

# W I N T E R ' S Profit Robbers

Control lice to optimize winter herd performance.

BY HEATHER SMITH THOMAS

During the last cold months of winter and into early spring, the main parasite of cattle to think about is lice," says Lee Townsend, University of Kentucky Extension entomologist. Feeding lice are a cause of irritation that puts additional stress on cattle, draining energy reserves. The cattle spend so much time rubbing, scratching and licking that they don't eat well. Heavy infestations of lice can cause reduced feed conversion, weight loss, anemia (sometimes resulting in abortion), susceptibility to secondary infections and sometimes death.

Cattle may be infested with several species of lice at the same time. The United States has four species of blood-sucking cattle lice and one species of biting louse that feeds on sloughing skin. According to Harry Smith, University of Nevada Extension pesticide specialist, these five species all belong to one of two orders — the *Anoplura*, which has mouthparts used for piercing through the skin and sucking blood, and the *Mallophaga*, with mouthparts adapted for biting and chewing.

The four species of blood-sucking lice include:

- The **long-nosed cattle louse** (*Linognathus vitula*), which generally

infests calves quite heavily. Mature cattle may have sparser populations;

- The **short-nosed cattle louse** (*Haematopinus eurysternus*), which generally infests adult cattle;
- The **little blue louse** (*Solenopotes capillatus*), which infests cattle of all ages; and
- The **cattle tail louse** (*Haematopinus quadripertusus*), which infests all cattle but is mainly located on the long hairs of the tail, around the eyes and along the neck.

The only species of biting louse that infests cattle is the cattle biting louse, or little red louse (*Damalinea [Bovicola] bovis*).

Biting lice are actually the most common, says Smith, while sucking lice are the most damaging.

## The rub

Both types cause severe irritation and itching. Cattle that are scratching and rubbing against feeders, gates, posts and other objects are usually infested, says Greg Johnson, Montana State University livestock entomologist.

The constant crawling, biting and piercing of the skin make infested animals restless and nervous, disrupt normal feeding activities, and hinder appetite. "The

animal is concentrating more on the irritation and discomfort, spending more time itching than eating," says Johnson.

"Different types of lice find an area on the animal that meets their temperature requirement and usually stay in that area," he adds. Biting lice feed on the upper layer of skin and prefer the back and tail areas, but they can be found all over the body.

Sucking lice feed by piercing the skin and sucking blood. They usually congregate around the head, cheeks, neck and shoulders, says Johnson. "They are the most harmful because of the anemia they cause." Loss of blood can stunt growth and reduce weight gain.

Continued heavy infestations can weaken an animal, making it more vulnerable to disease or extremely cold weather. Sucking lice can extract so much blood from an animal that red-blood-cell counts can be lowered as much as 75%.

## Population control

Jack Campbell, University of Nebraska entomologist, has done studies of summer distribution of lice on cattle, checking for lice on cattle hides at slaughter. He found that "lice are present on all cattle during summer, but just in lower numbers. Lice populations usually decrease rapidly in the hot summer months but begin increasing again in the fall. The lice speed up their reproductive rate in cold weather; the time spread between egg laying and the adult stage decreases; you get more generations in a shorter time span."

Increased body contact between animals (as when cattle are congregated for feeding or are brought into corrals for weaning calves and routine working) aids spread of lice infestation. The winter hair coat gives lice increased protection and an ideal environment for reproduction.

The life cycle is usually 20-30 days, and the entire cycle takes place on the host animal, which makes lice an easy parasite to kill. The eggs are attached to the hair by the female louse and hatch in 5-14 days. The nymphs emerge looking just like adult lice, only smaller. They'll go through three molts within about a week, becoming egg-laying adults in about 14 days.

All three stages of lice (eggs, nymphs and adults) can be present at the same time on any given animal. Though direct contact is the primary means of transmission, eggs and nymphs can be transmitted by use of brushes or other equipment or by contact with feeders and fences where infested animals have rubbed.

Dislodged eggs (as when hair is rubbed off on a fence or feeder) can still hatch and infect animals that come into contact with



Any animal suspected of having lice should be treated in early fall before lice populations build up (to prevent spread of infestation), and all animals should be treated in late fall before infestation becomes severe.

## Application precautions

Each product has its advantages and disadvantages. It is important to follow label directions and recommended dosages. Avoid using more than one insecticide at a time, unless such use has been approved by your veterinarian.

Here are a few precautions with lice-control products.

**Systemic products.** Dual treatment for lice and grubs should be done after heel-fly activity ceases but before grub larvae migrate to the spinal column and the esophagus.

Grub treatments are systemic insecticides and must be used before winter to avoid toxic reactions due to grubs being killed while migrating through the esophagus or spinal-nerve canal. The dying grubs release substances that cause swelling and inflammation in the tissues, which could lead to death of the animal unless the reaction is reduced with prompt treatment.

Do not treat calves less than 3 months old or cattle under stress.

**Sprays.** When using a spray, use a high-pressure sprayer to make sure the skin and the hair are thoroughly soaked. Spraying has the drawback of causing cold stress if cattle need to be treated during cold weather. Sprays should only be applied when cattle can dry by sundown.

**Back rubbers or dust bags.** Do not locate them where spillage might contaminate water supplies. Dust bags and oilers take some time to effectively reduce a high louse population. They are used by many ranchers as a preventive rather than a control measure, and in this capacity they can help prevent population buildups.

**Pour-ons.** Be careful not to exceed the maximum recommended dosages. Apply the product along the topline of the animal from shoulders to hips. Some pour-ons should have a portion of the dose applied to the top of the neck and down the face; others shouldn't.

Know whether you are using a systemic product or a nonsystemic product. Greg Johnson, Montana State University livestock entomologist, explains that most pour-ons are nonsystemic and are formulated to travel through the hair, so the chemical travels over the whole body of the animal. Other pour-ons are systemic and absorbed into the body to kill lice, grubs and internal parasites at the same time.

them, keeping a pen or pasture infested for up to a week. If you put new cattle into a corral where louse-infested animals recently have been rubbing, lice can be transmitted to the noninfested cattle.

### Telltale signs

Bald patches of skin where cattle have rubbed are obvious indications of infestation. It may take close examination to actually see the lice on an infested animal, but a close look with the animal restrained will reveal the tiny parasites. Using good light, part the hair on the shoulders or head with your fingers. You can often see lice with the naked eye, but a handheld magnifying glass makes them easier to see. Also check for lice eggs (nits) — small white, yellow or black barrel-shaped specks attached to the hairs.

Certain animals tend to harbor abnormally high numbers of lice, even during summer. These carriers serve as a continuing source of infestation for the herd.

"A carrier is usually an older cow that always harbors an unusually high number of lice," Campbell says. "These are cows that have an immune problem and are physiologically a little different; they don't develop resistance like the other cattle."

On such animals, Campbell continues, "the lice are not killed as readily by treatments. Some lice on a carrier go ahead and lay eggs before they die. Also, the cow is carrying so many that the treatment does

not kill them all. There is a swift reinfestation on that animal, and she serves as a source of lice to reinfest the rest of the herd."

He recommends carrier animals be culled.

There is usually a difference between the severity of lice infestation between a young nonexposed animal and an older animal that has encountered lice before, Campbell says. "The young, naive animal will develop a high louse population upon first exposure, whereas the older, more immune animal will have fewer numbers of lice."

Jack Lloyd, University of Wyoming professor of entomology, agrees. Young animals more readily become infested, with lice populations becoming established rapidly and in large numbers, he says. "The older animals that have lower levels of lice most likely have gotten some sort of antigen from the lice and create antibodies."

Lloyd says carrier animals can suddenly become louse-free. His research project has purchased many carriers over the years to use as a source of lice for research. Every one they've gotten "has been very heavily infested, probably due to an immune problem. But every one has become louse-free, possibly because the immune system finally kicks in. It may take one year, or a couple, but they all lose their carrier status after a while," he says.

Lloyd has done a number of studies on

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lice and grubs and has a large research facility, maintaining various levels of parasite infestation in cattle for trials. This university facility has worked cooperatively with drug companies and has evaluated most of the products on the market today.

Lloyd has a great deal of data on lice and their seasonal dynamics. He says the cattle they receive for study harbor all species of lice (some in more concentration than others) and feels that all of these species are

probably present on cattle in most regions.

"Most trials and data concentrate on only one species of louse, but there are usually three or four on cattle," he says. "For effective treatment, you usually need something that gets both biting and sucking lice."

#### **Control the itch**

Effective control with one treatment requires a product that is highly effective

for killing both the live parasite and its eggs. Since few products are available that are effective at killing the eggs, most control protocols require at least two treatments two weeks apart. Timed properly, the second treatment will kill the lice that hatch after the first treatment before they have time to lay eggs.

Several products are available for treating lice (see table on page 220), and they come with a variety of application methods,

including dips, sprays, powders, injectables, pour-ons and ear tags.

Most experts agree that fall treatment is necessary to control lice infestations.

However, they have their own individual preferences, often affected by location, for what protocols work best.

The University of Nevada's Smith recommends treating cattle two or three times for maximum lice control.

- The first treatment should be in the

fall when treating for grubs, using a systemic compound (one that is absorbed into the animal's bloodstream, thereby killing both internal and external parasites). It's important to time use of systemic products before grubs migrate to the spinal column and esophagus (see sidebar on page 215).

- For the second treatment, Smith recommends a nonsystemic

compound administered in January.

- The third treatment, if needed, says Smith, should be applied in early spring as a nonsystemic spray or dip, or with ear tags.

Townsend feels that an annual fall spray has the best chance for complete control of lice, but he says weather can make a difference in when or if you can do it.

"Sometimes the most ideal treatment is

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not the most practical," he says. For instance, if weather is too cold to spray or if the grub treatment date is past, it's too late for systemic chemicals. Other alternatives may not be as effective, but they still give adequate control, especially if repeated later. All animals in a herd should be treated.

Campbell says most ranchers treat for lice in the fall at weaning time, and in some

regions this treatment also will get the last of the horn flies, as well as the lice and grubs.

Check with your veterinarian for advice on insecticides and which products might be best for your situation.

When treating for lice, don't mix treated and untreated animals, or the untreated ones soon will reinfest those you treated. Put treated cattle in a separate pasture.

The spread of lice can be minimized by inspecting and isolating newly purchased animals. "Any new animal should be isolated and treated, whatever time of year it's brought in, before being put with the herd," says Townsend. "Most products for lice have a two-treatment protocol, and the new animals should be kept isolated until they've had both treatments."



**Table: Lice Control Products**

Product	Delivery	Drug Type	Effective Against Which Lice Types?	Internal Parasites Also?	Grub Control?
Ivomec	SQ injectable	Avermectin	Sucking	Yes	Yes
Eprinex	Pour-on	Avermectin	Biting, Sucking	Yes	Yes
Dectomax	SQ injectable	Avermectin	Sucking	Yes	Yes
Dectomax	Pour-on	Avermectin	Biting, Sucking	Yes	Yes
Top Line	Pour-on	Avermectin	Biting, Sucking	Yes	Yes
Double Impact	SQ injectable	Avermectin	Sucking	Yes	Yes
Cydectin	Pour-on	Avermectin	Biting, Sucking	Yes	Yes
Permethrin II	Spray	Pyrethroid	Biting, Sucking	No	No
Permethrin-CDS	Pour-on	Pyrethroid	Biting, Sucking	No	No
Permethrin	Dust	Pyrethroid	Biting, Sucking	No	No
Durasect	Pour-on	Pyrethroid	Biting, Sucking	No	No
Boss	Pour-on	Pyrethroid	Biting, Sucking	No	Yes
Saber	Pour-on	Pyrethroid	Biting, Sucking	No	No
Boss	Pour-on	Pyrethroid	Biting, Sucking	No	No
Cylence	Pour-on (two doses)	Pyrethroid	Biting, Sucking	No	No
Permethrin	Dust	Pyrethroid	Biting, Sucking	No	No
Permethrin	Spray	Pyrethroid	Biting, Sucking	No	No
Atroban	Spray	Pyrethroid	Biting, Sucking	No	No
Back Side	Pour-on	Pyrethroid	Biting, Sucking	No	No
Brute	Pour-on	Pyrethroid	Biting, Sucking	No	No
Ectiban D	Dust	Pyrethroid	Biting, Sucking	No	No
Ectiban Delice	Pour-on	Pyrethroid	Biting, Sucking	No	No
Ectiban EC	Spray/Backrubber	Pyrethroid	Biting, Sucking	No	No
Exit Insecticide	Pour-on	Pyrethroid	Biting, Sucking	No	No
Gardstar	Spray	Pyrethroid	Biting, Sucking	No	No
Co-Ral	Dust	Organophosphate	Biting, Sucking	No	Yes
Co-Ral	Spray/Backrubber	Organophosphate	Biting, Sucking	No	Yes
Del-Phos	Spray	Organophosphate	Biting, Sucking	No	Yes
Prozap Dust'r	Dust	Organophosphate	Biting, Sucking	No	No
Prozap Formula 66	Spray	Organophosphate	Biting, Sucking	No	No
Prozap Malathion 57EC	Spray/Backrubber	Organophosphate	Biting, Sucking	No	No
Prozap Zipcide	Spray	Organophosphate	Biting, Sucking	No	No
Rabon Dust	Dust	Organophosphate	Biting, Sucking	No	No
Rabon 50 WP	Spray	Organophosphate	Biting, Sucking	No	No
Ravap EC	Spray/Backrubber	Organophosphate	Biting, Sucking	No	No
Tiguwon	Pour-on	Organophosphate	Biting, Sucking	No	Yes
Spotton	Pour-on	Organophosphate	Biting, Sucking	No	Yes
Warbex	Pour-on	Organophosphate	Biting, Sucking	No	Yes
Lysoff	Pour-on	Organophosphate	Biting, Sucking	No	No
Taktic	Spray (two doses)	Diamide	Biting, Sucking	No	No

Source: Robert Larson, University of Missouri

Note: This list may not be all-inclusive. Consult your herd veterinarian for product recommendations specific to your situation.