

COMMITTEE ON PARASITIC DISEASES

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The Committee met on October 5, 2011 at the Adam's Mark Hotel in Buffalo, New York, from 8 am-12:30 pm. There were 16 members and 23 guests present who signed the sign in sheet. Approximately 70 people attended all or part of the committee and at one time there were 55 people in the room as counted by the chair.

The following presentations were given as part of the Committee meeting:

Exotic Arthropod Surveillance - Joe Corn – SCWDS

Joe Corn of the Southeastern Cooperative Wildlife Disease Study (SCWDS), University of Georgia, Athens, Georgia, gave a report on SCWDS Exotic Arthropod Surveillance in the Southeastern United States. The SCWDS, in collaboration with the USDA-APHIS- VS, conducts surveys for exotic arthropods on free-ranging wildlife in the southeastern United States. Surveys are conducted via capture and examination of free-ranging wildlife. Examples of recent collections from native wildlife and free-ranging exotic reptiles included ticks, mites, and lice not previously reported in the United States. Additional examples were new host records for ticks and mites collected from established species of exotic reptiles. It is clear that a diversity of exotic ectoparasites is becoming established in Florida, and that new host-parasite relationships are developing among exotic and native ectoparasites, and exotic and native wildlife. Introductions of exotic arthropods have implications for domestic animal, wildlife, and human health, and early detection is critical to eradication.

Tropical Bont tick in Caribbean - Joe Corn – SCWDS

Joe Corn of the Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia, Athens, Georgia gave an update on the Tropical Bont Tick (TBT) in the Caribbean Region. The Caribbean Amblyomma Programme (CAP) ended in 2006 without accomplishing the goal of eradicating the tropical bont tick from the Caribbean region. Reasons for failure of the program included a lack of consistent funding and socio-economic problems related to tick eradication, animal husbandry and social issues in the affected countries. The tropical bont tick currently is reported with heavy infestations in Antigua, Guadeloupe and Marie Galante; moderate infestations in Dominica, Martinique, St Kitts and Nevis, St. Lucia, and St. Marteen, and light, recent or sporadic infestations in St. Croix and St. Vincent and the Grenadines. Infestations do not occur in Anguilla, Barbados, Montserrat and Puerto Rico. The Caribbean Animal Health Network (CaribVET) has established a working group on Ticks and Tick-Borne Diseases which is to (1) provide regional expertise on ticks and tick-borne diseases; (2) develop harmonized regional disease surveillance and control protocols and strategies; (3) develop regional communication system and data management; (4) improve diagnostic capacities; and (5) define regional emergency plans. The CaribVET network is a collaboration of Caribbean countries and territories between Veterinary Services, diagnostic laboratories, research institutes, universities and regional and international organization, with the goal of improving animal and veterinary public health in the Caribbean region. The 2nd meeting of the CaribVET Ticks and Tick-Borne Diseases working group was held in St. Vincent and the Grenadines, June 7-9, 2011. Fourteen persons from Antigua, Cuba, Dominica, Guadeloupe, Martinique, Nevis, St. Croix, St. Kitts, St. Lucia, St. Vincent and the Grenadines, and the United States and the former FAO-CAP Coordinator attended the meeting. General recommendations were for the member countries to (1) develop guidelines describing how to manage outbreaks or new foci

of TBT or dermatophilosis; (2) develop an improved sharing of results of the surveillance by former CAP countries and on surveillance protocols for TBT surveillance activities; (3) conduct a socio-economic study to improve the understanding of the constraints of appropriate treatment against ticks; and (4) further development of the detection and characterization of *Ehrlichia ruminantium* and *Amblyomma variegatum* and more generally develop the interaction between research and surveillance on TBT. Finally, the scope of the working group was broadened to deal with *Boophilus* sp. infestations and associated diseases because they represent major and/or increasing health issues in a number of Caribbean islands. Recommendations included the exploration of *Boophilus* resistance to acaricides; the further development of *Boophilus* transmitted diseases diagnostic and prevalence studies and the elaboration of guidelines for cattle breed management and import protocols to prevent clinical cases.

USDA-KBUSLIRL (ARS Kerrville) Research Update - Beto Perez de Leon - USDA-ARS

Beto Perez de Leon of USDA-ARS Knipping-Bushland U.S. Livestock Insects Research Laboratory (KBUSLIRL), Kerrville, Texas, gave a report on scientific activities at the USDA-ARS-KBUSLIRL. In addition to work done in Kerrville, efforts at the Cattle Fever Tick Research Laboratory (CFTRL), Edinburg, TX, and the Screwworm Research Laboratory in Pacora, Panama contribute to fulfill the USDA-ARS-KBUSLIRL research mission. The current five-year research cycle comprises four appropriated projects. Other projects established in collaboration with state, national, and international universities, regulatory agencies, and private organizations allow the USDA-ARS-KBUSLIRL to discover science-based solutions for the problems livestock producers and the public face with biting flies and ticks of veterinary and public health relevance. Results from research efforts meeting our project milestones yielded twenty-three scientific manuscripts in 2010 that were published in peer-reviewed journals. The initial evaluation of an ivermectin-medicated protein feed supplement block for cattle as a free-access, passive, self-treatment technology to eradicate cattle fever ticks was completed at the USDA-ARS CFTRL. Efforts are underway to initiate pilot testing of this technology in the permanent quarantine zone operated by the Cattle Fever Tick Eradication Program. Stall tests conducted at the USDA-ARS CFTRL revealed that a Bm86-based anti-tick vaccine commercially available outside the U.S. was highly (>95%) efficacious against a Texas outbreak strain of the cattle fever tick, *R. annulatus*. However, the level of efficacy reached against an outbreak strain of the southern cattle tick, *R. microplus*, was statistically insignificant. The USDA-ARS KBUSLIRL anti-tick vaccine discovery research program is addressing this technology gap. Investigators continued to collaborate with colleagues from Texas A&M University-Kingsville, Animal Plant and Health Inspection Service (APHIS)-Veterinary Services, and APHIS-Wildlife Services on the project "Integration of ecologically-based approaches to re-eradicate cattle fever ticks from the U.S." funded by the National Institute for Food and Agriculture (project no.: TEXR-2009-05759). Visitation and access to field stations, established using the Thunder Valley Deer Feeder with ARS '2-Poster' treatment adapter, by the white-tailed deer population were found to be dynamic processes. A correlation was found between the use of remote sensing technology to identify favorable white-tailed deer habitat and the ability to sample *R. microplus* larvae in the field. Scientists at the lab in Kerrville evaluated a novel treatment method for horn fly control consisting of a pressure driven launcher and an encapsulated insecticide formulation. This innovative remote delivery system to treat horn flies infesting cattle provided significant control for 3 weeks under field conditions. Efforts to develop a transgenic New World screwworm strain continue to be on target. The stable germ-line transformation of the New World screwworm was achieved by electroporation.

Tick Surveillance - Jack Schlater – USDA APHIS VS NVSL

Jack Schlater presented a history of tick surveillance by the USDA. Tick surveillance was traced from its beginnings in the 1890's to the present and included the agencies, programs, and personnel involved in carrying out these activities. The number of collections and their importance was briefly discussed.

Tick Geodatabase/Distribution Data - Ryan Miller - USDA APHIS VS CEAH

Ryan Miller of CEAH gave a presentation on their geodatabase creation. Because ticks are important vectors of pathogens, knowledge of the geographic distribution of ticks and tick-borne pathogens in the United States is important in developing appropriate targeted surveillance and disease mitigation strategies. Veterinary Services is using a GIS-based framework to integrate tick surveillance data from a

variety of data sources into a single geodatabase design. The newly designed tick geodatabase is being used to develop county-level distribution risk maps for tick species of veterinary importance, which will be placed onto the Web when available.

Texas Cattle Fever Tick Program – Kevin Varner– USDA APHIS VS

Kevin Varner of USDA VS Texas gave a presentation on the Texas Fever Tick Program. At the start of FY 2011 Texas was maintaining three “Blanket” Quarantine Zones in Free areas of Texas. These consisted of the Carrizo Springs Q Zone- 180,000 acres, the “Southern” Q Zone- 423,510 acres and the Olmal Q Zone- 152,716 acres. During the course of the Federal Fiscal year the Olmal, Carrizo Springs and most of the Southern blankets were released. By September 30, 2011 only the Starr County portion the “Southern” Blanket remained under quarantine- approximately 140,000 acres.

In FY 2011 the CFTEP identified 109 total infested premises. 76 of these were located in the systematic zone and 33 were located in the Free area. This number continues at historically high levels and compares to a finding of 107 infested premises (71 systematic / 36 free) during the previous fiscal year.

Most of the FY 2011 infestations are found in two counties, Zapata (49 systematic / 14 free) and Starr (10 systematic / 18 free).

Deer Feeding

Between February 01,2011 and July 31, 2011 the CFTEP fed 1,320,000 pounds of ivermectin treated corn to deer on infested pastures. During the remaining months, 665,625 pounds of untreated corn was fed on those same premises. During this period the corn feeders were equipped with permethrin treated rollers

During FY 2011 the CFTEP began a concerted effort to measure the efficacy of the deer treatment program. Multiple deer captures were conducted and they showed a reduction in the number of fever ticks found on the animals. Preliminary analysis can only say that the ivermectin treated corn appears to reduce the number of fever ticks found on deer in the target zones.

The CFTEP has identified infested pastures with unprecedented populations of deer (up to 1 deer / 4 acres). The program views this as the greatest threat to the success of the program. To address this issue the CFTEP has signed a Cooperative Agreement with Texas A&M at Kingsville to develop deer management plans for landowners in the Systematic zone of Zapata County. This is a voluntary program that will offer the expertise of Texas A&M staff to consult one on one with interested landowners.

Vaccine

The Texas Animal Health Commission purchased a Cuban tick vaccine called Gavac. This vaccine underwent ARS trials and was shown to be effective against *R. annulatus*. The CFTEP is seeking approval from APHIS-CVB and FSIS to conduct field trials.

The “vaccine vision” of the program is to build a barrier of resistant cattle in the systematic zone. The initial focus will be to target cattle north of Laredo where the *R. annulatus* tick is found.

Texas Department of Agriculture and TAHC have made funds available to assist ARS with their vaccine development efforts, to buy cattle handling equipment and to buy more vaccine. Either Gavac (if it is approved for use by CVB and FSIS) or a vaccine produced by a major pharmaceutical company, are options for additional vaccine purchase.

Ivermectin Tubs

The CFTEP is working with TAHC, a private manufacturer and FDA to conduct field trials on an ivermectin tub product. This product holds the promise to dramatically change how the program manages infested pastures. Use of this product will encourage the retention of cattle on infested pastures by dramatically lowering the need to gather cattle for scratching and periodic treatment. Two pastures have been identified ---one with *annulatus* and one with *microplus* ticks.

US Cattle Fever Tick Program – Matt Messenger - USDA APHIS VS

Dr. Matthew Messenger, U.S. Department of Agriculture’s Animal and Plant Health Inspection Service, gave an update on the Environmental Impact Statement (EIS) for the Tick Control Barrier, which involves providing funding towards the installation of game fencing along portions of the Permanent Tick Eradication Line to limit the free-ranging movement of tick-infested white-tailed deer and other deer species into tick-free areas of south Texas. Public scoping meetings were held in March 2011 in four different locations, and a general summary of the public comments were posted on the Tick Control

Barrier's webpage. The next steps involve drafting the EIS document and surveying proposed fencing locations.

In addition, an update on the potential recognition of two Mexican States (Sonora and Baja California) as being free of cattle fever ticks was given during the presentation. Site visits were conducted to review each state's tick eradication program, and risk assessments are currently being finalized. The timeframe for the process of potentially recognizing each state as being free of cattle fever ticks will require at least two years. Finally, the Mexican State of Chihuahua has requested a site visit to review their tick eradication program, and a review is tentatively planned during Fall 2011 or Spring 2012.

TAMU Tick App for Texas and Southern US - Pete Teel – Texas A&M University

Pete Teel of Texas A&M University gave a presentation on the newly created web-based tick application. The introduction and growth of smart phones that receive and search multitudes of web-based data through search engines and the corresponding development of application called "Apps" present opportunities to provide educational information and applications in new formats and to almost any location and clientele. A mobile, smart phone "App" has been authored and developed by Texas AgriLife Research and Extension with support from the Southern Region IPM Center entitled "*The Tick App for Texas and the Southern Region*". The app is designed to respond to a wide array of citizen consumers and practitioners of several professions who desire a simple tool to identify commonly encountered ticks found in the region and access basic information about biology, pathogen associations, prevention, control and management. Smart phones and other similar devices provide a convenient method to access information quickly in a home or field setting, or in a clinical or client-based setting. An interactive demonstration of "The Tick App" with the conference audience will link integrated interests impacting humans, livestock, companion animals, and wildlife.

Tick Acaracides - Matt Messenger - USDA APHIS VS

Matt Messenger gave a brief overview on the history of the use of acaracides in the fever tick program for the last 100 years. Discussion on the currently available pesticides and resistance to the same was also presented.

US National Equine Piroplasmiosis update - Angela Pelzel - USDA APHIS VS

Dr. Angela Pelzel, Regional Epidemiologist with USDA-APHIS-Veterinary Services, gave an update on the equine piroplasmiosis response in the United States. Subsequent to the 2009-2010 outbreak of equine piroplasmiosis caused by *Babesia equi* on a ranch in Texas, enhanced surveillance and movement testing for EP in the U.S. identified additional EP-positive horses unrelated to the Texas outbreak. These newly identified non-clinical cases have been horses either imported to the U.S. prior to 2005 or individual EP-positives found within the racing industry, mostly in Quarter Horse racehorses. Epidemiological investigation into these cases indicates that spread of EP in the racehorse population is occurring via iatrogenic transmission. Dr. Pelzel's presentation covered a short review of the 2009-2010 Texas ranch outbreak, an update on the epidemiology of additional EP-positive findings unrelated to the Texas outbreak, and current management, outreach, surveillance and research initiatives, including preliminary results of the USDA-APHIS-VS and USDA-ARS treatment research program for EP-infected horses. Key messages from the presentation were: 1) Limited cases of equine piroplasmiosis have been identified in three distinct populations in the U.S. - an index ranch in Texas, the racing industry, and previously imported horses. 2) EP transmission via iatrogenic means is causing ongoing transmission in the U.S. racing industry. Surveillance and educational outreach may be the most effective way to mitigate iatrogenic spread of EP within this population. 3) Preliminary results from the USDA-ARS research treatment program indicate that treatment using a high-dose imidocarb protocol may be a promising exit strategy for clearance of infection. EP is a regulatory disease in the U.S., therefore treatment of infected horses must be done with state/federal approval and regulatory oversight.

Texas Piroplasmiosis Program - Andy Schwartz – Texas Animal Health Commission

Andy Schwartz presented an update on equine piroplasmiosis activities underway in Texas. The investigation of a south Texas index case of Equine Piroplasmiosis (EP), initiated in October 2009, was completed over one year ago. No additional related cases have been disclosed since, helping to confirm

that the investigation and tracing of exposed horses was thorough and effective. Affected horses not euthanized are being held under quarantine. Use of these animals is allowed on the quarantine premises only. Treatment studies are ongoing, using the ARS recommended protocol. Results of the treatment are very promising.

From October 2009 through June 2011, over 30,000 Texas horses were tested for EP. Most of these tests were for movement interstate or to events. The test positive prevalence in these horses is approximately .25%, excluding testing associated with the index ranch investigation. The national test prevalence during this same time period was approximately .13%, based on information provided in the National EP Situation Report.

In Texas, EP affected horses fall into three categories: Index case associated, international imports on the CF test, and Quarter Horse racehorses. Almost all cases disclosed in Texas over the past year were in the QH racehorse population. Disease spread among this population is thought to be iatrogenic.

To address the QH racehorse situation, the Texas Animal Health Commission (TAHC) passed rules earlier this year requiring a 12 month EP test to enter racetracks, and requiring all EP tests be done on a TAHC test record.

A resolution was passed at the USAHA 2010 Annual Meeting requesting information on horses imported into the US during 1995 – 2005, on the CF test. Records show approximately 9000 horses entered Texas during this time. Efforts are underway to contact owners of these horses imported in 2005, offering a test at no cost. Results of this effort will be used to gauge additional tracing and contacts.

Committee Business

There were no sub-committee reports, no press releases and no resolutions created. There was one recommendation passed from the committee for consideration and possible forwarding to USDA-APHIS-VS-CEAH as follows:

Committee Recommendation:

Background: In 2009 75% of the 400 plus horses located on a large ranch in south Texas were found to be infected with equine piroplasmiasis(EP). EP is considered to be a foreign animal disease to the United States. Tick transmission was determined to be the primary factor in the spread of the disease between horses on the ranch. For the first time, the tick *Amblyomma cajenense* was determined to be a capable vector for transmission, and is believed to be the primary tick species responsible for spread within the ranch. The natural range and distribution of this tick outside of south Texas and within the United States is not clearly defined at this time.

Recommendation: The USAHA Committee on Parasitic Diseases recommends that USDA-APHIS-VS-CEAH National Center for Risk Analysis conduct a risk assessment on the potential for *Amblyomma cajenense* to be transported via livestock or wildlife from Texas to other states. The Committee further recommends that CEAH determine the natural range and current known locations of this tick species.