our personnel presented information at sixteen (16) county fairs and at Butte College, Shasta College, Chico State, and U.C. Davis.

Emergency Preparedness

Avian health activities occupied a good portion of District employees’ time. We did not have any highly pathogenic avian influenza (HPAI) cases in domestic birds despite several HPAI-compatible diagnoses in wild waterfowl from various locations in this District. Our personnel did participate in the poultry outbreaks that occurred in the other districts and have trained to occupy key positions in the incident command structure for future incidents. We performed follow-up testing on poultry and egg shipments originating from affected premises in the Midwest.

We conducted commercial poultry premises validation on ninety-two (92) chicken and turkey facilities and have verified sixty-six (66) that are still in operation. While conducting California Egg Quality Assurance Program (CEQAP) inspections, biosecurity and avian influenza prevention strategies were emphasized. During avian calendar distribution, these subjects were discussed with approximately 150 feed and pet stores. Ongoing efforts are occurring at three (3) bird swap meet locations. Our surveillance for avian diseases was enhanced by 435 laboratory submissions from backyard poultry. Seventy-five percent of these were submitted by owners and the other 25% from private practitioners and AHB employees.

<table>
<thead>
<tr>
<th>No.</th>
<th>Open Date</th>
<th>FAD #</th>
<th>Disease</th>
<th>Species</th>
<th>Sample Type</th>
<th>Location of Animal (County)</th>
<th>Destination Lab</th>
<th>NVSL Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3/3/15</td>
<td>15CA0007</td>
<td>Akabane</td>
<td>Goat</td>
<td>Tissue</td>
<td>Napa</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>2</td>
<td>5/4/15</td>
<td>15CA0013</td>
<td>AI, APMV</td>
<td>Chicken</td>
<td>Swab</td>
<td>Sierra</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>3</td>
<td>5/20/15</td>
<td>15CA0016</td>
<td>VS, FMD</td>
<td>Goat</td>
<td>Blood, Serum, Swab</td>
<td>Sonoma</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>4</td>
<td>6/26/15</td>
<td>15CA0021</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum, Swab</td>
<td>Sonoma</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>5</td>
<td>8/26/15</td>
<td>15CA0027</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum, Swab</td>
<td>Placer</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>6</td>
<td>9/1/15</td>
<td>15CA0031</td>
<td>Schmallenberg Virus</td>
<td>Bovine</td>
<td>Blood, Tissue</td>
<td>Placer</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>7</td>
<td>10/8/15</td>
<td>16CA0001</td>
<td>VSV, FMD</td>
<td>Bovine</td>
<td>Blood, Swab</td>
<td>Humboldt</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>8</td>
<td>10/15/15</td>
<td>16CA0003</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum, Swab</td>
<td>Yuba</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Destination laboratories: National Veterinary Services Laboratories (NVSL); California Animal Health and Food Safety Laboratory (CAHFS); names of diseases can be found in the full FAD Investigation table.
Trichomonosis Control Program

The Trichomonosis Control Program continues to show progress in the district. Only nine (9) affected herds were found this calendar year, the lowest number we have seen. However, the trend for repeated infections continues, with seven (7) of those nine (9) being positive last year as well. Having now gone through two (2) or more negative testing cycles, progress is evident based on many of the herds that have repeatedly tested positive in the past. The number of positive bulls found in affected herds is also decreasing. Over 4,400 tests were performed and about thirty-nine (39) bulls were found in the nine (9) affected herds. More than half of the tests were performed at private veterinarians’ labs. Two (2) affected herds each were found at each of these laboratories: the CAHFS laboratory, the Nevada laboratory, the Oregon laboratory, and a private veterinary laboratory.

Scrapie Eradication Program

Efforts continue to bring all sheep flocks and goat herds into compliance with scrapie identification requirements. The slaughter-sheep identification is fairly good at 92%, but more work needs to be done with goat owners at only 73% identified. We have greatly increased the scrapie-slaughter sampling in both numbers and locations. The majority of the scrapie-slaughter sampling occurs in the Redding District. Sampling minimums for sheep will be easily accomplished, but only a percentage of necessary goat samples have been collected. Efforts to increase these numbers are ongoing. It has been well over a decade since the last scrapie-infected flock was found in the Redding District.

At the height of the Scrapie Flock Certification Program (SFCP), there were over eighty (80) flocks and herds participating in California. Most of these were sheep flocks. When the SFCP switched over to an export certification program, most participants dropped out. There are currently only five (5) participants in California. Four (4) of those are goat herds; one has sheep. Three (3) of the five (5) participants are in the District, including two (2) which have reached Export Certified Status.

Bovine Tuberculosis and Brucellosis Eradication Programs

District personnel conducted TB and brucellosis testing on ten (10) cow and goat herds that were utilizing raw milk for drinking or cheese-making, or were required by FDA to test under the Pasteurized Milk Ordinance (PMO). Due to changes in the PMO, the State Veterinarian was able to exempt small ruminant herds from the PMO requirements. A determination was made that the raw milk dairies would need to be tested by private veterinarians at the owner’s expense, ending our requirements to test the remaining herds. We continue to collect Brucellosis Ring Test (BRT) samples twice a year on the raw-milk cow herds.

We did follow-up testing on numerous private practitioner TB tests and all animals were found negative. We did not have any TB-affected or exposed-herd testing required in the district, but the District did send personnel to other districts to assist with TB testing there. There have been no suspicious brucellosis tests requiring investigation or testing for several years.
Swine Brucellosis and Pseudorabies Eradication Programs

We are increasing surveillance for swine brucellosis and pseudorabies by collecting blood samples at slaughter plants. We have made arrangements for FSIS to do the collection at one plant and are currently working on a method to collect at a second plant that operates as both an FSIS-inspected and State-inspected plant on different days. Dr. Mike Poulos has worked with USDA/APHIS Wildlife Services to collect samples from feral swine for testing. Pseudorabies has been diagnosed in feral swine in the Redding District.

Challenges within the District

1. The biggest challenge for the Redding District involves the change in supervision and direction of all employees. In this large District, employees are strategically located and have primary responsibilities for all activities within that area. When these positions were filled, the AHB had direct supervision of both the State and federal employees within the District. That policy has changed over time; we no longer supervise the federal employees: Their activities are directed primarily by the Federal VMO within the District. The largest concentration of livestock and poultry within the District is in geographic areas filled by federal employees, and this policy complicates direction of employee activities and knowledge of those activities.

2. The Redding District covers a large geographic area, with livestock production in all areas of the District. Even with employees geographically distributed, a large amount of work time involves travel.

3. The climate across the District can make working outdoors year-round challenging. Extremely hot summer temperatures occur in the valley areas, and to travel anywhere in winter, other than the Central Valley, involves driving in snow and ice on mountainous terrain. Rainfall is considerably higher in the Redding District than the other districts, and that also complicates outdoor activities.

Charles Palmer, DVM, MPVM
Veterinarian in Charge (VIC), Redding District
The Modesto District is comprised of seventeen (17) counties: Alameda, Alpine, Amador, Calaveras, Contra Costa, El Dorado, Mariposa, Merced, Mono, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Stanislaus, and Tuolumne, which together, encompass a 21,052 square mile area (13% of the land mass of California). The human population is 9,686,421 (26% of California’s population). Not surprising, there is an inverse relationship between county land mass and human population within the county. The majority of the large voting population has little accurate knowledge regarding the source of their food.

Livestock Industry Trends within the District

The woes of the dairy industry have taken their toll in the past year, as many dairies have gone out of business. There has also been a large exodus of dairy cattle to other states and resultant TB testing performed by private practitioners through dispersal sales. “The large keep getting larger” certainly applies to the district, with the dairy industry being the most obvious example. Interestingly, and in contrast to other portions of the State, producers are more likely to increase cow numbers through the purchase or lease of other dairy facilities rather than increasing cow numbers on current facilities. Reportedly, the reasoning behind this trend is the increasing regulatory cost (direct and indirect costs of EPA, Water Quality, Air Quality, permitting, etc.) involved with on-site expansion.
To quote one producer who inquired about finding a dairy to purchase, “All we need is a good lagoon, and we can build the rest.” The successful expanding dairies are often highly integrated and/or offer a niche market, whether it be bottling their own product, marketing organic or even “GMO-free” product.

Vacating dairies that are not selling to other dairies are “putting in trees,” primarily almonds. One of the largest, if not the largest, dairy-producer families in the District (also has dairies in the Tulare District and originated from the Ontario District) has diversified into hundreds of acres of walnuts and almonds, in addition to milking approximately ten thousand (10,000) cows. When asked how the decision to invest in orchards has worked out, he said that it was the best decision they have ever made, especially with the economic state of the dairy industry over the past seven (7) years. This is a trend that will likely continue. The almond industry, for example, has seen an increase of over 320,000 acres (a 46% increase) in the past ten (10) years for an increased annual revenue of almost four (4) billion dollars (an increase of 160%) over that time period, statewide. Stanislaus, Merced and San Joaquin Counties in the District have also seen such growth.

The poultry industry has also seen a lot of expansion in much the same manner. The reasoning behind their expansion to numerous facilities is based more on management and disease prevention, as well as an upgrade in facility design. They, too, have capitalized on niche markets such as organic, free-ranging or antibiotic-free.

This is an ongoing trend in the Modesto District. The massive water holding pond seen here used to be a dairy and in the last year a large farming corporation converted the property, and other properties, into almond and walnut orchards.

**District Workload and Accomplishments**

The most notable accomplishment during 2015 was that the Modesto District was the Incident Command Post (ICP) for highly pathogenic avian influenza (HPAI) and low pathogenic avian influenza (LPAI) outbreaks. For more information about HPAI in 2015 and CDFA’s response and preparedness activities, see the Emergency Programs Section.

**CA H5N8 2015 (HPAI) - Stanislaus:** On January 21, 2015, samples were submitted to the California Animal Health and Food Safety Laboratory (CAHFS) from a commercial turkey flock in Stanislaus County that had been experiencing increased mortality. On January 22<sup>nd</sup>, CAHFS reported presumptive positive H5 avian influenza results, and a quarantine for birds and bird-product movement was placed on the infected premises (IP). Confirmatory testing was performed at the National Veterinary Service Laboratory (NVSL) within twenty-four (24) hours; the influenza virus was typed as a highly pathogenic H5N8. On January 23<sup>rd</sup>, an Incident Command Post (ICP) was established, staffed by CDFA and USDA, with assistance from the Stanislaus Agricultural Commissioner’s office. At the peak of the response, fifty (50) CDFA/USDA personnel were assigned to the incident. A ten (10) km Control Area (three (3) km Infected Zone, seven (7) km Buffer Zone) was established around the IP; an additional ten (10)-km-wide area extending past the Control Area made up the Surveillance Zone. All the turkeys were foam-depopulated on the IP between January 26<sup>th</sup> and January 30<sup>th</sup>.
The dead birds were composted in the houses, and the composting process and subsequent sampling with negative results was completed on March 27th. The cleaning and disinfecting (C&D) of the premises was approved on May 1st, and environmental samples collected and negative results reported by June 12th. The company opted to leave the premises vacant for sixty (60) days post C&D approval before restocking. The quarantine was released on July 1st, and restocking began shortly after. In the Control Area, two (2) commercial poultry premises and eleven (11) backyard poultry premises were placed under quarantine; all testing conducted on these premises was negative for avian influenza (AI) and quarantines were released. In the Surveillance Zone, twenty-three (23) commercial and fifty-three (53) backyard premises were identified and tested negative for AI.

**CA H7N3 2015 (LPAI) - Merced:** On March 9, 2015, four (4) 17-week-old turkeys were submitted to CAHFS from a commercial flock in Merced County experiencing an increased incidence of coughing and aortic ruptures, as noted by the company veterinarian during routine field necropsies. On March 10th, CAHFS reported a presumptive positive for avian influenza H7. The premises was placed under quarantine. On March 11th, NVSL confirmed a low pathogenicity H7N3. An ICP was established utilizing CDFA/USDA personnel deployed for the CA H5N8 2015 incident. At the peak of the response, forty (40) CDFA/USDA personnel were assigned to the incident. A ten-km Control Area (three-km Infected Zone, seven-km Buffer Zone) was established around the infected premises (IP).

All the turkeys were humanely CO2-depopulated on the IP between March 26th and April 3rd. Carcasses were transported, with biosecurity measures in place, to landfill for disposal. The litter remained undisturbed in the houses for seven (7) days and was then tested with PCR on environmental samples using a protocol developed during the CA H5N8 incident. All testing was negative, and the litter remained in the houses for another seven (7) days before it was removed. The premises was cleaned and disinfected, environmental samples collected and negative results reported by June 30th. The company opted for a twenty-one (21) day down time after C&D approval prior to restocking.

Turkeys were tested on five (5) occasions during the restocking process (two (2) prior to and three (3) post-arrival). All testing was negative, and the quarantine was released on August 14th. In the three-km Infected Zone, one commercial poultry premises and seventeen (17) backyard premises were identified. All testing conducted for AI was negative. Collectively in the ten-km Control Area, ten (10) commercial poultry and thirty-nine (39) backyard premises were identified. All testing conducted for AI was negative.

A special thank-you to all the out-of-district and USDA folks who helped with these incidents. It was an incredible collaborative effort!

With the exception of follow-up bovine tuberculosis testing, the AI incidents necessarily resulted in a significant reduction of lower priority “routine” district work for the better part of three (3) months. However, those duties resumed after the incidents were resolved. For example, somewhat unique to the District are port and caterer inspections. There were a total of thirty-seven (37) caterer/port inspections; including twelve (12) sterilizer inspections, 649 container inspections on vessels or at airport facilities, and sixteen (16) total calibration/compliance agreements reviewed.
Other Avian Activities:

_Flock Inspections:_ There were five (5) CEQAP (three (3) out of business or changed ownership/name, two (2) moved to 2016 in coordination with SEFS), ten (10) NPIP and six (6) SES inspections performed during 2015. All companies were in compliance.

_Sick Bird Calls:_ Of the thirty-five (35) sick bird calls followed up on to date, three (3) were on-site visits due to high mortality. Birds submitted either by the owners or by CDFA personnel revealed such poultry diseases as, but not limited to: Marek’s disease, fowlpox and fatty liver syndrome. No AI or exotic Newcastle disease (END) was diagnosed, but much appreciated outreach was accomplished.

FAD Investigations:

1. **January 2015**: Investigation of HPAI
2. **March 2015**: Investigation of LPAI
5. July 2015: Investigation of potentially VSV-exposed twelve (12) year old Quarter Horse. Physical exam of horse showed no lesions observed. Diagnosis: Negative for vesicular stomatitis virus (VSV) and quarantine released.
6. August 2015: Investigation of interdigital vesicular lesion on a non-ambulatory dairy cow. Location: Stanislaus County. Reported by private vet. No diagnosis and negative for FAD.
7. September 2015: Investigation of equine infectious anemia (EIA) positive three (3) year old Quarter Horse filly for exposure to equine piroplasmosis (EP). Location: Merced County. Diagnosis: Negative for EP, euthanized as EIA positive.
8. October 2015 (see image below): Investigation of vesicles noted on market hogs by FSIS inspector at a slaughter facility in Stanislaus County. Hogs originated from Montana in a group of 186 head. Four (4) pigs were examined, vesicular fluid and swabs from vesicular lesions and blood were submitted to NVSL. Positive for Seneca Valley virus (SVV) and negative for FADs.

### Foreign Animal Disease (FAD) Investigations in Modesto District - 2015

<table>
<thead>
<tr>
<th>No.</th>
<th>Open Date</th>
<th>FAD #</th>
<th>Disease</th>
<th>Species</th>
<th>Sample Type</th>
<th>Location of Animal (County)</th>
<th>Destination Lab</th>
<th>NVSL Result</th>
</tr>
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<td>4</td>
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<td>Blood, Serum, Swab</td>
<td>Stanislaus</td>
<td>NVSL, CAHFS</td>
<td>Positive only for SVV</td>
</tr>
</tbody>
</table>

**Destination laboratories:** National Veterinary Services Laboratories (NVSL); California Animal Health and Food Safety Laboratory (CAHFS).
Other Disease Investigations:

1. Vesicular stomatitis virus (VSV) investigation – May 2015: Investigation of oral lesions in an adult Quarter Horse. Location: Mariposa County. Reported by private veterinarian. No lesions visible on physical exam and not VSV.

2. VSV Investigation – May 2015: Two potentially exposed horses brought in from quarantined stable in Arizona. Location: San Joaquin County. Physical exam of horses – no lesions observed, tested negative and quarantine was released.

3. EHV-1 investigations – June 2015: Two (2) trace investigations; one trace was from EHV-1 positive horse in San Joaquin County. One mule was trailered from Mule Days with two (2) other mules that reside at the affected ranch in San Joaquin County. Ranch visit and exam of trace mule, no clinical signs observed for twenty-one (21) days post exposure. Case closed. Other trace involved one fatality, and ten (10) horses and mules exposed in Clements, CA. Ten (10) remaining horses and mules were asymptomatic or had minor symptoms which resolved before the quarantine was released. This virus was traced to the Mule Days gathering over the Memorial Day weekend.

4. VSV Investigation – July 2015: Investigation of two (2) adult horses with potential exposure to VS at a training ranch in Colorado. Location: Santa Clara County. Reported by Colorado State Veterinarian. Physical exam of horses – no lesions observed. Epidemiology confirmed low risk of exposure and not VSV.

5. VSV investigation – August 2015: Potentially exposed miniature gelding brought in from Texas. Location: Monterey County. Physical exam of horses – no lesions observed, tested negative and the quarantine was released.

6. EIA Investigations – September/October 2015: One positive mare was euthanized in Monterey County after being traced from a Washington State case(s). Her foal was tested negative, as was her stablemate. Reportedly, exposure of multiple horses via an equine “dentist” was repudiated by the owner. One other positive horse was euthanized in San Joaquin County. That horse was imported from Mexico only two (2) months prior to testing positive at the first race in which it was entered. There was reportedly no exposure to other horses on the stable premises; twenty-two (22) horses located on the premises tested negative on two (2) occasions, according to national protocol. Of particular interest, is the dramatic decline in positive EIA and piroplasmosis cases in 2015 relative to previous years. The decrease is likely attributed to two (2) factors:
   a. The educational efforts over the past couple of years by District veterinarians and livestock inspectors.
   b. Over twenty-five (25) positive horses infected due to iatrogenic spread of EIA by trainers/owners were euthanized during this investigation.

7. Acute swine death loss investigation – December 2015: Eleven (11) of fifteen (15) market hogs died within twenty-four (24) hours at an auction yard located in San Joaquin County. Two (2) hogs were sent to CAHFS; death was attributed to *Actinobacillus pleuropneumoniae* (APP). Interestingly, both pigs were positive for influenza; one was positive for H1N1 and one was positive for H1N1 and H1N2. The pigs originated from out-of-state, had been co-mingled with hogs from many sources, and shipped many hours in a trailer that was likely not well ventilated due to cold conditions.

8. Cysticercosis traces – Nine (9) cysticercosis traces completed in the District; one beef, eight (8) dairy.
Interesting Case Report

In April 2015, we received a call from a pathologist at CAHFS regarding a possible pyrrolizidine alkaloid “poisoning” in some horses located in Merced County; and an investigation was initiated. The owner of the horses reported that he owned twenty-six (26) equine (horses, mules and donkeys) and that seven (7) horses had died in the previous 3 ½ months. The private practitioner necropsied the first horse that died in late December 2014 and noticed that the horse had yellow fat, and the liver appeared very small for the size of the horse. No tissues were sent for further diagnostics at that time. The remaining deaths occurred within eight (8) days of each other in March 2015. The owner noted that some of the horses were exhibiting a peculiar behavior of eating some “dirt material” located on a concrete slab. They appeared to be eating it, rather than just casually licking at it. The owner purchased about 840 bales (ten (10) stacks of eighty-four (84)) of “first-cutting” alfalfa hay, in the early summer of 2014 from a farmer in Merced County. All of the aforementioned horses had been fed this hay daily since July-August 2014. This hay was examined and was found to have an abundance of common groundsel incorporated into the majority of the bales examined from different stacks. This hay was submitted to CAHFS where it was confirmed to be heavily contaminated with common groundsel. Additionally, the water well on the ranch went dry, as did the pastures where these equine were housed, which resulted in the horses not having a feed alternative to the hay. There was evidence of reluctance of the equine to eat the toxic weed in question; there were clumps of it on the ground and a lot of it on the bottom of feeders.

The owner tested the remaining seventeen (17) equine, and the vast majority had evidence of liver damage. The owner reported in December 2015 that his veterinarian had tested other horses belonging to owners who purchased hay from the same source. Likely, there is more to follow on this toxicity case.

Impact on Livestock from Natural Disasters

The effects of the ongoing drought have been dramatic, especially for those who use natural grazing land. As with other parts of the country, it has resulted in a reduction in beef cattle numbers, and the price has reflected that, at least until recently. This is evidenced by the feedlots in Imperial County that used to be “beef” and are now mostly Holsteins. This has benefited the Holstein dairy industry, with producers receiving up to $500 for a day-old bull calf. I had one seasoned dairyman tell me, “For the first time in my life, I am sorry to see a heifer calf born.”

Another effect of the drought that was not addressed is the dramatic reduction in land flooded for wildlife, primarily water fowl, in this District. This decreases the amount of water habitat available for migratory birds, resulting in a higher concentration of birds in a given area. This is epidemiology 101: The higher concentration of animals, the higher the bacterial, or more importantly, viral load. In addition, migratory birds are more likely to find other sources of water, such as on poultry premises.

Emergency Preparedness Activities

The Modesto District, along with other districts, is heavily involved in the HPAI-preparedness efforts. In addition, we have been very active in outreach programs for local and county efforts in educating the public about animal production, disease prevention and food safety. A good example of these outreach efforts is the annual avian calendar deliveries where we incorporated USDA term employees to increase outreach efforts.
Challenges within the District

1. The focus of the AHB has changed a great deal in a fairly short period of time. There is more emphasis on enforcement, than on education and support to the animal industry and private practitioners. It is a challenge for some staff to embrace this change.

2. Maintaining personnel morale is an ongoing challenge, especially given the salary stagnation that we have seen in the recent past. The salary inequality for AHB veterinarians is a serious issue that will likely not be adequately addressed before some good people decide that enough is enough.

3. There has been recent discussion regarding the topic of recruitment. Given the above listed “challenges,” it is difficult and becomes a challenge in itself.

Randall J. Anderson, DVM, MPVM
Veterinarian in Charge (VIC), Modesto District
TULARE DISTRICT

Demographics

Tulare District is comprised of ten (10) counties: Fresno, Inyo, Kern, Kings, Madera, Monterey, San Benito, San Luis Obispo, Santa Barbara, and Tulare, which together encompass an area just slightly smaller than the state of Ohio. Human population is 3,750,491. The dairy cow population in just Tulare and Kings Counties exceeds that of Idaho, the 3rd largest milk-producing state in the US. If Tulare District were a state, we would exceed all other states except California and Wisconsin in milk production.

Livestock Industry Trends within the District

Dairies continue to consolidate and grow in size. The consolidation has resulted in the sale of large numbers of cows and heifers, necessitating a large amount of tuberculosis (TB) testing by private practitioners for interstate shipments. Much of this has occurred at the twelve (12) livestock salesyards still operating in the District. Fewer acres of forage and other row crops are being produced as land is transitioned to permanent crops such as almonds, pistachios and walnuts that generate a bigger return per acre.
Tulare District was the Incident Command Post (ICP) for highly pathogenic avian influenza (HPAI) Kings 2015 outbreak. For more information about HPAI in 2015 and CDFA’s response and preparedness activities, see the Emergency Programs Section.

**CA H5N8 2015 (HPAI) – Kings County:** Early in February 2015, a commercial chicken flock located in Kings County was experiencing increased mortality. Samples were submitted to the California Animal Health and Food Safety Laboratory (CAHFSL) on February 6, 2015. The CAHFS Laboratory initially reported a presumptive H5 virus and samples were sent to NVSL for confirmation. A quarantine for all birds and bird-product movement was placed on the infected premises (IP) on February 11th based on preliminary results.

The Animal and Plant Health Inspection Service (APHIS)/National Veterinary Services Laboratory (NVSL) confirmed highly pathogenic avian influenza (HPAI) H5N8 on February 12th, and an Incident Command Post (ICP) was established at the Animal Health Branch Tulare District Office. CDFA and USDA staff initiated an incident command response. A three-kilometer-radius Infected Zone and additional seven-kilometer-wide Buffer Zone, making up a ten-kilometer-radius Control Area (CA) around the IP, was established upon confirmation. Another ten-kilometer-wide area outside of the CA established the Surveillance Zone. The affected chicken (78,112) and duck (35,639) flock was foam-depopulated on February 17-18, 2015. Disposal was accomplished with in-house composting and was followed by cleaning and disinfection.

Five (5) other commercial poultry premises were identified in the CA. Surveillance teams visited residences in the CA to determine poultry ownership, and quarantines were placed where indicated. Movement control and heightened biosecurity was implemented in the CA, including perimeter control around the IP using a private security company, and enhanced vehicle-cleaning and disinfection on and off commercial poultry facilities. Feed deliveries were by permit only. No movement of poultry or poultry products occurred from backyard or commercial premises within the CA, except as authorized by permit. All biosecurity plans were evaluated for essential services to CA premises and all adopted enhanced protocols.

Poultry on all premises within the CA were tested and mortality rates of commercial facilities monitored daily. The initial tests of the four (4) active commercial premises within this area were negative and mortality did not increase. Surveillance was also implemented within the twenty (20) kilometer Surveillance Zone; all samples were negative.

An outreach campaign began to enhance passive surveillance and improve biosecurity for all poultry owners in the State. Resources were made available on the CDFA website and were distributed directly to commercial and hobby-bird owners through feed stores, professional and special interest organizations, university outreach networks, youth groups, at poultry shows and sales, and through door-to-door campaigns. CAHFSL provided free testing for any poultry with signs of disease. Live Bird Markets and their suppliers in California also actively participated in routine biosecurity reviews and certification, and regular avian influenza testing.

Through much hard work, the infected premises was back in operation in 125 days from the date of depopulation to restocking. All of this was accomplished while still maintaining routine District functions. A special thank you to all the out-of-district and USDA folks who helped with this incident!
Tulare District personnel have assisted in several sting operations as well as routine visits to assist CDFA Border Crossing Stations (BCS) personnel evaluating animal transits. Follow-up investigations of reports from BCS personnel on animals entering California without the required documentation is taking considerable District time.

Tulare District Foreign Animal Disease Diagnosticians (FADD) conducted ten (10) foreign animal disease (FAD) investigations during 2015. One of these investigations in February 2015 identified a positive HPAI commercial flock. The other FAD investigations ruled out such FADs as foot and mouth disease (FMD), vesicular stomatitis virus (VSV), and Schmallenburg virus.

### Foreign Animal Disease (FAD) Investigations in Tulare District - 2015

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<th>No.</th>
<th>Open Date</th>
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<th>Disease</th>
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<th>Sample Type</th>
<th>Location of Animal (County)</th>
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<td>Equine</td>
<td>Swab</td>
<td>Tulare</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
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</tbody>
</table>

Destination laboratories: National Veterinary Services Laboratories (NVSL); California Animal Health and Food Safety Laboratory (CAHFS).

### Interesting Case Report

Tulare District Animal Health Branch (AHB) received a call from a private equine practitioner in Fresno County on Saturday, September 19, 2015, concerning four (4) horses exhibiting neurologic signs, primarily ataxia, at a local stable. One of the affected horses was unable to stand due to marked paresis of the hind limbs and less so in the forelimbs, with a temperature of 100.8F. A second horse was ridden the previous day and appeared fine at that time, but on September 19th it displayed mild ataxia with a temperature of 100.8F. Two (2) additional horses exhibited mild neurologic signs. The affected horses showed normal tail and anal tone. The stable had received a new shipment of a pelletized horse feed on Sept. 18th. The two (2) most severely affected horses both died on September 19th and were necropsied at the California Animal Health and Food Safety (CAHFS) Laboratory in Tulare on Sept. 20th. No significant lesions were identified grossly on either horse on necropsy.

Initially the private practitioner and AHB veterinarians had primary concerns of equine herpes myeloencephalopathy and West Nile virus as leading differentials involving the affected horses. As the investigation continued, it seemed unlikely that an infectious agent was involved and feed toxicity became the primary concern. On September 21st, the CDFA Feeds and Livestock Drugs Inspection Program (FLDIP) was notified of this investigation and became the lead CDFA Branch.
A FLDIP investigator made contact with the owner of the horse facility in Fresno County and obtained a sample of the feed that the affected horses had consumed. In addition to the feed samples, stomach contents of the necropsied horses were submitted to CAHFS Analytical Chemistry Lab in Davis. On an ionophores screen, monensin was detected in the sample of pelleted feed submitted with the carcass and in the stomach contents of both horses. It was detected at a concentration of 134 grams per ton (feed) and 1.7 ppm (stomach contents).

On September 22nd, Western Milling LLC indicated they had a positive monensin test result from a quick test done on the horse feed in question. The feed company subsequently notified the U.S. Federal Drug Administration (FDA), and an investigation was initiated reviewing records and additional samples. Due to three (3) horse deaths at this point in time, on September 23rd, the horse feed involved was part of a Class I recall. All of the recalled Western Blend Horse 50# lot 5251 was placed under CDFA quarantine, including the recalled bulk feed from the same lot. The majority of the feed had already been recalled by Western Milling LLC.

To date, thirteen (13) horses have died or been euthanized that consumed this adulterated product. CDFA worked closely with FDA on this investigation.

**Impact on Livestock from Natural Disasters**

The ongoing drought has had a pronounced effect on grazing in the District, resulting in beef herd reductions. Lack of surface water for irrigation has led to heavy reliance on ground water. This has caused a large drop in the water table in some areas and the widespread need to drill new wells for agricultural and domestic uses.

**Emergency Preparedness Activities**

In 2014-2015, Tulare District conducted an inventory of all eight hundred (800) dairy operations within the District to validate the accuracy of data in our Emerging Threats Database. This served as a valuable opportunity for outreach to educate dairy producers about the CDFA Secure Milk Supply and FMD-preparedness plans. This outreach and premises validation was extended to include all calf-raising facilities in the District. In addition, Tulare District personnel verified premises location and conducted a roadside biosecurity assessment of all 196 commercial poultry premises within the District as part of the statewide Avian Influenza Preparedness Plan.

In July, the Tulare District and CDFA lost a long-time AHB employee, Theresa Paulmann, Livestock Inspector, to a year-long battle with cancer. She will be missed.

**Challenges within the District**

1. As the primary work load shifts from testing animals to preparedness activities, facilitating a change in attitude among staff within the district is posing a challenge.
2. Salary equality for AHB veterinarians compared to other state scientists is becoming an increasingly bigger issue affecting the morale, retention and recruitment of staff.
3. Consistency in enforcement of regulations and policies between AHB districts remains a challenge to be addressed.

**Greg Ledbetter, DVM, MPVM**

Veterinarian in Charge (VIC), Tulare District
Demographics

Approximately twenty-two (22) million people (57% of California’s population) live in the Ontario District in seven (7) counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura. In 2014, the total value of livestock and poultry production in the District was $1.2 billion, a decrease of 9.3% from $1.3 billion in 2013. There are many backyard livestock and poultry in the urban-rural interface, creating numerous challenges for animal health issues. There are also environmental issues for dairy farmers located in the Chino milk shed/Chino flood plain resulting from difficulties abiding by run-off restrictions. It should not be surprising that due to the high human population density, heavy vehicular traffic is a hindrance to travel within the District.

Livestock Industry Trends within the District

As of December 2015, there were ninety-six (96) bovine dairies in Ontario District: 6.5% of 1,470 statewide. This is a slight reduction from the ninety-seven (97) dairies with approximately 100,316 dairy cows reported by CDFA’s Milk & Dairy Food Safety Branch in December 2014, with annual production of 2.313 billion pounds of milk. A downward trend of dairies leaving Southern California has continued for several years. Based on AHB’s Emerging
There are thirty-nine (39) milk processors/cheese factories in the District. In 2015, USDA-accredited contract veterinarians vaccinated 54,856 cattle (96.5% dairy) for brucellosis in the District. In 2015, the total head of cattle on feed in California grew by 5% from 2014. In 2014, there were 329,681 feedlot cattle (76% of 435,000 statewide) in Imperial County, valued at $347 million, a decrease in number of head of 7.9% from 357,888 in 2013, valued at $552 million. This was a decrease in value of 37% for feedlot cattle in Imperial County from 2013 to 2014. In 2015, there were twenty-four (24) cattle feedlots and six (6) USDA-inspected slaughterhouses in the District.

Accurate census figures for equines in Southern California are not available. It appears that total horse numbers in California have decreased in recent years due to the economic recession and high cost of feed. There are three (3) major Thoroughbred racetracks in the Ontario District. Producers regularly export horses to foreign countries through Los Angeles International Airport (LAX). The District currently has one licensed goat dairy and sixty-eight (68) meat-goat farms (ET). In addition, the District contains one camel dairy which produces camel-milk soap, but it is not approved to sell dairy products. There is an overall decrease in the number of sheep farms and sheep both in the District and statewide. In 2014, there were 77,500 wool sheep on feed in Imperial County, worth $5.9 million. In 2012 (more current numbers are not available), there were 257 swine farms in the District, including one licensed garbage-feeding operation. The value of District swine sold in 2012 was $9.5 million, or 18.4% of the state’s total.

District staff confirmed seventy-one (71) active commercial poultry farms while doing premises validation through drive-by confirmation of addresses. According to CDFA’s Egg Safety and Quality Management office, Ontario District had forty-four (44) egg-layer farms with two thousand (2,000) or more hens, for a total of 5.25 million laying hens. This accounts for 39.3% of California’s total farms of this type and 40.8% of the hens from this type of farm. In addition, the District has 121 small egg-laying farms with less than two thousand (2,000) hens with a total of 20,354 hens. According to NASS, the number of broiler farms more than doubled from 2007 to 2012. There are many backyard game-fowl-raisers. In 2002, it was estimated there were one million game fowl in Southern California. Producers regularly ship game fowl to Vietnam and the Philippines through LAX. There are many aquaculture farms in the District, some which produce ornamental fish for export to other countries and some which produce fish for human consumption.

**District Workload and Accomplishments**

District staff participated in a meeting of the Pest Risk Committee at the Otay Mesa Port and two quarterly meetings of the Animal Import Working Group at LAX Port. They were also involved in discussions including highly pathogenic avian influenza (HPAI), New World screwworms and equine import quarantines. In addition, staff performed monthly swab sampling of and quarterly “Down Day” inspections of the thirty-two (32) Live Bird Markets (LBMs) in the District and attended the annual LBM stakeholder meeting. They also swabbed poultry at fifty-nine (59) feed stores. Staff performed California Egg Quality Assurance Program (CEQAP) inspections of five (5) commercial egg-layer farms and delivered 417 boxes of avian calendars (containing 120 each) to all 178 Ontario District feed stores and a few other entities. In addition, they performed five (5) inspections of a swine garbage-feeding operation and participated in swab surveillance sampling of hogs for African swine fever, classical swine fever, foot and mouth disease (FMD) at three swine slaughter plants and the garbage-feeding operation. Livestock inspectors attended livestock auctions at the four (4) livestock markets.
Dr. Andrea Mikolon, the Binational Liaison, participated in two (2) onsite Mexican bovine tuberculosis (TB) status reviews (Sinaloa and Chihuahua); one virtual Mexican TB status review (Coahuila); three (3) onsite meetings in Mexico (Tijuana, Veracruz and Guadalajara); a trilateral meeting in San Diego; a meeting on New World screwworm eradication and control strategy in Panama; and several conference calls relating to binational issues, in addition to giving a screwworm presentation at the LAX port. Dr. Mikolon also presented on Mexican cattle identification at the annual California Cattle Feeders Meeting, as well as touring six (6) Imperial Valley feedlots with USDA Undersecretary Avalos. District veterinarians also gave veterinary accreditation presentations to junior veterinary students at the School of Veterinary Medicine, Western University of Health Sciences in Pomona.

Ontario District veterinarians did thirteen (13) Foreign Animal Disease (FAD) investigations in 2015. Seven (7) of these were to rule out vesicular stomatitis virus (VSV) in horses; one to rule out African horse sickness (AHS) in horses; one to rule out FMD/VSV in swine; one to rule out FMD/VSV in cattle; one to rule out peste des petits ruminants (PPR) in goats; one to rule out FMD/VSV in cattle; and one to rule out screwworm larvae in a dog. All investigation results were negative for FADs.

District staff answered sixty-one (61) avian sick calls over the phone and veterinarians performed nineteen (19) non-FAD disease investigations, including fourteen (14) avian disease investigations (mostly backyard chicken sick calls or traces and one dead parakeet); one to rule out malignant catarrhal fever (MCF) in cattle; one to rule out cystercerosis in cattle; one for neurotropic equine herpesvirus; one case of equine infectious anemia with twenty-six (26) horses potentially exposed; and one to rule out HPAI in an interesting cluster of deaths of three (3) captive bar-headed geese due to West Nile virus.

**Foreign Animal Disease (FAD) Investigations in Ontario District - 2015**

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<tr>
<th>No.</th>
<th>Open Date</th>
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<th>Disease</th>
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<td>Whole bird, Swab</td>
<td>Riverside</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>3</td>
<td>3/19/15</td>
<td>15CA0009</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum, Swab</td>
<td>Orange</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>4</td>
<td>4/29/15</td>
<td>15CA0011</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum, Swab</td>
<td>San Diego</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>5</td>
<td>5/4/15</td>
<td>15CA0012</td>
<td>VSV, FMD, BPS</td>
<td>Swab, Tissue</td>
<td>Riverside</td>
<td>NVSL, CAHFS</td>
<td>Positive only for BPS</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>5/11/15</td>
<td>15CA0014</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum</td>
<td>Riverside</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>7</td>
<td>5/13/15</td>
<td>15CA0015</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum, Swab</td>
<td>Los Angeles</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>8</td>
<td>5/26/15</td>
<td>15CA0018</td>
<td>AHS</td>
<td>Equine</td>
<td>Lung, Spleen, Kidney, Slide</td>
<td>San Diego</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
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<tr>
<td>9</td>
<td>7/16/15</td>
<td>15CA0023</td>
<td>PPR</td>
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<td>Liver, Lung</td>
<td>Riverside</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
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<tr>
<td>10</td>
<td>7/23/15</td>
<td>15CA0024</td>
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<tr>
<td>11</td>
<td>7/29/15</td>
<td>15CA0026</td>
<td>Screwworm</td>
<td>Canine larvae</td>
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<td>NVSL, CAHFS</td>
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<td></td>
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<tr>
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<td>9/17/15</td>
<td>15CA0033</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum</td>
<td>San Bernardino</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>13</td>
<td>11/2/15</td>
<td>16CA0004</td>
<td>VSV</td>
<td>Equine</td>
<td>Serum, Swab</td>
<td>Riverside</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
</tbody>
</table>

**Destination laboratories**: National Veterinary Services Laboratories (NVSL); California Animal Health and Food Safety Laboratory (CAHFS).
One case of trichomonosis in beef cattle was identified in Ontario District during January 2015. District veterinarians also performed follow-up testing using the TB gamma test or comparative cervical test (CCT) after private practitioner TB-movement testing. Altogether, thirty (30) cattle herd tests had CFT responders that needed additional confirmatory testing for ninety-eight (98) animals, necessitating follow-up of one gamma reactor to lab necropsy and three (3) gamma suspects from another herd to slaughter, including collection of lymph nodes for diagnostics. In addition, twelve (12) gamma suspects from two (2) herds were negative when rebled. District veterinarians performed the CCT on caudal fold responders in a group of cattle exported to Vietnam and on exotic ruminants at three (3) local zoological parks. The District also performed whole herd TB testing of one beef herd under investigation as a slaughter trace-back and annual post-quarantine release testing on two (2) dairy herds (one owner) released after a test-and-removal plan.

Impact on Livestock from Natural Disasters

Wildfires and Floods: There were three (3) major wildfires in Ontario District: the 31,359 acre Lake Fire in San Bernardino County (June 17-August 1), the 4,250 acre North Fire in San Bernardino County (July 17-21) which destroyed seven (7) houses, and the 1,388 acre Solimar Fire in Ventura County (December 25-29). Major floods and resulting mudslides in mid-October closed State Route 58 and I-5. It seems that the impact of wildfires and floods on the livestock industry was minimal.

Drought: All fifty-eight (58) California counties have drought disaster designations given by Governor Brown. The drought has raised prices of hay and silage, increased dairy cow culling rates and reduced milk production in California. Loss in milk production is estimated to have cost the California dairy industry about $250 million. The cattle and calf industry depends on pasture, and lack of rain in early 2015 caused cow and calf numbers to be lower than normal. More than 75% of cattle in California are in areas with exceptional drought conditions. It has been estimated that the lower supply of cattle for California feedlots may result in losses of about $100 million; however, the loss of the Brawley slaughter plant has also decreased the feeding capacity in the Imperial Valley.

Emergency Preparedness Activities

HPAI preparedness: The District performed address and data validation for seventy-one (71) active commercial poultry farms and for eight (8) Association of Zoos and Aquariums (AZA) zoos/aquaria with birds located within the Ontario District. Veterinarians performed biosecurity audits of three (3) AZA zoos and participated in the Concept of Operations (CONOPS) zoo HPAI response virtual tabletop exercise. District staff participated in development of biosecurity self-assessment form for commercial poultry farms and presented it at the California Egg Quality Assurance Program (CEQAP) Continuing Education Seminar on August 25, 2015. Veterinarians also participated in a teleconference training on FMD.

Challenges within the District

1. Attrition of CDFA workforce: Retiring, health challenges and leaving for higher paying permanent jobs.

Predrag Pecic, DVM
Veterinarian in Charge (VIC), Ontario District
Overview

Demographics

California has 5,858,662 head of cattle, including calves. These animals belong to 12,566 operations throughout the state; 10,925 of these operations contain 583,594 beef cows and 1,931 operations contain 1,815,655 dairy cows. There are also 488,131 head of animals on feed in ninety-seven (97) operations that include cattle and calves fed a ration of grain or other concentrates. This category excludes cattle that were pastured only, background feeder cattle and veal calves. In addition, 2,971,282 head of “other” cattle belong to 13,380 operations. This cattle group consists of heifers that have not calved, steers, calves and bulls (USDA Census of Agriculture, 2012 Census). California data shows there are 1,470 licensed dairies housing 1,789,440 milking cows. They have produced over 42,305,099 pounds of milk (California Dairy Statistics and Trends 2014, CDFA).

Economics

California’s total livestock and livestock products cash receipts were $15.3 billion in 2014, up 20% from 2013. A 23% increase in dairy receipts was the principle contributor to the rise in total livestock receipts (accounting for nearly 70% of the total increase). Livestock and livestock products accounted for over 29% of the State’s gross cash receipts, and over 8% of total U.S. livestock cash receipts. California ranked third behind Texas and Iowa in total livestock receipts for 2014. Since 1993, California has been the nation’s leading dairy state: Sales of milk and cream totaled $9.36 billion in 2014. California ranked number one in the U.S. in the production of fluid milk, butter, Mozzarella, Hispanic cheeses, and nonfat dry milk. California continued to be second in total cheese production behind Wisconsin.
Mitigation and Preparedness Measures

The AHB reduces the likelihood of bovine brucellosis, tuberculosis, trichomonosis and other cattle diseases from entering and spreading in California by developing, monitoring and enforcing appropriate state-entry requirements and within-state program requirements. Entry requirements mitigate diseases entering California’s cattle by requiring negative disease tests on specific classes of cattle moving from areas of risk. Branch staff respond to phone, internet and mail requests for cattle-entry requirements, providing details of the test, identification and vaccination requirements. Personnel daily issue livestock-entry permits, monitor cattle shipments crossing the California border and enforce the animal health requirements to control the risk of diseases entering California.

California requires official brucellosis calfhood vaccination and a legible brucellosis tattoo for all female cattle over four (4) months of age before moving into the State. For cattle moving from a Designated Surveillance Area (an area around the brucellosis-infected elk and bison in the Greater Yellowstone Area), California requires a negative brucellosis blood test obtained within thirty (30) days before movement and a special entry permit.

All intact dairy cattle over six (6) months of age entering California require a negative tuberculin test within sixty (60) days. All breeding cattle entering California must have a permit, official identification and a certificate of veterinary inspection to enter the state.

California requires a negative individual trichomonosis test on all bulls eighteen (18) months of age and over sampled ten (10) days after their last contact with sexually mature cows and within the sixty (60) days before movement into California. Test results from pooled samples are not acceptable. Bulls moving for exhibition (that will return directly to the state of origin after the exhibition), to artificial insemination facilities and to slaughter are exempt.

California has special entry requirements for foreign cattle, depending on their disease threat. Mexican feeder cattle are the primary foreign cattle, entering through land ports in Arizona, New Mexico and Texas; they require TB-tests to enter (the number of tests depends on their region of origin). Breeding and rodeo cattle from Mexico require additional brucellosis, tuberculosis and trichomonosis testing before they are free to move within California. This fiscal year, no Mexican breeding cattle and only a small number of Canadian breeding cattle (thirty-five (35) beef and six (6) dairy) directly entered California; however, 48,000 Mexican steers entered the state.

### California Livestock – Cash Income

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and Calves</td>
<td>$3,188,125,000</td>
<td>$3,048,390,000</td>
<td>$3,719,100,000</td>
</tr>
<tr>
<td>Dairy Products, Milk and Cream</td>
<td>$6,899,743,000</td>
<td>$7,617,641,000</td>
<td>$9,358,087,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$10,087,868,000</strong></td>
<td><strong>$10,666,031,000</strong></td>
<td><strong>$13,077,187,000</strong></td>
</tr>
</tbody>
</table>

Adapted from the California Agricultural Statistics Review 2014-2015

California’s dairies produced 42.3 billion pounds of milk, accounting for almost 21% of the nation’s milk supply. The top five milk-producing counties in California, accounting for nearly 73% of the State’s total milk production, were Tulare (27%), Merced (15%), Kings (10%), Stanislaus (10%), and Kern (10%). California’s total cheese production of 207.9 billion pounds was up 5.7% from 2013. Dairy products remained the State’s leading commodity and accounted for 19% of receipts for U.S. dairy products (5.3% more than Wisconsin). Cattle and calf sales totaled $3.72 billion, compared with $3.05 billion in 2013.
Branch personnel continue to enforce a brucellosis vaccination program for female calves to reduce the likelihood of brucellosis spreading in California. The Branch maintains two-year contracts with about six-hundred (600) private accredited veterinarians in California to vaccinate calves for brucellosis and maintains a brucellosis vaccine ordering system, providing vaccination tags, ink, tattoo supplies and recording forms. California contract veterinarians vaccinated 855,739 dairy heifers and 115,744 beef heifers during this year’s reporting period. The graph below provides the number of heifers vaccinated (dairy versus beef) within each AHB district. During this time, 88% of calves vaccinated were dairy heifers (74% of the vaccination reports), and 12% were beef heifers (26% of the vaccination reports).

The Branch is the lead state agency for animal disease investigations. Branch personnel annually review and update the California “List of Reportable Conditions for Animals and Animal Products” to ensure appropriate diseases are included. Trained personnel are distributed throughout the State to rapidly investigate and respond to any potential disease incursion 24/7 hours/day. Investigations are based on surveillance reports of a suspect foreign animal disease, events with high morbidity or mortality of unknown cause or source and toxicological conditions likely to contaminate animals or animal products. Recent investigations include diseases that mimic foot and mouth disease, bovine spongiform encephalopathy and anthrax.

Staff oversee the collection and testing of appropriate samples from representative cattle during disease investigations, routine slaughter and live animal testing to ensure that quality disease surveillance programs are applied for cattle diseases. Branch staff also monitor other surveillance streams for disease information, including tests at private laboratories, public health testing and tests from wildlife populations. Surveillance streams are enhanced according to disease needs. The Animal Health Division maintains a laboratory system, the California Animal Health & Food Safety (CAHFS) Laboratory System, to provide appropriate and timely diagnostic support to safeguard the health of California’s livestock and poultry industries and to protect the public health from animal disease. This includes laboratory personnel using quality procedures, supplies and equipment approved by the USDA to perform effective and efficient diagnostic testing and maintaining excellent data quality. The Branch developed, maintains and enhances a disease-recording and reporting system to track disease investigations cases and work-load.

**Overview of Regulatory Changes in 2015**

Several changes have been proposed for the cattle disease programs. These regulatory changes will be submitted in 2016. No regulatory changes have been made to the cattle disease programs in 2015.
**Individual Disease Summary**

**Brucellosis**

Bovine brucellosis is a contagious disease of livestock which can also infect people. The disease is known as contagious abortion or Bang’s disease in livestock and as undulant fever in people because of the intermittent fevers accompanying infection. It is a serious disease that has been eradicated from most livestock in the U.S. The only remaining reservoir of infection is in elk and bison in the Greater Yellowstone Area, with occasional spill-over of infection into livestock.

California is currently classified as Free for bovine brucellosis. The last affected dairy herd was released from hold in December 1996, and California was classified as a Brucellosis-Free state in October 1997. A brucellosis vaccination program is maintained in California to reduce the threat of disease spreading if it enters the State, as described under disease mitigation. California imports large numbers of cattle from many states and Mexico that threaten the health of native cattle. California’s large packing plants provide brucellosis surveillance for California and several other states.

The national brucellosis surveillance plan is applied to California’s cattle, domestic bison and targeted high-risk wildlife populations as described in state and federal program regulations, program standards and surveillance plans. This includes distributing and monitoring the correct use of Market Cattle Identification (MCI) backtags to more than thirty (30) different auctions in California (some with multiple sales), about thirty-five (35) dealers, fifteen (15) packing plants, about thirty-five (35) livestock haulers, several producers and feedlot owners. This tag system assists in the correct identification of blood samples collected at slaughter. Brucellosis surveillance relies on appropriate samples collected at slaughter, testing live animals and monitoring other surveillance streams. All dairy and beef cattle are monitored by the national MCI program. All dairy herds in California were also monitored by the Brucellosis Ring Test (BRT) on bulk milk samples until August 2014.

The national brucellosis surveillance plan changed in April 2011, cutting federal funds for MCI collections nationwide. Since then, MCI blood samples have only been collected from one California packing plant, and starting in April 2013, all samples are sent directly from the plant to the Kentucky Federal Brucellosis Laboratory (instead of CAHFS laboratories). Screen test positive samples at Kentucky are then sent to the National Veterinary Services Laboratory (NVSL) in Ames, IA, for confirmatory testing. Over this year’s report period, 125,811 blood samples from California were brucellosis-tested at the Kentucky laboratory: We received no confirmed brucellosis cases from this surveillance stream.

USDA funding for the BRT program also ceased in April 2011. However, the California dairy industry and the Branch determined that the BRT program provided good dairy herd assurance of freedom from brucellosis, and maintained routine animal health contact with every dairy herd in the state. The Branch continued to fund the laboratory BRT testing and provided personnel to collect and submit milk samples until August 2014. Samples were taken from the farm tanks, creameries, commercial analytical laboratories, or Dairy Herd Improvement Association (DHIA) laboratories. During this year’s report period, seventeen (17) samples from twelve (12) different herds (representing 4,672 cows) were BRT-tested at the CAHFS laboratory. Eleven (11) of these herds were BRT-tested during their herd brucellosis testing for producing milk for consumption raw. One herd was tested as part of an MCI investigation that started last year.

Effective April 2011, federal funds also ceased to support private brucellosis testing, and these tests became “fee for service”. Private brucellosis testing continues in all CAHFS laboratories to ensure good customer service. During this year, the laboratories tested blood samples from 8,709 cattle, 4,564 goats, fifteen (15) horses, eighty-nine (89) camelids, 394 swine, two (2) sheep and sixty-two (62) other mammals for brucellosis.
Branch personnel are trained to respond to suspicious surveillance samples by rapidly investigating the incident, controlling animal movements and applying appropriate confirmatory tests. If infection is detected, an appropriate brucellosis response program will be developed with the herd owner to control and eradicate the disease. No brucellosis-infected herds have been detected in California during 2015.

California is committed to continuing an effective surveillance program for bovine brucellosis throughout the State and being prepared to respond to any disease incursion. The national brucellosis program changes continue to be incorporated into California’s surveillance system. New technology is increasingly being incorporated into the program: Scanners are being used to gather back-tag barcodes and RFID tags in packing plants; and mobile information management systems are increasingly used by private veterinarians for brucellosis testing, vaccinating and reporting.

**Tuberculosis (TB)**

Tuberculosis is a serious bacterial disease caused by *Mycobacterium*, a group of bacteria that usually affects the respiratory system. Animals infected with TB may not show signs for years, but animals that appear healthy may still be capable of transmitting infection to other animals. Tuberculosis is classified into three (3) main types. Human TB, or M. tuberculosis, is rarely transmitted to animals, although it is often the type of TB that affects elephants. Avian TB is typically restricted to birds, but occasionally pigs and other animals can become affected. Bovine TB is a chronic disease that has affected animal health throughout recorded history and is capable of infecting most mammals; people infected with bovine TB are clinically indistinguishable from those infected with human TB.

California is the only state in the nation classified as Modified Accredited Advanced (MAA) for bovine TB; all other states are classified as Free except Michigan, where a small portion of the state has bovine tuberculosis in their free-ranging white-tailed deer with occasional spillover into domestic livestock. California first gained TB-Free status in 1999 only to lose it in April 2003 after bovine TB was confirmed in three (3) dairy herds in the Central Valley. After depopulating the affected herds and tracing and testing the associated cattle, California regained TB-Free status in April 2005. Bovine TB was again detected on routine slaughter surveillance in a Fresno County dairy cow in December 2007. Two (2) associated dairy herds were confirmed TB-affected in May 2008, for a total of three (3) affected dairies in Fresno County. The USDA downgraded California’s TB status to MAA in September 2008. A fourth affected dairy herd was confirmed in San Bernardino County during January 2009. Two (2) herds were depopulated and two (2) herds completed test-and-removal plans. California was on its 24-month countdown to regain TB-Free status when a TB-affected herd was detected in San Bernardino County in April 2011. Two (2) additional herds were detected, in October and December 2011, for a total of three (3) affected herds in San Bernardino County; one was depopulated and two (2) completed test-and-removal programs. In February 2013, an affected dairy herd was identified in Tulare County. This herd operated under a test-and-removal plan until released in July 2014, starting California’s 24-month countdown for application for Free-status in July 2016.

The national bovine tuberculosis surveillance plan is applied in California as described in State and federal program regulations, program standards and surveillance plans. The program uses a combination of slaughter surveillance and live animal testing sufficient to detect 0.05% prevalence with 95% confidence; this requires at least 6,000 adult California cattle to be inspected at slaughter or by TB-testing each year (in addition to monitoring other surveillance streams).

California has four (4) of the nation’s top forty (40) U.S. adult cattle slaughter plants. Those plants slaughtered nearly 800,000 adult cattle and 380,000 steers and heifers (at all plants, FSIS Data) and submitted 567 look-alike granulomas for TB-surveillance during this year’s reporting period. The national target granuloma submission rate is one submission per two thousand (2,000) adult cattle slaughtered; three (3) of California’s top plants are in compliance with the national surveillance standards but one did not meet the target, submitting 0.8 samples per two thousand (2,000) adult cattle slaughtered. This low submitting plant has been visited and submissions are expected to increase next year.
The CAHFS laboratories in Tulare and San Bernardino are approved to screen tissue samples for tuberculosis from California slaughter plants; they received granuloma samples directly from the three (3) major adult packing plants through June 2015. All other packing plants in California shipped their granuloma samples directly to the National Veterinary Services Laboratory (NVSL) in Ames, Iowa, and as of July 2015, NVSL receives all TB granulomas collected at slaughter in California. The CAHFS laboratory pathologists continue to necropsy and examine tissues from TB-suspect and TB-reactor cows and forward suitable samples to NVSL.

Two (2) investigations were initiated in California from granulomas submitted from slaughter in 2015; one case was detected in a California Holstein steer slaughtered at an Arizona packing plant, and the other case was detected in a Holstein cow slaughtered at a California packing plant but traced to Oregon. Both cases were closed after it was determined that the animals were not infected with bovine TB.

Branch personnel provide training and support for private veterinarians TB-testing cattle and respond rapidly to their reports of TB-test responders and TB-suspect cattle. Tuberculin and TB-test forms are distributed to private practitioners and guidelines for tuberculin use are provided with each supply. Branch personnel review all completed TB-test charts from private practitioners and capture the results in a State database. This year, 182 private veterinarians TB-tested cattle in California; sixty-two (62) of them tested more than three-hundred (300) cattle. Over 108,000 cattle were tested by private veterinarians and 1.33% responded to the screening tests; the responders were tested by regulatory personnel revealing fifteen (15) suspect or reactor classifications.

Regulatory employees did an additional 15,134 TB-tests on cattle. This included TB-tests on previously affected herds, epidemiologically associated herds and herds tested for raw milk production. Sixteen (16) cattle were necropsied at the CAHFS laboratories for TB diagnostics during this reporting period; two (2) of the cows originated from regulatory testing in herds that had been TB-affected, and fourteen (14) cows were TB-reactors identified following routine movement testing by private practitioners. One cow, identified as a TB-suspect during routine testing, was sent to slaughter with enhanced surveillance and tissues were submitted for testing. No TB-infected cattle were detected during this year’s surveillance testing, which well exceeded the 6,000 minimum requirement.

The CAHFS laboratory in Davis is an approved National Animal Health Laboratory Network (NAHLN) laboratory to perform bovine TB-gamma interferon testing. This year the laboratory did more than 1,050 gamma tests on California cattle.
Branch personnel respond to the detection of suspicious TB results from surveillance streams with rapid investigations and confirmatory testing. In October 2015, California received notification that TB-exposed heifers had moved from a TB-affected herd in Texas to California via Missouri. A disease investigation was immediately initiated and the cattle were traced through a dealer to their destination herd. Three (3) of the eight (8) Texas cows were located and removed to enhanced TB-slaughter surveillance with indemnification; all were negative. The whole herd of 1,325 cows were TB-tested, and thirty-three (33) responders received confirmatory testing. Three (3) cattle were classified as TB-suspects and sent for necropsy; all three (3) were negative. This herd will be TB-retested in twelve (12) months.

If infection is detected, a TB response program will be developed with the herd owner until the disease is eradicated. This year, three (3) previously TB-affected herds were tested as part of their post-quarantine release tests; no infected cattle were detected.

California is committed to continuing a high level of surveillance for bovine tuberculosis throughout the state, not only because of our large cattle population (5.8 million animals), but also because California imports over 832,000 cattle from other states and Mexico. Importing cattle, including Mexican cattle, have posed the highest threat for TB. California receives Mexican cattle imported into the U.S. each year through direct shipments via Texas, New Mexico, Arizona, and indirectly from other U.S. states as feeder cattle. California also provides the slaughter surveillance for several other states that depend on our large packing plants for their TB-slaughter surveillance.

**Trichomonosis**

Bovine trichomonosis (or trichomoniais) is a venereal disease in cattle caused by the organism *Trichomonas foetus* that can have significant economic consequences. It is more commonly detected in beef cattle and natural service herds in California. The causal organism is primarily transmitted from infected bulls, often long-term carriers, to cows and can cause abortion and infertility.

In an effort to prevent and control the disease, a voluntary Trichomonosis Control Program was developed by AHB and representatives of the cattle industry. The supporting regulations went into effect in September 2003, and were modified in 2009 and 2011. The program includes approving veterinarians and laboratories for collecting and reading samples, reporting positive and negative tests to CDFA, investigating positive bulls and affected herds, and requiring testing and official ID for movement, entry, and sale of bulls. When a positive bull is identified, AHB personnel quarantine the herd bulls and investigate contact bulls or neighboring herds that may have links to the affected herd; all exposed bulls must be tested as well. In 2015, with input from the Cattle Health Advisory Task Force, AHB drafted modifications to the regulations in conjunction with ADT changes to improve the program and harmonize with neighboring states. The changes are expected to be published in early 2016.

### Affected Herds Detected in California for Fiscal Years (October 1 – September 30) using CAHFS Monthly Lab Reports

<table>
<thead>
<tr>
<th>Year</th>
<th>Redding District</th>
<th>Modesto District</th>
<th>Tulare District</th>
<th>Ontario District</th>
<th>Total Herds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2005</td>
<td>23</td>
<td>11</td>
<td>15</td>
<td>0</td>
<td>49</td>
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<tr>
<td>2005-2006</td>
<td>25</td>
<td>3</td>
<td>17</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>2006-2007</td>
<td>14</td>
<td>10</td>
<td>22</td>
<td>1</td>
<td>47</td>
</tr>
<tr>
<td>2007-2008</td>
<td>38</td>
<td>15</td>
<td>16</td>
<td>0</td>
<td>69</td>
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<tr>
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<tr>
<td>2011-2012</td>
<td>7</td>
<td>2</td>
<td>7</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>2012-2013</td>
<td>9</td>
<td>2</td>
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<td>0</td>
<td>13</td>
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<td>2013-2014</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>2014-2015*</td>
<td>13</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>28</td>
</tr>
</tbody>
</table>

*Includes CAHFS lab reports, private laboratory tests and out-of-state laboratory tests.
The CAHFS Laboratory has reported a 9.4% increase in total trichomonosis tests in 2015 compared to 2014, with an increasing proportion of PCR compared to culture. In their test records, which does not include private or out-of-state laboratories, the percent of positives, providing a rough prevalence of disease in California, has hovered around 0.5%. The number of positive herds detected in California each year, based on CAHFS monthly reports and counting each herd only once per year, has decreased over the past decade and suggests improving control.

CDFA’s Emerging Threats (ET) database, which has the potential to capture private and out-of-state laboratory tests for California cattle, estimates 1,244 total trichomonosis herd tests for the 2015 calendar year representing 9,563 animals sampled: seventy-seven (77) positive results and fifty-four (54) indeterminate results. The seventy-seven (77) positive animals were from twenty-one (21) unique affected herds, with several of these affected herds having more than one positive herd test. It is of interest to note that many of the affected herds, particularly those in common-grazing regions, have had infections in previous years as well.

### Herds and Animals Tested for Trichomonosis in California between January 1 – December 30, 2015 using CDFA’s Emerging Threats Database and CAHFS Monthly Lab Reports

<table>
<thead>
<tr>
<th>District</th>
<th>Herds Tested</th>
<th>Total Bulls Tested&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Positive Bulls</th>
<th>Negative Bulls</th>
<th>Indeterminate Tests</th>
<th>Positive Herd Tests&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Affected Herds&lt;sup&gt;3&lt;/sup&gt;</th>
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<tbody>
<tr>
<td>Modesto</td>
<td>332</td>
<td>2,530</td>
<td>20</td>
<td>2,464</td>
<td>46</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Ontario</td>
<td>15</td>
<td>61</td>
<td>0</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Redding</td>
<td>585</td>
<td>4,494</td>
<td>39</td>
<td>4,448</td>
<td>7</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Tulare</td>
<td>312</td>
<td>2,478</td>
<td>18</td>
<td>2,459</td>
<td>1</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>1,244</td>
<td>9,563</td>
<td>77</td>
<td>9,432</td>
<td>54</td>
<td>31</td>
<td>21</td>
</tr>
</tbody>
</table>

<sup>1</sup> Includes 10 cows tested at a natural service dairy  
<sup>2</sup> At least 1 bull tested positive in a herd test  
<sup>3</sup> Herds with more than one positive herd test are only counted once for the year

### Outreach and Education

#### General Outreach and Collaboration

Branch personnel work with the federal government and representatives of the cattle industry on a continuous basis to review and monitor legislative and regulatory authority; and to ensure appropriate disease controls, movement controls, and access to animals and premises to carry out the disease control and eradication program procedures. Meetings in 2015 included the United States Animal Health Association Annual Meeting, Western States Animal Health Association Annual Meeting, California Cattlemen’s Association meetings, California Veterinary Medical Association meetings and Farm Bureau meetings.

Cattle health fact sheets and brochures have been prepared and are routinely updated. General outreach includes providing information at meetings and on the Branch websites, where factsheets and online forms are accessible, targeted towards the general public, producers, and veterinarians. A summary of the bovine web page visits for 2015 (estimated by Google Analytics) shows activity for the main cattle health page and pages about the primary cattle diseases and control programs in California (brucellosis, tuberculosis, trichomonosis).

### Number of Views for Bovine Web Pages in 2015

<table>
<thead>
<tr>
<th>Bovine Web Pages</th>
<th>Page Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle Health</td>
<td>1,678</td>
</tr>
<tr>
<td>Bovine Tuberculosis (TB)</td>
<td>1,145</td>
</tr>
<tr>
<td>Bovine Brucellos</td>
<td>676</td>
</tr>
<tr>
<td>Bovine TB - Live Animal Testing and Diagnostics</td>
<td>655</td>
</tr>
<tr>
<td>Trichomonosis</td>
<td>604</td>
</tr>
<tr>
<td>Foot and Mouth Disease (FMD)</td>
<td>269</td>
</tr>
<tr>
<td>Bovine Spongiform Encephalopathy (BSE)</td>
<td>235</td>
</tr>
<tr>
<td>Trichomonosis Q&amp;A</td>
<td>73</td>
</tr>
<tr>
<td>Bovine Biosecurity</td>
<td>71</td>
</tr>
<tr>
<td>Johne’s Disease</td>
<td>63</td>
</tr>
</tbody>
</table>
The Animal Health Branch Newsletter, including outreach on cattle health, is distributed to approximately 1,000 livestock industry personnel each quarter; during 2015 this was distributed in January, April, July and October.

Branch personnel also provide outreach information over the phone and directly to groups and individuals during their visits to producers during disease and livestock movement investigations; newly accredited veterinarians for training and during Accreditation classes; local veterinary association meetings; veterinarians who fail to meet the performance standards during TB-testing; cattle saleyards; slaughter establishments; and border-crossing stations.

**Industry Advisory Group**

The Cattle Health Advisory Task Force was established in 2004 to review and advise the Department on the administration, effectiveness and enforcement of California’s bovine disease control and eradication programs. This committee met twice in 2015: April 22, 2015, and December 9, 2015. The topics discussed included the bovine tuberculosis, brucellosis and trichomonosis control programs, antimicrobial resistance and the plans for enhancing animal disease traceability (ADT). The committee supported submitting regulations for changes to the trichomonosis program and the ADT program.

**Interagency Collaborations**

A network analysis project using Border Protection Station information collected over the past ten (10) years has been initiated with UC Davis to analyze livestock movements and model the potential impact of disease introduction and spread in California. The information covers livestock movement records for the years 2004-2015, and includes beef cattle, dairy cattle, sheep, goats, swine, horses, poultry, hatching eggs and rabbits. UC Davis will provide the Branch with summary data and maps.

A project has also been initiated with UC Davis to look at the spatial epidemiology, risk factors and economic impact associated with bovine cysticercosis (beef measles), and other diagnoses, found at California’s packing plants. This collaborative study will use slaughter surveillance data to examine whether cysticercosis cases are increasing, their risk factors (e.g. water contamination, feed/fecal contamination, environment, management factors, biosecurity, spatial and temporal trends) and their economic impacts. The spread of beef measles between people and cattle may be a model for the spread of bovine TB between people and cattle and assist in the control of these zoonotic diseases.
Overview

California has a vibrant poultry industry representing all sectors (traditional commercial, organic, free-range, game birds, game fowl, live bird marketing systems and backyard enthusiasts). In 2014, California processed over 275 million broilers (meat-type chickens). About 15 million turkeys were grown in 2014. In addition, California produces almost 380 million eggs per year from almost sixteen (16) million laying hens. The value of production was about $419 million in 2014. Another sector of the industry is live bird markets (LBMs), which sell freshly slaughtered or live birds directly to customers. A substantial number of LBMs coexist with the strong commercial poultry industry in California. Altogether, the annual value of the California poultry and egg industry is about $1.6 billion (California Poultry Federation Poultry Statistics, California Agricultural Statistics Review 2014-2015).

Animal Health Branch (AHB) personnel conduct avian influenza (AI) surveillance for a variety of poultry sectors. We have an industry or market-driven AI surveillance program being initiated within the traditional poultry sector that includes turkeys, layers (egg-laying chickens) and broilers (meat-type chickens). AHB staff works cooperatively with the United States Department of Agriculture (USDA), Food and Drug Administration (FDA), the Meat, Poultry, and Egg Safety Branch and industry/academic partners (e.g. California Poultry Federation, Pacific Egg and Poultry, University of California Cooperative Extension, and the California Animal Health and Food Safety Laboratory) to ensure that animal health and food safety goals are met.

California is located in the Pacific flyway which serves as a pathway to thousands of migratory birds each year. Notifiable avian influenza (NAI) viruses are endemic in the migratory bird population. Effective disease barriers and surveillance strategies are crucial in the prompt detection of NAIs into our national poultry flocks.
Partnerships and cooperation with industry participants are crucial to this effort. An illustration of the risk from endemic bird populations occurred this winter with the detection of NAI in commercial poultry in Central California and throughout the Pacific Northwest and the Midwest. Passive surveillance on three (3) California farms detected increases in mortality that resulted in submissions to the California Health and Food Safety (CAHFS) Laboratory System. The AHB and their USDA counterparts responded quickly and contained the virus, most likely transmitted by migratory waterfowl, to the ranches infected.

Beyond traditional commercial sectors, we conduct AI monitoring at: 1) State licensed poultry slaughter plants; 2) swap meets and auctions; 3) feed stores that sell poultry, especially adult poultry; 4) game birds (chukars, pheasants, etc.); 5) fairs and exhibitions (fancy poultry); 6) poultry/farm stores that sell primarily live poultry for home consumption; and 7) game fowl. An additional sector is any producer/distributor that supplies birds to the previously mentioned sectors. Each of these sectors requires different surveillance and disease control strategies.

The Animal Health Branch is an active participant in the national Live Bird Market Working Group (LBMWG), which includes local and regional USDA and state representatives as well as representatives from various countries and the LBM industry. The purpose of the working group is to recommend policy and regulatory reforms in the Live Bird Marketing System (LBMS) in order to enhance control, surveillance, trace-backs and define indemnity guidelines for AI; in order to standardize surveillance and disease response activities for the nation. This input is critical to assure that our animal health programs continue to develop a surveillance system for low pathogenic avian influenza (LPAI) that meets federal guidelines. In February 2015, the LBMWG annual meeting was held in Sacramento, and Dr. Mize, Animal Health Poultry Lead, presented case reports on the HPAI outbreaks in California.

In March 2015, the USDA and the Animal Health Branch hosted a trade delegation from South Korea. A tour of a commercial poultry ranch, processing facility and a live bird market was requested in order to illustrate that the biosecurity and disease surveillance measures of our system were sufficient to reestablish trade with this important trading partner. Our live bird market program was reviewed to reassure the Korean delegation that live bird markets were surveyed and regulated and their products did not enter international trade routes.

Also in March 2015, the Western Poultry Disease Conference, which is one of the leading international meetings on avian diseases, was held in Sacramento. Avian diseases and poultry production issues that are of concern to producers, regulators and poultry veterinarians in the Western United States, Mexico, and Central and South America are the focus of the conference. Dr. Mize, AHB Avian Lead, presented a case report on LPAI H5N8 in Stanislaus County. There were 143 participants at the conference.

In recognition of our expertise, the AHB was requested to send an instructor, Dr. Ken Takeshita, to the University of Delaware Emergency Poultry Disease Response (EPDR) Certificate Program Workshop in July 2015. This workshop covered: understanding the influenza virus, surveillance, biosecurity, outbreak response and control, incident command structures, protection for the responder, depopulation, disposal, composting, and decontamination. The participants originated from many different countries.

Other Ongoing Avian Programs

**Very virulent Infectious Bursal Disease (vvIBD)**

The infectious bursal disease virus (IBDV) is an economically important, highly contagious disease that affects immature chickens. The causative agent of IBDV consists of two (2) segments of double-stranded RNA virus belonging to the genus *Avibirnavirus* of the family *Birnaviridae*. The virus targets the immune system, causing immune suppression by destroying the immature B lymphocytes primarily in the bursa of Fabricius. The IBDV...
isolates can be differentiated into serotype I and II with clinical disease attributed only to serotype I. The pathogenic serotype I IBDV can be further classified as classical (often called standard), variant pathotypes and very virulent strains (vv).

Very virulent IBDV (vvIBDV) is a pathotypic variant of IBDV which was first detected in broilers in the Netherlands in the late 1980s. The primary feature of vvIBDV is the ability to induce higher mortality in susceptible chickens than classical virulent strains. Mortality rates of 100% in specific pathogen-free chickens, 60% in layers and 30% in broilers, have been reported. This disease had not been identified previously in the United States. Based on the European experience, if not controlled, vvIBDV has the potential to seriously impact U.S. poultry production and economics, interstate movement and international commerce.

Starting in 2007/2008, a collaborative investigation led by CDFA identified vvIBDV, an emerging pathogen not previously identified in North America. In response to the detection, California became the first state to implement a voluntary surveillance program to aid in determining the geographical prevalence of this disease. Through California’s multi-year surveillance program, which began in 2007/2008, vvIBD has been shown to be found in our backyard and specialty bird producers, along with continued isolations in broiler growers. In 2014, the disease was also isolated in Washington State, who looked to California for direction on response.

**Testing:** In 2015, there were 102 RNA-qRT-PCR tests run for vvIBDV – three (3) of these were “unable to evaluate” and ninety-nine (99) were negative. PCR testing is always performed for IBDV prior to vvIBDV testing. There were 102 qRT-PCR tests run for IBDV – four (4) of these were “unable to evaluate”, forty-seven (47) were negative and fifty-one (51) positive for IBD. This testing was done on carcasses or bursal pools submitted. The reasons for submitting included: flock monitoring, ill thrift, increased mortality, musculoskeletal, respiratory, systemic illness, and unexplained death. The last commercial isolation was in April 2014, and the last backyard isolation was in October 2013.

**National Poultry Improvement Plan (NPIP)**

The National Poultry Improvement Plan (NPIP) is housed by the California Poultry Federation Health Board. It was established in the early 1930s to provide a cooperative industry, state, and federal program through which new diagnostic technology can be effectively applied to the improvement of poultry and poultry products throughout the country. The program includes testing and monitoring for *Salmonella typhoid, Salmonella enteritidis, Mycoplasma gallisepticum, Mycoplasma synoviae, Mycoplasma meleagridis* and avian influenza. In addition, the NPIP currently includes commercial poultry, turkeys, waterfowl, exhibition poultry, backyard poultry, and game birds. The technical and management provisions of the NPIP have been developed jointly by industry members and State and federal officials. These criteria have established standards for the evaluation of poultry with respect to freedom from NPIP diseases. AHB veterinarians inspect the farms and hatcheries to ensure they meet the standards required by the program. In 2015, a total of twenty-four (24) NPIP-certified premises were inspected [thirteen (13) backyard poultry operations and eleven (11) hatcheries].

**California Egg Quality Assurance Plan (CEQAP)**

The California Egg Quality Assurance Plan (CEQAP) is a voluntary pre-harvest food safety program designed to ensure product quality and food safety associated with salmonella and chemical residues in eggs. This program was developed cooperatively with industry, UC Cooperative Extension and AHB in 1994. The CEQAP contains core components which form the basis of a Hazard Analysis Critical Control Points (HACCP) Plan. Training, record-keeping and research are integral components in documenting the success of the program. AHB personnel inspect the farms and egg-processing facilities to ensure the high standards are being maintained. In 2015, a total of sixteen (16) commercial poultry operations were CEQAP-inspected.
**Food & Drug Administration (FDA) Egg Contract**

The purpose of this contract is to obtain State assistance with the inspection of egg-producing facilities subject by the FDA’s *Salmonella enteritidis* (SE) egg rule. This would entail the inspection of egg-layer farms having three thousand (3,000) or more laying hens that do not sell all eggs directly to consumers and that supply eggs for the table egg market. The inspections and resulting voluntary corrective action as appropriate provide enhanced coverage and oversight of California’s egg production and processing facilities. The inspections also help to prevent SE from contaminating eggs on the farm and from further SE growth during storage and transportation, enhancing compliance with 21 CFR 118 and California regulation for Shell Egg and Food Safety, Section 1350.

The CDFA Animal Health Branch and Egg Safety Quality Management Team collaborate to work through this contract list. Each of these groups has personnel that have been trained, commissioned and credentialed to perform a pre-determined amount of FDA egg inspections in California under a limited term contract. For the 2014-2015 Fiscal Year, thirteen (13) poultry ranches were assigned to be FDA-inspected by CDFA personnel. In 2015, five (5) firms were FDA-inspected. When the avian influenza outbreak occurred, a moratorium was placed on all FDA-inspection work and the Egg Safety Training Course was postponed. The contract period was extended through March 2016, and the rest of the assigned firms are planned to be FDA-inspected once the hold on fieldwork is lifted.

**Avian Health Surveillance and Outreach Highlights**

The AHB has conducted extensive surveillance and outreach activities to various California premises in the 2015 calendar year. In 2005, California LBMs and their live bird suppliers cooperatively developed the California Custom Slaughter Low Pathogenic Avian Influenza Virus (LPAIV) Control Program in which LBM and farm owners meet annually to discuss business/biosecurity issues and plan regular depopulation schedules or “down days,” inspection and surveillance testing. The LPAIV control program is a cooperative effort between the participants, USDA, CDFA, and University of California Davis Veterinary Medicine Extension. In August 2015, the AHB conducted an outreach and educational meeting in Modesto for the Northern California LBM industry and in October in Monterey Park for the Southern California LBM industry.

AHB collaborates with Cooperative Extension to ensure that poultry being exhibited at fairs are screened to protect the public from zoonotic diseases and to protect poultry from contagious viruses. All fairs require that poultry have health inspections by certified Poultry Health Inspectors prior to entry. AHB and USDA provide grant money for the training and certifying of poultry health inspectors.

During the last outbreak of exotic Newcastle disease (END), game fowl were implicated in the spread of the disease. AHB provides a grant to Cooperative Extension for the “Game Fowl Health Assurance Program (GFHA).” There is an initial two-day training course in poultry diseases, biosecurity and husbandry, with an annual continuing education requirement. The GFHA members are trained in testing for avian influenza and submit swab samples to the California Animal Health and Food Safety Laboratory System.

### 2015 Avian Influenza Surveillance Target Areas

<table>
<thead>
<tr>
<th>Premises Category</th>
<th>Premises Tested</th>
<th>Visits to Premises</th>
<th>Individual Birds Sampled</th>
<th>Pooled Samples Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auctions, Feed Stores and Small Sales</td>
<td>27</td>
<td>122</td>
<td>2,679</td>
<td>484</td>
</tr>
<tr>
<td>Backyard and Hobby Flocks</td>
<td>143</td>
<td>184</td>
<td>2,785</td>
<td>540</td>
</tr>
<tr>
<td>Distributer (Wholesale, Dealer, Truckers)</td>
<td>4</td>
<td>16</td>
<td>187</td>
<td>83</td>
</tr>
<tr>
<td>Poultry Production Facilities</td>
<td>97</td>
<td>0</td>
<td>18,194</td>
<td>1,711</td>
</tr>
<tr>
<td>Live Birds Markets (Slaughter) and Poultry Stores (Non-Slaughter)</td>
<td>45</td>
<td>296</td>
<td>5,718</td>
<td>1,135</td>
</tr>
<tr>
<td>Sick Call Birds - In Person Response</td>
<td>44</td>
<td>44</td>
<td>1,075</td>
<td>440</td>
</tr>
<tr>
<td>Sick Call Birds - Self Submitted</td>
<td>1,462</td>
<td>0</td>
<td>7,449</td>
<td>3,210</td>
</tr>
</tbody>
</table>
Other surveillance and outreach events are described as follows:

In late 2015, inspections of 425 feed stores and twenty-six (26) swap meets were completed during calendar distribution. The assessment evaluated the sale of poultry feed and what types of poultry are most common in the area. If adult poultry were being sold at the store, the owner was asked if they are being tested or would they be willing to be tested on an ongoing basis.

The California Live Bird Markets have not had any detection of notifiable avian influenza (NAI) viruses since 2008. The reason for this is the markets’ ongoing commitment to comply with the avian influenza control program and to work closely with their suppliers and CDFA/AHB staff. Currently, there are forty-two (42) markets and three (3) poultry stores (non-slaughter) on the surveillance program. During 2015, AHB staff collected bird samples from the markets every other month, and the markets had a down day and were inspected as follows: Southern California in January, April, July and October; and Northern California in February, May, August and October. In addition, eight (8) poultry production facilities, suppliers to the Live Bird Markets, were inspected by an AHB veterinarian. Part of the inspection process is to educate owners on any improvements they can make in their facilities to improve their biosecurity practices.

### Avian Hotline Call Volume in 2015

<table>
<thead>
<tr>
<th>Hotline Information Menu</th>
<th># of Calls (Total: 911)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avian Flu</td>
<td>3</td>
</tr>
<tr>
<td>Backyard Poultry Biosecurity</td>
<td>4</td>
</tr>
<tr>
<td>Bird Biosecurity</td>
<td>11</td>
</tr>
<tr>
<td>Bird Disease Info</td>
<td>42</td>
</tr>
<tr>
<td>Domestic Poultry</td>
<td>168</td>
</tr>
<tr>
<td>Food &amp; Safety Public Health</td>
<td>16</td>
</tr>
<tr>
<td>Media</td>
<td>13</td>
</tr>
<tr>
<td>Pet Bird Info</td>
<td>8</td>
</tr>
<tr>
<td>Poultry &amp; Egg Food Safety</td>
<td>2</td>
</tr>
<tr>
<td>Public Contac Sick/Dead</td>
<td>5</td>
</tr>
<tr>
<td>Sick/Dead Bird Reporting</td>
<td>326</td>
</tr>
<tr>
<td>Sign of Birds Disease</td>
<td>189</td>
</tr>
<tr>
<td>Signs Wild &amp; Pet Birds</td>
<td>14</td>
</tr>
<tr>
<td>West Nile Virus</td>
<td>4</td>
</tr>
<tr>
<td>Wild Bird Info</td>
<td>106</td>
</tr>
</tbody>
</table>

### Avian Health 2016 Calendars

The Avian Health Calendar has been an on-going outreach project for over a decade and targets avian care and biosecurity tips, disease information and guides, and important contact information.

Ninety thousand (90,000) 2016 calendars were printed and primarily* delivered to feed stores, auctions, swap meets, fairs, 4-H poultry leaders, specialty poultry clubs, animal control, agricultural commissioners, backyards and small sales. At the time of calendar deliveries to feed stores, staff administered questionnaires to evaluate potential need for biosecurity trainings and outreach materials. These questionnaires also allow us to update the database and, in case of a disease detection, information can be sent promptly to the feed stores to notify poultry owners in the area so they can increase biosecurity and quickly notify CDFA of sick poultry.

*Some calendars were reserved for distribution at conferences and special outreach events
**Targeted Outreach Distribution/Outreach Events**

The majority of active outreach, led by Felicia De La Torre, Research Scientist I, was centered on the avian influenza (AI) outbreak from January 2015 through May 2015. During this time frame, more than 850 contacts were made across California, and fifteen (15) counties were focused for targeted field distribution. Over three thousand (3,000) AI packets were distributed across the State. Recipients included agricultural commissioners and commercial poultry industry contacts. Targeted outreach (for the counties that were affected with AI or near affected counties) was delivered to: 4-H and FFA leaders, agricultural program contacts at local colleges/universities, feed/pet stores, farm bureaus, animal control offices, veterinary clinics, and other appropriate entities.

**Other Avian Health Outreach Materials**

Aside from the Avian Health Calendar, there are other forms of outreach materials that have been developed in part or whole by AHB avian program staff. These include, but are not limited to:

- Various leaflets and fact sheets about disease prevention through biosecurity
- California Animal Health and Food Safety (CAHFS) Laboratory Necropsy Services for Backyard Poultry Guide
- Customized Power-Point presentations and videos about disease recognition and biosecurity
- One-page 2016 Quality Assurance Calendars with prescheduled quarterly down-days for the LBMs and their suppliers, annual meetings and CDFA district contact information
- Animal Health Branch Quarterly Newsletter and California Veterinary Medical Association Articles

<table>
<thead>
<tr>
<th>2015 Outreach: Materials</th>
<th># Distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI &amp; Migratory Waterfowl Fact Sheet -H5N8 (English)</td>
<td>20</td>
</tr>
<tr>
<td>Animal Control Officer Biosecurity (DVD)</td>
<td>30</td>
</tr>
<tr>
<td>Avian Influenza 2015 - Outreach Package</td>
<td>3,000</td>
</tr>
<tr>
<td>Backyard Biosecurity Practices to Keep Your Birds Healthy (English)</td>
<td>150</td>
</tr>
<tr>
<td>Backyard Biosecurity Practices to Keep Your Birds Healthy (Spanish)</td>
<td>150</td>
</tr>
<tr>
<td>Biosecurity Guide – For Poultry &amp; Bird Owners</td>
<td>80</td>
</tr>
<tr>
<td>Biosecurity Training Manual for Poultry Workers</td>
<td>50</td>
</tr>
<tr>
<td>Biosecurity Training for Commercial Poultry Farm Workers (DVD)</td>
<td>50</td>
</tr>
<tr>
<td>Calendar-Avian 2016 (produced by CDFA, funded by USDA)</td>
<td>90,000</td>
</tr>
<tr>
<td>Flyer-Sign of Disease in Pet Birds</td>
<td>99</td>
</tr>
<tr>
<td>Flyer-Signs of Disease in Poultry</td>
<td>364</td>
</tr>
<tr>
<td>Flyer-Web Certification</td>
<td>10</td>
</tr>
<tr>
<td>Highly Pathogenic Avian Influenza (HPAI) – (English/Spanish)</td>
<td>185</td>
</tr>
<tr>
<td>Protect Your birds From Avian Influenza (Bird Flu)</td>
<td>100</td>
</tr>
</tbody>
</table>
Staff also attended events to provide presentations and staff outreach booths, where poultry owners and those in the poultry industry were able to obtain fact sheets, calendars, learn about the AHB role and ask questions.

In January through June 2015, there were various poultry shows in Modesto, Fresno and Humboldt. AHB staff were present to distribute avian health calendars and AI information packets as well as monitor birds for signs of disease.

In February 2015, Tuolumne County held a Backyard Poultry Workshop. Dr. Ken Takeshita, AHB veterinarian, presented on avian diseases and distributed educational materials. The Association for the Preservation of Gamefowl (APG) held shows at a feed store in Riverside where avian influenza literature and avian health calendars were handed out.

In March 2015, the California Veterinary Medical Association held an Animal Care Conference that offered informative presentations and an exhibitor hall for vendors and organizations. AHB staff were present to provide outreach to animal control officers and distribute Animal Control Biosecurity DVDs and other educational materials.

In May 2015, Dr. Sarah Mize, Avian Lead, presented on the LBMS in California to veterinary students at UC Davis and discussed career opportunities for poultry specialists in regulatory medicine. Another APG show was held at a feed store in Ceres where AHB staff were present and handed out AI outreach materials.

In June 2015, Train the Trainer Poultry Courses were held at UC Davis and in Southern California. Educational materials were distributed. AHB staff were able to attend and enhance knowledge on poultry diseases, along with making connections with local poultry owners and poultry business owners/workers. AHB poultry veterinarians presented on backyard biosecurity at each meeting.

In August 2015, Dr. Ken Takeshita, AHB veterinarian, was a speaker and participant at the HPAI biosecurity workshop in Puyallup, Washington, where he presented “Lessons Learned in California” to egg and poultry producers of the Pacific Northwest in order to help them update biosecurity plans, be better prepared for outbreaks, and avoid, or at least minimize, outbreak transmissions.

In November 2015, USDA and National Center for Appropriate Technology hosted its First Annual Latino Farmer Conference. AHB staff attended to feature multiple components and opportunities about the Animal Health and Food Safety Services Division. Avian Health staff were available to answer questions from backyard poultry owners and poultry workers, and provide educational materials in both English and Spanish.

Ongoing outreach events continued throughout the year. With regard to Live Bird Markets and the farms that supply them, many workers are hired from Mexico to care for the birds. AHB staff have ongoing dialogues with market owners and producers about biosecurity precautions that should be taken when these personnel travel between the U.S. and Mexico. Regarding vvIBDV, outreach continues with poultry producers, practicing veterinarians, regulatory officials, academics, and other interested parties as a means to reduce the spread of vvIBDV.

CDFA, in collaboration with UC Davis Extension, will continue to reach out to backyard poultry enthusiasts with disease information and education about how important their segment of production is in the movement of this disease and how their disease status is important to commercial production.

This article was published by UC Davis Cooperative Extension veterinarian Dr. Pitesky and collaborators in the Journal of Preventive Veterinary Medicine: “A cooperative approach to animal disease response activities: Analytical hierarchy process (AHP) and vvIBD in California poultry”. Saito EK\textsuperscript{1}, Shea S\textsuperscript{2}, Jones A\textsuperscript{3}, Ramos G\textsuperscript{4}, Pitesky M\textsuperscript{5}. 
Additional vvIBD outreach and education provided by Dr. Michael Poulos:

- Cooperative Extension held “Train the Trainer” meetings at UC Davis and in Los Angeles at Pierce Junior College where biosecurity and viral disease, specifically vvIBDV, were discussed.
- Spoke at two biosecurity trainings for joint meetings of the California Poultry Federation and the Pacific Egg & Poultry Association. One was held in Ontario on August 25, 2015, and the other was held on August 27, 2015, in Modesto. The identification and incurrence of vvIBDV into California was used as one example of the importance of biosecurity.
- On September 9th, met with the egg producer who was the second commercial facility affected in January 2009. Recent problems and any reoccurrence of vvIBDV, along with general biosecurity, was addressed.
- On October 21st, spoke at a biosecurity training and poultry update at the Tehama County Agricultural Commissioner’s office. Approximately five (5) producers were in attendance. The identification and incurrence of vvIBDV into California was used as one example of the importance of biosecurity.
- In October, met with the broiler producer in Sonoma County who has had vvIBDV diagnosed recurrently and discussed the issue. The last noted isolation in these flocks was in April of 2014. Recent problems and any reoccurrence of vvIBDV along with general biosecurity was addressed. The road to convincing the recurrently infected broiler producer to do a more extensive cleaning and disinfection between flocks has stalled. Cost outweighs benefit for this producer due to what they consider “normal” mortality when the mortalities turn out to be attributed to vvIBDV. It has also now been over a year and a half since vvIBDV was detected, so it is flying lower on the producer’s radar.
- On November 20th, met with the Agricultural Commissioners from Tehama, Yuba, and Merced counties for a poultry update.

Some other major events that AHB Staff also attended included: the United States Animal Health Association Meeting, Live Bird Market Working Group Meeting, California Poultry Federation (CPF) and Pacific Egg and Poultry Fall Biosecurity and Planning Seminar, and CPF Task Force Meeting.

Avian Health Website

The Avian Health Website had many updates and makeovers in 2015. One of the biggest projects included organizing and expanding the Avian Influenza page.

This page features top stories about the status of AI in the State, neighboring states and countries. It also has a plethora of resources and websites from partner agencies that discuss AI. When the AI outbreak was in motion, a map showing a snapshot of which States and commodities had been affected was posted on a bi-weekly basis.

Another important added page was the Commercial Poultry Biosecurity page, which incorporates videos, a printable risk assessment guide, and other useful resources from partner agencies and around the world.

<table>
<thead>
<tr>
<th>Avian Web Pages</th>
<th>Page Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avian Influenza Page</td>
<td>2,798</td>
</tr>
<tr>
<td>Avian Health Program Page</td>
<td>1,947</td>
</tr>
<tr>
<td>Avian Entry Requirements Page</td>
<td>1,134</td>
</tr>
<tr>
<td>Backyard Biosecurity Page</td>
<td>400</td>
</tr>
<tr>
<td>Commercial Poultry Biosecurity Page</td>
<td>152</td>
</tr>
</tbody>
</table>
Overview

The swine industry is vital to California's agriculture. The Animal Health Branch (AHB) aids in the management of swine disease incursions that cannot be managed by a single producer and their veterinarian. The risks of disease introduction are greater than ever because of expanding international trade and travel. A highly transmissible foreign animal disease can spread rapidly if undetected or detected but not reported. Since animal diseases may affect swine populations in any state, there are Federal-State Cooperative Programs (FSC) that address swine diseases.

Swine Inventory

California’s swine industry is small compared to other agricultural industries in the State. Measured by the total value of production, the industry ranked 55th in 2013, with annual sales of $40.3 million. Based on gross value and production, the leading counties are located in the areas of the San Joaquin Valley (Tulare, Fresno, and Stanislaus counties), and the Sacramento Valley (Glenn County). The inventory of swine in the state decreased in the last decade from 135,000 head in 2004 to 105,000 head in 2013. Pork production also decreased from 78.3 million pounds in 2004 to 47.7 million pounds in 2013. There were 732 farms in California with hogs and pigs for breeding. The USDA, National Agricultural Statistics Service (NASS) breeding inventory report in 2014 showed six thousand (6,000) breeding swine in California. However, a substantial number of hogs enter California from out-of-state each year and are shipped directly to slaughter facilities. The average annual harvest of hogs and pigs in California under federal and state inspection in 2013 was 2.3 million head.

Disease Programs

Surveillance programs enhanced California’s efficiency and ability to know if certain diseases were present so appropriate action could be taken quickly when needed. In 2015, swine surveillance included foreign animal and emerging diseases such as classical swine fever (CSF), foot and mouth disease (FMD), African swine fever (ASF) and swine enteric coronavirus disease (SECD).
It also included diseases of concern already present in the United States, such as pseudorabies (PRV) and swine brucellosis (SB). The goal was to rapidly detect diseases; demonstrate disease freedom in California and the United States if the disease was not present; establish California’s disease status when needed; and to monitor potential disease sources. For the upcoming year, the focus will be to maximize samples for testing of multiple swine diseases.

**Swine Enteric Coronavirus Diseases (SECD)**

Novel swine enteric coronavirus disease (SECD) is a disease in swine caused by emerging porcine coronaviruses, including porcine epidemic diarrhea virus (PEDV) and porcine delta coronavirus (PDCoV). Pigs develop varying degrees of diarrhea and inappetence depending upon age of the pig infected. Cases of porcine epidemic diarrhea (PED) were first diagnosed in the United States beginning in April 2013. The swine industry and associated professionals responded on many fronts, initially engaging in laboratory diagnosis, analytic support, epidemiology expertise and data management. SECD is characterized by an acute, rapidly spreading viral diarrhea of pigs; no other species are known to be affected, and it is not a public health threat. In response to the significant impact novel SECD had on the U.S. pork industry, USDA issued a Federal Order for Reporting, Herd Monitoring and Management of Novel Swine Enteric Coronavirus Diseases, effective June 5, 2014.

CDFA and USDA animal health veterinarians, private herd veterinarians and producers collaborated to manage the diseases in a manner that supported business continuity for commercial pork producers in order to maintain a plentiful supply of pork for consumers.

**CSF Virus Active Surveillance and ASF/FMD Virus Disease Surveillance (Pilot Project)**

California has been free of classical swine fever (CSF) since 1970. This foreign animal disease, also known as hog cholera, is a highly contagious viral disease of swine. It is still endemic in many other countries in the Western Hemisphere; therefore, a comprehensive disease surveillance program was implemented in 2006 with the goals of rapidly detecting CSF virus in the U.S. swine and mitigating the impacts of a large-scale outbreak. In 2015, active CSF surveillance targeted swine populations or surveillance streams for rapid detection and to support substantiation of freedom for this disease. In addition, CDFA and USDA participated in a pilot African swine fever and foot and mouth disease (ASF/FMD) surveillance system for the purpose of identifying potential issues that could be raised before implementing a fully developed foreign animal disease (FAD) comprehensive surveillance system. Under this pilot program, five hundred (500) samples were taken from high-risk pigs condemned by the Food Safety and Inspection Service (FSIS) at slaughter. In addition, thirty-five (35) samples were tested from food-waste feeders at seven (7) licensed food-waste feeding facilities. All samples collected for CSF, ASF and FMD virus detection had negative results.
**Senecavirus A in Swine**

Senecavirus A, commonly known as Seneca Valley virus (SVV), belongs to the same family as FMD (*Picornaviridae*). It has been identified in U.S. swine since the 1980s and is occasionally implicated in sporadic outbreaks of idiopathic vesicular disease. Recently, SVV has been frequently associated with clinical signs and gross lesions that are indistinguishable from vesicular FADs, including FMD, vesicular stomatitis (VS) and swine vesicular disease (SVD); making rapid response and differential diagnosis is imperative. Disease has been also reported in Canada, Australia, Italy, New Zealand and, most recently, in Brazil.

Since this virus mimics lesions of vesicular diseases in pigs, SVV has been recently added to the CDFA “List of Reportable Conditions for Animals and Animal Products” in the Emergency Conditions column. All cases of vesicular disease must be reported immediately to CDFA/USDA to ensure rapid detection of catastrophic diseases such as FMD.

In October 2015, SVV was the cause of snout vesicles on four (4) pigs in a group of 180 out-of-state market hogs at a federally-inspected slaughter facility in California. The CDFA/Animal Health Branch conducted a FAD investigation on this outbreak, testing samples at the CAHFS Laboratory for FMD the same day. Further testing of the animals for other swine vesicular diseases performed by the USDA/National Veterinary Services Laboratory confirmed SVV. It has been seen in states in the Midwest in 2015, initiating numerous FAD investigations nationally. The exact cause of lesions and disease is still being investigated. In some cases, swine herds approach 80% morbidity, with clinical signs of snout and coronary band vesicular lesions. Animals are often reported to be afebrile and are bright, alert, and responsive. Mortality in pre-weaned pigs has also been reported. Cases presenting similarly to FMD, VS or SVD must be treated as such until FADs can be ruled out.

**Swine Pseudorabies and Brucellosis Surveillance**

Pseudorabies (also known as Aujesky’s disease or “Mad Itch”) is a viral disease most prevalent in swine, often causing newborn piglets to die. Older pigs can survive infection, becoming carriers of the pseudorabies virus (PRV) for life. Other animals infected from swine may die from pseudorabies. Infected cattle and sheep can first show signs of pseudorabies by scratching and biting themselves. In dogs and cats, pseudorabies can cause sudden death. The virus does not cause illness in humans.

Due to an extensive eradication program, California was USDA-classified as Stage V, or “free” of pseudorabies in commercial swine, in 2001. A PRV virus surveillance program was revised in 2009 after successful eradication of the disease. However, this virus remains in feral swine causing domestic herds to be at risk if they are exposed to feral swine.

Similar to the pseudorabies program, the swine brucellosis (SB) eradication program recognizes feral swine as an infected reservoir that could infect the commercial swine herd. Swine brucellosis is a contagious, infectious and communicable disease of swine caused by *Brucella suis* (*B.suis*). California was classified as Validated Swine Brucellosis-Free Area (Stage III) in 1980.

In 2015, the below listed slaughter samples from commercial and transitional swine were collected for PRV and SB testing for early disease detection, demonstration of ongoing freedom of disease and for maintenance of State disease statuses. In addition, on-farm herd samples were taken as part of herd certification and monitoring, routine serology, herd profiling, and from high-risk premises. A new swine brucellosis surveillance plan is under development and will be incorporated into a comprehensive swine surveillance system in the near future.

<table>
<thead>
<tr>
<th>Surveillance /Animals</th>
<th>Number of Samples</th>
<th>Result of PRV and SB Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cull sows, cull boars at slaughter</td>
<td>267</td>
<td>Negative</td>
</tr>
<tr>
<td>Food waste fed swine from 7 licensed facilities</td>
<td>35</td>
<td>Negative</td>
</tr>
<tr>
<td>On-farm testing from 71 herds</td>
<td>391</td>
<td>Negative</td>
</tr>
</tbody>
</table>

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Garbage Inspection Programs

Swine Garbage Feeding Inspection and Licensing Program

The AHB issues licenses to swine producers that feed garbage to swine. In order to prevent the spread of contagious diseases of swine, it is unlawful for any person to feed swine any garbage unless the garbage has been processed and inspected in accordance with California regulations. The regulation states that all garbage, regardless of previous processing, before being fed to swine, shall be thoroughly heated throughout the boiling or equivalent temperature (usually 212 degrees Fahrenheit at sea level) for 30 minutes, or otherwise treated in a manner which is prescribed in the regulations.

Federal regulations pertaining to the Swine Health Protection Act, regulate food waste containing any meat products fed to swine. Compliance with this act ensures that all food waste fed to swine is properly treated to kill disease organisms. Raw meat may transmit numerous infectious or communicable diseases to swine. Raw meat can transmit exotic animal diseases such as foot and mouth disease, African swine fever, classical swine fever, and swine vesicular disease.

In 2015, state personnel conducted seventy (70) swine garbage treatment facility inspections at seven (7) licensed facilities with a total of 1,932 animals. No sick or dead hogs were observed on these facilities and no violations of garbage feeding to swine were reported during this year. Additionally, all licensed facilities met garbage treatment standards and annual licensing procedures. These inspections play an important role in protecting the health of California’s livestock population.

Seagoing Vessel and Aircraft International Garbage Disposal Monitoring

The AHB monitors vessel and aircraft garbage disposal procedures from entities handling, storing and transporting regulated garbage that are under compliance agreements with the federal government. All international garbage arriving by sea or air is removed in approved tight, leak-proof receptacles to an approved facility for incineration, sterilization (212 Fahrenheit for thirty (30) minutes), or grinding into an approved sewage system, under supervision of an inspector. If garbage were not heated, it could potentially transmit a bacteria or virus that could spread through the livestock industry. Even a garbage container onboard an international ship must be covered as the ship comes within twelve (12) miles of a U.S. coastline. This prevents a seagull or other scavenger from grabbing the garbage and carrying it to land, perhaps to a farm, where it could potentially spread disease. During 2015, CDFA animal health inspectors performed thirty-nine (39) verification compliance activities with federal enforcing officials. Out of these, thirty-seven (37) verification visits were related to entities that store and transport regulated garbage such as caterers, sterilizers and haulers, and two (2) verification compliance visits were related to vessels of foreign origin boarded at different sea ports in California.

Outreach and Education

The AHB provides outreach and education to the swine industry and stakeholders on high-consequence foreign and endemic diseases. This is accomplished by the dissemination of outreach materials and providing education to the swine industry to increase knowledge and recognition of foreign and emerging animal diseases and biosecurity prevention strategies. Educational materials are distributed by AHB personnel at livestock auction yards, show events and at industry meetings. In addition, the AHB website provides informational updates to the swine industry on program disease issues, emerging and emergency diseases, and biosecurity and prevention strategies.

<table>
<thead>
<tr>
<th>Swine Web Pages</th>
<th>Page Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swine Health Information Resources Webpage</td>
<td>599</td>
</tr>
<tr>
<td>Swine Garbage Feeding Webpage</td>
<td>257</td>
</tr>
<tr>
<td>Porcine Epidemic Diarrhea Virus Webpage</td>
<td>100</td>
</tr>
<tr>
<td>Swine Influenza Webpage</td>
<td>123</td>
</tr>
<tr>
<td>Swine Brucellosis</td>
<td>34</td>
</tr>
</tbody>
</table>
Overview

The small ruminant industry is important to California’s agriculture economy. The demand for sheep and goats in California has increased greatly over the last several years. Sheep and goats are raised to produce a variety of goods, including milk, meat, and fiber, either wool from sheep or cashmere and mohair from goats. They are also raised for show and companionship. Expanding ethnic populations have created new demands in the non-traditional marketplace, which are not easily monitored. The AHB aids in the management of sheep and goat diseases that cannot be managed by a single producer and private veterinarian.

The value of sheep and lamb production in California in 2010 was $45.7 million. Measured by its value, the industry ranked 51st among California’s agricultural industries. The main purpose of the flock is meat production with wool as a by-product. According to the 2013 California County Agricultural Commissioner’s Report, the largest concentration based on the gross value of sheep and lambs in the State was recorded in three counties located in the San Joaquin Valley (Kern, Stanislaus and Merced) followed by Sonoma and Mono Counties. However, the location varied with the season and the condition of pastures. In summer and fall, sheep move into alfalfa fields and unfenced pastures in the South Central Valley; in the winter, they move to pastures in Northern California, the Imperial Valley or other states. Superior Packing Co. in Dixon, CA slaughters sheep and goats regularly, has an annual revenue of $100 to $500 million a year, and employs approximately 100 to 249 staff members.

Sheep Inventory

According to the USDA, National Agricultural Statistics Service (NASS) Sheep and Goat Report of 2015, California’s sheep and lamb inventory on January 1, 2015, totaled 600,000 head with 4,224 operations. Total breeding stock was 330,000 head, which increased 1.5 percent from last year. Market sheep and lambs totaled 270,000 head. The lamb crop for 2014 was 240,000 head, which is an average of 1.14 lambs per ewe.
California’s wool production in 2014 totaled 2.9 million pounds. Weight per fleece averaged 6.3 pounds, down 0.2 pounds from the previous year. During 2014, a total of 460,000 sheep were shorn. The average price for wool sold in 2014 was $1.35 per pound, down 10 cents from 2013. The value of California’s wool totaled $3.91 million.

Goat Inventory

All goat inventory in California on January 1, 2015, totaled 178,400 head. California ranks second in the nation in milk-goat inventory. The inventory of milk goats totaled 40,000 head, up two thousand (2,000) head from a year ago. California’s meat and other goats totaled 85,000 head, ranking third. The statewide Angora goat inventory was 3,400 head, ranking fourth in the nation. Meat goats account for 66%, milk goats for 34% and fiber goats for 2.6% of the goats in State.

California’s mohair production was very small and in 2014 totaled ten thousand (10,000) pounds. During 2014, a total of two thousand (2,000) goats were clipped. The average price for mohair was $6.00 and the value of California’s mohair totaled $60,000.

Disease Programs

Scrapie Disease

Scrapie disease is a fatal, degenerative disease affecting the central nervous system of sheep and goats that costs producers over twenty (20) million dollars annually through production losses, increased production costs and loss of export revenue. The most widely accepted theory of disease transmissions is that the agent is a prion and is among a group of diseases classified as transmissible spongiform encephalopathies (TSEs). Prions (PrPc) are proteins that are normally found in the body. The agent responsible for scrapie (PrPsc) is an abnormally folded conformation of the normally occurring protein. These infectious proteins seem to replicate and accumulate in the brain tissue resulting in “sponge-like” lesions.

Disease transmission can occur by direct contact through abraded skin or mucous membranes; and by oral ingestion of fetal membranes, fluids, contaminated bedding, forage or soil. Transmission most often occurs through direct or indirect exposure of young animals to reproductive tissues or fluids from infected ewes. Symptoms often do not appear until three (3) to five (5) years of age, and early signs are often subtle changes in behavior or temperament. This can be followed by scratching and rubbing against fixed objects. Other signs are loss of coordination, weight loss despite having a good appetite, biting of feet and limbs, lip- smacking, star-gazing and gait abnormalities (including swaying of the back end).

Scrapie Eradication Program

A disease certification program and a disease eradication program are in place working in conjunction with each other: The voluntary Scrapie Flock Certification Program (SFCP), which began in 1992, and the National Scrapie Eradication Program (NSEP), which was initiated in 2001. The SFCP is a voluntary program that monitors participating flocks for evidence of scrapie; additionally, for flocks participating in the Export Category, the program provides a pathway for certification of negligible scrapie risk. NSEP is a mandatory program designed to find and eradicate classical scrapie from the United States and meet the World Health Organization for Animal Health (OIE) criteria for disease freedom.

NSEP is a cooperative state-federal program relying on slaughter surveillance, animal identification and reporting of scrapie suspects by producers and veterinarians. If classical scrapie is diagnosed in a flock, CDFA and USDA animal health veterinary regulatory officials conduct an epidemiological animal disease investigation. The purpose of the investigation is to identify and trace back the source of the disease and to identify all exposed animals. Veterinary officials work with the flock owner to develop and implement a flock plan. The flock plan includes
removal of high-risk animals, cleaning and disinfection of the facility, and other measures to reduce the risk of disease transmission. During 2015, there were no California origin animals reported positive for scrapie; the last case of scrapie detected in a goat occurred in 2011.

While the NSEP has been successful in decreasing the prevalence of scrapie in the United States, the eradication has not yet been achieved in sheep and goats. Improved traceability and surveillance are needed to detect the last remaining cases of scrapie. Mandatory identification of sheep has allowed slaughter to be the key in reducing the prevalence of scrapie in sheep by 85%. According to USDA, California must conduct adequate scrapie surveillance by sampling a minimum of 588 samples on each species, sheep and goats.

In California during fiscal year 2015 (October 2014 to September 2015), there were 696 sheep and 370 goats that were sampled for scrapie with all samples testing negative for presence of the disease. Slaughter surveillance of goats has been problematic because currently only 50% of mature goats are officially identified at slaughter, making it impossible to conduct effective surveillance. States that conduct an active scrapie program and are consistent with federal requirements are designated by USDA as Consistent States. California has been designated as a Consistent State in the NSEP since 2001.

The SFCP is designed to monitor flocks for scrapie and to certify flocks that have met all requirements of the export category of the program as scrapie-free. An export category flock gains time in status based on its status date and surveillance sampling.

Participants in the SFCP in California benefit by decreasing their risk of introducing scrapie into their flocks; additionally, they also benefit from the increased marketability of sheep and goats monitored in this program. Flock owners who join the SFCP commit to monitoring their flock for evidence of scrapie and reporting all clinically suspect animals to USDA/CDFA for testing. Monitoring includes individual animal identification, accurate record-keeping, observation and evaluation of animals for clinical signs of scrapie (including death), and testing a specified number of test-eligible animals for scrapie.

The USDA, SFCP Status Report for California flocks from December 2015 reflected two (2) Export Certified-Enrolled (goat herds); two (2) Export Monitored-Enrolled (1 sheep, 1 goat); and one Export Monitored-Pending Approval (goat herd).

Animal Identification in Sheep and Goats

Animal identification is a key component for disease traceability. Producers are required to follow federal and state regulations for officially identifying their sheep and goats. Producers must also keep herd records showing what new animals were added and what animals left the herd/flock. In order to increase the efficiency of scrapie surveillance and animal identification compliance in sheep and goats during 2014-2015 of cooperative state-federal program activities, 320 visits were conducted by animal health livestock inspectors at fourteen (14) livestock and auction markets across the State.

Regulatory Changes

A proposed federal rule to amend Chapter 9 of the Code of Federal Regulations Parts 54 and 79 was published on September 10, 2015. The proposed rule addresses new standards for official identification and traceability for goats as well as other gaps in the federal regulation. CDFA/Animal Health Branch, reviewed this proposal and strongly supports continued use of science-based decision-making in regard to application of genetic-based classifications for scrapie disease in sheep and goats, the inclusion of the ELISA laboratory testing for scrapie, the administrator’s authority whether and how to regulate non-classical forms of scrapie such as Nor98-like scrapie, and the ability to adjust the program based on new scientific information.
Outreach and Education

The AHB provides outreach and education to the small ruminant industry and stakeholders on high-consequence foreign and endemic diseases. This is accomplished by dissemination of informational materials and providing education to the sheep and goat industry to increase knowledge and recognition of foreign and emerging animal diseases and bio-security prevention strategies. Educational materials are distributed by AHB personnel at livestock auction yards, show events and industry meetings. In addition, the AHB website provides informative updates to the small ruminant industry on program disease issues, emerging and emergency diseases, and biosecurity and prevention strategies.

### Number of Views for Small Ruminant Web Pages in 2015

<table>
<thead>
<tr>
<th>Small Ruminant Web Pages</th>
<th>Page Views</th>
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</thead>
<tbody>
<tr>
<td>Sheep and Goat Health Information Webpage</td>
<td>630</td>
</tr>
<tr>
<td>Scrapie Disease Webpage</td>
<td>1,285</td>
</tr>
</tbody>
</table>
Overview

The USDA/APHIS Wildlife Services (USDA/APHIS/WS) is responsible for providing federal leadership and expertise to resolve wildlife conflicts to allow people and wildlife to coexist. The Wildlife Services Program manages wildlife-related safety threats, and property and natural resource damage. The Program in California is a USDA/APHIS/WS, State and County partnership that provides residents of California with an official source of professional assistance to resolve human/wildlife conflicts. Program biologists apply the integrated management approach to provide technical assistance and direct management operations in response to request for assistance. The Program’s efforts help people resolve wildlife damage to a wide variety of resources and to reduce threats to human health and safety. As California’s population continues to grow and encroach on wildlife habitat, residents will have increasing interaction, both positive and negative, with wildlife.
Overview

California Horse Industry

According to the American Horse Council census, California has approximately 700,000 horses. The California equine industry has a total economic impact valued at approximately $7 billion and generates a direct economic impact of approximately $4.1 billion. The equine industry generates approximately 54,200 direct jobs and 130,200 total jobs.

The California Department of Food and Agriculture’s AHB is a national leader in addressing situations which threaten the health of the equine industry. It is AHB’s responsibility to react promptly to threatening situations and address equine diseases of concern to California’s equine industry. Two (2) equine specific advisory committees, namely the Equine Advisory Committee and the Equine Medication Monitoring Program Advisory Committee, assist the State Veterinarian and the Secretary of Agriculture in making informed decisions related to equine health. The committees are comprised of some of the nation's most respected practicing veterinarians, researchers, scientist and industry leaders. As has been demonstrated numerous times during the past few years, the AHB is capable of developing and implementing equine disease programs, and when necessary, develop regulations, which have proven to be effective in protecting California's diverse equine population from threatening diseases.
Equine Medication Monitoring Program

California is the only state with a state-based industry-funded horse drug testing program which targets sample collections from horses entered in public equine events. The California equine industry sponsored legislation in 1971 to prevent misuse of drugs and medications in equines (horses, ponies, mules and donkeys) in public shows, competitions and sales. The resulting law, found in the Food and Agricultural Code (FAC) Sections 24000-24018 and in California Code of Regulations: Title 3, Division 2, Chapter 6, Section 1280, is known as the California Equine Medication Rule. To enforce the law, the CDFA manages the Equine Medication Monitoring Program (EMMP). An industry advisory committee is responsible for overseeing and addressing industry-related concerns to the EMMP. The twenty-three (23) member EMMP Advisory Committee Members represent the broad range of equine disciplines regulated by the EMMP. To fund the EMMP, event managers collect a fee of $5.00 for each equine being entered in a public show/competition or being consigned to a public sale. The intent of the EMMP is to ensure the integrity of public horse shows, competitions and sales through the control of performance and disposition-enhancing drugs, and to allow limited therapeutic use of drugs at an equine event. The EMMP monitors equines in public shows, competitions, and sales through random collection of blood or urine for chemical analysis. The California Equine Medication Rule prohibits use of certain drugs or drug combinations, yet accommodates specific legitimate therapeutic use of medications within specified parameters.

In 2015, EMMP staff drafted proposed regulations to modify California Code of Regulations Sections 1280 to 1280.11. The regulatory proposal made technical changes to existing regulations and adopted a new violations matrix into regulation to ensure the public is aware of the penalties for violating specified regulations relating to registered public horse events and sales. The proposed legislation also described the circumstances in which the administration of these substances shall be prohibited. The regulatory proposal was approved by the Office of Administrative Law and became effective on January 1, 2016.

### Five Year Review of Registered Event Numbers

<table>
<thead>
<tr>
<th>Year</th>
<th># Events Registered</th>
<th># Events Cancelled</th>
<th># Events Held</th>
<th># Events Tested</th>
<th># Horses Assessed</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 - 2015</td>
<td>1,583</td>
<td>231</td>
<td>1,349</td>
<td>200</td>
<td>124,136</td>
<td>$627,683.25</td>
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<tr>
<td>2013 - 2014</td>
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<td>166</td>
<td>1,411</td>
<td>428</td>
<td>116,885</td>
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<td>2012 - 2013</td>
<td>1,652</td>
<td>215</td>
<td>1,437</td>
<td>477</td>
<td>112,585</td>
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<td>2011 - 2012</td>
<td>1,689</td>
<td>220</td>
<td>1,467</td>
<td>387</td>
<td>114,928</td>
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<td>2010 - 2011</td>
<td>1,288</td>
<td>274</td>
<td>1,012</td>
<td>319</td>
<td>92,381</td>
<td>$532,459.17</td>
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### Five Year Review of Samples Collected

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<thead>
<tr>
<th>Year</th>
<th>Blood</th>
<th>Urine</th>
<th>Total</th>
<th>Violations Issued</th>
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<tr>
<td>2014 - 2015</td>
<td>994</td>
<td>516</td>
<td>1,510</td>
<td>23</td>
</tr>
<tr>
<td>2013 - 2014</td>
<td>772</td>
<td>652</td>
<td>1,424</td>
<td>22</td>
</tr>
<tr>
<td>2012 - 2013</td>
<td>1,079</td>
<td>578</td>
<td>1,657</td>
<td>29</td>
</tr>
<tr>
<td>2011 - 2012</td>
<td>821</td>
<td>542</td>
<td>1,363</td>
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<tr>
<td>2010 - 2011</td>
<td>373</td>
<td>388</td>
<td>761</td>
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</tbody>
</table>
Biosecurity at Equine Events

The 2011 equine herpesvirus-1 outbreak, associated with the Western National Cutting Horse Event in Ogden, UT, increased awareness and need for biosecurity measures at equine events. During the outbreak, the Animal Health Branch (AHB), received numerous inquiries and requests for guidance for keeping horses healthy at equine events from the equine industry stakeholders in the state. Based on limited available biosecurity resources, the AHB received a formal request from the California Equine Medication Monitoring Program Advisory Committee for development of a biosecurity toolkit for equine events.

The objective of the Biosecurity Toolkit is to provide equine event managers with resources to recognize potential disease risks at the event venue and to develop a biosecurity and infectious disease control plan to protect the health of the competition/exhibition horses and the general equine population. Each event and venue is unique; therefore, the Toolkit provides guidance for the assessment and development of event-specific biosecurity measures that address the specific identified disease risks of the event and venue. Since development, the equine event Biosecurity Toolkit has been distributed to all fifty (50) states and requested by veterinarians and animal health officials in seven (7) countries. Most notably, the Toolkit was utilized by the equine event organizers of the London Olympic Games and the 2014 World Equestrian Games in Normandy, France.

In 2015, Dr. Katie Flynn, AHB Equine Lead veterinarian, utilized the Biosecurity Toolkit to conduct a biosecurity risk assessment of California’s largest rodeo in Salinas, California. At the request of the Rodeo Board of Directors, Dr. Flynn provided recommended biosecurity measures to address the identified risks. This initial work will be shared with the Professional Rodeo Cowboy Association to assist in developing national biosecurity guidance for rodeos.

Additionally, in 2015, Dr. Flynn was invited by the World Animal Health Organization (OIE- Office International of Epizootics) to participate in the meeting of the OIE Ad Hoc Expert Group on Equine Event Biosecurity, in Paris, France. The purpose of the meeting was to discuss biosecurity recommendations for international equine competitions. She presented the biosecurity toolkit concepts and discussed the biosecurity challenges observed at the international equine events held in the United States, including the recent 2015 World Cup in Las Vegas, Nevada. During this meeting, the expert group completed development of the “Biosecurity Guidelines and High Health High Performance Horse Management” document.

Equine Health Programs

The Animal Health Branch plays a significant role in protecting equine health through equine disease surveillance, disease control and prevention programs, and outreach and education. California’s equine health regulatory programs include domestic disease control programs for arboviruses (West Nile virus), equine infectious anemia (EIA), equine herpesvirus-1 (EHV), and vesicular stomatitis virus (VSV) and foreign animal disease prevention programs for equine piroplasmosis (EP) and contagious equine metritis (CEM). In addition to the specified regulatory equine disease control programs, AHB staff continually monitor approximately fifteen (15) endemic equine diseases and a few newly emerging diseases such as coronavirus. Staff monitor these diseases to determine if regulatory intervention is warranted. Diseases introduced to new geographic areas of the State,
diseases emerging in new species or diseases with new clinical manifestations may require regulatory action to protect the health of California’s equine population. Regulatory disease response to a suspicious or confirmed case depends on the disease agent, the clinical manifestation of disease in the horse, and the biosecurity measures implemented on the premises.

**Summary of Confirmed Equine Disease Cases (2011 – 2015)**

<table>
<thead>
<tr>
<th>Year</th>
<th>EIA</th>
<th>EP</th>
<th>EIA/EP</th>
<th>CEM</th>
<th>EHV</th>
<th>WNV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3 (3)*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5(4)</td>
<td>19</td>
</tr>
<tr>
<td>2014</td>
<td>26 (13)</td>
<td>14 (10)</td>
<td>8 (6)</td>
<td>0</td>
<td>3 (2)</td>
<td>15</td>
</tr>
<tr>
<td>2013</td>
<td>9 (6)</td>
<td>7 (2)</td>
<td>2 (2)</td>
<td>4 (4)</td>
<td>4 (2)</td>
<td>8</td>
</tr>
<tr>
<td>2012</td>
<td>2 (1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>22 (6)</td>
<td>16</td>
</tr>
<tr>
<td>2011</td>
<td>1 (1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>35 (17)</td>
<td>15</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>41</td>
<td>21</td>
<td>10</td>
<td>4</td>
<td>69</td>
<td>73</td>
</tr>
</tbody>
</table>

*Total Number of Cases (Total Number of Premises)

**Equine Infectious Anemia**

Equine infectious anemia (EIA) is a viral disease of all equidae (horses, donkeys, mules and zebras). EIA is a regulated disease in California. A serologic (blood) test confirms the diagnosis of EIA. The two most commonly used serologic tests are the agar gel immunodiffusion (AGID), commonly known as the “Coggins” test, and the enzyme-linked immunosorbent assay (ELISA). The ELISA test can detect antibodies earlier than the Coggins test. However, the ELISA test may produce false-positive results; therefore, the confirmatory test for EIA is the AGID test. Only USDA-approved laboratories can perform EIA testing in the United States. By law, the nine (9) California-approved laboratories must report positive EIA test results to state and federal animal health officials.

**EIA Tests Conducted by California Laboratories**

<table>
<thead>
<tr>
<th>Year</th>
<th># Samples Tested</th>
<th># Positive Horses Euthanized</th>
<th># Positive Premises</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>30,768</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2014</td>
<td>31,075</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>2013</td>
<td>31,594</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>2012</td>
<td>30,238</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2011</td>
<td>29,633</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

In California, an AHB veterinarian will locate the positive animal, obtain a blood sample for confirmatory testing and quarantine the horse. If confirmed positive for EIA, management options for the positive horse are limited to the following: a) Euthanasia or b) Lifetime quarantine, with permanent isolation at a minimum of two hundred (200) yards from all other horses. The positive horses must be permanently identified (microchip). An epidemiologic investigation will be performed to determine the movement history of the infected equine and to identify other exposed horses or equids. Exposed equines will be quarantined, tested and subjected to a retest 45-60 days after the removal of the EIA-positive horse. A quarantine will remain in effect for exposed horses until two (2) negative test results are received.

Surveillance testing for EIA is done by private practitioners sampling horses moving interstate or sampling horses entering competitions which require a negative EIA test. California requires proof of a negative Coggins test within twelve (12) months prior to entering the state for interstate movement. California border crossing stations document all horse crossings, and AHB staff investigate any horses entering without a negative EIA test result.
In 2015, the AHB continued to investigate an EIA outbreak in California’s racing Quarter Horse population. Since 2012, thirty-nine (39) racing Quarter Horses have been confirmed positive for EIA and twenty-one (21) racing Quarter Horses have been confirmed positive to *Theileria equi*, the causative agent of EP. Ten (10) of the positive horses were dually infected with EIA and EP. The age range for the EIA-positive horses is three (3) to eight (8) years old, with an average age of 4.6 years old. Epidemiologic investigations indicate the majority of the positive horses participated in Quarter Horse racing and had potential exposure to high-risk practices such as sharing of needles and other medical equipment or the use of contaminated blood products. Although difficult to verify, there is evidence suggesting some of the horses participated in unsanctioned racing. Participation in sanctioned racing is documented for seventeen (17) of the positive horses. Racing history cannot be verified for four (4) horses due to challenges in verification of horse identity as a result of change of ownership and difficulty reading lip tattoos. During the investigation, AHB worked closely with California Horse Racing Board (CHRB), which resulted in CHRB implementation of EIA testing requirements for all horses entering a CHRB enclosure. Although California detected less EIA in the racing Quarter Horse population in 2015, the disease is likely to continue to appear with continuance of high-risk practices.

**West Nile Virus**

West Nile virus (WNV) is a mosquito-borne virus first detected in the United States in the New York City area in 1999. Since 1999, the virus has spread throughout the U.S. and Canada, infecting birds, humans, horses and other mammals. The virus is maintained in the wild bird population and is spread between birds by mosquitoes. Mosquitoes acquire WNV in blood meals from infected birds and pass it on to other birds, horses, and people. West Nile virus may cause a wide range of clinical illnesses ranging from mild “flu-like” signs to neurologic signs that may be fatal to both humans and horses.

The WNV IgM capture ELISA test is a specific serologic test that detects acute WNV infection in horses and is usually positive within six (6) days post infection. It can remain positive for up to two (2) months post infection. A confirmed case of equine WNV is defined as a horse displaying neurologic signs with a positive WNV IgM Capture ELISA test. West Nile virus in horses is a reportable disease in California. Annually, AHB notifies private practitioners of the importance of reporting WNV in horses as part of the statewide WNV surveillance program.

WNV surveillance is a collaborative effort in California, as AHB staff works closely with public health, mosquito control and environmental health agencies at the local, State and federal level to minimize the impact of WNV. WNV surveillance includes testing samples from dead birds, sentinel chickens, mosquito pools, horses and humans. As part of the collaboration, AHB is responsible for confirmation of suspect equine WNV cases, maintenance of horse surveillance data, and outreach and education to horse owners on WNV disease control and prevention.

AHB WNV outreach and education focuses on encouraging horse owners to consult their veterinarian to ensure a current WNV vaccination status for their horses. To minimize the risk of WNV infection in horses, AHB provides horse owners information on mosquito control measures such as housing horses during the peak

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**Excess on Fire, 3 year old racing Quarter Horse filly confirmed positive for EIA September 2015.**

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**Vaccination + mosquito control = WNV Protection**

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**WNV Webpage Hits for 2015 (Total Hits 1,397)**
mosquito feeding periods at dawn, utilization of mosquito repellant and elimination of mosquito breeding sites. AHB staff are responsible for timely updates to the WNV outreach materials and the CDFA West Nile website. All equine WNV cases are posted to the website within twenty-four (24) hours of confirmation to ensure timely and accurate information dissemination to the industry.

For 2015, a total of nineteen (19) horses have been confirmed positive for WNV. The positive horses were located in the following counties: Contra Costa, El Dorado, Humboldt, Modoc, Riverside (6), San Joaquin, San Diego, Santa Cruz, Shasta (2), Solano, Tehama, Tulare and Ventura. All positive horses were unvaccinated. Five (5) of the nineteen (19) positive horses were euthanized or died. The first equine WNV case for 2015 was confirmed in August.

**Confirmed Equine WNV Case Summary Table**

<table>
<thead>
<tr>
<th>Year</th>
<th>Confirmed Cases</th>
<th>Died or Euthanized</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>2014</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>2013</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>2012</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>2011</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>2010</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>2009</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>2008</td>
<td>32</td>
<td>17</td>
</tr>
<tr>
<td>2007</td>
<td>28</td>
<td>14</td>
</tr>
<tr>
<td>2006</td>
<td>58</td>
<td>24</td>
</tr>
<tr>
<td>2005</td>
<td>456</td>
<td>200</td>
</tr>
<tr>
<td>2004</td>
<td>540</td>
<td>229</td>
</tr>
<tr>
<td>2003</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Equine Herpesvirus-1

Equine herpesvirus-1 (EHV-1) infection in horses can cause respiratory disease, abortion in mares, neonatal foal death and neurological disease. The neurological form of the disease is known as equine herpesvirus myeloencephalopathy (EHM) and is known to result in a high shedding of virus from the nasal passage of the infected horse. Similar to herpes viruses in other species, the latent form of EHV-1 can reactivate at a later date.

In recent years, there has been a marked increase in the number of EHV-1 cases and several outbreaks of EHM at large horse events and facilities. The recent and increasing frequencies of EHM outbreaks support the designation of EHM as an “emerging disease”. AHB officials monitoring disease agents recognized the increased number of outbreaks of neurologic disease which impacted the California equine industry. After discussion with the industry, AHB added equine herpesvirus myeloencephalopathy to the reportable disease list in 2011. As a reportable disease, the AHB requires private practitioner and laboratory reporting of EHM suspected and confirmed cases. A confirmed case is defined as a horse which displays compatible clinical signs AND has a positive Polymerase Chain Reaction (PCR) laboratory diagnostic test for EHV-1 on nasal swab and/or blood sample. Once an EHM case has been confirmed, an AHB veterinarian is assigned to investigate the index case and implement disease control measures. At a minimum, the index-confirmed positive horse is placed under quarantine and isolated. An epidemiologic investigation is conducted to identify exposed horses on the premises and those which may have left the premises. For high-risk exposed horses, additional quarantines may be placed on exposed animals at additional premises to ensure adequate control of disease spread. While onsite, the AHB veterinarian conducts a biosecurity risk assessment to identify potential disease transmission risks factors. The AHB veterinarian provides barn managers, owners and trainers specific biosecurity recommendations which address the identified risk factors. For twenty-one (21) days, all horses are monitored on the premises for clinical signs and temperatures are taken and recorded twice daily. If there are no additional signs of disease transmission during the monitoring period, the quarantine may be released.

At the request of California’s equine industry, EHM case information is posted to the AHB EHV-1 Alert website within twenty-four (24) hours of confirmation. Once a case has been posted, the information on the website is updated as the incident changes. Accurate and timely reporting of EHM cases enables the horse industry to take preventative biosecurity measures to ensure business continuity. The website also includes the most current outreach materials such as brochures, fact sheets and biosecurity recommendations.
In 2015, AHB staff responded to three (3) confirmed incidents of EHM. In February 2015, a fourteen (14) year old Quarter Horse gelding in Monterey County, displaying hind limb ataxia and an inability to urinate and defecate was confirmed positive for the non-neuropathogenic strain of equine herpesvirus -1. The horse recovered. All exposed horses were monitored and no additional cases were confirmed.

**Confirmed EHV-1 Case Summary Table**

<table>
<thead>
<tr>
<th>Year</th>
<th># Incidents</th>
<th># Premises</th>
<th># Confirmed Cases</th>
<th># EHM Cases</th>
<th># Non Neuro Cases</th>
<th># Euthanized</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2014</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2012</td>
<td>4</td>
<td>6</td>
<td>22</td>
<td>7</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>2011</td>
<td>3</td>
<td>17</td>
<td>35</td>
<td>15</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>15</strong></td>
<td><strong>33</strong></td>
<td><strong>70</strong></td>
<td><strong>33</strong></td>
<td><strong>37</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

In March 2015, a fifteen-year-old warmblood gelding, originating from a Santa Cruz County premises, displaying hind limb ataxia and an inability to urinate and defecate, was confirmed positive for the neuropathogenic strain of equine herpesvirus-1. Due to the severity of disease, the positive horse was euthanized. All exposed horses were monitored, and no additional cases were confirmed.

In June 2015, an EHV-1 investigation tracing back to the Bishop Mule Days on May 17-26, 2015, was conducted. A twelve-year-old Quarter Horse gelding displaying neurologic signs and a twelve-year-old mule displaying a cough, originating from Riverside County, were confirmed positive for the non-neuropathogenic strain of EHV-1. Both animals attended Mule Days in Bishop, California. Both animals recovered. Additionally, an exposed eight-year-old QH gelding on this premises exhibiting a high fever and severe hind limb incoordination was confirmed positive for the neuropathogenic strain of EHV-1. His condition deteriorated, and he was euthanized. No additional cases were confirmed on this premises. During the same time period in June, a thirteen-year-old Quarter Horse mare residing in San Joaquin County and displaying severe neurologic signs, was confirmed positive for equine herpes myeloencephalopathy (EHM). This mare was exposed to two (2) cohort mules after they arrived home from Mule Days in Bishop. The mare was euthanized. Although no positive EHV-1 animals were reported at the Mule Days event, the epidemiologic investigation indicates exposure for the confirmed cases likely occurred at this event and on subsequent home premises following return from Bishop.

**Equine Piroplasmosis**

Equine piroplasmosis is a blood-borne disease of equids (horses, donkeys, mules and zebras) caused by one of two protozoan parasites, *Theileria equi* or *Babesia caballi*. The United States is considered "free" of this disease. Natural transmission occurs when a tick consumes a blood meal from an infected horse and transfers the parasite to a naïve horse. Iatrogenic transmission via the use of infected blood or blood products, or by the use of blood-contaminated equipment such as needles, syringes, surgical instruments, dental equipment, tattooing-equipment, or any other equipment; may spread the disease to a naïve horse.
Equine piroplasmosis is diagnosed by serologic test. In the United States, testing is by the complement fixation (CF) and the enzyme-linked immunodiffusion antibody (ELISA) assays for both causative organisms. Tests are used in parallel, as CF more readily detects acute disease while ELISA is more sensitive for detecting chronic infection.

Over the past ten (10) years, California has identified three (3) high-risk groups for piroplasmosis positive horses. The first high-risk group includes those horses imported prior 2005 on a negative CF test, as this test failed to detect chronically affected horses.

The second group of high-risk horses are racing Quarter Horses. Since 2012, California has detected nineteen (19) *T. equi* positive racing quarter horses. Ten (10) of these horses were also dually infected with equine infectious anemia.

The third group of high-risk horses are those suspected to be illegally imported from Spain. Three (3) positive *T. equi* Spanish purebred horses have been confirmed in California and all three (3) remain under quarantine. Information has been passed on to USDA for investigation.

**Contagious Equine Metritis**

Contagious equine metritis (CEM) is a highly contagious venereal foreign animal disease of horses caused by the bacteria, *Taylorrella equigenitalis*. Disease transmission occurs during natural breeding or artificial insemination. Carrier stallions act as a reservoir of the *Taylorrella* organism. Undetected mares and stallions are the source of the infection for disease outbreaks. Detection relies on isolation of *T. equigenitalis* from urogenital swabs of the mare and stallion. Due to the organism’s fastidious nature and slow growth characteristics, it is difficult to culture; therefore, it requires multiple cultures over a period of one week. Serology is available to detect antibodies to CEM in mares. This test cannot be utilized in stallions, as detectable antibodies do not develop. CEM can be treated with disinfectants and antibiotics.

As the United States is considered “free” of CEM, any positive or suspicious case must be immediately reported to a State Animal Health Official. Once notified, an AHB veterinarian will investigate the positive case and review all breeding records to determine potential exposed animals. There were no CEM cases detected in 2015 in California. In 2015, AHB performed a complete review of the State and federal CEM regulations in preparation for a planned 2016 industry stakeholder meeting. The meeting is to discuss potential changes to California’s CEM Import Quarantine Program.
National Equine Collaboration

Since 2011, California has led the nation for equine disease investigations with the confirmed detections of forty-one (41) EIA cases; twenty-one (21) EP cases; four (4) CEM cases; sixty-nine (69) EHV-1 cases; and seventy-three (73) WNV cases. Due to the significant economic impacts of these diseases, the California equine industry supports California’s participation in national equine health discussions to encourage national adoption of the science-based equine biosecurity, disease prevention and communication plans utilized in California. Current regulatory disease control measures are no longer adequate. Protecting the future health of the U.S. equine population requires implementation of new disease-control technologies. Science and research are the key to moving forward. To meet the industry request, AHB veterinarians collaborate on numerous national research projects and participate on several national committees:

- Over the last few years, AHB has participated in equine piroplasmosis (EP) and equine infectious anemia (EIA) research. The branch provided blood from California’s positive piroplasmosis horses to the National Veterinary Services Laboratory for the development of strain-typing techniques.

- Collaboration and discussion are essential in enhancing animal health programs. The AHB veterinarians actively collaborate with several national equine organizations: the United States Animal Health Association’s Infectious Disease of Horses Committee (IDOHC), the United States Equestrian Federation, the American Association of Equine Practitioners and the American Horse Council.

- AHB veterinarians have been the Chair or Vice-Chair of the Infectious Diseases of Horses Committee (IDOHC) for the last seven (7) years. The purpose of IDOHC is to address and seek solutions to infectious disease issues that can compromise the health and welfare of the nation’s equine population. Additionally, AHB veterinarians have participated in the IDOHC subcommittees on equine herpesvirus-1, equine infectious anemia, equine piroplasmosis, and contagious equine metritis.

- In 2015, the EHV-1 Subcommittee, chaired by Dr. Flynn, finalized the development of an Equine Herpesvirus Myeloencephalopathy Incident Guidance Document for state animal health officials. The document provides science-based disease control protocols which can be adapted to an EHV-1 incident to control disease spread while ensuring compliance and minimizing impact on the equine industry.

- In 2015, IDOHC and the National Institute of Animal Agriculture (NIAA) formed a committee to plan the first ever Equine Disease Forum for industry stakeholders. Dr. Flynn was elected chair of the planning committee. The objective of this unique forum is to provide latest updates on disease threats to equine health, to identify potential solutions for addressing current risks to equine health and to enhance equine industry communications regarding equine health issues. Through participation in this forum, state and federal animal health officials gained unique insight into the views of the equine industry related to equine health which will ultimately enhance communications and future collaborations on equine disease control. The Equine Disease Forum occurred January 2016 in Denver, Colorado.

- In 2015, USDA formed an EIA Discussion group to discuss the current EIA control program and thoughts for moving forward. Dr. Kent Fowler, AHB Chief, represented the western region of USAHA, provided insight to discussion group members on the current EIA risks and disease control challenges.

- For the past five (5) years, Dr. Fowler has facilitated a monthly National Equine Conference Call to provide equine issue and disease-related updates to state and federal regulatory animal health officials, academia and industry leader partners.

- California’s Equine Medication Monitoring Program and the United States Equestrian Federation (USEF) continuously work together to prevent the misuse of drugs and medications, specifically those which pose a significant risk to the safety of the rider and a risk to horse’s health. Dr. Flynn is a member of the USEF Drugs and Medication Committee and the USEF Staff Veterinarian is on the EMMP Advisory Committee to ensure collaborations and consistent drug regulations. In 2015, Dr. Flynn assisted the USEF Staff Veterinarian on the development of biosecurity materials and proposed biosecurity regulations for USEF licensed events.

- The American Association of Equine Practitioners (AAEP) represents nearly ten thousand (10,000) equine veterinarians who cover a broad range of disciplines, breeds and associations. AHB frequently provides disease updates and outreach materials to AAEP membership, and staff veterinarians are members of the following AAEP groups: National Equine Health Plan Task Force; Equine Disease Communication Center Task Force; Leadership Development Committee; and the Welfare and Public Policy Council. Additionally, AHB staff veterinarians have been active members of the local Northern California Association of Equine Practitioner Association by providing regulatory updates at their quarterly meetings.

- Dr. Flynn is also a member of the American Horse Council (AHC). As the national association representing all segments of the horse industry in Washington, DC, the AHC works daily to represent equine interests and opportunities.

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Overview

The Animal Heath Branch (AHB) works in partnership with the United States Department of Agriculture (USDA)/Veterinary Services (VS) in its efforts to enhance animal disease traceability (ADT) as it pertains to animal health management. We also support the development of national standards for premises and animal identification while allowing for regional differences. We are working to develop California regulations to mirror federal traceability regulations, while including additional requirements to further protect California animal agriculture.

ADT includes: the use and distribution of official identification (ID); livestock movement including Interstate Livestock Entry Permits; CDFA Pest Exclusion Branch Agricultural Inspection Station livestock crossing reports; and use of Certificates of Veterinary Inspection (CVIs) for animals shipping into and out of CA. Some of the main goals for ADT this year were to increase the use of electronic records and decrease the time to trace an animal in a disease outbreak. This year, with direction from USDA, AHB worked to increase compliance through outreach and enforcement.

Proposed CA ADT Regulations: With the publication the Federal ADT Regulation in 2013, AHB began to address changes necessary to existing regulations to match the federal regulations. During the last year, the Branch has worked to finalize our proposed rule. The rule should be published for public comment in early 2016.
Official Identification

Official identification (ID) is required for most livestock moving interstate. The AHB is responsible for the distribution of certain official identification tags. These include National Uniform Eartagging System (NUES) silver “brite” tags, NUES orange brucellosis tags, USDA backtags and swine plastic NUES tags. All of these distributions are recorded in the AHB internal database. The AHB also tracks official tags distributed by USDA, including scrapie tags, and tags distributed directly from private companies to producers, including Animal Identification Numbering (AIN) System “840” tags. These “840” tags can be either a radio frequency tag or a visual ID tag.

<table>
<thead>
<tr>
<th>2015 Official ID Tag Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIN 840</td>
</tr>
<tr>
<td>1,362,979</td>
</tr>
</tbody>
</table>

Livestock Movement

Most cattle, sheep, goats and swine require an Interstate Livestock Entry Permit issued by AHB staff to enter California. In most cases, these species, as well as horses, would require a Certificate of Veterinary Inspection (CVI), official identification, and additional health requirements to enter the State. The CDFA Pest Exclusion Branch Agricultural Inspection Stations record livestock shipments into California. AHB has access to that information and uses it to find non-compliant shipments. AHB field staff follow up on shipments entering the State that are deemed high-risk: shipments missing entry permits, CVIs, and test results.

Interstate Livestock Entry Permits

Permits are issued by AHB staff to the shipping premises’ veterinarian or producer. Permits are valid for fifteen (15) days. All permits are reviewed by field staff. The permits for the highest risk shipments, such as animals from a state with a known disease outbreak or animals that have a special permit for vaccination or testing on arrival, are followed up in the destination district. Permits were issued for animals from forty-three (43) states and Canada for a total of 7,262 permits representing 666,065 head of livestock. The tables and graphs below show the number of permits issued by month and by species. These numbers do not include the number of beef cattle that move on the special entry permits to pasture out of state and return to California. In 2015, we did 195 Pasture to Pasture Permits (136 with Oregon, fifty-one (51) with Nevada, and eight (8) with Idaho) for 98,244 head of breeding beef cattle.
Certificates of Veterinary Inspection

Certificates of Veterinary Inspection (CVIs) are issued by accredited veterinarians in California for animals leaving, and in other states and countries for animals coming into California. CVIs are required for most livestock moving across state lines. Accredited veterinarians play a major role in mitigating the risk of disease transmission by inspecting these animals. The AHB receives a copy of all CVIs for animals leaving and entering the State. A copy of all outgoing CVIs is forwarded to the destination state and the AHB maintains a copy. All incoming CVIs are reviewed for compliance based on our regulations. Both incoming and outgoing CVIs are counted, sorted and filed by species and month issued.

2015 Incoming CVIs by Species

<table>
<thead>
<tr>
<th>Species</th>
<th># of CVIs</th>
<th># of Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horses</td>
<td>10,971</td>
<td>20,182</td>
</tr>
<tr>
<td>Cattle</td>
<td>4,665</td>
<td>426,382</td>
</tr>
<tr>
<td>Sheep</td>
<td>536</td>
<td>42,354</td>
</tr>
<tr>
<td>Goats</td>
<td>553</td>
<td>18,268</td>
</tr>
<tr>
<td>Swine</td>
<td>647</td>
<td>229,850</td>
</tr>
<tr>
<td>Other</td>
<td>596</td>
<td>35,514</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17,968</strong></td>
<td><strong>772,550</strong></td>
</tr>
</tbody>
</table>

# of Incoming 2015 CVIs by Month

# of Incoming 2015 Animals Entering on CVIs by Month
## 2015 Outgoing CVIs by Species

<table>
<thead>
<tr>
<th>Species</th>
<th># of CVIs</th>
<th># of Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horses</td>
<td>10,318</td>
<td>20,096</td>
</tr>
<tr>
<td>Cattle</td>
<td>8,083</td>
<td>1,096,953</td>
</tr>
<tr>
<td>Sheep</td>
<td>369</td>
<td>33,764</td>
</tr>
<tr>
<td>Goats</td>
<td>357</td>
<td>9,162</td>
</tr>
<tr>
<td>Swine</td>
<td>542</td>
<td>6,130</td>
</tr>
<tr>
<td>Other</td>
<td>120</td>
<td>673</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19,789</strong></td>
<td><strong>1,166,778</strong></td>
</tr>
</tbody>
</table>

### # of Outgoing 2015 CVIs by Month

- **Horse**
- **Cattle**
- **Sheep & Goats**
- **Swine**
- **Other**
- **Total**

### # of Outgoing 2015 Animals Entering on CVIs by Month

- **Horse**
- **Cattle**
- **Sheep & Goats**
- **Swine**
- **Other**
- **Total**
**Pest Exclusion Branch Agricultural Inspection Station Collaboration**

AHB receives information from the sixteen (16) Pest Exclusion Branch Agricultural Inspection Stations (Border Stations) regarding livestock shipments into California. AHB accesses the crossing information and will follow up on non-compliant shipments or shipments considered high-risk.

This year border stations recorded livestock shipments entering from all forty-nine (49) states, ten (10) Canadian Provinces, and Mexico. Below are charts and graphs of the animal shipments recorded by the border stations.

<table>
<thead>
<tr>
<th>Species</th>
<th># of Animals</th>
<th># of Shipments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>773,469</td>
<td>15,113</td>
</tr>
<tr>
<td>Dairy</td>
<td>70,155</td>
<td>782</td>
</tr>
<tr>
<td>Goat</td>
<td>27,581</td>
<td>608</td>
</tr>
<tr>
<td>Hatching Eggs (Cases)</td>
<td>8,035,713</td>
<td>1,431</td>
</tr>
<tr>
<td>Horse</td>
<td>45,401</td>
<td>16,720</td>
</tr>
<tr>
<td>Other</td>
<td>144,858</td>
<td>157</td>
</tr>
<tr>
<td>Poultry</td>
<td>10,644,414</td>
<td>370</td>
</tr>
<tr>
<td>Rabbit</td>
<td>20,784</td>
<td>101</td>
</tr>
<tr>
<td>Sheep</td>
<td>252,331</td>
<td>1,204</td>
</tr>
<tr>
<td>Swine</td>
<td>2,375,483</td>
<td>12,205</td>
</tr>
<tr>
<td>TOTALS</td>
<td>22,390,189</td>
<td>48,691</td>
</tr>
</tbody>
</table>
Outreach and Education

**Border Station Visits**

AHB HQ and district staff were able to visit the majority of the State’s border crossing stations. These visits allow AHB staff to have face-to-face contact with border station personnel to provide outreach materials, share outcomes from previous follow-up investigations generated by their daily collection reports, and train them first hand as livestock vehicles come through the station.

In January, AHB staff visited five (5) southern stations for meet-and-greet in Winterhaven, Blythe, Vidal, Needles and Yermo. One of the benefits of this year’s trip to the southern stations was the creation of the “Hot Sheet”. This form allows station personnel to inform AHB Headquarters of issues with someone bringing in livestock that might require immediate follow-up. Headquarters staff determine which destination district is involved and then forwards the information to that district.

In March, AHB staff visited Long Valley, Truckee, Hornbrook, Dorris, Tule Lake and Alturas stations. We were also able to attend the Agricultural Inspection Stations Supervisors’ Meeting in Redding. The supervisors’ meeting was a valuable opportunity to meet with all the northern station managers.

In October, the Truckee Station requested help reviewing entry documents for animals entering California after a large equine event in Reno, Nevada. In prior years, this event caused traffic backups and hazardous conditions. During this October weekend, more than two hundred (200) vehicles hauling more than three hundred (300) horses were stopped.

Unfortunately, due to their remote locations, we were unable to visit Redwood Highway, Smith River, Meyers, Topaz and Benton Stations. Branch personnel have made every effort this year to check in with the stations as often as possible either in person, by phone or e-mail and to keep the communication lines open and form relationships so station personnel feel comfortable contacting us with concerning issues.

**Border Station Sting Operations**

This year the Truckee Station Supervisor created monthly “Sting Operations” and invited CDFA/AHB and Livestock Identification Branch (brand inspection) personnel, USDA personnel and the Department of Justice personnel to assist. Inspection points were set up on roads and highways that do not have a station, which are often pretty remote. These locations included Hwy 88, Hwy 182, Red Rock Road, (North of Long Valley), and Glenshire Drive.

*Excludes poultry and hatching eggs: these shipments average ~900,000 head per month*
(in Truckee). Glenshire Drive is commonly used to avoid the Truckee Station. Since these stings halted traffic in areas not accustomed to vehicular stoppage, the AHB purchased a portable sign to be placed out on the highway or roadway that reads: “ALL VEHICLES HAULING LIVESTOCK MUST STOP”. Several violation warnings were issued and recorded in the Emerging Threats database.

**Use of Electronic Records and Ear Tags**

The AHB has been working with accredited veterinarians, producer and industry representatives to spread the word and increase the use of electronic programs to produce CVIs and other official forms. Currently, approximately 25% of both incoming and outgoing CVIs are produced using an electronic CVI generating system. The AHB is also working with producers, livestock markets and slaughter plants to increase the knowledge about, and use of, electronic identification tags. During the past year, AHB worked with accredited veterinarians to use electronic identification tags for the official identification of cattle at the time of brucellosis vaccination. Historically, official identification tags for brucellosis vaccination have been metal tags.

**Livestock Movement Websites**

The [Livestock Movement web page](#) is the most viewed page on the AHB website. It accounts for approximately 25% of the webpage views for AHB with over thirty thousand (30,000) views. This page gets approximately 1.3% of the views out of all the department web pages.

This year a new [interactive animal entry requirements webpage](#) was created by CDFA staff. It allows users to select their state of origin, species and purpose. The page provides a list of requirements and allows them to print a summary.

**Animal Disease Traceability (ADT) Compliance**

Beginning this year, the AHB, in collaboration with the USDA, stepped up enforcement and compliance efforts for the Federal ADT Regulation as well as existing CDFA regulations. All incoming CVIs are reviewed for compliance. Any issues are noted and a letter sent to the issuing veterinarian and issuing state veterinarian’s office. The AHB receives letters of violation for CVIs issued by California-accredited veterinarians. These are reviewed and followed up by district staff. This year AHB worked with USDA to issue six (6) veterinarians an additional letter that documented their repeat violations. Below summarizes the number of violation letters sent or received in 2015.

<table>
<thead>
<tr>
<th>Summary of CVI Violation Letters</th>
<th>Out of state</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Violations</td>
<td>638</td>
<td>983</td>
</tr>
<tr>
<td>Number of CVIs*</td>
<td>531</td>
<td>792</td>
</tr>
<tr>
<td>Beef</td>
<td>125</td>
<td>247</td>
</tr>
<tr>
<td>Dairy</td>
<td>29</td>
<td>129</td>
</tr>
<tr>
<td>Sheep</td>
<td>36</td>
<td>11</td>
</tr>
<tr>
<td>Goats</td>
<td>48</td>
<td>21</td>
</tr>
<tr>
<td>Horses</td>
<td>273</td>
<td>353</td>
</tr>
<tr>
<td>Swine</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Numbers of Veterinarians</td>
<td>320</td>
<td>304</td>
</tr>
</tbody>
</table>

*Total # of CVIs is different because some CVIs represent multiple species*
AHB field staff review all incoming shipments entering California and follow up with shipments that appear to be non-compliant. Outreach is given for the first offense. Additional offenses could lead to violations or quarantines being issued. The table below summarizes the compliance follow-up results for 2015. This does not represent a complete year, as the tracking for compliance began in April. Most of the compliance records are started for border crossing follow-up (~60%), then for permits or CVI issues. Almost 600 compliance contacts were initiated in 2015.

<table>
<thead>
<tr>
<th>Compliance Follow up Contacts by Contact Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct Info Collected</td>
</tr>
<tr>
<td>Avian</td>
</tr>
</tbody>
</table>

![Compliance Follow up Contacts by Contact Result](image)

**Ultra-High Frequency (UHF) Project**

In September 2014, CDFA began an eighteen-month pilot project with funding from USDA to determine the feasibility of the use of Ultra High Frequency (UHF) eartags in cattle. UHF tags are new technology to the livestock industry that use an UHF radio frequency identification (RFID) chip. Currently only low-frequency RFID tags are available. Both types of tags use an official ID number. UHF tags allow for reading of multiple animals at a time.

AHB’s project is in coordination with the Hawaii Department of Agriculture. The three (3) objectives are:

1. Use UHF tags in heifers for brucellosis calfhood vaccination in Hawaii
2. Use UHF tags as official identification for movement from Hawaii to California
3. Use UHF tags for cattle moving through livestock markets in California

Through these three (3) objectives, AHB has been reporting to USDA on the feasibility of the UHF tags including: reading of multiple animals; maintenance of the speed of commerce; and durability and reliability of the tags. Most progress in 2015 has been made on objective three (3). AHB was able to install UHF tag readers at three (3) livestock markets in Northern CA, the Central Valley and the Central Coast. Tags were provided to the markets by USDA. Over two thousand (2,000) tags were applied at the markets or by producers in 2015. Tags read ~95% of the time. When tags read 100% of the time, the time saved was huge for the markets. Cattle are not as stressed when they do not have to be caught individually to record the ID for interstate movement.
Overview

The Animal Health Branch (AHB) protects livestock populations, consumers, and California's economy from catastrophic animal diseases and other health or agricultural problems. The AHB implements programs which protect California's livestock industries and consumers, ensures the availability, affordability, and wholesomeness of food and responds to disease occurrences which threaten the viability of animal agriculture in the State. The AHB has developed the emergency preparedness cycle depicted below to coordinate all programs toward the common goal of protecting animal agriculture, consumers and the State’s economy.

Highly Pathogenic Avian Influenza (HPAI)

HPAI Response/Eradication

The Animal Health Branch will remember the year 2015 as the largest animal disease outbreak response in U.S. history. Beginning in December 2014, and continuing through fall 2015, state animal health officials from throughout the U.S. and the USDA/VS mobilized resources to control, contain, and eradicate HPAI from backyard and commercial poultry flocks. By June 2015, twenty-one (21) states had positive HPAI cases in commercial poultry premises, backyard flocks, and captive wild birds or wild birds. Over 220 commercial and backyard poultry flocks in fifteen (15) states were affected, with over forty-nine (49) million birds depopulated. The losses represented almost 7.5% of the U.S. average turkey inventory, just under 10% of the U.S. average layer inventory and over 6% of the U.S. average pullet inventory. Response costs totaled over $1 billion, and international trade and other secondary economic and production losses are still being calculated.
In January 2015, CDFA’s AHB and USDA/VS entered into a Unified Command to respond to the State’s first positive case of HPAI (H5N8) in a Stanislaus County commercial poultry flock. Another positive HPAI (H5N8) commercial flock in Kings County was discovered in February, prompting CDFA and USDA to redirect resources to respond to the second incident. In March, a Merced County commercial premises tested positive for low pathogenic avian influenza (LPAI) (H7N3) resulting in California’s third incident response for the year. For more information on each of the incidents, see the Modesto and Tulare District Reports. In each California case, the disease introduction most likely resulted from migrating wild birds along the Pacific Flyway; no lateral disease spread was detected. California officials credit early disease detection through proactive producer and private practitioner surveillance, and good on-farm biosecurity practices among the key factors that prevented disease spread that could have triggered a much larger outbreak.

The organizational chart reflects the Incident Command System (ICS) infrastructure that CDFA establishes following completion of initial disease management functions on the infected premises. As an incident expands or downsizes, the organizational chart is adjusted accordingly.

**HPAI Preparedness**

Following the 2015 catastrophic federal, State, and industry nationwide response to outbreaks of highly pathogenic avian influenza (HPAI) in commercial and backyard poultry, experts predict the U.S. could see similar HPAI outbreaks again in 2016 and beyond. California will experience the highest risk for disease introduction during wild bird migration in the Pacific Flyway. In an effort to prepare for the imminent disease threat to domestic poultry, the AHB continues to dedicate staff to advance HPAI emergency preparedness initiatives which incorporate lessons learned from the responses last year. To ensure California preparedness efforts
remain consistent with national-level planning, CDFA is collaborating on these preparedness activities with animal disease response partners from the USDA/VS, the CAHFS Laboratory, UC Davis and poultry industry representatives. This multi-agency cooperation will better prepare our agencies to enter into a Unified Command response organization to manage disease outbreaks when the time comes.

To mitigate disease introduction into domestic flocks and to prepare for response when introductions are detected, CDFA has launched HPAI preparedness initiatives focused on enhancing the State’s response capabilities on three fronts: 1) Preparing producers and other susceptible industries; 2) Preparing regulatory responders; and 3) Monitoring disease detections. These HPAI preparedness initiatives focus on the following activities:

**Initiative One**

The first initiative concentrates on preparing producers through farm readiness, mainly actions poultry producers can implement to prevent and mitigate disease introductions on farms and to prepare for response when disease is detected.

- **Biosecurity** – The AHB-led team is working with producers and the industry to identify ways to enhance on-farm biosecurity and mitigate risks to help provide even better protection against the viruses. One element of farm readiness concentrates efforts on enhancing biosecurity on commercial poultry facilities to prevent disease occurrences and preparing to implement disease control strategies when response is necessary. The CDFA HPAI biosecurity preparedness team has recently developed and distributed a biosecurity self-assessment tool that allows each producer to evaluate strengths and weaknesses related to biosecurity and to identify areas of highest risk. The assessment tool is being amended to include permitting requirements, and a backyard poultry-specific document is being produced. Some examples of good biosecurity practices include fencing property, ensuring visitors enter and exit only through pre-determined bio-secure pathways and eliminating standing water in proximity to where birds are housed. To assist producers with the farm-readiness effort, AHB personnel have visited commercial poultry producers throughout the State to validate premises data, observe biosecurity practices, provide outreach materials, educate about risks and mitigation strategies, and answer producer questions about what can be expected when disease response is necessary.

- **Permitting/Safe Food Supply** – AHB’s preparedness team has been working on Secure Food Supply (SFS) documents over the last couple of years. The initial focus centered on developing the Secure Milk Supply (SMS) documents in anticipation of a foot and mouth disease (FMD) event. When the avian influenza threat emerged in 2015, the team’s concentration shifted to working on versions of the Secure Egg Supply (SES) and Secure Live Poultry Supply documents using national guidelines. Versions will be created for egg and live poultry farms, processors and haulers. The goal of these documents is to maintain the highest degree of business continuity possible without spreading the disease during an outbreak. During response, all movements into, out of, and within a control area will require a permit prior to movement. Permits will be issued only to those premises that are following a SFS plan. This preparedness effort will include training responders on the USDA electronic permit system, enabling CDFA to issue permits during disease response when producers experience movement restrictions. This will allow commerce to continue when the pre-determined criteria are met, facilitating producer business continuity throughout the disease eradication process. Part of this business
continuity planning includes the development of pre-certification standards for product movements on and off the farm, for the hauler, and for the processor. Checklists of these requirements will be made available in advance so that producers, haulers and processors can begin working on their biosecurity and other practices to ensure they are capable of safely moving products during disease response events.

- **Depopulation** -- The AHB depopulation preparedness team is developing depopulation supply lists categorized regionally by AHB districts, ensuring that both CO2 and other depopulation supply vendors are identified; this includes their supply inventory and availability. Other tasks include exploring the different depopulation methods and enhancing the capability to identify the affected flock’s size, age of birds and the various species in order to efficiently meet depopulation timelines.

- **Disposal** – This preparedness team has been reviewing disposal options available and developing plans based on the most effective and practical disposal methods.

- **Cleaning and Disinfection** – The preparedness team is planning for cleaning and disinfection in advance of a disease detection to ensure appropriate disinfectants are identified and approved for use against the avian influenza virus in a farm setting. In addition, the team is developing protocols and procedures and evaluating new technologies that may be employed in future outbreaks.

- **Epidemiology/Premises Validation** – The team objectives include obtaining current information/data validation by establishing primary and secondary emergency points of contact for all poultry premises and updating basic data that will help facilitate CDFA’s preparedness for a response to an avian disease outbreak.

- **Outreach** – The team has updated avian influenza fact sheets and web pages, and established e-mail distribution groups, enabling AHB to send targeted information in a more efficient, effective manner. As part of the outreach effort, over 90,000 “CDFA Avian Health 2016 Calendars,” which include disease information and important contact numbers, have been distributed to premises all across the State (e.g. feed stores, pet stores, animal shelters, animal control offices, veterinary clinics, live bird markets, swap meets, etc.).

- **Zoo Preparedness** – Another important element of this preparedness effort includes working with California’s network of zoos to ensure that when HPAI is detected in or around a zoo facility, both zoo staff and regulatory officials are prepared to react quickly and efficiently. AHB staff have been engaged in a national workgroup tasked with developing a HPAI response plan for zoos. To coordinate this planning, AHB officials visited several California zoos to perform site inspections and assist the zoos in developing site-specific biosecurity plans.

**Initiative Two**

The second preparedness initiative focuses on preparing the State’s regulatory responders to rapidly activate and implement response plans with a goal of mitigating widespread disease events.

- **Incident Management** – The AHB uses the Incident Command System (ICS) when responding to animal disease outbreaks to establish command and control and to coordinate the use of resources and personnel in the most effective, efficient manner. To accomplish this objective, CDFA has joined with California USDA/VS personnel to identify staff to form a blended Incident Management Team (IMT) dedicated to training and exercising together. The Branch conducted a Foreign Animal Disease workshop in June 2015, which focused on HPAI planning for multi-agency coordination (MAC) policy makers and field incident response staff. Participants worked through response scenarios to stimulate discussion relating to roles and responsibilities of the MAC Group and Incident Command, principles of developing objectives, anticipated response actions, recommended response organization, planned for resource needs, and identified gaps in emergency planning. This team is working on overall incident management preparedness, including development of a fact sheet informing poultry industry representatives about their role before, during and after an avian disease response.
• **Responder Training** – The blended CDFA/USDA Incident Management teams have been meeting monthly to workshop position-specific tasks and decision criteria to customize ICS position-specific training for animal disease response. This customized training will ensure responders know their assigned roles and responsibilities when responding to an emergency animal disease outbreak.

• **Incident Objectives** – The team has prepared a set of defined, specific, measurable incident response objectives for use during incident management to facilitate efficient, effective response. The team has also developed timelines for implementing each set of tasks to accompany the objectives. These tools will assist the Incident Commanders and Operation Section Chiefs with planning workload and developing objectives during an outbreak response.

• **Delegation of Authority/Transfer of Command** – CDFA AHB is developing a Transfer of Command template based on templates used by USDA IMTs during the recent HPAI responses.

• **Standard Operating Procedures (SOPs)** – The AHB preparedness team is focused on developing standard operating procedures for activating and demobilizing the incident command organization for response to animal disease outbreaks. Procedures will include expanding incidents to multiple command posts and establishing Area Command for prioritizing objectives and critical resources. The team uses the California Animal Health Emergency Management System (CAHEMS) website to post the California HPAI Procedure Manual. Finalized SOPs and emergency materials will be categorized in the CAHEMS toolkit for ready access to response staff.

**Initiative Three**

The third critical preparedness initiative consists of AHB monitoring the State’s wild bird and domestic poultry disease surveillance for early warning signs of disease detections. Positive HPAI or LPAI disease findings in wild bird populations may create increased risk to domestic poultry in surrounding areas and may trigger enhanced targeted communications with commercial and backyard producers.

• **Domestic Poultry Surveillance** – The United States has the strongest AI surveillance program in the world, and CDFA in collaboration with the USDA, is actively looking for the disease in commercial poultry operations and live bird markets. This is an ongoing effort. The CAHFS laboratory offers free bird surveillance sample testing for backyard flocks. AHB monitors the results of all these surveillance methods to ensure early disease detection and rapid response when necessary.

• **Wild Bird Surveillance** – The State’s wild bird disease detection system is conducted by USDA Wildlife Services in coordination with the California Department of Fish and Wildlife. Under this surveillance program, biologists collected over 160 live bird samples in Northern California during the 2015 summer HPAI surveillance. More extensive hunter harvest sampling is planned for the 2015/16 waterfowl hunt season to include approximately 2,100 samples from watersheds throughout the state. CDFA is performing outreach in high-risk areas to encourage poultry producers to implement increased biosecurity on their farms, continue monitoring flocks and immediately report any increases in morbidity, mortality or production abnormalities. Timely reporting is critical to detect damaging animal diseases, to rapidly implement disease control strategies, and to mitigate wide-spread outbreaks.
Foot and Mouth Disease Preparedness

Foot and mouth disease (FMD) is the most serious, transboundary, infectious disease of cloven-hoofed animals such as cattle, swine and sheep. It is endemic in parts of Asia, Africa, the Middle East and South America. Extremely contagious, a single FMD occurrence in the U.S. could spread rapidly across the nation, immediately affecting interstate and international trade. Potential impacts of an FMD outbreak include severe economic consequences, significant impact on national economic growth and compromised U.S. food security. If an FMD outbreak were to occur in the U.S., USDA/VS together with the affected state animal health official would implement disease control measures, which may include vaccination. Successful implementation of an FMD vaccination strategy requires significant pre-event planning to ensure that when adequate supplies of vaccine become available, responders are prepared to implement the strategy in a timely manner, observing logistical and documentation requirements. In order to facilitate this comprehensive planning, USDA/VS and the CDFA/AHB have assembled a multi-agency/disciplinary team to focus on FMD vaccination planning. The FMD Vaccination Planning Team has initiated development of standard operating procedures focused on the logistics of implementing mass vaccination as a disease control measure in response to an outbreak of FMD in California dairies.

![FMD Vaccine Distribution Workflow](image)

CDFA has been socializing the FMD vaccination concept amongst the State’s dairy industry and private practitioners, and has shared this planning as a model for use by other states throughout the nation. Recent efforts focused on furthering concept development to include planning for the receipt, storage, repackaging and distribution of FMD vaccine; while maintaining product security, cold chain, chain of custody and the corresponding documentation for those processes. The project focused on incorporating the private sector as a partner in the cold storage and distribution functions. Project research concentrated on both national and California-based private logistics firms, making many of the project outcomes and analyses relevant for sharing with other states to use as a template in their own planning. USDA/VS has adopted many California FMD vaccination preparedness concepts and has published them in the National Foreign Animal Disease Response Plan.

Foreign Animal Disease Investigations

Central to the AHB mission, AHB district personnel are dedicated to investigate, control, and eradicate (when appropriate) emerging, re-emerging, endemic and foreign diseases that impact animal agriculture. These disease investigations, commonly referred to as foreign animal disease (FAD) investigations, are documented in the USDA VS Emergency Management Response System (EMRS) database. The Branch has completed thirty-nine (39) FAD investigations during the 2015 calendar year. Investigations included sample submissions to NVSL for FMD, vesicular stomatitis, avian influenza, Schmallenberg virus, and others. The investigations initiated from January 1, 2015, to December 31, 2015, by AHB are shown below:
<table>
<thead>
<tr>
<th>No.</th>
<th>Open Date</th>
<th>FAD #</th>
<th>Disease</th>
<th>Species</th>
<th>Sample Type</th>
<th>Location of Animal (County)</th>
<th>AHB District</th>
<th>Destination Lab</th>
<th>NVSL Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/9/15</td>
<td>15CA0002</td>
<td>Foot and Mouth Disease (FMD), Vesicular Stomatitis Virus (VSV)</td>
<td>Swine</td>
<td>Swab</td>
<td>Imperial</td>
<td>Ontario</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>2</td>
<td>1/20/15</td>
<td>15CA0003</td>
<td>Schmallenberg Virus</td>
<td>Sheep</td>
<td>Fetus Brain</td>
<td>Santa Barbara</td>
<td>Tulare</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
<td>3</td>
<td>1/22/15</td>
<td>15CA0004</td>
<td>Highly Pathogenic Avian Influenza (HPAI)</td>
<td>Chicken</td>
<td>Whole bird, Swab</td>
<td>Stanislaus</td>
<td>Modesto</td>
<td>NVSL, CAHFS</td>
<td>Positive</td>
</tr>
<tr>
<td>4</td>
<td>1/24/15</td>
<td>15CA0005</td>
<td>HPAI</td>
<td>Chicken</td>
<td>Whole bird, Swab</td>
<td>Riverside</td>
<td>Ontario</td>
<td>NVSL, CAHFS</td>
<td>Negative</td>
</tr>
<tr>
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</tr>
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<tr>
<td>9</td>
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<td>15CA0010</td>
<td>FMD, VSV</td>
<td>Bovine</td>
<td>Vesicle Fluid, Serum, Swab</td>
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<tr>
<td>11</td>
<td>5/4/15</td>
<td>15CA0012</td>
<td>FMD, VSV, Bovine Papular Stomatitis (BPS)</td>
<td>Bovine</td>
<td>Swab, Tissue</td>
<td>Riverside</td>
<td>Ontario</td>
<td>NVSL, CAHFS</td>
<td>Positive only for BPS</td>
</tr>
<tr>
<td>12</td>
<td>5/4/15</td>
<td>15CA0013</td>
<td>Avian Influenza (AI), Avian Paramyxovirus (APMV)</td>
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<td>Equine</td>
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<td>15CA0016</td>
<td>VSV, FMD</td>
<td>Goat</td>
<td>Blood, Serum, Swab</td>
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<td>Schmallenberg Virus, Bunyavirus</td>
<td>Bovine</td>
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<td>5/26/15</td>
<td>15CA0018</td>
<td>African Horse Sickness (AHS)</td>
<td>Equine</td>
<td>Lung, Spleen, Kidney, Slide</td>
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<td>18</td>
<td>6/12/15</td>
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<td>FMD, VSV</td>
<td>Bovine</td>
<td>Blood, Serum, Swab</td>
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<td>6/16/15</td>
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<td>Rabbit Hemorrhagic Disease (RHD)</td>
<td>Rabbit</td>
<td>Necropsy/ Liver</td>
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<td>VSV</td>
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<td>22</td>
<td>7/16/15</td>
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<td>Peste des petite ruminants</td>
<td>Goat</td>
<td>Liver, Lung</td>
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<td>Equine</td>
<td>Serum, Lung</td>
<td>Riverside</td>
<td>Ontario</td>
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Destination laboratories: National Veterinary Services Laboratories (NVSL); California Animal Health and Food Safety Laboratory (CAHFS)
<table>
<thead>
<tr>
<th>No.</th>
<th>Open Date</th>
<th>FAD #</th>
<th>Disease</th>
<th>Species</th>
<th>Sample Type</th>
<th>Location of Animal (County)</th>
<th>AHB District</th>
<th>Destination Lab</th>
<th>NVSL Result</th>
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<td>Equine</td>
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<td>Screwworm</td>
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<td>Modesto</td>
<td>NVSL, CAHFS</td>
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<td>29</td>
<td>9/1/15</td>
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<td>Schmallenberg Virus</td>
<td>Bovine</td>
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<td>Placer</td>
<td>Redding</td>
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<td>Stanislaus</td>
<td>Modesto</td>
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</tr>
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<td>38</td>
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<td>Bovine</td>
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<td>Tulare</td>
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<td>NVSL, CAHFS</td>
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</tr>
</tbody>
</table>

Destination laboratories: National Veterinary Services Laboratories (NVSL); California Animal Health and Food Safety Laboratory (CAHFS)
Antimicrobial Resistance

The impact of using antimicrobials in animals on the resistance of human pathogens has been questioned for a number of years. It is challenging to determine if the effect is significant because there are numerous contributing factors and complex pathways. However, use, whether in human or animal medicine, is accepted as one of the drivers of resistance.

Recently, the FDA developed several guidance documents asking animal drug manufacturers to remove production uses - *increased feed efficiency or growth promotion* - from the labels of medically-important antimicrobials administered through feed or water. Additionally, animal health therapeutic uses - *prevention, control and treatment of disease* - would be brought under veterinary supervision.

While approved antimicrobials administered through *water* will become prescription only, the veterinary oversight of medically-important antimicrobials in *feed* is in the form of the Veterinary Feed Directive (VFD). The VFD is a form authorizing use of an antimicrobial under FDA-approved label conditions and specifying the duration of use, expiration of authorization, and approximate number of animals to be treated. While the VFD is not a new concept, it will now cover a larger range of antimicrobials.

The drugs affected, those considered important for therapeutic use in humans, were determined using a risk-assessment. They do not include, for example, ionophores like monensin. It is also important to note these changes only apply to administration of these antimicrobials in feed or water.

Manufacturers have agreed to make changes to their labels by December 2016, and use of medically-important antimicrobials in or on feed is targeted to require a VFD by the start of 2017. Guidance and assistance in understanding these changes continues to be developed and more information can be found on the [FDA website](http://www.fda.gov).
In California, concern from the general public, public health and other groups has increased. This year, Senate Bill 27 passed the legislature. All medically-important antimicrobials used for therapeutic purpose in livestock and poultry as defined by the bill, regardless of route of administration, will require veterinary supervision - a valid Veterinary-Client-Patient Relationship and a VFD for medicated feed or a prescription - by January 1, 2018. Additionally, it will require CDFA to develop guidance on antimicrobial stewardship and best management practices. Monitoring antimicrobial use and resistance from farm to retail is also included.

Accreditation

Practicing veterinarians must be accredited/authorized by USDA/APHIS/VS and CDFA before they can perform certain regulatory tasks. An example of such a task is preparing a Certificate of Veterinary Inspection (CVI) to certify the health of livestock, thereby minimizing the risk of spreading diseases when animals move to other states or to exhibitions. Other regulatory tasks include vaccinating female cattle for brucellosis, testing cattle for tuberculosis and being alert for signs of reportable diseases (CA Food and Agriculture Code 9101). To become an accredited veterinarian in California, licensed veterinarians must participate in an on-line training course and attend a National Veterinarian Accreditation Program core seminar. Additionally, they must receive State orientation.

California has two (2) veterinary schools which generate 200-240 new veterinarians each year. Because most of these veterinarians plan to become accredited veterinarians, Animal Health Branch (AHB) and USDA/APHIS/VS personnel collaborate to offer accreditation training at each school yearly. Veterinarians who enter California to practice veterinary medicine need to be licensed in the State, regardless of whether they plan to become accredited. California offers two Temporary License Curriculum Programs: one in Pomona and the other in Sacramento. AHB personnel participate in both Programs, providing updates on California’s large animal disease laws and practices to 75-100 veterinarians yearly.

There are 9,315 veterinarians accredited in California. Over the last fiscal year, 629 veterinarians became accredited in California (352 of these veterinarians were from other states or countries). Headquarters and district staff participate in accreditation and authorization seminars. In order to continually refresh the training of accredited veterinarians, AHB personnel participate in offering a National Veterinary Accreditation Program supplemental training. At this year’s CVMA Pacific Veterinary Conference, USDA and AHB personnel offered eight (8) training modules, with about twenty-five (25) veterinarians participating in each module.

To broaden the knowledge of veterinary students beyond specific accreditation rules, AHB personnel participate in one course for third-year veterinary students at Western Health Sciences Veterinary School in Pomona (approximately 95-100 students yearly), and participate in two (2) third-year courses and two (2) second-year courses at the UC Davis Veterinary School (approximately 135-140 students in each course yearly).

Outreach

The AHB provides information to a very diverse audience including commercial producers, veterinarians, students, allied industries serving livestock producers, backyard hobbyists, youth organizations (raising animals for fairs), and the general public. We provide outreach on a wide range of topics including the appearance of new diseases,
disease situations, management practices to mitigate disease, and changes in laws that may affect our audience. We meet these diverse needs in a variety of ways, attempting to reach all the appropriate audiences, including providing some materials in multiple languages.

Our website is a resource for most of our constituents, providing basic information about diseases, biosecurity, current disease events and disease threats. Our factsheets can be downloaded from the web and they are distributed at various meetings. We include learning activities for children and we have a feedback e-mail. In addition to the website, we produce a quarterly newsletter, primarily for veterinarians, but many others also receive this outreach. In the course of their daily activities, staff interact and share information with many of our stakeholders. AHB staff are regular participants and presenters at meetings and programs hosted by the key livestock and poultry industry organizations. Youth outreach occurs when district staff attend county and regional fairs in their areas, and provide presentations at club meetings.

The AHB also produces, and updates yearly, a “reportable disease list” that is widely shared with industry stakeholders, especially private veterinary practitioners and producers who are a critical part of our early warning system for the appearance of reportable diseases. Branch personnel also use e-mail blasts to provide critical information to specific audiences and produce journal articles for publication.

The AHB offers formal and informal opportunities to students interested to regulatory veterinary medicine, including projects with student assistance. This past summer, we shared three (3) student externs between AHB and Inspection Services Division. In addition, we had two (2) extern students working on emergency programs and our website.

AHB personnel also participate in the Department’s effort to extend our knowledge to other countries. This year, Dr. Katie Flynn and Dr. Dennis Wilson participated in an educational program for visiting Chinese University faculty, sponsored by the University of California Western Institute for Food Safety and Security. Approximately twenty (20) Chinese attended.

Additionally, Dr. Wilson met with another twenty-person delegation from China to share with them how animal health is monitored and managed in California. Earlier in 2015, Dr. Kent Fowler and USDA staff met with a South Korean delegation for three (3) days to provide information on our HPAI incident response. Dr. Andrea Mikolon, Binational Liaison for Animal Health, regularly meets with Mexican officials.

**Publications**

Animal Health Branch has contributed a bi-monthly article in every issue of the California Veterinary Medical Association’s publication, *California Veterinarian*, [six (6) per year] for the past ten (10) years. The following articles were submitted this past year: *2015 List of Reportable Conditions for Animals and Animal Products; Highly Pathogenic Avian Influenza in the Western United States; Poultry Industry Preparedness for Highly Pathogenic Avian Influenza; CAHFS’ Critical Role in Foreign Disease Detection and Prevention; Emergence of Vesicular Stomatitis and Changes in National Disease Response; and Overview of the Shell Egg Food Safety Regulation (3 CCR 1350 & CCR 1354).*

AHB distributes a quarterly [electronic newsletter](#) with approximately one thousand (1,100) participants on the distribution list. There were 483 visits to the newsletter website this past year.
Data Program Development

The AHB has seen large-scale improvements in data systems now used by all branches of the AHFSS Division. What once were separate “silod” collections of data relevant to each program now share a massive relational (SQL-Server based) web-accessible database – the Emerging Threats (ET) Data System. Begun as an ambitious project nine (9) years ago with the combination of heavily overlapping data, separately maintained by Animal Health and Milk and Dairy Food Safety Branches, into a single system serving both Branches simultaneously, the system recently added large amounts of data from Livestock Identification and Meat, Poultry and Egg Safety Branches. This provides crucial access to data relevant to AHB’s surveillance and disease prevention efforts against FADs such as foot and mouth disease (FMD) and highly pathogenic avian influenza (HPAI).

The database consists of a common core of demographic premises and business operation information used by all programs coupled with specific task-oriented data used by individual AHFSS branches and AHB programs for their day-to-day activities and responsibilities. The first round of AHB-specific modules developed for the ET system included bovine TB and brucellosis herd testing and follow-up case management modules, along with an Animal Disease Investigation Module that documented and reported on individual suspect cases reported to AHB district offices. More recently, modules supporting brucellosis vaccine distribution, food waste management, bovine trichomonosis testing and case management, animal movement permitting and identification compliance, and AHB outreach have been developed and added to the system. Additionally, a legacy data system for the Equine Medication Monitoring Program (EMMP) has been rebuilt and incorporated into the SQL-Server environment with a tablet-based field testing component due to come online in the near future.

We are now developing an Avian Influenza Surveillance Module to replace the Access-based module in current use. It will have facilities to collect and report bird sampling submissions and results from the laboratory, as well as regular inspections of Live Bird Markets and suppliers. Longer-range plans for 2016 include a module to generate and electronically enter data, where possible, from Certificates of Veterinary Inspection (CVI). This is crucial for analyzing the interstate movement of livestock and a necessary component of our ability to trace animals’ movements for disease investigation purposes.

Besides the ET database, the AHB was a leader in creating a web-accessible database to track daily activities of AHB staff statewide (AHB Time Tracker) to provide oversight and documentation of staff work efforts and funds expended in accordance with our cooperative funding agreements with USDA and other funding sources. Other branches and programs have adopted similar systems after the success of the AHB system was demonstrated. Efforts are on-going to improve the accuracy and ease of analyzing the Time Tracker data.

California Animal Health and Food Safety Laboratory (CAHFS)

Mission - CAHFS provides quality services that protect animal health and performance, public health and the food supply.

Overview

The California Animal Health and Food Safety Laboratory System (CAHFS) is the backbone of California’s warning system that helps to protect the health of California’s livestock and poultry by providing a broad array of laboratory tests and examinations. CAHFS, a network of four (4) veterinary diagnostic laboratories statewide, serves the people of California by safeguarding the public health with rapid and reliable diagnoses for animal diseases and toxicoses including those affecting humans. Assembly Bill 2772 (Chapter 1536, Statutes of 1982) required the CDFA’s Secretary of Agriculture to contract with the UC Regents and the UC Davis School of
Veterinary Medicine to establish and operate poultry and livestock disease diagnostic laboratories for the purpose of conducting tests and examinations for, and diagnoses of, livestock and poultry diseases. This was done to ensure that California maintained an accurate and rapid diagnostic testing capability for foreign and emerging animal diseases. To date, CDFA allocated $16 million General Fund to CAHFS each fiscal year to fund these activities.

**Facilities**

- **New Tulare Branch Laboratory** groundbreaking occurred in February 2015 on the University of California property in Tulare. This South San Joaquin Valley laboratory is slated to open with a dedication on June 8, 2016, as the *Alex A. Ardans Tulare Branch Laboratory*. The new laboratory will bring biotechnology/molecular diagnostics, avian serology, expand offerings in mammalian serology and offer new testing in cattle nutrition status to the dairy and poultry rich environment in the South Valley. The new facility will co-house the California Department of Food and Agriculture (CDFA) Animal Health Branch Tulare District Office, further enhancing the critical interaction of both service units.

- Collaborations with stakeholders are underway for a new **North San Joaquin Valley Laboratory**, replacing the outdated Turlock Branch Laboratory. CAHFS and CDFA continue to meet with stakeholders in the Turlock and Modesto area, and with related livestock, poultry and veterinary organizations; receiving overwhelming support for a new laboratory in the North Valley to replace the existing Turlock Laboratory, which opened in 1958. The new laboratory will address existing infrastructure issues which prevent CAHFS from fully meeting its mission. The facility will also bring much needed mammalian necropsy services to an area with an extensive dairy, calf ranch and beef population of animals and improve and expand many services to the existing poultry clientele.

**New Diagnostic Tests**

Each year, CAHFS adds new assays to the test menu of approximately 620 tests in order to improve accuracy, turnaround time and address emerging diseases. In 2015, CAHFS added:

- **Leptospirosis and Mycoplasma sp. PCR** methods to detect *Leptospira* in all species and *Mycoplasma* sp. in cattle and some other mammals. Leptospirosis is a preventable disease that can be difficult to diagnose in aborted fetuses and antibiotic-treated animals. This test has markedly improved the ability to detect the organism.
• **Coronavirus PCR on feces** in cattle was added to replace technology with a much lower ability to detect the virus. In addition, the new assay allows for the first time a consistent means to test for winter dysentery in adult cattle.

• **Seneca Valley virus A (SVV)** caused numerous outbreaks in pigs in the Midwest and because this disease can look like foot-and-mouth disease (FMD) for which CAHFS is an approved testing laboratory, a SVV PCR test was added in order to determine the cause of FMD look-a-like lesions, after FMD is ruled out.

• **Aquaculture** is an important industry in California and CAHFS added three (3) new PCR tests to detect important diseases of regulatory importance in fish, specifically **koi herpesvirus, infectious salmon anemia virus and viral hemorrhagic septicemia virus**. During 2015, three outbreaks of koi herpesvirus were detected.

**Critical Disease Surveillance**

CAHFS provides surveillance and detection testing and necropsy examinations in support of the CDFA regulatory programs, and provides early detection of foreign and emerging diseases.

• **Highly pathogenic avian influenza (H5N8)** was detected in one commercial turkey flock and one commercial chicken operation from two routine submissions for necropsy to the Turlock and Tulare Laboratories due to increased death losses. **Low pathogenic avian influenza (H7N3)** was also detected in another commercial flock from turkeys submitted to the Turlock Lab. These detections generated surveillance testing to ensure the disease had not spread to other premises. The taskforce generated testing combined with routine monitoring of all avian necropsy cases in birds over two (2) weeks of age and live bird market and feed store bird testing generated a total of 9,000 PCR tests for avian influenza in domestic birds. In addition, CAHFS performed more than 3,500 avian influenza PCR tests on wild waterfowl to track the presence of avian influenza in the wild bird flyways through California. About 10% of wild waterfowl samples tested positive for avian influenza virus of which approximately 10% of those were positive for the serotypes H5 and H7. Three (3) of the detected H5 viruses were identified as highly pathogenic; each was detected in a different county.

• **Avian influenza titers** are routinely performed on blood from commercial poultry breeder and market birds as part of the avian National Poultry Improvement Plan. The program, in light of the AI outbreaks, was able to engage and enroll more small producers to take part in AI monitoring. In 2015, CAHFS performed 23,000 serology tests for avian influenza.

• **Bovine tuberculosis gamma testing on blood:** CAHFS performed 1,056 blood tests on cattle that were positive on a bovine tuberculosis screening test. This confirmatory test is used to screen out false positive cattle detected on the caudal fold screening test. CAHFS also participated in a multi-state federal investigation to determine why a lot of the test kit used in other states missed detecting infected animals. A low percent of uninfected animals will also test positive. In those cases, CAHFS performed necropsies on sixteen (16) cattle to look for evidence of tuberculosis and collect samples for culture and microscopic examination.

• **Chlamydiosis** was diagnosed in turkeys with swollen heads due to nasal gland inflammation (photo) that were necropsied at Turlock. This is a reportable disease to public health as some strains can cause human infections. Past outbreaks of this syndrome have shown the chlamydia to be a strain found in wild pigeons and has **low potential to cause human illness**. Pigeons on the adjacent premises were found to be positive for the organism.
• **Deformed lamb and goat fetuses** (FAD# 15CA0003): Several cases of deformed lambs and goats were submitted to CAHFS Davis and Tulare Laboratories. This syndrome can be seen with *Schmallenberg virus*, a foreign animal disease. Testing was negative for this virus and one case was confirmed as Cache Valley virus, a mosquito transmitted disease; another was most likely genetic in an inbred flock; and a third was suspected to be from ewes grazing toxic plants early in pregnancy.

• **Bluetongue virus** typing on PCR positive samples obtained from sick or dead sheep detected **serotypes 10, 11 and 17**. USDA National Veterinary Services Laboratory in Ames, Iowa now offers a typing test which no longer requires isolation of the virus. The three serotypes detected are endemic in California and monitoring is important to the sheep industry in order to ensure the vaccines being used and developed will protect against existing types, and that no new viruses such as the foreign animal disease serotype 8 has been introduced.

• **Dairy food pathogen testing** for *E coli O157*, *Campylobacter*, *Listeria* and *Salmonella* is performed by CAHFS San Bernardino Branch Laboratory on raw milk and other dairy products for CDFA Milk and Dairy Foods Safety Branch. CAHFS detected *Campylobacter jejuni* in raw milk from two dairies, resulting in CDFA product recalls in 2015. *Listeria monocytogenes* was detected in environmental samples from a plant and in cheese during two separate investigations.

**Toxicology Cases of Note**

CAHFS Davis offers extensive and some unique toxicology tests in all species of animals. This program coupled with necropsy examinations performed at the four laboratories provides a robust means to detect toxicologic events, particularly those that cause the death of animals. Early detection of the presence of toxicants also allows CDFA to take action to trace a feed source and to ensure no secondary intoxications occur in humans, thus directly protecting public health. Examples of cases diagnosed in 2015 include:

• **Pyrrolizidine alkaloid toxicosis** was diagnosed based on classic liver lesions in a yearling Quarter horse submitted for necropsy to the CAHFS Tulare Laboratory; and livers from two 8-year-old horses that died within the prior two weeks. The toxin and toxin-containing plants (common groundsel) were detected in the hay. CDFA performed a follow up investigation (see Modesto District report).

• **Monensin toxicosis** caused feed refusal, ataxia and weakness in several horses at a boarding and training facility in Fresno following introduction of a new batch of contaminated pelleted grain. Monensin was detected in the stomach contents of two horses that had died and were submitted to CAHFS Tulare for necropsy (see Tulare District report).

• **Vetch toxicosis** is an unusual disease affecting the skin and multiple organs in cattle grazing certain types of vetch and of unknown cause but possibly linked to an infection in the plant. The Davis Laboratory identified an increase in the number of cases following necropsies of this toxicosis in 2015, which were possibly stimulated by the drought.

• **Lead exposure** has been seen sporadically in **backyard poultry** submitted for necropsy, indicating an environmental and food (egg) risk to the owners of these birds. In fall 2015, CAHFS launched a one year surveillance of all back yard flock submissions for lead exposure and follow up to determine the possible sources of exposure; and provide educational information to owners. Nine cases were diagnosed in late 2015.

**Animal Disease Diagnostic Support**

CAHFS provides diagnostic evaluation of animals to determine the cause of illness and death, which is done primarily in livestock, poultry and equine species. CAHFS also provides limited support to the California Department of Fish and Wildlife (CDFW) and other agencies as resources and funding permits. Examples of diagnostic cases of note in 2015 include:
• **Pigeon paramyxovirus-1** causes systemic disease and sometimes neurologic signs in racing pigeons and squabs. Several outbreaks in both groups resulting in deaths were diagnosed in 2015. This virus is very closely related to exotic Newcastle disease (END) and genetic sequencing is required to differentiate the two viruses. USDA considers this a potential regulatory disease due to the close relationship of the virus to END.

• **Frothy bloat** was identified in several cattle operations grazing filaree pasture. Bloat is well documented in cattle grazing clover pasture. Further investigation revealed early growth filaree has the same risk factor characteristics that are seen in clover pasture.

• **Backyard flocks (BYF):** CAHFS provides free necropsy service for up to two (2) birds from backyard poultry flocks with less than one thousand (1,000) chickens, turkeys, squab and waterfowl. With the growing interest among consumers in raising their own food, as well as interest from avian enthusiasts, the program has grown tremendously, especially within **urban areas** of California (see map). This program provides an excellent means of surveillance for incursion of diseases such as Exotic Newcastle Disease (END) and avian influenza, as well as new and emerging diseases of poultry or public health concern.

• **Wildlife** can provide a means to monitor the environment in California for **toxin contamination** which can spill over into domestic livestock and humans. As an example, CAHFS Davis through necropsy and toxicology support of the CDFW has detected a number of intentionally distributed toxins in the Pacific fisher, a threatened species, from illegal marijuana grow sites. These sites have also had deaths of common wildlife due to toxins which contaminate the soil and waterways.

  Other diseases CAHFS detected in wildlife of potential concern to domestic livestock, poultry or humans include **Johnne’s disease** in wild elk; **Salmonella typhimurium** die offs in pine siskins; lead, anticoagulant and other toxin exposure in raptors, mountain lions and other species.

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### National Animal Health Reporting System (NAHRS)

The AHB participates in the National Animal Health Surveillance System through monthly collation and verification of the absence or confirmed presence of OIE-notifiable diseases in the State, and submission of a National Animal Health Reporting System (NAHRS) report. AHB staff review draft summary reports prepared by the California Animal Health and Food Safety Laboratory (CAHFS) and any summary reports received from other laboratories and review these reports for concurrence of cases with NAHRS reporting criteria. After review, the final NAHRS report is submitted to the USDA on the presence or absence of World Organization for Animal Health (OIE) notifiable disease of livestock, poultry and aquaculture in California.

### Reportable Disease World Map

In addition to producing monthly reports of OIE-notifiable diseases in the State for the National Animal Health Reporting System (NAHRS), **OIE-reported disease outbreaks** in livestock are tracked internationally. The initial incidences are mapped over six (6) to twelve (12) month periods to yield a visual summary of reportable disease status worldwide. Other national sources of disease information, such as ProMED or the United States Animal Health Association news alerts, are used to provide a similar overview of the United States, as well as any diseases of particular local interest within the world map.
CLOSING COMMENTS

As Animal Health Branch (AHB) Chief, I would like to express my sincere appreciation to all the AHB staff who spent countless hours preparing this report. I would like to offer special thanks to Linda Fong for her never-ending enthusiasm and efforts on this report, to Dr. Alyssa Louie for her superb artistic abilities with the graphic design, and to my wife, Cindy, retired English teacher and writer, for her editing expertise.

It is my pleasure to be associated with the AHB Team and all of your dedication and wisdom in protecting the livestock and poultry industries of California. I would be remiss without a special thanks to our State Veterinarian, Dr. Annette Jones, for her outstanding vision and leadership in animal agriculture.

Thank you all,

Kent Fowler, DVM
Branch Chief, Animal Health Branch
Animal Health and Food Safety Services
California Department of Food and Agriculture

In an effort to learn from the past and become a stronger, well prepared leader, I have had the pleasure of reading selected Animal Health Branch (AHB) annual reports dating back to 1911. Clearly, this year the dedicated analysts, scientists, veterinarians and administrative professionals in the AHB have continued the tradition of service to the farmers, ranchers and citizens of the State. I am proud to be associated with such a fine team of people and am sure I am joined by others in gratitude for their commitment.

Annette B. Jones, DVM
State Veterinarian and Director
Animal Health and Food Safety Services
California Department of Food and Agriculture
ACKNOWLEDGEMENTS

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*Charles Palmer* – Page 10
*Ed Williams/Ag Natural Photography* – Redding District (Page 7), Modesto District (Page 11), Bovine (Page 26), Sheep & Goats (Page 47); Pages 9, 28, 90-96
*Everardo Mendes* – Avian (Page 35)
*Fred Stevens* – Staff Photos
*Katie Flynn* – Equine (Page 52); Equine Section
*National Pork Board* – Swine (Page 43); Page 45
*Randy Anderson* – Pages 12, 15
*USDA APHIS Wildlife Services/NASA* – Wildlife Services (Page 51)
*Victor Velez* – Animal Disease Traceability (Page 61)
*Victoria Conger* – Page 67

For any missed, sincere apologies and thank you for contributing!

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Design and Layout by Alyssa Louie
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Bovine Outreach

1. Anthrax Fact Sheet
2. Beef Cattle Entry Requirements
3. Biosecurity and California Dairies
4. Bison, Water Buffalo, and Yak Entry Requirements
5. Bovine Brucellosis
6. Bovine Spongiform Encephalopathy "Mad Cow Disease" Producers Guide
8. Bovine Trichomonas Sampling (DVD)
9. Bovine Trichomonos
10. Bovine Tuberculosis Information for Livestock Producers
11. Bovine Tuberculosis Testing
12. Brucellosis Bovina (Spanish)
13. Bull Slaughter Agreement
14. California Bovine Tuberculosis Program Update
15. California Update Bovine TB
16. Cattle - Official ID Options
17. Certificate of Independent Review and Completion of Trich Sample Collection and Evaluation Training
18. Dairy Cattle Entry Requirements
19. Foot and Mouth Disease for Livestock Producers, Allied Industries, and Foreign Travelers and Visitors
20. Foot and Mouth Disease Guide for Producers
21. General Instructions for Contract Veterinarians Vaccinating Calves against Brucellosis
22. Guidelines for the Emergency Euthanasia of Cattle
23. Official Bovine Trichomonos Test Report Form
24. Rodeo, Exhibition, or Recreational Cattle Entry Requirements
25. Screwworm Fact Sheet
26. TB Testing Information for Cattle Producers
27. Trichomonos Test Program in California Overview for Cattle Producers
28. Trichomonos Test Report Continuation Form
29. Tuberculosis Testing in California - A Review for Accredited Veterinarians
30. Tuberculosis Testing Training (DVD)
31. Using the On-line Brucellosis Vaccine Ordering System
32. Vesicular Stomatitis Alert
Animal Disease Traceability (ADT) and Movement Outreach

1. Avian Entry Requirements
2. Beef Cattle Entry Requirements
3. Bison, Water Buffalo, and Yak Entry Requirements
4. Cattle - Official ID Options
5. Dairy Cattle Entry Requirements
6. Equine - Official ID Options
7. Equine Entry Requirements
8. Equine Interstate Movement Questions and Answers
9. Goat Entry Requirements
10. Movimiento Interestatal de Equinos Preguntas y Respuestas
11. Rodeo, Exhibition, or Recreational Cattle Entry Requirements
12. Sheep Entry Requirements
13. Sheep/Goat - Official ID Options
14. Swine Entry Requirements
15. Swine - Official ID Options
16. Transporting Livestock and Other Animals into California
Equine Outreach

1. Anemia Infecciosa Equina: Preguntas Frecuentes "Fiebre de los Pantanos" (Spanish)
2. Anthrax Fact Sheet
3. Biosecurity Toolkit for Equine Events Enhanced Biosecurity in the Face of an Outbreak
4. Complete Biosecurity Toolkit
7. Biosecurity Toolkit for Equine Events Part 3 - Appendix (Toolkit)
8. Equine Entry Requirements
9. Equine Herpes Myeloencephalopathy
10. Equine Herpes Myeloencephalopathy Frequently Asked Questions
11. Equine Infectious Anemia
13. Equine Interstate Movement Questions and Answers
14. Equine Medication Monitoring Program Advisory Committee Members 2015
15. Equine Medication Monitoring Program Drugs and Medication Guidelines
16. Equine Medication Monitoring Program Event Registration Instructions and Guidelines
17. Equine Medication Monitoring Program Information for Exhibitors and Consignors
18. Equine - Official ID Options
20. Guidelines for the Emergency Euthanasia of Horses
21. Horse Show Attention to Exhibitors
22. Movimiento Interestatal de Equinos Preguntas y Respuestas
23. Nine Permissible Medications with Maximum Allowable Limit Restrictions Dose and Time Recommendations
24. Official Form for Declaration of Drugs Administered
25. Piroplasmosis Equina - Preguntas Frecuentes (Spanish)
26. Screwworm Fact Sheet
27. Tratamiento de la Piroplasmosis Equina (PE) Preguntas Frecuentes (Spanish)
28. Treatment for Equine Piroplasmosis
29. Vesicular Stomatitis Alert
Sheep and Goats Outreach

1. Anthrax Fact Sheet
3. Club Lamb Fungus (Ringworm)
4. Foot and Mouth Disease Guide for Producers
5. Goat Entry Requirements
6. Scrapie
7. Screwworm Fact Sheet
8. Sheep Entry Requirements
9. Sheep/Goat - Official ID Options
1. Anthrax Fact Sheet
2. Biosecurity Tips for Exhibiting Swine
3. Foot and Mouth Disease Guide for Producers
4. Porcine Circovirus Frequently Asked Questions for Fair Exhibitors
5. Pseudorabies Fact Sheet
6. Screwworm Fact Sheet
7. Swine Entry Requirements
8. Swine Health Biosecurity Recommendations for Management of Swine at Exhibitions, Sales and On-Farm
9. Swine Health Risks Associated with Feeding Raw or Improperly Cooked Food Wastes to Swine (English and Spanish)
10. Swine Influenza
11. Swine Influenza (Swine Flu) Q&A for Fair Exhibitors
12. Swine - Official ID Options
Avian Outreach

1. Attention Pet Bird Owners
2. Avian Entry Requirements
3. Avian Influenza (Bird Flu) Responses to Questions from the General Public
4. Backyard Bird Owner Training Tutorial
5. Biosecurity Training for Commercial Poultry Farm Workers – 4 videos
6. Biosecurity Training Manual for Poultry Workers
7. Building Your Own Backyard Chicken Flock - Eggercise Book
8. Calendar - Avian 2016 (produced by CDFA, Funded by USDA)
9. California Animal Health and Food Safety Laboratory Necropsy Services for California Backyard Poultry Owners
10. Disease Prevention for Backyard and Pet Bird Owners
11. Disease Prevention Guide for Feed Stores and Pet Stores
12. Feed Store Training Tutorial
13. Highly Pathogenic Avian Influenza (HPAI)
14. Influenza Aviar Altamente Patogénica (IAAP) (Gripe Aviar) (Spanish)
15. Information for Bird Owner/ Biosecurity Guidelines to Prevent Exotic Newcastle Disease
16. Los Laboratorios de California Para la Salud Animal e Inocuidad de Alimentos Servicios para Aves de Corral de Traspatio de California (Spanish)
17. Manual de Entrenamiento en Bioseguridad para Trabajadores Avícolas (Spanish)
18. Pet Bird Owner Training Tutorial
20. Recommended Biosecurity Practices for Poultry Exhibitors to Minimize Risk of Spreading Avian Influenza
21. Signos de Enfermedad en Aves de Corral y Aves Mascotas (Spanish)
22. Signs of Disease in Poultry and Pet Birds
Biosecurity, Emergency and Miscellaneous Outreach

1. Animal Health Branch Newsletters
2. Application for License as Commercial Blood Bank for Animals
3. Biosecurity and California Dairies
4. Biosecurity at the Fair Recommendations for Fair Exhibitors
5. Biosecurity for the Birds- Coloring Book
6. Biosecurity Selection and Use of Surface Disinfectants
7. Biosecurity Tips for Exhibiting Swine
8. Biosecurity Tips for Foreign Travelers
9. Biosecurity Toolkit for Equine Events Enhanced Biosecurity in the Face of an Outbreak
11. Biosecurity Toolkit for Equine Events Part 2 - Enhanced Biosecurity and Infectious Disease Control for Equine Events
12. Biosecurity Toolkit for Equine Events part 3 - Appendix (Toolkit)
13. Biosecurity Training for Commercial Poultry Farm Workers — 4 videos
14. Biosecurity Training Manual for Poultry Workers
15. Complete Biosecurity Toolkit
16. Emergency Animal Disease Response Executive Overview
17. Guidelines for the Emergency Euthanasia of Cattle
18. Guidelines for the Emergency Euthanasia of Horses
20. Information for Bird Owners Biosecurity Guidelines to Prevent Exotic Newcastle Disease
21. List of Reportable Conditions for Animals and Animal Products
22. Protect California’s Animal Agriculture Producer’s Role in Foreign Animal Disease Prevention
23. Rabbit Hemorrhagic Disease