

What to Do About Lice

Lice are a big problem and can become a concern every winter and spring. They can suck a lot of blood from livestock, make them nutritionally deficient and cause anemia. Usually warm temperatures and wide fluctuations in temperatures during the winter can set them off. They can cause substantial hair loss. The constant irritation drives cattle to seek relief by rubbing on equipment, fences and anything relatively stationary. There can be a lot of weight loss and drop in milk production.

Cattle that are already nutritionally deficient will be more adversely affected by lice and worse off if left untreated. Culling animals in an attempt to breed out susceptible animals is not a viable option; it affects all animals according to Buck Chastain of Albion Laboratories.

The next several paragraphs come straight out of the Merck Veterinary Manual, followed by a discussion of several other treatment options.

Merck Veterinary Manual Lice (Pediculosis) Numerous species of biting or chewing lice (order Mallophaga) and sucking lice (order Anoplura) are obligate ectoparasites of domestic animals. Lice live within the microenvironment provided by the skin and its hair or feathers and are transmitted primarily by contact between hosts. In temperate regions, lice are most abundant during the colder months and often are very difficult to find in the summer. Lice are largely host specific, living on one species or several closely related species. Anoplura are parasites of mammals only. However Mallophaga infest both mammals and birds.

Lice are wingless, flattened insects usually 2-4 mm long. The claws of the legs are adapted to clinging to hairs or feathers. The biting lice on cattle feed on epidermal products, primarily the skin scales and scurf, while the blood feeders are self-explanatory.

Louse eggs or nits are glued to hairs of mammalian hosts near the skin surface and are pale, translucent, and suboval. The 3 nymphal stages, of increasing size, are smaller than adults but otherwise resemble them in habits and appearance. About 3-4 weeks is required to complete one generation, but this varies with species.

In temperate climates, cattle may be infested with one species of the biting louse or one of the 3 species of the blood sucking variety. It is not uncommon for cattle, especially young animals to be infested with 2, 3, or all 4 species. These lice may be found on the head (including the ears), neck, topline, and brisket. In heavy infestations, they may be found over most of the body.

Haematopinus quadripertusus, the cattle tail louse, is a tropical, sucking louse that has extended its distribution into subtropical areas (California, Florida, and Gulf Coast in the USA). The adults and ova are found in the tail switch; nymphs may be found on other parts of the body, including the perineum and vulva. The cattle tail louse is known to parasitize both European and Zebu breeds of cattle.

Haematopinus tuberculatus, the louse of Asiatic water buffalo, appears to have transferred to cattle in various parts of the world, and is able to maintain itself on cattle in tropical climates. These lice are usually found on the back and hind legs, although the eggs are usually deposited on the neck, shoulders, and forelegs of the host.

Lice cause dermal irritation with resultant scratching, rubbing, and biting of infested areas. A generally unthrifty appearance, rough coat, and lowered production are

common. In severe infestations there may be loss of hair and local scarification. Extreme infestation with sucking lice can cause anemia.

Diagnosis is based on the presence of lice. The hair should be parted, and the skin and surrounding coat examined with the aid of light if indoors. The hair of large animals should be parted on the face, neck, ears, topline, dewlap, escutcheon, tail base, and tail switch. The head, legs, and feet should not be overlooked, particularly in sheep.

Lice are most prevalent during the winter; severity is greatly reduced with the approach of summer. Infestations, particularly of sucking lice may become severe. In dairy herds, the young stock, dry cows, and bulls may escape early diagnosis and suffer more severely. Young calves may die, and pregnant cows may abort. Effective treatment results in prompt improvement.

Transmission usually occurs by host contact. Lice dropped or pulled from the host die in a few days, but disengaged ova may continue to hatch over a 2-3 week period in warm weather. Therefore, premise recently vacated by infested stock should be disinfected before being used for clean stock.

Louse control requires treatment with an effective insecticide or drug (Ectoparasiticides or Anthelmintics). Products that may be used are determined by government regulations, and users are required to read and follow product labels. Certain formulations are classified for restricted use only. Some product labels direct retreatment in 2 weeks to control a particularly refractory infestation.

A few compounds may be applied as a whole-body spray for lice control. A light, mist application of some formulations may be effective, while others require soaking the hair to the skin.

The manual goes on to discuss the various chemical names of the different formulations available including the pour-on varieties, the use of self-treatment devices such as back rubbers and dust bags and also insecticide ear tags.

Most ectoparasiticides are neurotoxins, exerting their effect on the nervous system of the target parasite. Anthelmintics are usually absorbed into the bloodstream and transported to different parts of the body, including the liver, where they may be metabolized and eventually excreted in the feces and urine. They act on their target parasite on ways that vary according to the chemical formulation. Paralysis by interfering with nerve function or inhibiting enzyme pathways are two such effects.

Animal Nutritionist and Consultant Buck Chastain routinely starts all his clients' herds east of the Mississippi River on a lice treatment prevention program in January or February. He uses the pour-on product Dectomax for the beef cattle or Cydectin for dairy, which is applied down the tops of their backs.

In her book "Natural Cattle Care", Pat Coleby states that exterior parasites are caused by malnutrition; the diet is unbalanced. Lice are not very contagious in spite of what people may think. A healthy animal may have a few but they do not proliferate unless the beast is deficient, especially in sulfur.

Modern farming practices have created the situation where sulfur is unavailable to the plant therefore the feed is lacking in that necessary mineral. In 90% of the farm analysis that she sees, the sulfur is a far too low (Neal Kinsey notes the same thing in the United States and worldwide)

Feeding sulfur in the licks will help keep animals free of lice and other exterior parasites. As long as the sulfur does not exceed 2% of the diet it is safe. This means that a cow can be given a heaped tablespoon a day if she had an infestation; the lice would gradually leave her over a period of five or six days.

When cattle become heated for any reason, the presence of lice usually shows up, as they leave the skin and crawl out on the hair. Exterior dressings of sulfur are fairly effective, just rubbing in two to three handfuls of sulfur along the spine is enough.

Pat Coleby points out that a lack of this mineral means that cattle do not absorb and digest their feed as well as they should. Bringing up the sulfur levels in the soil by top dressing with Gypsum (after an analysis) is her suggested long-term remedy.

Others agree that lice infestations are a result of poor nutrition and a lack of good immune response. Apple Cider Vinegar works for Gearld. He feeds 3 oz./cow/day or 1/3 oz. of the powdered form to stop the lice process. It may not work fast enough to stop the hair loss, but it does work on internal parasites as well. He recommends 400 mg Copper/cow/day to keep the immune system alert. Keeping an animal's available copper levels up eliminates parasites of all types. Don't forget the selenium and iodine. They are just as responsible for good immune function and keeping animals free of disease and sickness.

One cattleman told me that he tried both the sulfur and then the added copper approach but still had problems and so he chose to resort to a pour-on product called Cylence. Another topnotch cattle breeder uses Tempor. He waits until he sees signs of hair loss on the escutcheon and then treats them all, not just the animals effected. One application of this pour-on is all it takes and they remain clear.

Keeping animals well mineralized and fed is undoubtedly the best approach to prevent parasites. There are natural remedies to kill lice. Agri-Dynamics (Jerry Brunetti) has a product called Ecto-Phyte. Ingredients are castor oil, vegetable oil, neem oil, and essential oils of orange, eucalyptus, citronella, clove, anise, neroli, and a coconut oil base surfactant. It is mixed with water, or mineral oil for longer lasting results, and is misted liberally over the animal. A second treatment in two weeks may be necessary for severe cases. Ecto-phyte can be applied to walls and ceilings of the stall area as needed.

Tobacco dust has been used to kill lice while others do not recommend it. Will Winter, D.V.M. who advocates Ecto-Phyte, says you can also use finely-ground limestone dusted over the backs as they stand in a loading chute or catch pen. Put it on thick and it suffocates the devils.

The following is how another producer deals with the lice issue:

Yes, we have had great success with using a combination of nutrition and topical treatments. On the nutrition side, we will sometimes buy Vitamin A mix (very expensive!!) but this year we've experimented with increasing the amount of browse they have access to along with spraying plain old cod liver oil on their hay or we'll mix it with a bit of soaked beet pulp and alfalfa pellets. We use only Nordic Naturals that is guaranteed heavy metal free. That really seems to work quite well.

When this doesn't work (which is seldom), we then resort to topical applications.

I've found that the best combination is about 2 oz of neem oil mixed with water and applied with a garden sprayer to their coats. Then we take a mixture of approximately 4 parts neem powder, 2 parts turmeric powder, and 10 parts diatomaceous earth. All certified organic from Mountain Rose Herbs. With the oily mixture on their coats, we take cupfuls of the Neem powder mixture and rub it into their coats - mainly along the top line but down around their necks and haunches and base of the tail where lice seem most prevalent. This will eradicate lice fairly quickly. We will usually do another application in about 4 weeks and they then seem to be good for the late winter/early spring season.

If all else fails, one can use Pyganic - a certified organic commercial spray that controls lice as well as face flies. Sometimes we will resort to this in June/July time frame to avoid pink eye (another vitamin A deficiency). This past summer was bad with flies due to the drought.

I am a huge believer of Neem powder. We use it on our barn cats and on our dogs to prevent fleas and ticks.

Cindy Engel, in *Wild Health* goes into more natural remedies. She is scientific in her explanation but worth the read. In my opinion her information reinforces the knowledge that our God provides for everything.

Fleas, mites, ticks and Lice are all called ectoparasites. Camphorated oil is used by herbalists around the world to control ectoparasites. The camphor smelling resin is the active ingredient. Chemists at Cornell University have identified triterpenes, amyryl, selinene, and sesquiterpene lactones in the resin. The last of these are known to be repellent to fleas, lice and ticks, as well as biting insects such as mosquitoes.

Formic acid kills chewing lice, and the vapor alone can kill lice and feather mites. Formic acid is also an analgesic. A monoterpene, D-limonene, present at concentrations of 98% in the peel of citrus fruits, is toxic to a wide variety of arthropods, such as lice and fleas. When Clayton and Vernon tested the effect of lime peel on bird lice in the laboratory, they found that nine hours' exposure to the vapor was enough to kill the lice.

Just as herbalists use citrus peel to repel fleas, and aromatherapists use citrus oil as a stimulant, animals that rub citrus on their skin can potentially self-medicate against ectoparasites. Aromatic leaves and flowers have antimicrobial or insecticidal properties.

Salt is another widely used remedy for skin problems: its osmotic properties burst microorganisms and ectoparasite larvae.

Nature's pharmacy abounds with secondary compounds "designed" to repel plant pests and disease. In North America, wild carrot (*Daucus carota*), yarrow (*Achillea millefolium*), agrimony (*Agrimonia parviflora*), elm-leaved and rough goldenrod (*Solidago sp.*), and fleabane (*Erigeron sp.*) are all highly **aromatic plants** that contain volatile oils and are used by wild animals and birds in the building of their nests. These are capable of reducing ectoparasite infestation because they contain monoterpenes and sesquiterpenes (such as myrcene, pinene and limonene) that are harmful to bacteria mites and lice in the laboratory. They retard the hatching of eggs, but seem to have no effect on adult lice.

In India, birds bring leaves of the Margosa, or Neem tree (*Azadirachta indica*), to their nests at breeding time. These leaves contain numerous secondary compounds, among them azadirachtin, a complex chemical with powerful insecticidal properties, and sitosterol, a natural insect repellent that also disrupts egg laying in ticks and other blood sucking parasites.

Pine resins are rich in terpenes such as camphor. The Black Balsam tree secretes oleoresins and volatile oils, including the familiar insecticidal and antimicrobial camphene and limonene that give the tree its characteristic balsamic odor. Before WWII, citronella, camphor and menthol were commonly used as insect repellents. Because of their volatility, they evaporated quickly from the skin.

Chemists in India have recently determined that volatile mint oils can provide humans with 85% protection against *Anopheles culicifacies*, the mosquito responsible for 3/4 of the malaria transmission in Northern India. And the volatile oils coumarin and piperonal (found in Lavender and Violets) have been found to be more repellent to the yellow fever mosquito than DEET.

The take home message is that lice infestations can have a huge impact on animal productivity if not treated. An ounce of prevention is worth a pound of cure applies as healthy, well-nourished cattle have the ability to keep parasites at bay. There is a plethora of treatment options. While the chemical products are convenient and fast acting, one needs to consider what those products may be doing to the food coming from those treated animals and to the environment, including beneficial insects such as the dung beetle. Can the application of man-contrived neurotoxins and metabolic pathway inhibitors, no matter how minute, be good for anyone?

As grass farmers it can be challenging to meet all the nutritional requirements of our livestock when pasture, hay and some minerals is basically what we have to offer. If you think you have great pasture, get a refractometer and test the brix levels of your grasses. You can know at a glance the nutritional value of your forages. Perhaps it is time to ramp up your fertility management program. Animal health starts in the soil.

If you've had to battle lice this season and resort to chemicals to treat your animals (guilty as charged) then start now thinking about next year. Spend some money on your grazing system even if it's just remineralizing and restoring the soil biology in one or two fields. This spring I will apply fish emulsion, among other things, on my fields and will be bringing in some Dung Beetles. Take a look at the natural alternatives to lice control and have those products on hand by next fall. We are all part of a divinely created natural process. There is always a level of ripple effect in our realm of influence be it good or bad, intended or unintended.