Bovine babesiosis, commonly known as “Texas cattle fever,” is a deadly disease of cattle caused by single-celled organisms that are transmitted by cattle fever ticks. Texas cattle fever greatly harmed the cattle industry in the United States until the beginning of the 20th century.

Thanks to highly effective and collaborative control efforts established through the Cattle Fever Tick Eradication Program (CFTEP) in 1906 between producers and state and federal agencies, cattle fever ticks were largely eradicated from this country by 1943. As a result, the United States became free of Texas cattle fever until the beginning of the 20th century.

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tion method in past years, but now it’s unlikely to be effective as long as white-tailed deer remain within an area.”

To control disease-carrying ticks on deer, Pound and his colleagues developed a device called the “4-Poster Deer Treatment Bait Station” (see Agricultural Research, June 2006, pp. 8-9). It lures deer into a feeding apparatus that uses rollers to apply insecticide to the animal’s head, ears, and neck. As the deer grooms, it transfers insecticide to other parts of its body, killing most of the ticks on the animal. The current research project Pound leads at the Kerrville laboratory focuses on the development of technologies to eradicate ticks on cattle and wild deer.

**Microspheres and Collars Do the Job**

Currently, producers with infested pastures must round up and dip their cattle in insecticide every 2 weeks for 9 months until no ticks remain in the pasture. A less labor-intensive and cheaper way to rid the pasture of ticks is needed.

In efforts to help cattle producers, Pound and his colleagues reformulated a broad-spectrum antiparasitic medication—doramectin—into an injectable microsphere treatment.

“A single injection of microspheres—akin to time-release capsules in human drugs—greatly reduces the number of treatments needed and protects cattle for up to 4 months, killing parasites and saving cattle ranchers considerable expense. The technology shows great potential for helping to maintain the eradication of fever ticks from the United States,” says Pound.

“The treatment has been tested with excellent results on the island of St. Croix against the tropical bont tick, which transmits a disease called ‘heartwater’ to cattle. We are working to extend the effective period to 6 months, which would be most useful in treating U.S. cattle for ticks.”

Partners for commercializing this technology are being sought.

Heartwater disease causes an acute high fever, loss of appetite, and respiratory distress. It progresses to include excessive chewing motion, eyelid twitching, galloping movements, and eyes rolling back. Death can occur in less than 1 week.

To provide an alternative to the 4-Poster device for treating white-tailed deer, Pound and co-inventor Craig LeMeilleur created a new system that can automatically apply pesticide-impregnated neckbands to wild deer in a bait station apparatus much like the 4-Poster. Instead of rollers, the device has an assembly for holding a collar in an open position and a trigger that applies the collar when a deer places its neck over the trigger support.

A population explosion of white-tailed deer throughout the eastern United States has increased the risk of diseases transmitted to humans by different species of ticks. Technologies developed for control of cattle fever ticks on deer will also help control other deer-associated ticks, which transmit diseases such as Lyme disease, human babesiosis, and two kinds of ehrlichiosis.—By Sharon Durham, ARS.

This research is part of Animal Health (#103) and Veterinary, Medical, and Urban Entomology (#104), two ARS national programs described at www.nps.ars.usda.gov.

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