

Critters and Culprits

Delving deeper into the implications of tick-related illness, animal behavior and tick type.

by Sarah Harris

It's not uncommon to cuss the pests that afflict your cattle in the warm months of the year. In many regions the summer months bring flies in more excessive waves, and the ticks are both more persistent and more prevalent altogether.

Breeders are well aware of the negative effects of pests such as ticks. They are culprits of disease transmission among a variety of hosts, humans included. This makes them the "bad guys" not only in our cattle herds, but within our families, too.

"We think about ticks mostly from disease transmission," says Cassan Pulaski, Merck Animal health veterinary parasitology resident. "The whole feeding behavior of ticks makes them the perfect vector for parasites and diseases, viral or bacterial, from one host to another, because of their feeding mechanism."

When a tick bites its host, it releases substances into the bloodstream that essentially numb the host and anchor the tick to the epidermis. Hosts can sometimes react to those released substances. When a lone star tick bites a human, for example, sometimes the immune system responds to the substance and results in a red meat allergy.

"A person who has loved red meat

their entire life can get one tick bite, and all of a sudden they can never eat that product again," Pulaski says.

When ticks feed on cattle in groups, they can cause cattle to go off feed. Ticks habitually attach in the ears, which can be painful enough to limit ear movement, Pulaski says. This sets the herd up for sickness with other fly-related issues, as they are not warding off other external pests.

"Ticks can cause major issues in terms of feed conversion in cattle, because they are so irritated and uncomfortable," she says.

Producers should monitor for infestations in their cattle, Pulaski says.

Ticks can be found along the brisket; in between legs; along the flank, side, udder or cod; under the tail and around the perianal region, says Justin Talley, livestock entomology professor at Oklahoma State University. In the Extension video, "Checking Cattle for Ticks," he notes, "When you have 10 or more lone star ticks, it can reduce weight gains and impact weaning weights."

Excessive encroachment can

lead to anemia in rare cases, but frequently producers are concerned about pay weight and sickness in their herds from tick-related illnesses such as anaplasmosis or tick paralysis.

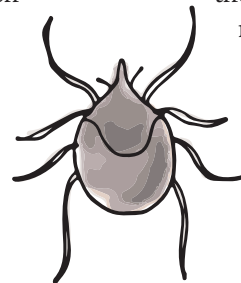
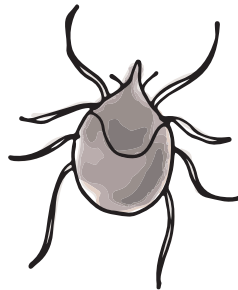
There are two types of ticks: hard ticks and soft ticks.

The "normal" ticks, or the kinds we frequently see throughout the United States, are hard ticks. Lone star, Asian longhorned and American dog ticks are all examples of hard ticks. They attach to their host and feed for two to three days. Given that they can attach to a variety of different species of hosts, they are correlated to major vectors of disease transmission.

Soft ticks, on the other hand, are less prevalent throughout North America. They do not have a hard outer shell, but rather a spiny body. Some species of soft ticks can live upwards of 14 years.

An example of a soft tick is the spinose ear tick. Residing in more arid locations of the United States such as Texas, southern Oklahoma and New Mexico, the spinose ear tick lives in burrows and jumps onto their host to feed for only 20 to 30 minutes at a time.

"One of the easiest ways to tell a soft tick from a hard tick is by studying them by looking directly down over the top of their body. If you can see the mouth, what we



Continued on page 38

call the capitulum, then it's a hard tick. If you can't see part of the tick's feeding apparatus, it's a soft tick," Pulaski says.

What's grotesque to some is interesting to others, Pulaski says.

Ticks can:

- Go a year or two without a feeding.
- Lay in wait for their next meal along livestock or wildlife trails, but some are more aggressive and will hunt for a host.
- Target based on body odor, breathing, moisture, vibrations, body heat, and sometimes even by sensing shadows, according to the Centers for Disease Control and Prevention (CDC).

Ticks proliferate in warm environments and shortened winters have allowed them to thrive for longer periods of time, Pulaski says.

The higher frequency of warm months has increased cases of infestations and disease.

Tick-related illnesses are on the rise in the United States, both for animals and humans. Pulaski urges breeders to keep foliage low, clear out brush sources and use tick prevention medication; and send in any suspicious ticks for inspection.

"Ticks bring about an 'ick' factor that's an issue for everyone," Pulaski says. "It's crazy to think about how much feeding these guys can do in numbers."

Editor's note: Sarah Harris was the 2021 Angus Journal intern.

SCAN FOR MORE

on Critters and Culprits or visit www.angusjournal.net.



Estrumate® (cloprostenol injection)

250 mcg cloprostenol/mL (equivalent to 263 mcg cloprostenol sodium/mL)

A sterile solution of a prostaglandin F_{2α} analogue for intramuscular injection in beef cows, lactating dairy cows, and replacement beef and dairy heifers

Caution: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION:

Estrumate® (cloprostenol injection) is a synthetic prostaglandin analogue structurally related to prostaglandin F_{2α} (PGF_{2α}). Each mL of the sterile colorless aqueous solution contains 250 mcg cloprostenol (equivalent to 263 mcg cloprostenol sodium), 6.1 mg sodium citrate, 0.56 mg anhydrous citric acid, 6.7 mg sodium chloride, 20 mg benzyl alcohol, and water for injection, q.s.

INDICATIONS FOR USE:

1. For unobserved or non-detected estrus in beef cows, lactating dairy cows, and replacement beef and dairy heifers
 2. For treatment of pyometra or chronic endometritis in beef cows, lactating dairy cows, and replacement beef and dairy heifers
 3. For treatment of mummified fetus in beef cows, lactating dairy cows, and replacement beef and dairy heifers
 4. For treatment of luteal cysts in beef cows, lactating dairy cows, and replacement beef and dairy heifers
 5. For abortion of beef cows, lactating dairy cows, and replacement beef and dairy heifers
 6. For estrus synchronization in beef cows, lactating dairy cows, and replacement beef and dairy heifers
 7. For use with Fertagyl® (gonadorelin) to synchronize estrous cycles to allow for fixed time artificial insemination (FTAI) in lactating dairy cows.
- Estrumate causes functional and morphological regression of the *corpus luteum* (luteolysis) in cattle. In normal, non-pregnant cycling animals, this effect on the life span of the *corpus luteum* usually results in estrus 2 to 5 days after treatment. In animals with prolonged luteal function (pyometra, mummified fetus, and luteal cysts), the induced luteolysis usually results in resolution of the condition and return to cyclicity. Pregnant animals may abort depending on the stage of gestation.

DOSEAGE AND ADMINISTRATION:

Two mL of Estrumate (500 mcg cloprostenol) should be administered by **INTRAMUSCULAR INJECTION** using the specific dosage regimen for the indication. 20 mL bottle size: Use within 28 days of first puncture. 100 mL bottle size: Use within 28 days of first puncture and puncture a maximum of 12 times. Use only with automatic injection equipment or repeater syringe. Discard bottle after one stopper puncture with draw-off spike.

1. For unobserved or non-detected estrus in beef cows, lactating dairy cows, and replacement beef and dairy heifers

Cows and heifers which are not detected in estrus, although ovarian cyclicity continues, can be treated with Estrumate if a mature *corpus luteum* is present. Estrus is expected to occur 2 to 5 days following injection, at which time animals may be inseminated. Treated cattle should be inseminated at the usual time following detection of estrus. If estrus detection is not desirable or possible, treated animals may be inseminated twice at about 72 and 96 hours post-injection.

2. For treatment of pyometra or chronic endometritis in beef cows, lactating dairy cows, and replacement beef and dairy heifers

Damage to the reproductive tract at calving or postpartum retention of the placenta often leads to infection and inflammation of the uterus (endometritis). Under certain circumstances, this may progress into chronic endometritis with the uterus becoming distended with purulent matter. This condition, commonly referred to as pyometra, is characterized by a lack of cyclical estrous behavior and the presence of a persistent *corpus luteum*. Induction of luteolysis with Estrumate usually results in evacuation of the uterus and a return to normal cyclical activity within 14 days after treatment. After 14 days post-treatment, recovery rate of treated animals will not be different than that of untreated cattle.

3. For treatment of mummified fetus in beef cows, lactating dairy cows, and replacement beef and dairy heifers

Death of the conceptus during gestation may be followed by its degeneration and dehydration. Induction of luteolysis with Estrumate usually results in expulsion of the mummified fetus from the uterus. (Manual assistance may be necessary to remove the fetus from the vagina). Normal cyclical activity usually follows.

4. For treatment of luteal cysts in beef cows, lactating dairy cows, and replacement beef and dairy heifers

A cow or heifer may be noncyclic due to the presence of a luteal cyst (a single, anovulatory follicle with a thickened wall which is accompanied by no external signs and by no changes in palpable consistency of the uterus). Treatment with Estrumate can restore normal ovarian activity by causing regression of the luteal cyst.

5. For abortion of beef cows, lactating dairy cows, and replacement beef and dairy heifers

Unwanted pregnancies can be safely and efficiently terminated from 1 week after mating until about 5 months of gestation. The induced abortion is normally uncomplicated and the fetus and placenta are usually expelled about 4 to 5 days after the injection with the reproductive tract returning to normal soon after the abortion. The ability of Estrumate to induce abortion decreases beyond the fifth month of gestation while the risk of dystocia and its consequences increases. Estrumate has not been sufficiently tested under feedlot conditions; therefore, recommendations cannot be made for its use in heifers placed in feedlots.

6. For estrus synchronization in beef cows, lactating dairy cows, and replacement beef and dairy heifers

The luteolytic action of Estrumate can be utilized to schedule estrus and ovulation for an individual cycling animal or a group of animals. This allows control of the time at which cycling cows or heifers can be bred. Estrumate can be used in a breeding program with the following methods:

- Single Estrumate injection: Only animals with a mature *corpus luteum* should be treated to obtain maximum response to the single injection. However, not all cycling cattle should be treated since a mature *corpus luteum* is present for only 11 to 12 days of the 21-day cycle. Prior to treatment, cattle should be examined rectally and found to be anatomically normal, be non-pregnant, and have a mature *corpus luteum*. If these criteria are met, estrus is expected to occur 2 to 5 days following injection, at which time animals may be inseminated. Treated cattle should be inseminated at the usual time following detection of estrus. If estrus detection is not desirable or possible, treated animals may be inseminated either once at about 72 hours or twice at about 72 and 96 hours post-injection. With a single injection program, it may be desirable to assess the cyclicity status of the herd before Estrumate treatment. This can be accomplished by heat detecting and breeding at the usual time following detection of estrus for a 6-day period, all prior to injection. If by the sixth day the cyclicity status appears normal (approximately 25%-30% detected in estrus), all cattle not already inseminated should be palpated for normality, non-pregnancy, and cyclicity, then injected with Estrumate. Breeding should then be continued at the usual time following signs of estrus on the seventh and eighth days. On the ninth and tenth days, breeding may continue at the usual time following detection of estrus, or all cattle not already inseminated may be bred either once on the ninth day (at about 72 hours post-injection) or on both the ninth and tenth days (at about 72 and 96 hours post-injection).
- Double Estrumate injections: prior to treatment, cattle should be examined rectally and found to be anatomically normal, non-pregnant, and cycling (the presence of a mature *corpus luteum* is not necessary when the first injection of a double injection regimen is given). A second injection should be given 11 days after the first injection. In normal, cycling cattle, estrus is expected 2 to 5 days following the second injection. Treated cattle should be inseminated at the usual time following detection of estrus. If estrus detection is not desirable or possible, treated animals may be inseminated either once at about 72 hours or twice at about 72 and 96 hours following the second Estrumate injection. Many animals will come into estrus following the first injection; these animals can be inseminated at the usual time following detected estrus. Animals not inseminated should receive a second injection 11 days after the first injection. Animals receiving both injections may be inseminated at the usual time following detection of estrus or may be inseminated either once at about 72 hours or twice at about 72 and 96 hours post second injection.

Any breeding program recommended should be completed by either:

- observing animals (especially during the third week after injection) and inseminating or hand mating any animals returning to estrus, or
- turning in clean-up bulls(s) 5 to 7 days after the last injection of Estrumate to cover any animals returning to estrus.

Management considerations for use of Estrumate for estrus synchronization:

A variety of programs can be designed to best meet the needs of individual management systems. A breeding program should be selected which is appropriate for the existing circumstances and management practices. Before a breeding program is planned, the producer's objectives must be examined and the producer must be made aware of the projected results and limitations. The producer and the consulting veterinarian should review the operator's breeding history, herd health, and nutritional status and agree that a breeding program is practical in the producer's specific situation. For any successful breeding program:

- cows and heifers must be in sound, non-pregnant, and cycling (rectal palpation should be performed);
 - cows and heifers must be in sound breeding condition and on an adequate or increasing plane of nutrition;
 - proper program planning and record keeping are essential;
 - if artificial insemination is used, it must be performed by competent inseminators using high-quality semen.
- It is important to understand that Estrumate is effective only in animals with a mature *corpus luteum* (ovulation must have occurred at least 5 days prior to treatment). This must be considered when breeding is intended following a single Estrumate injection.

There is no difference in the fertility achieved following the single or double dosage regimen when breeding occurs at induced estrus, or at 72 and 96 hours post-treatment. Conception rates may be lower than expected in those fixed time breeding programs employing Estrumate alone which omit the second insemination (ie, the insemination at or near 96 hours). This is especially true if a fixed time insemination is used following a single Estrumate injection.

7. For use with Fertagyl® (gonadorelin) to synchronize estrous cycles to allow for fixed time artificial insemination (FTAI) in lactating dairy cows

Use in reproductive synchrony programs similar to the following:

- Administer the first Fertagyl® injection (2 mL, 86 mcg gonadorelin, as gonadorelin acetate) by intramuscular injection (FTAI) on Day 0.
- Administer 2 mL of Estrumate by intramuscular injection 6 to 8 days after the first Fertagyl® injection.
- Administer the second Fertagyl® injection (2 mL, 86 mcg gonadorelin, as gonadorelin acetate) 30 to 72 hours after the Estrumate injection.
- Perform FTAI 8 to 24 hours after the second Fertagyl® injection, or inseminate cows on detected estrus using standard herd practices.

CONTRAINDICATIONS:

Do not use this drug product in pregnant cattle, unless abortion is desired.

WARNINGS AND PRECAUTIONS:

- **WITHDRAWAL PERIODS AND RESIDUE WARNINGS:**
No milk discard or pre-slaughter drug withdrawal period is required when used according to labeling. Use of this product in excess of the approved dose may result in drug residues.

USER SAFETY WARNINGS:

Not for use in humans. Keep this and all drugs out of the reach of children.

Women of childbearing age, asthmatics, and persons with bronchial and other respiratory problems should exercise extreme caution when handling this product.

Estrumate is readily absorbed through the skin and can cause abortion and/or bronchospasms. Direct contact with the skin should therefore be avoided.

Accidental spillage on the skin should be washed off immediately with soap and water. To obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, contact Merck Animal Health at 1-800-211-3573 or <http://www.merck.com>

ANIMAL SAFETY WARNINGS:

As with all parenteral products, careful aseptic techniques should be employed to decrease the possibility of post-injection bacterial infection. Severe localized clostridial infections associated with injection of Estrumate have been reported. In rare instances, such infections have resulted in death. Aggressive antibiotic therapy should be employed at the first sign of infection at the injection site, whether localized or diffuse.

At 50 and 100 times the recommended dose, mild side effects may be detected in some cattle. These include increased uneasiness, slight frothing, and milk let-down.

CONTACT INFORMATION:

To report suspected adverse drug experiences, call Merck Animal Health at 1-800-211-3573. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or at <http://www.fda.gov/reportanimal>

HOW SUPPLIED:

20 mL and 100 mL multidose vials

STORAGE, HANDLING, AND DISPOSAL:

1. Protect from light.

2. Store in carton.

3. Store at 2-30°C (36-86°F).

See FDA's website <http://www.fda.gov/safesharpsdisposal> for information on safe disposal of needles and other sharps.

Approved by FDA under NADA # 113-645

Copyright © 2017 Intervet Inc (d/b/a Merck Animal Health) a subsidiary of Merck & Co., Inc.

Madison, NJ 07940 All rights reserved.

Made in Germany

Rev. 12/2018

