Livestock Insects–Cattle

Ticks

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Identification and Field Biology

Ticks are members of the same phylum (Anthropoda) of the animal kingdom as insects but are in a different class (Arachnida). The main difference is the body of a tick is composed of only two sections, while insects have three sections, and ticks (adult) have four pairs of legs, and insects have only three sets of legs. Ticks found in the U.S. are divided taxonomically into two main families – the hard ticks (Ixodidae) and soft ticks (Argasidae). The hard ticks are flattened dorsoventrally in the unfed state, possess a marginal outline, which tapers toward the anterior, and the mouthparts are clearly visible. The have a sclerotized dorsal plate (scutum), which is often ornate with patterns in white or gold against a brown or gray background. The soft ticks have an oval or pear-shaped outline with the anterior body region broadly rounded. The mouthparts of the soft ticks are difficult to see without magnification, have no color patterns, and they have a granulated, leathery appearance. Ticks may also be classified on the basis of life cycle as one, two or three-host ticks. Most of the U.S. tick species are one or three-host ticks. Most species feed on blood three times during their life cycle. One-host ticks, such as the winter tick, remain attached to the host during all three blood feeding times. The three-host ticks, like the lone star tick, feed, drop off and reattach later on progressively larger hosts. The tick life cycle includes four stages: egg, six-legged larvae, eight-legged nymphs and the adult. Engorged female ticks deposit large numbers of eggs either in one large batch (several thousand) or several smaller batches. The eggs hatch into small six-legged larvae (seed ticks). These seed ticks crawl up on vegetation and, as a host animal passes, attach to an animal (quests). Once attached, the seed tick feeds on blood and either remains on the animal (one-host tick) or drops off to reattach later as a nymph. The nymph, after feeding, drops off and changes to the adult, which will reattach later. The survival rate for seed ticks, nymphs and even adult ticks is very low because of a hostile environment or difficulty in finding a host, but this is offset by the great number of eggs deposited by the female, and the capacity of all stages to survive long periods without feeding.

Animal Response and Economic Losses

Globally, ticks are the most serious ectoparasite of livestock. They cause serious livestock losses in Africa, Australia, Central and South America and the southern half of the U.S. Ticks affect livestock in several ways: physiologically by irritation, allergic response and loss of blood, which may result in reduced weight gains, weight loss, transmission of disease such as anaplasmosis, epizootic bovine abortion and babesiosis (Texas cattle fever), paralysis and damage to carcasses, fleece or damaged hide from tick feeding. Despite the magnitude of the tick problem to livestock, studies that relate tick
numbers to economic losses are rare in the literature. The literature does indicate that the
economic injury threshold for the lone star tick is 15 female lone star ticks per steer.
Similar losses are reported for Gulf Coast ticks and in addition the “Gotch” ear
(membranes are weakened allowing the ear to droop), caused by these ticks reduced the
selling price by $4.00/hundred weight.

Ticks are not usually numerous enough to be a major economic problem in the Northern
Great Plains but are occasionally. The major species are the Rocky Mountain wood tick,
Dermacentor andersoni, American dog tick, D. variabilis, brown dog tick, Rhipicephalus
sanguinlus, lone star tick, Amblyomma americanum, winter tick, D. albipictus, and the
“spinose” ear tick, Itohbus meginini. The lone star tick and the winter tick may be
expanding their range. The lone star tick was found in the central Sandhills of Nebraska
in 2002, and the winter tick in west central Nebraska in 2002, both were new county
records for those areas.

Management Approaches

Cultural
Cultural practices used in some areas with high numbers of ticks annually is brush
removal, mowing the vegetation next to wooded areas, rotating cattle away from the most
tick-infested pastures and the use of tick resistant cattle breeds. None of these methods
are practical for the Northern Great Plains.

Chemical
The insecticides registered as sprays for other ectoparasites of livestock will control ticks
in our area. Resistance has been reported in Texas and Mexico to some of the acaricides
used for ticks, but treatment in our area is so infrequent there should be no resistance
problem.

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