



California Department of Food and Agriculture
Animal Health and Food Safety Services
Animal Health Branch
1220 N Street, A-107
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Mission Statement

The Animal Health Branch (AHB) is California's organized, professional veterinary medical unit that protects livestock populations, consumers, and the State's economy from catastrophic animal diseases and other health or agricultural problems.

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Veterinarians and Others Swing into Action in Southern California

By Dr. Annette Whiteford,
Director, Animal Health and Food Safety

The ability for people to ignore their sleepless bodies and personal losses to help others was repeatedly displayed in Southern California during the October fire storms. With nearly 3,000 homes destroyed and thousands of animals displaced, the devastating fires in Southern California resulted in many heart wrenching stories. The backdrop to these stories, however, is an incredible effort to save lives and property from a nearly impossible challenge. Local government, volunteers, non-profit organizations and State and Federal agencies worked together to manage the rapidly changing situation. Considering that 15,000 response personnel were mobilized in days, the level of coordination with so few lives lost is impressive. Reports from our veterinarians on-site described a few locations as, "managed chaos," but many other shelters appeared to operate as if an emergency evacuation was "just another planned event."

Compared to many local responders, CDFA's role during this incident was small but important. CDFA supported fair grounds that opened their doors to evacuees and their animals, deployed staff to several emergency operation centers to coordinate agriculture and animal care issues, helped coordinate access through roadblocks for livestock/poultry feed and milk and egg haulers, provided veterinarians and investigators to assist with shelter needs assessment and matched animal care needs with resources.

While field responders in Southern California last month did an incredible job, those I have spoken with are committed to doing even better next

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Don't look for Zebras

By Dr. Kent Fowler, AHB Chief
Dr. Ellen Wilson, AHB Assis. Chief

The Animal Health Branch News provides us with an opportunity to share insights into current animal health issues and activities of the multi-tasked Animal Health Branch.

A myriad of animal health issues across the country and around the globe over the past few months reinforces the importance of maintaining an awareness of emerging and reemerging animal diseases of importance. The partnership and collaboration of veterinary practitioners, state and federal animal health officials, and veterinary laboratory diagnosticians is essential for the protection of our animal populations.

A familiar medical adage, "When you hear hoofbeats...don't look for zebras!" may not have the same relevance as in days gone by. Our global economy and the speed and volume of transportation of people, animals and commodities dramatically increase the potential risks of foreign animal disease transmission to our large and vulnerable animal populations. Many diseases endemic in other parts of the world either do not exist in North America or exist at an extremely low incidence. An aware-

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Southern California - Continued

time. This event provides an excellent inspiration to continue to revitalize the California Animal Response Emergency System (CARES). This program is sponsored by the Governor's Office of Emergency Services and CDFA. It supports local efforts to prepare to evacuate and provide care and shelter to animals. One of the key CARES partners is CVMA. CVMA works to establish a county animal coordinator and response team(s) in every county. I encourage anyone willing to be part of the team that addresses animal issues during an emergency, to contact the CDFA CARES manager, Dr. Sheryl Fuller, or CVMA.



Zebras - Continued

ness of disease incidents domestically and internationally will enhance our ability to effectively evaluate unusual disease presentations.

The ongoing epidemic of Equine Influenza in Australia illustrates the pervasive effect of disease introduction to a naïve population and the efforts required to bring a disease outbreak under control. The outbreaks of Epizootic Hemorrhagic Disease (EHD) and Bluetongue (BTV-17) in wild cervids and some domestic ruminants in the East and Midwest demonstrate the disease control difficulties encountered with an infectious agent transmitted by biting flies/midges and occurring in both wildlife and livestock. The devastating effects of animal disease outbreaks are far reaching as evidenced in the recent outbreaks of Foot and Mouth Disease and Bluetongue (BTV-8) in the United Kingdom and Highly Pathogenic Avian Influenza (H7N3) in commercial poultry in Canada. Recovery from such disease outbreaks is difficult and costly. The confirmed diagnosis of Screw worm (*Cochliomyia hominivorax*) in a newly imported dog in Mississippi represented the first occurrence of screw worm in the U.S. since 1982. It also

elucidates the ease of entry and rapid transport of an animal across several states from the port of entry. Naturally occurring anthrax reemerged in various parts of the U.S. in the past few months. Drought and other unusual weather patterns contributed to disease occurrence caused by the environmentally resilient organism *Bacillus anthracis*. Including this disease on our sudden death differential diagnosis list and taking the necessary precautions to obtain the diagnosis may contribute to prompt initiation of efforts to protect other animals and minimize further contamination of the area.

Unrecognized subtle disease characteristics or failure to differentiate between look-alike diseases could potentially wreak havoc to our state's animal agriculture. Veterinary vigilance and prompt reporting of unusual clinical signs or disease conditions to state and federal animal health officials are critical for prompt diagnosis and response to emerging and reemerging diseases of importance.



Scrapie

Scrapie is a reportable infectious disease with an active and ongoing eradication program. It is a fatal, degenerative disease of sheep and sometimes goats, primarily affecting the nervous system. Scrapie is a spongiform encephalopathy causing cerebral cortex vacuolization affecting the brain's ability to control bodily functions. Progression of the disease results in death.

Cause of the Disease: The exact cause of scrapie and other spongiform encephalopathies is not known. It is theorized that the infective agent is a prion protein that has undergone a conformational change. Genetic variation among sheep determines their degree of resistance or susceptibility to the disease. In the U.S. sheep of blackface breeds, chiefly Suffolks, are responsible

for 96 percent of scrapie diagnosis.

Disease Transmission: The disease is naturally transmitted from infected dams to a genetically susceptible fetus during lambing or abortion. Transmission can also occur by ingestion of material contaminated by a scrapie-infected placenta or allantoic fluid. Infected males are not believed to transmit the disease.

Disease Signs: Scrapie may cause subtle, nonspecific clinical signs. Most sheep with the disease have one or more of the following signs: pruritus, weight loss without appetite loss, ataxia, weakness, head tremors, and cutaneous hypersensitivity. Early clinical signs may be restricted to fine tremors of the head that progress over 1-3 months to noticeable head tremors, incoordination, and recumbency.

Many affected sheep will rub and scrape themselves, hence the name scrapie, to the point of complete wool loss or raw patches, often in a bilateral pattern.

Diagnosis: The diagnostic method in the U.S. is immunohistochemical staining of the obex and other parts of the brain or lymphoid tissue for the scrapie protein (PrPSC). ELISA tests, used in many other countries, are currently being evaluated for use in the U.S. The Western Blot test is also used in special circumstances.

Biopsy of third eyelid lymphoid tissue is currently the only live-animal scrapie test utilized, though biopsy of rectal lymphoid tissue and other lymph nodes are being evaluated.

Genetics: The prion protein amino acid sequence appears to have a role in the genetic resistance or susceptibility of sheep to scrapie. Codons, which are three adjacent nucleotide segments of DNA, code for specific amino acids. The amino acids of sheep codons 171 and 136 are the most important for the

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Avian Veterinarian - Continued

of an active, progressive and critical State program, and are looking for the opportunity to contribute professionally at the local, state and national level, this is a unique opportunity. For additional information, interested candidates may contact Dr. Kent Fowler, Chief, Animal Health Branch: Telephone 916-654-1447 or email: kfowler@cdfa.ca.gov.



Animal Traceability Exercises

Animal traceability is critical in the protection of California livestock. During an animal disease outbreak, animal health officials rely on tracing movement of infected and exposed animals to control and eradicate the disease. To increase awareness of the role of animal health officials during an outbreak and the importance of animal identification in traceability, AHB staff developed an animal disease traceability exercise.

Two pilot animal traceability exercises targeting agricultural students were conducted at California State University, Chico and Cal Poly, Pomona. The half-day exercises included introductory presentations on the CDFA Animal Health Branch, the National Animal Identification System, and livestock diseases of concern, such as Foot and Mouth Disease, Bovine Spongiform Encephalopathy and Bovine Tuberculosis. Students were divided into groups for the mock disease tracing exercise with AHB staff serving as facilitators. A variety of disease outbreak scenarios were provided to the students. Student participants were responsible for assessing the situation, allocating resources, estimating the costs of the outbreak and evaluating the value of animal traceability systems. Significant discussions evolved during the exercises. Assessment of student evaluations indicated the exercises were successful in increasing awareness of the role of

animal health officials and the need for improved traceability systems in animal disease events.

Based on the success of the pilot exercises, the Animal Traceability Exercise model has been modified to target livestock producers. The use of an audience participation reply system is being incorporated and tested at producer events this fall. Due to the positive feedback and apparent effectiveness of this teaching model, the AHB is interested in conducting additional exercises throughout the state. If interested in learning more on Animal Traceability Exercises, contact Dr. Katie Wetherall (email: kwetherall@cdfa.ca.gov).



Staff Biographies :

Dr. Mike Poulos received his doctorate in 1985 from Colorado State University and began his professional veterinary career as an associate in a large animal practice in Cottonwood, CA. After eight years as an associate, Mike hung his shingle for the next ten years as a solo large animal practitioner in Cottonwood. During the summer of 2002, while floating teeth on an equine patient, he realized that maybe private practice was not the way to spend the rest of his career. An opportunity with CDFA as a Veterinary Medical Officer in the Redding District piqued his interest. After a successful interview in August 2002, he embarked on the beginning of a new career in regulatory medicine. The day before Christmas, he was in private practice; and on January 2, 2003, he was a State employee actively participating in the eradication efforts of the Exotic Newcastle Disease outbreak. Participation in the Tuberculosis Task Force in Tulare in 2003 certainly honed his TB-testing skills! Dr. Poulos has the distinction of being the first CDFA entry-level Veterinary Medical Officer to train and receive Foreign Animal Disease Diagnostician certification at the USDA

Plum Island Animal Disease Center. In 2006, Dr. Poulos's selection to be Nevada State Veterinarian represented a gain for Nevada and a loss to California. However, Dr. Poulos returned to his roots in California and is currently an Animal Health Branch VMO IV State Avian Surveillance Specialist. If asked, Dr. Poulos will reflect that his decision to join CDFA has proven to be a good one.



Stephanie Berens is a Senior Livestock Inspector in the Redding District. She is part of a 4th-generation ranching family that raises beef cattle, sheep, walnuts, and prunes. Stephanie brought a wealth of experience to CDFA. Prior to her employment with the AHB, she worked on a horse ranch for a Northern CA cattle sale yard and in a veterinary practice as a technician. During her 29-year career with the AHB, she has worked in every district and with just about every program. She is most at home in Northern California, where she was born and raised. Her many years of experience and personal ties to the livestock industry make her a key asset to the AHB.



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Scrapie - Continued

scrapie strains found in the U.S. Each DNA strand at codon 171 can place either arginine (R), glutamine (Q), or rarely lysine (K) and histidine (H) into the prion protein.

Codon 171
Homozygous RR - resistant genotype
QR - fairly resistant (less susceptible)

Codon 136 calls for either alanine (A) or valine (V). All QR scrapie positive sheep in the U.S. have had a V at codon 136. Increasing evidence indicates that scrapie susceptibility determined by codon 136 represents a second strain of scrapie in the U.S.

Surveillance: Scrapie surveillance in California consists primarily of tissue collection from targeted animals at slaughter. Samples are collected from suspect, clinical, or dead animals from diagnostic labs, farms, and sale yards.

Control and Eradication: The key to controlling scrapie is maintaining a closed ewe flock. Key concepts of the Scrapie Eradication Program are:

- Identification of infected sheep through
 - o live-animal testing
 - o active slaughter surveillance
- Effective traceback of infected animals to their flock/herd of origin
- Providing effective cleanup strategies to allow producers to stay in business, preserve breeding stock, and remain economically viable.

The federal-state cooperative scrapie program provides exposed and infected flocks/herds participating in cleanup plans the following:

- Indemnity for high risk, suspect, and scrapie-positive sheep and goats that owners agree to destroy
- Scrapie live-animal testing,
- Genetic testing

- Testing of exposed animals that have been sold out of infected and source flocks/herds.

CA Bovine Trichomonosis Control Program

To enhance the effectiveness of the trichomonosis program, the cattle industry has strengthened the program. The new trichomonosis control program became effective on October 5, 2007. There are 12 critical areas in the program:

- Veterinarians must be approved through training provided by CDFA to test for trichomonosis. Approvals are renewable every two years and may be renewed with the brucellosis contract.
- All trichomonosis tests are official tests; animals require official identification and samples must be evaluated in approved laboratories. Veterinary clinics can be approved to read samples by participating in a training session at a California Animal Health and Food Safety (CAHFS) Laboratory.
- All test results, including negative tests, must be reported to the district Animal Health Branch office on a form supplied by CDFA within 30 days.
- Positive trichomonosis samples must be reported to CDFA within two days of diagnosis.
- Confirmation of positive test results by PCR may be requested – but is not required.
- CDFA will investigate cases, notify owners of potentially exposed cattle, and quarantine bulls in affected and exposed herds.
- Bulls from affected herds require three negative tests, at owner's

expense, at least seven but not more than 28 days apart to move anywhere except slaughter.

- Bulls from exposed herds require one negative test, at owner's expense, before movement.
- Bulls 18 months of age and older sold at public saleyards in California require a negative trichomonosis test within 60 days before sale or be consigned as slaughter only.
- Public auction yards must post a notice in a prominent place stating, "All bulls 18 months of age and older must have a negative trichomonosis test or be consigned as slaughter only."
- Bulls 18 months of age and older entering California require a negative test within 60 days unless entering for slaughter, semen collection or exhibition (not commingling with other cattle).
- Bulls moving into California on a pasture-to-pasture permit require a negative test within 12 months.

For more information on the program, becoming an approved veterinarian, or to have a laboratory approved, please contact your local Animal Health Branch office or e-mail: trich@cdfa.ca.gov.

Foot-and-Mouth Disease strikes again in the United Kingdom

Foot-and-Mouth Disease (FMD) has once again raised its ugly head in the United Kingdom (UK). On August 3, 2007, a case of FMD was confirmed about 30 miles southwest of London, and within a week, two nearby premises had confirmed cases. The last time the UK had FMD was in 2001, lasting 9 months and resulting in the destruction

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FMD in the UK - Continued

of nearly 6 million head of livestock at a cost of \$12-15 billion (U.S. dollars). The source of this new outbreak is thought to be an accidental release of an FMD virus serotype used in vaccine production from one of two laboratory facilities at Pirbright, the equivalent to USDA's Plum Island. The outbreak was rapidly controlled due to early detection and reporting of suspected cases by livestock owners and veterinarians. An immediate ban on livestock movement was in place within hours of case confirmation, which played a huge role in stopping disease spread. Prompt "stamping-out" or culling of all livestock on the Infected Premises (IP) and surrounding Dangerous Contact (DC) premises followed.

Just as the ban on livestock movements was about to be eased in early September, several new premises were confirmed with positive cases of FMD. To date, a total of 8 premises have been confirmed with positive animals. So far, this current FMD outbreak in the UK has resulted in the destruction of thousands of head of livestock and has been estimated to have cost the UK between \$250-500 million (U.S. dollars) in culled animals, loss of export trade, and lost tourism.

FMD is a highly contagious viral disease, primarily of cloven-hoof animals, causing painful vesicles and erosions in the oral cavity, nose, interdigital spaces and coronary bands of hooves, and teats (particularly in lactating animals). There are 7 major serotypes of FMD (A, O, C, Asia 1, SAT 1, SAT 2, and SAT 3) with about 65 subtypes. Generally, adult animals will survive the disease; morbidity approaches 100% with 5% mortality. Depending on serotype, very young animals may have mortality rates of 50%-90%.

Control and eradication of FMD can be accomplished by the immediate banning of livestock movements, "stamping-out" and vaccination. Al-

though vaccination was not used in either the 2001 or current UK outbreaks, there was and still remains spirited discussions by animal health officials as to whether or not vaccination should have been used.

The last incident of FMD in the U.S. was in 1929 in Southern California

Livestock owners and veterinary practitioners need to be ever vigilant for livestock showing unusual lesions in the mouth, nose, coronary bands, and teats. Vesicular lesions are characteristic early in the course of the disease and become erosions after the vesicles rupture. FMD-infected animals will be febrile, off feed, drooling, lame, depressed, and pregnant animals may abort. Early reporting of suspicious cases to state or federal animal health officials is critical for prompt diagnosis, control and eradication.

Estimated cost of undetected FMD to California animal agriculture is \$1 million per hour

The immediate stoppage of movement of livestock and strict biosecurity will be critical to avoid the spread of this disease. Compliance within all of the livestock industry is essential. Although air-borne movement can occur with FMD, the stoppage of livestock movements early in the course of the disease will play a major factor in control and eradication. Rapid "stamping-out" of infected animals will be necessary to stop the production of the virus, and appropriate disposal of carcasses and contaminated materials will aid disease control. Effective cleaning and disinfection of premises is also essential.

Vaccination can be a very important tool in an eradication program, but requires a vaccine effective against the serotype involved in the outbreak. Vaccination has been used very successfully over the past two decades in countries such as Brazil, Argentina, and Uruguay. There is reason to believe that

vaccination will be given consideration should the U.S. have an FMD outbreak. Any decisions to vaccinate in a U.S. outbreak would rest with the United States Department of Agriculture.

For additional information, visit website (<http://www.cdfa.ca.gov/ahfss/>) under HOT TOPICS and click on "Foot & Mouth: UK".

**Professional Opportunity
AHB Avian Veterinarian
(Research Scientist Supervisor I)**

The CDFA Animal Health Branch (AHB) is actively recruiting for the veterinary lead position in the Avian Health Program. This statewide program is an integral component in the relationship between the Department and the State's large and diverse, multi-million dollar poultry industry.

The lead avian veterinarian is responsible for oversight and management of the cooperative statewide poultry disease-monitoring programs. This management-level position involves the planning, organizing, and directing of the AHB domestic poultry disease surveillance program. Oversight and analysis of epidemiological disease investigations and scientific research are essential program elements for the prevention, detection and control of poultry diseases in the State. Administrative oversight responsibilities for the laws, regulations, policies and procedures of the AHB Poultry Health Program are coordinated through CDFA Headquarters and AHB district offices personnel. The diverse responsibilities of the position requires the application of scientific, epidemiologic, regulatory, personnel and fiscal managerial expertise.

If you are a detail-oriented poultry veterinarian with strong verbal and written communication skills, have an interest in the continued advancement

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