United States-Mexico Binational Boophilus Spp. Tick Committee Meeting

Coordinator: Dr. Matthew Messenger

Place: Marriott Waterside Hotel and Marina
       Tampa, Florida, USA

Date: February 4, 2013

Welcome and Introductions:

The meeting was called to order at 10:25 am by Dr. Matthew Messenger, Coordinator from USDA APHIS.

Dr. T.J. Myers from USDA APHIS welcomed everyone to Tampa and Dr. Joaquin B. Delgadillo Alvarez commented on behalf of the Mexican government about the excellent opportunity that this meeting provides for communication between cattle producers from the United States and Mexico and results in benefits to cattle health in both countries.

The minutes were approved from the previous meeting and treasurer’s report noted the available funds.

Update on recognition of Baja, California, Sonora and Chihuahua as free of Boophilus spp. Ticks.

Dr. Joyce Bowling-Heyward, Director of APHIS National Center for Import and Export, presented updates on Boophilus spp. ticks in Baja, California, Sonora and Chihuahua.

Recognition of Chihuahua as Boophilus tick free

APHIS conducted a review the week of June 18, 2012. A letter of recommendations was sent to Mexican animal health authorities on October 18, 2012. Chihuahua’s risk evaluation is pending until the recommendations proposed by APHIS have been implemented.

Recognition of Baja California and Sonora as Boophilus tick free

The rule recognizing Sonora and Baja, California as cattle fever tick free has been delayed due to the concerns regarding Mexico’s new National Tick agreement and how the proposed changes in this agreement would affect APHIS’ fever tick evaluations and risk assessments for the area.

On December 20, 2012 APHIS requested additional information on Mexico’s National Tick Agreement and provided Mexico with a questionnaire calling for relevant information to update the Boophilus spp. tick evaluations and the risk assessments for Baja, California; Sonora; and Chihuahua. APHIS has prescribed a due date of February 28, 2013 to receive the requested information from
Mexico. APHIS concerns must be addressed and risk evaluations for the area updated before moving forward with this rule.

The point was brought up in discussion that Mexico’s National Tick Agreement strengthened the program and that additional risk assessments were not necessary. Dr. Bowling-Heyward responded that it was necessary to do subsequent risk assessments after the National Tick Agreement to ensure measures of control exist under the new agreement.

The questionnaire is the final review that APHIS sent to Mexico. To avoid any delay in APHIS recognition for the area, Mexico will continue the validation process.

**Progress in Recommendations Made at Boophilus Tick Program of Chihuahua State in Mexico by USDA APHIS**

Dr. Juan Carlos Cruz (CEFPP-Chihuahua) delivered this presentation.

**Observations/Recommendations in Chihuahua**

1. Tick inspections are conducted in cattle, but not in other livestock that moves through the state of Chihuahua. In late January 2013, equipment installed in inspection stations for inspection and acaricide treatments in sheep, goats, and horses (includes Los Charcos and La Casita).
2. During the cold months, checkpoints that treat animals with ascaricidal spray solution will use pour-on application. Pour-on solutions are less effective in tick removal than moxidectin and injectable ivermectins. They will continue to use 1% ivermectin in cold months and in the warm months in some dip vats will be using organophosphate spray, if necessary.
3. When inspecting cattle in quarantine stations and vat dips into line inspection sleeves, tactile inspections and spray treatments appear to be insufficient. Sleeve inspections were modified with individual traps and horizontal tubes for improved safety of inspection. Staff was trained in Bahuichivo, Tabares, Bahuerachi, Morales and Baborigame vat dip lines on issues related to technical management of tick control.
4. APHIS has gained information regarding cattle from other states in Mexico, that it sometimes requires at least two treatments of ixodicides dips to remove live ticks. This increases likelihood of resistance to treatments. By agreement, Chihuahua State Committee of Farming Protection will reject such shipments in quarantine stations and vat dip lines.
5. Sampling of ticks is not random. Sampling performed in cattle to be imported into the United States. These cattle also receive a TB test. To reinforce random sampling, asked Department of Epidemiology and Analysis Risk to increase the sample size of adjacent municipalities with areas in status control in order to detect Boophilus ticks and to implement appropriate measures for monitoring and disposal.
Comments and Recommendations:

1. People interested in importing cattle usually specify in entry permits, which are interested in using quarantine station when moving cattle. Cattle are not allowed to enter Chihuahua if shipment originates from area resistant to acaricides at Los Charcos or La Casita Stations. The mobilization of such cattle shall be made only by the Escalon station.

2. Implement an agreement with CENAPA for samples with a history of resistance in quarantine stations and samples of campaign control area. This is performed by sending the tick to CENAPA obtained in quarantined shipments if various treatments were applied and the acaricides don’t remove the ectoparasite.

3. Coumaphos acaricide concentration in the spray tank vats line in the control zone is tested only once after the solution is prepared. Indicated to staff responsible for vats dip line with acaricide storage tank for spray application that in the warmer months sample tick solution to start and monthly until the winter season.

4. There is not a double fence around the quarantine stations of La Casita and Los Charcos. At the La Casita station, pens will be installed, once received. In Los Charcos, quote for perimeter fence and currently pending a purchase authorization.

5. Quarantine Stations La Casita and Escalon do not include an evaporation pit to dispose of used acaricide solutions. La Casita station has an oxidation ditch with concrete block and rod and is fenced. Expect the trench coat paragraph authorization for oxidation at Escalon station.

6. Staff at El Granillo vat line must cross the street to conduct inspections and to check that vehicles are parked in the middle of the road lanes. The Ministry of Communications and Transportation is in the process of building the four lane vehicular junction at El Granillo-Santa Barbara- San Francisco de Oro to allow better flow of vehicles and to improve the inspection process. Until work is completed, they will analyze the convenience to relocate or improve facilities.

7. The vat dip solutions are agitated manually by staff, exposing them to risk of contact with acaricide substances. Consider operating a high-pressure hose with air during the dip process to minimize chemical exposures.

8. The CEDISACH (Integrated Diagnostic Center and Animal Health Research in Chihuahua State) currently does not have the ability to analyze the solutions of vats dips. CEDISACH was asked to conduct a study of cost-effective means to implement these diagnoses, and also consulted the Center for Food Research and Development (CIAD-Cuauhtemoc) as an alternative for analysis.

9. The true origin of the cattle herd in control areas is currently unknown because the required documents recorded the gathering place. Informed at municipalities that cattle must be documented on the occasion of export movement and are subject to a stamp “to export cattle herd”, during their collection stay with their home town and recorded in the system computing SInEG.

10. Staff alternate of vats line receive informal training on the job. Responsible personnel were trained and their alternates for Bahuichivo line vats, Tubares, Bahuerachi, Morelos and Baborigame, this outstanding training technical staff of El Ocote and San Juanito, which is scheduled to be held during second week of February.
11. Lack of documentation in the computer system SICOMORA on treatment history acaricides in cattle being exported U.S.A. We reviewed the feasibility of inserting a field to record acaricide treatments SICOMORA system, resulting complicated insertion for being costly modification and system compatibility. As an option, the collectors were consulted about the type of treatments applied to cattle export and registration. It is more feasible to review and document each of the collection centers.

12. Transit documents are collected in the last checkpoint through which vehicles pass, but this action is not captured by the electronic system. Documents are being registered in the SInEG, it has the document recovery in the last transit point for cattle by the State.

13. Sometimes field veterinarians wait until they are close to the laboratory to send samples of ticks. This can result in a prolonged period so that ticks are identified. It is reported to veterinarians and technicians working with surveillance to send the collected samples to the laboratory as soon as possible. We analyze the feasibility of supporting freight prepaid for sending samples for those vets who are in places far from the city of Chihuahua.

14. Quarantine pens in La Casita are very close to the pens that keep cattle tick free. There must be greater physical separation between these pens. Station La Casita, is awaiting delivery of equipment and pens purchased for installation and comply with the recommendation.

**Update on the Tick Eradication Program in Texas**

Dr. Andy Schwartz, TAHC Assistant Executive Director, delivered this presentation.

Most tick infestations are located in Starr and Zapata counties in Texas. There were over 1 million acres in tick quarantine previously and now down to two small areas of quarantine in Starr County. These tick problems may be related to infestations associated with white-tail deer. There are four main barriers to success regarding tick eradication:

- Increasing deer densities—up to 1 deer per 4 acres.
- Changing demographics of fewer cattle.
- Owners vacating premises due to the costs of treatment.
- Unrest in Mexico has disrupted the tick eradication programs.

Wildlife such as red deer, white-tail deer, elk and nilgai, can serve as effective hosts for cattle fever ticks. USDA began the bulk feeding of Ivomec-treated corn to deer with bulk distribution equipment purchased and more personnel assigned to affected counties. With regard to the feeding of ivermectin and permethrin treated corn, preliminary data indicated significant control of ticks but not eradication. Another study for tick control involved an ivermectin-molasses tub field study with a 9 month self-treatment period that utilized no topical dips. The goal was a 95 % reduction in herd tick count which was achieved in 56 days in a *B. microplus* herd and 128 days in treatment of a *B. annulatus* herd. This product is currently pending FDA approval for use in cattle. There is also a BM86 vaccine under development with a high efficacy against *B. annulatus* and less effective against *B. microplus*. Success in tick control is dependent upon budget, weather, research and management factors.
There were questions regarding ivermectin resistance. Ivermectin would be used only in properties under quarantine and properties adjacent to quarantine areas. Once the quarantine was lifted, the animals would no longer receive ivermectin.

Updates on Tick Eradication Programs at Mexico’s Border Area (Tamaulipas, Nuevo Leon, Coahuila)

USDA APHIS sent SENASICA 23 reports of cattle with *Boophilus* tick presence in the second half of 2012, corresponding to 8 for Tamaulipas, 7 for Veracruz, 4 for Nuevo Leon, 2 for Coahuila, 1 for Quintana Roo and 1 for Nayarit. Quarantine stations in the states of Coahuila and Tamaulipas reported to SENASICA in the same period, 22 quarantines enforced by the USDA, 9 of which coincide with the USDA APHIS report. Of the 23 cases reported for quarantine by USDA APHIS, there were 14 with no information at the border of Mexico. In order to improve the procedures and protocols that would reduce the presence of lots with cattle infested with *Boophilus* spp. ticks destined for export to the United States, it is advisable to maintain timely notification to issue recommendations to veterinarians, collectors and authorities on this problem. USDA APHIS is required to promptly notify the SENASICA findings tick export quarantine stations, according to memorandum 550.7, “Notification procedures when *Boophilus* (Fever) ticks are found on Mexican cattle presented at land border ports” (December 19, 2008).

Updates on the Tick Eradication Programs for Mexican States

There exists SAGARPA regulation published in the *Official Journal of the Federation* on September 10, 2012, which provides the following:

- Technical criteria for management and combating *Boophilus* spp. tick.
- Ensuring regulatory mobilization, without the presence of cattle *Boophilus* spp. tick, to regions recognized as free or with eradication.
- No movement between areas with the same status.

Regional meetings were held in June of 2012 (CNOG, SENASICA) in Mexico City, Jalisco, Tabasco, Nuevo Leon and Baja, California. There was a publication on the SENASICA website of the declaration on January 22, 2013 to authorize the installation and operation of eight quarantine stations (ECTG). Once this declaration was issued, SENASICA published through its website, in a period of 10 days, the call for stakeholders to submit their applications for authorization of Quarantine Stations. Thirteen checkpoints were authorized to implement this *Boophilus* Tick Agreement. SENASICA established a three stage communication strategy to involve producers and technicians involved in the campaign. The first stage involved social networking (Facebook, Twitter, Flickr, Youtube). The second stage of communication dealt with impact actions through radio, journals, lectures and regional exhibits. The third stage of communication utilized custom publishing and cartoons. Additionally, a theoretical-practical course for 25 veterinarians was held December 11-14, 2012 in the state of Veracruz. SENASICA has designed a program of evaluation and inspection of natural areas considered free of the pest, which seeks to define the status of the campaign nationally. The Directorate of Animal Health Campaigns maintains a working agenda with staff. The Information Technologies Offices plan to design a format of acaricide treatment
record, which will be issued electronically in quarantine stations, as provided in Article 30 of the agreement.

**Update on Tick Findings at US-Mexico Border Ports**

Dr. Joyce Bowling-Heyward, Director of APHIS National Center for Import and Export, delivered this presentation to the group assembled.

The tick findings in the border ports of Pharr, Laredo, Del Rio, Presidio, Eagle Pass and Santa Teresa, NM were chiefly the *R. microplus* ticks from June to November of 2012. There is some concern for finding ticks on treated cattle and the following rejected lots due to *Boophilus* spp. tick findings were noted in June to November 2012: Tamaulipas-10 lots, Coahuila-7 lots, Veracruz-4 lots, Nuevo Leon-2 lots, Quintana Roo-1 lot, Sinaloa-1 lot, Chihuahua-1 lot, and Nayarit (Sonora)-1 lot. The port of Eagle Pass rejected 3 lots for “other” type of ticks and the port of Santa Teresa, NM rejected 2 lots for “other” type of ticks.

**Tick Research Update**

Dr. Adalberto Perez de Leon, USDA ARS, presented this report to the committee.

Using appropriate funds, veterinary and medical entomology research is performed through USDA ARS over five year cycles. There are four projects in the current research cycle and two projects involve cattle fever ticks. These projects are *Biology and Control of Ticks of Veterinary and Human Importance* and *Mining the Genome of B. microplus to Develop Novel Control Technology and Vaccines*. Under restructuring, new lab personnel were added and another project was also added to the cycle, *Ecological Intervention for Cattle Fever Tick Prevention*.

A USDA ARS National Program 104 Stakeholder Webinar is scheduled for February 22, 2013 from 2:00pm-4:00 pm CST. The goal is to find out what veterinary entomology research is most useful to the stakeholders.

The multidisciplinary team intends to submit a research grant proposal under program titled “Climate Change: Climate Change Mitigation and Adaptation in Agriculture”. Dr. Cortes Vecino in Colombia has documented environmental, ecological and climate change factors for *B. microplus* ticks.

Also, research efforts are being directed toward the development of cattle fever tick vaccines. Aided by the Texas Animal Health Commission and the Texas Department of Agriculture, USDA ARS has instituted research and development of an anti-tick vaccine for the cattle tick fever eradication program. USDA ARS is seeking bioequivalence of new formulations with efficacy of Bm86-based vaccine against *B. annulatus*. A patent has been filed on novel ARS antigens with good efficacy against *B. microplus*. The intention is to develop the next generation anti-*B. microplus* vaccine for the eradication program with commercialization rights for the global market. The ultimate aim is to use vaccine as part of an integrated eradication program for sustainable, tick-free, and bovine babesiosis-free status in the United States. Dr. Perez de Leon recognized the collaboration of his Mexican research colleagues in the area of cattle fever tick research.
Dr. Perez de Leon presented a debrief of the visit by USDA team to assess the situation with ticks and tick-borne diseases impacting dairy operations in Puerto Rico from October 29- November 3, 2012. The visit started with a symposium on ticks and tick-borne diseases in the bovine population of Puerto Rico and the Caribbean region. Puerto Rico needed to develop a tick control strategy for *B. microplus* ticks in both beef and dairy cattle. Biosecurity was needed to prevent the spread of ticks. The control program was developed to use available technologies and to explore new ways to integrate strategies for the sustainable control of cattle fever ticks.

**Miscellaneous**

The next United States-Mexico Binational Cattle Fever Tick Committee meeting is scheduled for Queretaro, Mexico during May 20-21, 2013.

The meeting was adjourned at 12:30 pm.