PROTECTING MAN AND LIVESTOCK FROM TICKS

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Fully engorged female wood tick and a mass of her eggs.

Much of Missouri, especially the southern wooded areas, is heavily infested with ticks. These pests are so abundant on some farms that they are causing serious damage to livestock. Also, their menace to human health through the spread of Rocky Mountain spotted fever and tularemia is on the increase in this state. It is hoped that this report may be of some help to those in Missouri who have to deal with the tick problem.

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Harmful Missouri Ticks

While there are several species of ticks in the state, only four are of special importance; the lone star tick, the black-legged tick, the brown winter tick, and the wood tick or American dog tick.

In most sections of southern Missouri the first three species are the most numerous. Of these the lone star is the all-important summer tick while the black-legged and brown winter ticks are active and found on animals during the fall and mild winter periods.

In other parts of the Ozark region and in wooded areas north of the Missouri River the wood tick is more abundant.

All of these ticks are believed to be capable of transmitting Rocky Mountain spotted fever and tularemia, provided they have fed on animals infected with the disease. They are all about the same size and will suck blood from man, livestock and wildlife in all stages of development, except the small seed ticks of the wood tick and black-legged tick which feed only on small rodents.

Life Story of the Common Wood Tick

Ticks are not insects, but belong to the same group of animals as the spiders, mites, and scorpions.

The common wood tick, on hatching from the egg, is scarcely large enough to be seen without magnification. It is known as the larva or seed tick, and usually wherever one seed tick appears a few thousand more will be found close by, since normally a mass of tick eggs will include several thousand and they all hatch about the same time. In this stage the tick has only six legs and, if successful in attaching itself to a desirable host animal, usually a small rodent, it begins to suck blood. Its piercing mouth organs are armed with barbs, which make very difficult their forcible withdrawal from the flesh of the host.

After remaining attached for a few days, engorging itself, the seed tick takes on a round stuffed appearance, something like a grain of shot. It then withdraws its mouth organs from the skin of the host and drops to the ground, where it rests for several days, digesting its meal and shedding its skin. After shedding its skin it enters the second stage of development, the nymph. In this stage it has eight legs and the body is larger than the head of a pin. It may now attack almost any warm-blooded host, man included, though it prefers the dog. Again, it engorges itself and in this condition it may be considerably larger than an apple seed. Then, again, it lets go and drops to the ground, digests its meal, sheds its skin and becomes an adult tick with eight legs.
In Missouri, it usually spends the winter in this stage and in the spring, by early May, it attaches itself again to a dog, cow, man or other animal. The smaller, more active male mates with the adult female while she takes her third and final fill of blood. If permitted to fully engorge, the female resembles a small, purplish-brown, tightly stuffed rubber ball, over one-half inch in length and half that in width and thickness. Again, she drops from the host and after several days, under grass or other shelter, she begins to lay a mass of a few thousand brownish eggs. These usually hatch during June and July as seed ticks and thus the cycle is completed.

Control

It is not an easy matter to rid a farm or a community of ticks. This is especially true of the so-called three-host type of ticks. Ticks of this type may attack any one of several different kinds of domestic or wild animals and after each engorging they drop from the host. In this way they remain so scattered, some on livestock, some on wild animals, and some on the ground, that it is never possible to round them all up and dispose of them by spraying or dipping. However, it is possible to greatly reduce tick numbers on a farm and to reduce proportionately their injury to livestock and their menace to human health.

All four of the important Missouri ticks are three-host ticks except the brown winter tick, which is called a one-host tick. It does not drop from its host after each engorging. The one-host type of tick is therefore much easier to control by simply treating the infested host animals.

Tick infestation usually is worse in well-drained, wooded areas, and this fact helps to explain their abundance in the Ozarks. Cutting buck brush, briars, and other undergrowth from pastures and woodlots will help reduce tick abundance. A good plan of control would also provide for the treatment of infested cows, dogs, or other farm animals at two-week intervals.

Of the various chemicals used to kill ticks, toxaphene, lindane and chlordane are perhaps the best. All are available and they may be purchased in either the wettable powder or emulsion form. As the concentration varies with the manufacturer, prepare the dip, spray or wash according to the recommendations on the container.

There is some question concerning the degree of absorption of these materials by warm-blooded animals. For this reason, do not treat beef animals within three weeks of slaughtering and do not use or sell the first few milkings following treatment of milk animals.
Where large numbers of cattle or other livestock are to be treated, dipping is most effective. However, the farmer can obtain the same protection for his animals by spraying or mopping, but the results will depend upon the thoroughness of the treatment. Each animal should be completely wetted with the spray or wash.

**Treating Small Infested Areas**

Where only small areas are to be freed of ticks, as for instance a lawn, it is possible to spray such areas with the same solution which is applied on the animals. Paths in parks and other recreational grounds and areas around livestock watering and salting places may be treated in this same way to advantage.

**Diseases Which May Be Spread by Ticks in Missouri**

Each year the Missouri State Board of Health reports a number of deaths from Rocky Mountain spotted fever, which is spread by the common wood tick. Also, cases of tularemia are occurring in Missouri in increasing numbers with deaths traceable to tick bite. Ticks may also be responsible for the occasional local outbreaks of anaplasmosis of cattle in the state. Naturally, measures used to reduce tick populations will help to lessen their injury to animals and their menace as carriers of disease. But, since we can only hope to reduce their numbers, we should take other precautions where ticks are a serious menace.

Persons who must work or travel in infested areas should go clothed to escape attack. High boots and tight-fitting clothing will help. After coming out of tick-infested places, such persons should change clothing and make sure that no ticks are on them at night when they go to bed. To introduce spotted fever the tick must bite for at least eight hours, so every precaution should be taken to make sure that no tick shall spend the night biting its victim.

Persons who spend much time in tick-infested places or work regularly among ticks, should take the Rocky Mountain spotted fever serum treatment.

There are several commercial products that will repel most of the seed ticks, as well as those in older stages of growth—at least to some degree. These repellants are known as 612 and 448 and were developed for the Armed Services. The protection received from either of these depends upon several factors and cannot be relied on to keep off all the ticks.