

Sheep and Goat Insect Management

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Controlling insects that infest sheep and goats is discussed here.

Most of the insects that infest sheep also infest goats, but some of the goat lice species are specific for goats. Very few insecticides are approved for lactating goats. For listings of insecticides for control of insect pests of sheep see EC1550, *Nebraska Management Guide for Arthropod Pests of Livestock and Horses*. John Lloyd, University of Wyoming, has provided much of the information used here on sheep parasites.

Sheep Ked

The sheep ked is a wingless fly that resembles a tick. Keds spend their entire life cycle on sheep, transferring between animals by contact.

The female deposits living young individually on wool strands. A red puparium (case) is formed around the ked. After about 21 days the fully developed ked emerges from the case and begins to feed on blood.

Sheep keds are detrimental only when the sheep are on a poor nutritional plane (poor range). Keds feed by piercing the skin and consuming blood. This causes a condition known as “cockle.” Hide buyers downgrade sheep skins with “cockle” because it weakens the hide.

Sprays, dips and power or hand-dusting with insecticides are all effective methods for controlling sheep ked. Shearing time is the most convenient and efficient time to treat.

Several sheep-producing states have adopted a sheep ked-free program which was initiated in Wyoming. All sheep in the program were treated for keds at shearing time. All replacement or breeding stock were treated prior to being placed in the flock. Sheep marketed from the participating states were certified as being ked-free.

Sheep Lice

The African sheep louse, sheep foot louse and goat-sucking louse are all blood-sucking lice. The sheep-biting louse feeds on skin. Distribution and abundance of these species is not well-known. The lice cause sheep to rub and scratch, sometimes to the point of denuding areas of skin. Anemia is a common result of high populations of lice and may predispose the animal to respiratory or other diseases.

Low pressure insecticide sprays and dusts are adequate for sheep lice control. Adding detergent to the spray will increase its sticking ability.

Goat Lice

Several species of lice infest goats and separate species may occur on meat goats and Angora goats. Lice species may intermingle if the two goat types are run together. A few individuals of all species may be found on both goat types.

Two species of blood-sucking lice are found on goats; the goat-sucking louse and the African goat louse. These species are similar in appearance and are bluish-gray.

There are three species of chewing or biting lice parasites on goats. *Bovicola crassipes* (Rudow), a large yellow louse, and the Angora goat biting louse are normally found on Angora goats. The goat biting louse, *Bovicola caprae* (Guret) is commonly found on meat goats.

Goat lice, like other lice species, spend their life on the animal. They can transfer from one animal to the other on close contact. Eggs are attached to hairs by a viscid substance excreted by the female. The life cycle ranges from 20-40 days depending on temperature.

The presence of lice on goats is accompanied by scratching and rubbing. The effect depends on the number of lice present. Blood-feeding lice cause the most severe symptoms. Excessive feeding causes scabby, bleeding areas that may lead to bacterial infection. Mohair on Angora goats may be damaged to the extent of reduction in value of 10-25 percent.

Sheep Scab

Psoroptic scab (scabies), a highly contagious skin disease of sheep caused by microscopic mites, is included in the Federal Quarantine Act. Federal and state quarantines and treatment have reduced the incidence of this pest to only a few cases per year.

Uneven wool that looks picked and thin and scabbing surface wounds are signs of the mite. Positive diagnosis can be made only by scraping lesions and examining the scrapings microscopically for mites. Federal regulations require infected sheep to be dipped twice within a 10- to 14-day period with a special formulation of sulfur or injected with Ivermectin.

Sheep Nose Bot Fly

The female bot deposits living larvae (maggots) in the nostrils of sheep. The larvae migrate to the head sinuses and, after development, migrate back down the nasal passages, dropping to the ground where they complete development to the adult form. There are two or more generations per year in most of the United States. A packing house survey (1983-1987) by Wyoming indicated that 90 percent of the sheep from Wyoming, Colorado, Nebraska and Idaho had sheep nose bot infestations during 11 months of the year.

The “strikes” of the fly while depositing the larvae in the nostril irritates sheep. They bunch and keep their noses down to the ground in an effort to avoid the strikes. When the bots are migrating to and from the head sinuses, the nasal membranes are irritated and secondary infections can occur at the irritation sites.

Blood flecks in the nasal discharge and sheep banging their heads against feed bunks, fences or the ground indicate the presence of nose bots. Severely infested older or weak sheep may die as a result of the bots.

Presently, only one product is registered for control of the sheep nose bot. Ivomec (ivermectin) is registered as an 0.08 percent AI oral drench, administered at a rate of 3.0 ml/26 lb body weight. The treatment-slaughter interval is 11 days. Treat after hard frost, which kills the bot fly and assures no reinfestations.

Flies

Some species of blow flies (the black blow fly in particular) lay eggs in dirty wool, usually in the crotch area or on wounds. Upon hatching, the fly maggots spread over the animal and feed on the skin surface. Maggot-infested sheep become restless, stamp their feet, try to bite the irritated areas and may leave the flock to hide in secluded places. Care and medication of wounds, early shearing or clipping, and cleaning dirty areas before the spring blow fly season should be considered as part of the control program.

House flies, stable flies and face flies also bother sheared sheep in the summer. These flies feed on shearing wounds or the thin, exposed skin. This delays wound healing or causes wounds. Sheep react to these flies as they do the blow flies, which can cause decreased animal performance.

Biting Gnats

In Nebraska, several species of blood-feeding gnats (midges) in the genus *Culicoides* feed on livestock. Of particular importance to sheep is *C. variipennis* because it transmits bluetongue, a viral disease. This disease is particularly serious to sheep and white-tail deer.

Infected sheep have inflammation, swelling and hemorrhaging of the mucous membranes of the mouth, nose and intestines. Inflammation and soreness of the feet also are associated with the disease. The tongue and membranes of the mouth may look red or dirty blue, hence the name. The mortality rate for infected sheep is about 50 percent. Secondary effects include abortions and deformed lambs.

In areas where bluetongue is endemic, some management practices will reduce the incidence of the disease:

- Herd sheep into covered shelter at night and keep them there until after sunrise, because the greatest number of gnats feed during the night.

- Graze sheep away from aquatic areas — the breeding sites of the gnats.
- Drain and clean runoff areas from feedlots. Gnats breed in standing water rich in organic matter.
- Vaccinate sheep in areas with a history of the disease.

West Nile (WN) virus has been positively identified as the cause of death for at least one lamb in Nebraska. WN virus is transmitted by mosquitoes. The first three management practices listed for the reduction in the incidence of bluetongue would also be helpful in reducing mosquito feeding on sheep.

Spinose Ear Tick

This tick is a parasite of several domestic animals, including sheep, with cattle as its primary host. It is found primarily in arid range areas in southwestern states. Its occurrence in Nebraska is usually on sheep or cattle shipped into the state. The adults do not feed and are found around corrals or loafing areas frequented by sheep. Eggs are deposited in these areas.

Young larvae crawl up on vegetation and wait for contact with a host animal. After contact and attachment, they move to the ear, crawl to the inner folds of the outer ear, and begin to suck blood or lymph. The larval form changes to a nymphal form that also feeds on blood. When nymphal development is completed, the tick drops to the ground and completes development to the adult form. The feeding area within an animal's ear may become infected (canker ear). The irritation causes animals to become dull and unthrifty, decreasing animal performance. Heavily infested older or young animals may die.

Early in the spring, sheep in small flocks that are encouraged to graze in shelter belts and other vegetative areas around the farmstead may become infested with a few wood or American dog ticks. Sheep are not preferred hosts so the tick usually will drop off before engorging.

Resources

- Price, A.M. and D.H. Graham. 1997. Chewing and sucking lice as parasites of mammals and birds. USDA-ARS. Tech. Bull. 1849. 251 pp.
- Lloyd, J.E. 2002. Sheep Pest Management (arthropods). Marsel Dekken Inc. N.Y., N.Y. 2 pp.

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Index: Insects and Pests Livestock

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