

Controlling Cattle Fever Ticks

The rugged cowboys that dominated the American television screen in the 1950s may have faded away, but real cowboys still ride the range—make that the river banks—of the Rio Grande. These cowboys work for the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) and are looking for the ticks that cause bovine babesiosis—also called cattle fever.

Known as “tick riders,” these mounted patrol inspectors first appeared in 1906 as part of the Cattle Fever Tick Eradication Program (CFTEP), one of the first cooperative State-Federal eradication efforts. Through the CFTEP, the tick riders helped eradicate the existing infestation of cattle fever ticks in the United States and prevented the introduction of new cattle fever ticks from Mexico. They did so by using horseback patrol and systematic quarantines along the Rio Grande. By 1943, the tick riders had helped eradicate the two species of cattle fever ticks from the United States, with the exception of a permanent quarantine “buffer” zone between Texas and Mexico.

The ticks of interest to the APHIS tick riders are the cattle fever tick, *Rhipicephalus (Boophilus) annulatus*, and the southern cattle tick, *R. (Boophilus) microplus*. These pests are responsible for the spread of a severe and often fatal disease of cattle, commonly known as Texas or cattle fever. The disease, spread through a parasite that destroys red blood cells, was eradicated from the United States by the CFTEP between 1906 and 1961.

Background

Spanish colonists first brought both species of cattle fever ticks and cattle fever disease to the United States through the introduction of infested cattle and horses. Currently, both types of ticks infest most tropical and subtropical areas of the Western Hemisphere. They frequently are found in the southern part of Texas that borders on tick-infested parts of Mexico. Florida had outbreaks of cattle fever ticks during the late 1950s and in 1960, but the ticks were eliminated by 1961.

Clinical Signs

Cattle with the acute form of cattle fever (generally contracted during the summer) develop high temperatures (107 or 108 °F) and stand with their

heads lowered and backs arched. They experience a loss of appetite, including constipation followed by diarrhea, and decreased milk production. “Red water,” or bloodstained urine, is common. Death usually comes within 3 or 4 days after fever develops.

Cattle affected with the chronic form of cattle fever (contracted in late autumn and winter) develop a mild fever and stop eating and chewing their cuds. They also develop anemia and lose weight rapidly. The chronic form of the disease lasts for many weeks. Some deaths occur, but most animals recover gradually. Infected cattle frequently have relapses 3 to 6 weeks after their temperatures return to normal and become susceptible to other diseases or secondary infections.

Surviving animals may display nervousness known as “tick poverty” or “tick worry.” They become weak, stunted, and anemic from the continuous loss of blood. By themselves, ticks are capable of reducing the weight of a 1,000-pound steer by 200 pounds in a year.

In summer, the incubation period (the time from when an animal becomes infected until it first shows disease signs) is usually 10 to 15 days after the infected larvae, or seed ticks, begin feeding on the animal. In winter, it may take as long as 90 days.

Ticks' Life Cycle

Cattle fever ticks spend the early part of their lives on the ground. Eventually they infest cattle, or—occasionally—horses, mules, sheep, goats, or deer. The ticks must have blood from an animal host to complete their life cycles.

Newly hatched seed ticks, or larvae, are barely visible to the unaided eye. These waxy brown, six-legged ticks crawl up grass or plants where they wait for an animal to pass by. If ticks do not find a host, they eventually die of starvation or desiccate (dry out). In summer, seed ticks may starve after 3 to 4 months; in colder periods, they may survive for 6 months.

Usually seed ticks first attach themselves to soft skin inside the animal's thigh, flanks, and forelegs or along the belly and brisket. There, they suck blood, or engorge. Then, these ticks molt twice: seed ticks become tiny, white, eight-legged nymphs; after engorging about a week, nymphs molt to become adults. Blood-engorged female ticks detach from cattle and release approximately 1,000–2,000 eggs before dying on the ground. Many adult ticks are olive green; others are mottled yellow or olive brown in appearance.

Eradication

Cattle fever has caused enormous losses to the U.S. cattle industry in the past. Before the nationwide eradication program began in 1906, direct and indirect economic losses were estimated to be \$130.5 million, which would be approximately \$3 billion today. If the ticks had not been eradicated from the United States, the cattle industry's losses from disease and ticks could amount to approximately \$1 billion annually.

Current Activities

The tick riders, working through the CFTEP, still patrol the Rio Grande on horseback. The highly successful program currently consists of 85 mounted patrol inspectors, 7 area supervisors, 1 veterinarian epidemiologist, and a director of field operations, with 2 assistants. The quarantine or "buffer" zone extends over 500 miles from just north of Del Rio, Texas, to the Gulf of Mexico, and varies from 200 yards to 6 miles in width. Outbreaks outside the zone are rare. Premises found to be infested with cattle fever ticks are placed under a mandatory quarantine for 6 to 9 months, depending on the time of year.

APHIS tick riders detect and apprehend any illegally entered (stray or smuggled) Mexican livestock or native livestock that have crossed into Mexico and returned. APHIS officials inspect and dip all native livestock being moved within or out of the buffer zone in pesticides that kill ticks without injuring the animals.

Although a single treatment kills all the ticks on an animal, it will not ensure eradication because it does not prevent reinfestation. Only long-range programs can rid an area of ticks. For this reason, APHIS dips cattle at regular intervals for at least 1 year following direct or presumed contact with the pest.

Without these controls and diligent surveillance, cattle fever ticks could potentially reinfest areas of the United States with suitable climates.

If Your Cattle Have Ticks

If you suspect that your cattle or other livestock have cattle fever ticks or you do not know the species infesting your animals, ask an APHIS tick inspector or your local veterinarian to have the ticks identified and give you information about tick control. Each suspect animal should be chute-restrained so an experienced person can conduct a thorough inspection for ticks. State and Federal inspectors regularly examine cattle throughout the permanent quarantine buffer area until all cattle fever ticks are eradicated.

Chemical dips—when properly used—kill ticks on animals without injuring the animals. You can obtain the names of the permitted dips from your veterinarian, State or Federal disease control officials, or the

Federal veterinarian in charge of your State. Every animal in every infested and exposed herd must be treated.

Getting the Word Out

The ultimate goal of the CFTEP is to completely eliminate cattle fever ticks from the United States. Successful elimination of the disease vector ensures prevention of bovine babesiosis and protection of the U.S. cattle industry.

As part of its increased surveillance activities, APHIS is continuing an education effort to inform U.S. cattle producers and veterinarians about this pest and the disease that it causes.

Additional Information

For more information, contact either of the following offices:

USDA, APHIS, Veterinary Services
National Center for Import/Export
Animals Program
Telephone: (301) 734-8364

USDA, APHIS, Veterinary Services
Emergency Services
4700 River Road, Unit 41
Riverdale, MD 20737-1231
Telephone: (301) 851-3595

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