

Report of the Committee on Parasitic Diseases

Chair: Dee Ellis, TX

Vice Chair: David Winters, TX

Gary Anderson, KS; Bethany Bradford, VI; Matt Cochran, TX; Karen Conyngham, TX; Joseph Corn, GA; Lynn Creekmore, CO; Susan Culp, TX; Mark Davidson, MD; Barbara Determan, IA; Anita Edmondson, CA; Katherine Flynn, CA; Chester Gipson, MD; Nita Grause, IA; Thomas Hairgrove, TX; Greg Hawkins, TX; Carl Heckendorf, CO; Terry Hensley, TX; Linda Hickam, MO; Bob Hillman, ID; Thomas Holt, FL; Russell Iselt, TX; Charlotte Krugler, SC; T.R. Lansford, TX; Charles Lewis, IA; Linda Logan, TX; Travis Lowe, MN; David Marshall, NC; Chuck Massengill, MO; Terry McElwain, WA; Daniel Mead, GA; Eric Mohlman, NE; Ernie Morales, TX; Elizabeth Parker, TX; Boyd Parr, SC; David Pyburn, IA; Keith Roehr, CO; Shawn Schafer, OH; Jack Schlater, IA; Andy Schwartz, TX; Charly Seale, TX; Michael Short, FL; David Smith, NY; Robert Stout, KY; Manoel Tamassia, NJ; Tracy Tomascik, TX; Paul Ugstad, NC; James Watson, MS.

The Committee met on October 28, 2015 at the Rhode Island Convention Center in Providence, Rhode Island from 8am to 12pm. There were 25 members and 30 guests present. 17 guests requested to join the committee.

Time-Specific Paper Title.

There was not a time-specific paper presented.

Presentations & Reports (Example)

Committee Business:

Solicitation for a new chair and vice-chair was held. No candidates were identified at this time.

Addendums to the committee report should be in the following order:

Subcommittee Reports - none

Time-Specific Papers - none

Other Presentations/Papers - none

Supplemental information - none

Presentations

SCWDS Arthropod Surveillance

Dr. Joseph Corn and Ms. Stacey Vigil, Southeastern Cooperative Wildlife Disease Study (SCWDS), University of Georgia, Athens, Georgia; and Dr. James Mertins, USDA-APHIS-National

Veterinary Services Laboratories, Ames, Iowa, gave a report on SCWDS Exotic Arthropod Surveys. SCWDS, in collaboration with the USDA-APHIS- VS, conducts surveys for exotic arthropods in the Southeastern United States and Caribbean region. Current programs include surveys for the tropical bont tick on wildlife in Vieques, Puerto Rico; surveys for cattle fever ticks on wildlife in the Cattle Fever Tick Quarantine Area in Texas; surveys for vesicular stomatitis virus in overwintering insects in Colorado; and surveys for *Culicoides* vectors of bluetongue virus and epizootic hemorrhagic disease virus in the Southeast United States. Surveys for the tropical bont tick on mongooses, cattle egrets and feral horses in Vieques began in late 2014 and are ongoing. SCWDS is collaborating with Vieques NWR on surveys in previously restricted areas in Vieques. A survey for cattle fever ticks on feral swine was conducted in August in collaboration with USDA-APHIS-Wildlife Services, USDA-APHIS-Veterinary Services, Laguna Atascosa NWR, and the Texas Animal Health Commission. Ticks were collected from 81 feral hogs and results are pending at USDA-APHIS-VS-NVSL. Surveys for *Culicoides* have detected new state records for 11 *Culicoides* species in 15 states as some *Culicoides* species appear to be expanding their range northwards. Surveys this year were conducted in Alabama, Georgia, Mississippi, North Carolina, South Carolina and Tennessee

Trichinella - International Trade Overview - Dave Pyburn – Vice-President for Science & Technology – National Pork Board

Trichinella spiralis is a parasitic roundworm found in many animals including pigs. Transmission between animals can only occur by ingestion of muscle tissue. *Trichinella* is found in feral hogs and in domesticated herds where uncooked meat waste is fed to animals, or where the animals have the opportunity to eat rodents and other infected wildlife. Pork remains a frequent source of *Trichinella* in countries where these practices are permitted.

To help control any spread of *Trichinella*, the U.S. government bans the feeding of uncooked meat waste to livestock. Also, U.S. pork producers have adopted biosecurity measures to control rodents and any domestic pig contact with feral swine. As a result, *Trichinella* has been virtually eliminated from the U.S. commercial swine herd. This should make the verification of a “negligible risk” status for the domestic pork industry easily achievable, which would help facilitate trade.

The demand and value for U.S. fresh pork continues to grow worldwide, but many countries today still require *Trichinella* testing or freezing of meat as a precondition to the trade of fresh chilled pork. In a recent study by Dermot Hayes, an Iowa State University economist, it's conservatively estimated that if the U.S. pork industry could remove trade restrictions and requirements due to *Trichinella*, the benefit to the industry would be hundreds of millions of dollars.

Recently, both the World Organization for Animal Health (OIE) and Codex have developed global guidelines to assure the safety of pork with respect to *Trichinella*. Through work of these international organizations, the process to achieve and maintain a negligible risk status for *Trichinella* in pork has been established (see: OIE Terrestrial Animal Health Code Chapter 8.15 and Codex Guidelines for Control of Specific Zoonotic parasites in Meat: *Trichinella* spp. in Meat of Suidae). The negligible risk guidelines use a combination of auditing to demonstrate the use of on-farm good management practices to preclude swine infection with the parasite and then either continued auditing or on-going surveillance to show that this compartment of negligible risk is maintained.

2015 Vesicular Stomatitis Outbreak: A Modified Approach to Response 2015 USAHA Angela Pelzel-McCluskey, DVM; USDA-APHIS-VS

A summary of the ongoing 2015 vesicular stomatitis (VS) outbreak was presented with emphasis on the new national approach to control of VS in light of OIE de-listing of the disease, which took effect January 1, 2015. The 2015 VS outbreak in the United States began April 29, 2015 and surpassed the 2014 VS

outbreak in both number of affected premises and geographic scope. As of September 30, 2015, a total of five hundred twenty-seven (527) VSV-affected premises (New Jersey serotype) have been confirmed or suspected in eight (8) U.S. states; Arizona (36 premises in 3 counties), Colorado (270 premises in 27 counties), Nebraska (21 premises in 3 counties), New Mexico (48 premises in 12 counties), South Dakota (44 premises in 5 counties), Texas (3 premises in 3 counties), Utah (24 premises in 5 counties), and Wyoming (81 premises in 9 counties). At the time of this writing, there were 104 premises remaining under quarantine in 6 states (Colorado, Nebraska, New Mexico, South Dakota, Utah, and Wyoming). Weekly situation reports and maps from the incident are publically available on the USDA-APHIS website.

The World Organization for Animal Health (OIE) removed vesicular stomatitis from the international list of reportable diseases as of January 1, 2015. VS held a national-level VSV after-action review in January 2015 to review the response to the 2014 outbreak and to examine future VSV response actions in light of OIE's delisting of the disease. Overall conclusions from the meeting included: 1) a VSV control strategy is still needed to prevent movement of infectious animals and to secure both interstate and international trade during an outbreak; 2) VSV must remain reportable to State and Federal officials to implement this control strategy; and 3) while existing regulatory response protocols in cloven-hooved species must be maintained to rule out other diseases such as foot-and-mouth disease, response to equine cases can be appropriately modified to reduce the impact on State and Federal resources.

Based on these conclusions and other recommendations, USDA-APHIS-Veterinary Services and State Animal Health Officials employed a modified response in the 2015 outbreak. New measures included a reduction in the quarantine period based on viral shed from affected animals, activation of VSV-approved NAHLN laboratories to assist in testing of affected equine species, and flexibility to use accredited veterinarians for sample collection in equine species and management of affected premises. Feedback from affected States on the modified approach was positive, especially with regard to the reduced quarantine period and the use of accredited veterinarians, both of which significantly reduced the impact on State and Federal resources while maintaining the necessary infection control strategy.

2015 Vesicular Stomatitis State updates

Wyoming (Dr. Jim Logan), Nebraska (Dr. Dennis Hughes), Colorado (Dr. Keith Roehr), New Mexico (Dr. Ellen Wilson), Arizona (Dr. Susan Gale), & South Dakota (Dr. Dustin Oedekoven) presented state reports on their response activities to VS in their state in 2015

Wyoming Vesicular Stomatitis Report Summary

Dr. Jim Logan, Wyoming State Veterinarian

During the 2015 season, Vesicular Stomatitis Virus (VSV) has been found in 10 Wyoming counties. The first case of VSV found in Wyoming was in Laramie County. Subsequent cases were then found in Goshen, Platte, Sublette, Albany, Fremont, Converse, Weston, Natrona and Crook counties. As of October 22, we have had 154 investigations that resulted in 133 quarantines. The outbreak has affected equine primarily; however, seven of these cases did involve cattle. The first case in any new county has been handled as an FAD and all cases involving cattle were handled as FADs. Of the 133 quarantines issued, 90 cases have been closed and quarantines released. The rest currently remain under quarantine, the majority of which are located in Fremont County. New cases continue to be reported daily.

As a result of VSV also being found in other states, Wyoming has imposed more strict import requirements on affected counties within these states (while active infection and quarantines are in place) for all livestock entering Wyoming. A health certificate is required within 14 days of entry instead of the usual 30-day requirement.

Update on Equine Piroplasmiasis for the Parasitic Diseases Committee of USAHA - Angela M. Pelzel-McCluskey, DVM, USDA-APHIS-Veterinary Services

Since November 2009, more than 292,000 domestic U.S. horses have been tested for equine piroplasmiasis (EP) through active surveillance and movement testing. To date, 262 EP-positive horses (252 *Theileria equi*-positive, 10 *Babesia caballi*-positive) have been identified through this surveillance. These positive horses are unrelated to the 2009-2010 *T. equi* outbreak on a Texas ranch where 413 positive horses were identified in connection with the outbreak and natural tick-borne transmission on the ranch was documented to have occurred over at least 20 years. Of the 262 positive horses identified through active surveillance, 213 were Quarter Horse racehorses, 13 were Thoroughbred racehorses, 1 was a Quarter Horse roping horse, 3 were identified during an illegal importation investigation, and 32 were horses previously imported to the United States before August 2005 under the complement fixation test. The epidemiology investigations conducted in all of these cases have indicated no evidence of tick-borne transmission and the cases in racehorses specifically have involved iatrogenic transmission as the method of spread.

So far in 2015, 18,235 domestic U.S. horses were tested for EP with the identification of 15 horses positive for *T. equi*. All 15 horses were Quarter Horse racehorses participating in both sanctioned and unsanctioned racing and one of these horses was found to be dually infected with both *T. equi* and equine infectious anemia. Fourteen (14) of the horses were epidemiologically linked into 2 distinct clusters, one cluster of 3 horses and the other a cluster of 11 horses, related to a common owner/trainer combination. Epidemiology investigations conducted have implicated iatrogenic transmission (needle/syringe/IV equipment reuse, blood transfusions, contamination of multi-use drug vials, etc.) as the primary method of transmission in all 15 cases identified in 2015.

All EP-positive horses are placed under State quarantine and the horse owners are offered four options for long-term management under state/federal regulatory oversight: 1) life-time quarantine, 2) euthanasia, 3) export from the country, or 4) long-term quarantine with enrollment in the APHIS-VS and ARS treatment research program. In February 2013, APHIS-VS established a policy to release horses previously infected with *T. equi* which had completed the official treatment program, been proven cleared of the organism by a series of methods over time, and were test negative on all available diagnostics. Of the 262 positive horses identified, 162 have either died or been euthanized, 18 have been exported, and 55 have been enrolled in the treatment research program. Twenty-six (26) of the horses enrolled in the treatment program have met all of the test-negative requirements and have been released from quarantine. From the Texas ranch outbreak, 163 horses were enrolled in the treatment research program and have completed treatment with more than 140 horses having met all test-negative requirements and are eligible for release. Successful results from the treatment research program were previously reported by Ueti et al. in "Re-emergence of the Apicomplexan *Theileria equi* in the U.S.: Elimination of Persistent Infection and Transmission Risk" published in *PLoS One*, September 2012.

Texas Equine Piroplasmiasis report - TR Lansford - Texas Animal Health Commission Assistant State Veterinarian

Equine piroplasmiasis (EP) was first diagnosed in Kleberg County, Texas in October 2009, as part of the diagnostic work-up on a clinically ill horse. Since that time, based on the high level presence of competent tick vectors and common equine movement practices of equine in counties around Kleberg County, the Texas Animal Health Commission has been conducting county-wide testing of equine in an effort to disclose positive equine. Most recently, Brooks County was designated as a high risk county for equine piroplasmiasis in October 2014 and a county-wide test of all equine was conducted in late 2014/early 2015. A total of 689 equine on 218 premises were tested for both *Theileria equi* and *Babesia caballi*. The county-wide testing disclosed no positive equine.

The Texas Animal Health Commission (TAHC), through collaboration with the Texas Racing Commission, implemented required piroplasmiasis testing of all equine entering sanctioned racing facilities in 2010. Testing between 2010 and 2014 disclosed 118 positive horses. To date in 2015, testing requirements have disclosed eight (8) positive racing Quarter Horses, many with links to racing in other States. Epidemiological investigations of positive horses showed infected horses are almost exclusively racing Quarter Horses. In January 2015, the TAHC amended the rule requiring EP testing to include all racing facilities, regardless of status with the Texas Racing Commission. Concurrently, the TAHC held the

requirement for testing Thoroughbred horses in abeyance. Since enforcement of the rule began, TAHC has cited owners of 86 horses that did not meet testing requirements.

Research on Screwworms: Male-only Strains, Cryo-preservation and Reducing Ammonia in Mass Rearing

Steven R. Skoda, Muhammad Chaudhury, Pamela Phillips & Agustin Sagel

Screwworm myiasis is devastating to warm blooded animals. The eradication of screwworms from mainland North America using the sterile insect technique (SIT) is an unprecedented achievement; re-invasion is prevented by maintenance of a barrier at the Panama – Colombia border. Several potential advantages of male only strains of the screwworm for the eradication and prevention programs have been identified. These include: 1) more efficient population suppression, 2) increased potential plant capacity, 3) reduced diet costs and 4) improved bio-security of the Program. Transgenic lines have been obtained carrying a single-component tetracycline-repressible female-lethal system. In single-component strains female mortality is late in larval development. Therefore, two component systems have been developed and are being tested for female mortality that is early in development.

Cryopreservation of screwworm embryos has been implemented at the screwworm mass rearing facility in Panama. Cryopreservation allows agencies involved in eradication efforts against screwworms to eliminate the practice of rearing a backup strain and will allow for the storage of screwworms embryos from different genetic backgrounds for use in future eradication efforts as well as research projects. Embryos from the current mass rearing strain and the backup strain have been cryopreserved; research strains, including the male only lines, are currently being cryopreserved. Potassium permanganate in the screwworm larval diet reduces ammonia production and is a viable replacement for formaldehyde as an antimicrobial. Soy powder, used as a substitute for milk replacer in the larval diet, reduces the chance of calcium binding with tetracycline used with male only strains.

These research accomplishments are being transferred to, or will be implemented by, the Panama – U.S. Commission for Eradication of Screwworms.

USDA/ARS KBUSLIRL Tick/Biting Fly Research by Beto Perez de Leon, USDA ARS

Dr. Perez De Leon provided an overview of all research activities at the USDA/ARS KBSUSLIRL Research Center headquartered in Kerrville, Texas.

Virgin Islands Tick issues – Bethany Bradford – Virgin Islands State Veterinarian

Ticks are the main ectoparasite of concern for cattle and horses. Farmers face a constant challenge of heavy tick burdens dependent on weather, are of island tick control efforts. The most common ticks present are *Rhipicephalus* and *Ixodes* spp. Babesiosis is endemic for horses and cattle although clinical disease is not often reported.

A Tropical bont tick was collected on one farm and that farm is currently under quarantine. Perimeter surveillance of 9 farms continues monthly. Mongoose surveys in 2014 did not collect any bont ticks. Tick surveillance by the Virgin Island Department of Agriculture includes island wide daily farm visits, abattoir, and impounded animal inspections. No bont tick has been found since October of 2014.

Texas Cattle Fever Tick update USDA Perspective – Hallie Hasel

The Cattle Fever Tick Eradication Program encompasses an area of land along the Texas/Mexico border from Del Rio to Brownsville, approximately 500 miles. This strip of land was established in 1938 as the Permanent Quarantine Zone (PQZ), a border to keep the cattle fever tick from moving north following its eradication from most of the southeast US.

In FY 15, we have experienced a 211% increase in infested premises over FY 14. Approximately 30% of the new infestations are due to infested Nilgai or WTD. The highest concentration of premises found

infested due to wildlife has been outside of the PQZ in Cameron and Willacy Counties. We have 57 new infestations in FY 15, with 37% in Zapata County and 28% in Cameron and Willacy Counties.

We are exploring treatment options other than Co-Ral and Dectomax at this time. Further options for treatment including utilizing an injectable tick vaccine in cattle, a vaccine bait for wildlife, and biological and habitat control of the cattle fever tick.

Texas Cattle Fever Tick update Texas Perspective – Brodie Miller

Dr. Brodie Miller, Texas Animal Health Commission's South Texas Regional Director gave an update on the Control Purpose Tick Quarantine zones that are located approximately 100 miles away from the permanent quarantine zone which are being managed by TAHC personnel primarily.

Kleberg County CPQA

- Began Dec. 2014
- Trace from Cameron County
- 166 premises with livestock quarantined
- 2180 head of cattle
- 135 head of horses
- 2 infestations
- Small population of nilgai present but no whitetail deer
- Building a vat
- Could be released in Aug. 2016

Jim Wells County CPQA

- Began July 2015
- Detected through inspection at a vat
- Epi linked to Cameron County
- 61 premises quarantined
- Mostly hunting camps
- 461 head of cattle
- 43 head of horses
- No nilgai but significant population of whitetail deer
- Will likely be in place for at least 12-15 months

Resolutions/Closing Business

There were no resolutions.

End of Report – Dee Ellis Chair, David Winters Vice-Chair