

# Pasture Management Kills Lone Star Ticks

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In the wooded pastures of the Ozark region ticks are a troublesome pest. They annoy farm animals, reduce the output of meat and milk, and sometimes transmit spotted fever and tularemia to man. Recent study, however, shows that damage from this pest can be greatly reduced by changes in pasture management.

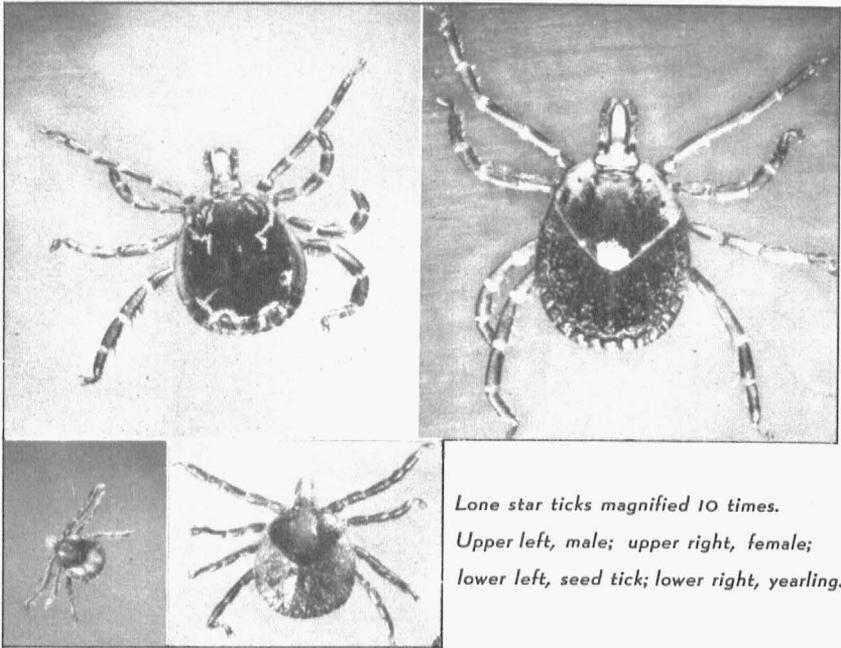
To understand how this can be done it is necessary to know how the ticks live. There are ten kinds of ticks in the state, but during the summer in southern Missouri the only important one that attacks cattle and humans is the lone star tick. It can be found where animals graze the same pasture land the year around.

## The Lone Star Tick

The lone star tick got its name from the single white dot in the middle of the female's back. The male is slightly smaller than the female and has a little white, lacelike marking around the hind border of its back.

In the first warm days of early spring, the adult ticks come out of their hibernating places and wait to attack the first animal that passes by. After finding lodgment on its animal host, the tick starts sucking blood. The males feed only a short time before mating with the females. The males do not become extended into what is commonly called the "dog tick" form. Each male may mate with one or several females. Those that have lived through one winter die before the next fall.

The female tick, after mating, may complete her feeding in three days, but usually in about a week. This feeding period varies with the weather and the place of attachment. When the days are cold it takes her much longer to fill up. When fertilized and fully engorged with blood, the female releases her hold on the animal and drops to the ground. This usually happens while the animal is resting, but many times the ticks are brushed off by the foliage along the trails while the animals are going to and from the water tanks, salting grounds and feedlot.



*Lone star ticks magnified 10 times.*

*Upper left, male; upper right, female;*

*lower left, seed tick; lower right, yearling.*

On the ground, the female tick digests her fill of blood, lays her eggs and dies. One female may lay as many as 4000 eggs. The time required to do this is much longer in the spring than in the early summer when it takes about three weeks.

It has been found that the adult ticks are the most active during the latter part of May and early June.

### **The Seed Tick Stage**

Starting about the 15th of June the eggs commence to hatch into seed ticks, which crawl up the blades of grass and other low plants. Many times they will be found in a tight ball or mass about one-half inch across. Here they wait until some animal comes along and brushes them off. They crawl through the hair until they find a place suitable to start feeding. Squirrels and other small rodents serve as hosts as well as the larger animals.

Seed ticks will attach almost anywhere on an animal's hide. When they have attached where the blood is readily available they may complete their feeding in two days, but it usually takes about four days. The peak of the egg hatching and seed tick activity is in the middle of August, although they can be found from June until the first heavy frost.

*Unless the seed ticks become attached to an animal and are fed during the warm weather, they will die, as they do not survive the winter.*

### **The Yearling or Nymph Stage**

The engorged seed ticks, like the adults, drop from the animals to digest their meal. Afterward, they shed their skins and develop into the yearling or nymph stage. This takes about two weeks, with the peak of this brood of yearling ticks occurring in the latter part of August and early September. These yearlings are capable of living through the first winter without feeding. The following spring they come from their hiding places about the middle of April. They will attack small rodents and the larger animals, whichever happen along first. It usually takes these yearlings about three days to feed. After they drop to the ground it takes them about three weeks to digest the blood, molt and become adults. The peak of their activity at this time of the year is very closely allied with that of the over-wintering adults, occurring during the latter part of May and early June. At this time there are about five yearlings to each adult.

### **Four Stages of Development**

Briefly summarizing the above, there are four stages in the development of all ticks; namely, the egg, the seed tick, the yearling or nymph, and the adult. Also it is known that unless the seed ticks are able to feed before the first heavy frost in the fall, they die. Other important facts are the following: Both the yearling and adult stages are able to live through the first winter period. The adult females die after feeding and laying their eggs, and yearlings die before the second winter period passes unless they have fed sufficiently to molt and become adults. Ticks will feed on any animal that picks them up, many of the seed ticks and yearlings attacking small rodents. Because of natural conditions, very large numbers of ticks die before completing their development. Of the 4000 eggs laid by the female tick only about 200 young reach maturity.

### **Control by Pasture Management**

With these facts in mind one can see how proper pasture management can starve the ticks down to a minimum. There should be two fenced pastures available. When the cattle are kept out of one of the pastures from about the 15th of June until after the first heavy frost, the ticks will have died out. The adults will be gone, for they die after mating and laying their eggs. The seed ticks which hatch from these eggs will die because there is no food available and thus no yearlings will develop to live over winter. The only ticks that will remain will be the few adults that matured from the previous season's yearling infestation before the cattle were removed. The land must be free of all stock during this period or

this method of control will not succeed. It will not be necessary to double fence the pasture as ticks do little crawling over the ground. They climb upon the grass and are brushed off by the animals. By applying this method for two successive years, and occasionally thereafter, the ravages of these ticks can be reduced so that they will not be a serious menace.

The stock grazing laws that are now enforced in many of our counties have unknowingly reduced their tick population by this method. This law states that all animals must be under fence, and for this reason many unused pastures are free of ticks regardless of the type of cover.

### **Dipping Is Not Practical**

Many farmers can remember the federal dipping law that was enforced about the turn of the century. The law was enacted to control the Texas fever tick. Its habits differ greatly from those of the lone star tick as here described. The biggest difference is that as a seed tick it is picked up and spends its entire life on the same animal, developing from the seed tick, through yearling and adult stages. It drops to the ground only to lay eggs. This is called a one-host tick. By dipping the animals several times each summer, the owner can greatly reduce the numbers of these pests.

The lone star tick, quite differently from the one-host tick, drops from the animal after each stage of development and is called a three-host tick. To kill any number of these ticks it would require many dippings, and this would be costly and not very practical even though the dip would kill the ticks that happened to be on the animal at the time.

### **Additional Control Methods**

Many of the smaller dairy farmers spray their animals with a commercial stock fly spray. This helps, but to kill the ticks it is necessary to wet them thoroughly. During the peak of the tick activity most of the ticks are found on the parts of the animal where ordinary spraying cannot reach. A very simple and effective method is to mop the animals in the flanks and around the udder. By using a rag about one-eighth of an ordinary feed sack in size and saturating it with the material to be used, all the ticks in the flanks can be thoroughly covered with less effort than it would take to pump the ordinary sprayer.

Another advantage in mopping the animals instead of spraying is the fact that if the material has no painful effect on the herdsman's hand, it certainly will not injure the animal. A thorough job of mopping several times a week, will not only reduce the number of ticks but will tend to repel flies.

Most of the sprays contain extracts of pyrethrum and derris but during the war these may not always be available, although there are some efficient sprays on the market at this time.