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LICE ON BEEF AND DAIRY CATTLE

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Lice are small, flat-bodied insects with legs modified for grasping hairs. They cannot survive off of the animal for more than a few days. Sucking lice, with their narrow, pointed heads, are blood feeders. Biting lice feed by scraping material from the skin and base of the hairs. The eggs, or nits, of both types are glued singly to hairs and hatch in about two weeks. The nymphs, or immature stages, resemble the adults but are smaller. They mature in about three weeks. Adults live two to three weeks and females lay about one egg per day.

Infestations of biting and sucking lice have been associated with reduced weight gains and general unthriftiness of cattle. The economic impact of these small insects has been very difficult to assess. However, it appears that an average of 10 or more per square inch are necessary to have a significant effect. Lice are most abundant on animals during the period of greatest winter stress. Many veterinarians and producers believe that losses occur and some cattlemen will treat animals for lice just for the improved appearance that results.

The potential for severe, direct losses caused by sucking or biting lice is low. Moderate to heavy infestations add to the impact of cold weather, shipping stress, inadequate nutrition, or harm from internal parasites or disease. The interaction between low levels of both lice and intestinal nematodes can reduce weight gains by more than 8%. The energy that lice "steal", coupled with other factors, can have a severe impact on animal health. Manifestations can be anemia, slow recovery from diseases, poor gains, or general unthriftiness.

Crowding or bunching of the animals at this time of year provides many chances for lice to move from animal to animal. Reduced light intensity appears to play a significant role in louse numbers on animals but nutrition, general health, immune system response, and weather are important factors.

Monitoring lice numbers

Heavily infested animals can be diagnosed easily. The most obvious signs are rubbing and clumps of hair falling out. There can be raw spots from constant attempts to groom or scratch areas where lice are abundant. Crushed lice and their feces, blood, and serum from wounds can give cattle heavily infested with the shortnosed louse "greasy" appearance. Feeding by biting lice produces a skin reaction in which the hair becomes loose. Eggs of the biting louse are laid on fine hairs and the coat takes on a matted appearance. While other factors can cause restlessness and scratching, the presence of lice determined easily be confirmed and eliminated relatively quickly.

In severe infestations, sucking lice are densely packed, creating characteristic quarter-sized black or blue-brown spots. They are less likely to move or be disturbed by skin searches. Biting lice apparently do not like to be crowded so they are usually not found in tightly packed clusters. They are active and will move readily if disturbed. Count and record the numbers and species of lice that are found; mixed infestations are common. Large lots of cattle are rarely given the close attention required to detect these small insects, especially when populations are at very low levels.

Light infestations of these external parasites are easy to overlook unless animals are inspected carefully. In these cases, the lice are usually confined to spots in preferred areas on the animal. Examination of five, one inch square areas on the face, dewlap, neck, back and base of the tail of

each animal would be a conservative protocol. Look first for nits, then part the hair carefully to look for lice. Both biting and sucking lice feed head down with their abdomens pointed out. Identify the species present and record the number found per square inch at each site. Mean numbers per square inch can be categorized as less than 5 - very slight, 5 to 10 - slight, 10 to 20 - moderate, 20 to 50- severe, more than 50 - very severe.

Lice persist over the summer months on reservoir animals. About 1 to 2% of the animals in herd can be chronically infested, with lice moving to other animals in the fall and winter. Older cows or bulls are the most likely reservoirs. The longer, thicker hair and massive neck and shoulders of bulls makes self-grooming difficult, apparently grooming can reduce lice numbers to some extent. During the hot summer months, a few lice may survive out in the ear tips where temperatures do not reach lethal levels. The chances of detecting these carriers is slim because of the amount of time it would take to search thoroughly to detect them.

Common Cattle Lice

The life cycle of biting and sucking lice have the three stages associated with incomplete metamorphosis- egg, nymph, and adult. Single nits or eggs are glued to the hair shaft. The three nymphal stages resemble the adults except they are smaller. Measurements given for the different lice species are for adults. Development time is directly related to temperature so life stage values in the following sections can vary by several days. The entire life cycle is spent on the host.

SUCKING LICE

Shortnosed cattle lice are the largest of the common species; adults are about 2/10 of an inch long. They are easily recognized by the gray-black body and relatively blunt head. There are noticeable conical bumps along the sides of the body. Shortnosed cattle lice are found more frequently on mature animals where they prefer to feed along the top of the neck and around to the dewlap and brisket. As numbers increase, these lice can be found from the base of the horns to the base of the tail.

Females attach white to brown eggs to hairs at the rate of one to four each day for about two weeks. Eggs hatch in about two weeks and the immatures, or nymphs, reach the adult stage in about two weeks. Adults live 10 to 15 days.

The longnosed cattle louse has a slender, pointed head and a narrow bluish black body. It is more commonly seen on calves and dairy stock and rarely occurs in large numbers on mature animals. This louse is usually most abundant on the dewlap and shoulders but will spread over the entire body when animals become heavily infested. As the weather warms in the spring, and numbers drop, they are usually seen last on the shoulders. Females deposit an egg a day during their life. The complete life cycle takes about 3 weeks.

Little blue cattle lice are found most often in small clusters on the muzzle, neck, and dewlap of mature cattle. Clusters of lice around the eyes cause heavily infested animals to look as if they are wearing glasses. Females lay one to two eggs a day and the hair to which an egg is attached is typically bent at an angle. The eggs hatch in about 10 days and the nymphal stages require about 11 days. Little else is known about the details of the life cycle.

BITING LICE

The cattle biting louse is easily recognized by its large, bluntly triangular head and a yellow-white body with dark bands. Eggs hatch in about 10 days and development to the adult takes about a month. Adults may live for up to 10 weeks. Biting lice are most commonly found in colonies or "patches " at the base of the tail, shoulders, and top line of the back. Skin around colonies of this louse can have the appearance of mange lesions.

Prevention

A high-energy diet seems to reduce the effects of cattle lice on weight gains, perhaps because lice populations decline on better-fed cattle. A sound feeding program and high energy ration serves as the foundation of a louse control program.

Lice are spread primarily by direct animal to animal contact, such as feeding or shipping. Some louse and egg transfer could occur from hair left on fences, truck rails, or bedding. Sucking lice usually die after just a few hours off of the host but biting lice can survive for several days under ideal conditions. A clean-up and insecticide application to facilities used by infested animals or a 10 day

interval before introducing new stock will minimize the chances of carryover.

In enterprises where animals are added to the inventory on a regular basis, it is best to assume that all purchased animals are infested. They should be isolated from the resident animals until their full course of treatment is completed. Cross fence contact can be sufficient for spread of these insects, especially during the winter when louse burdens are greatest.

Lice are usually suppressed in herds that are treated routinely for horn flies, face flies, or ticks. Whole animal sprays to runoff can provide excellent control of active lice but nits will not be killed. Lice populations can continue to thrive if follow-up sprays are not made at proper intervals. Ear tags or other self application devices do not provide the coverage of sprays. A residual louse population may survive in protected areas on some animals. It is prudent to inspect animals for lice in the fall and treat then if necessary.

Control Considerations

Systemic products

Lice can be controlled by a thorough treatment program with an appropriate systemic insecticide / parasiticide or non-systemic insecticide. If the louse status of the herd is unknown, it is best to assume that they are present and treat.

Many of the new systemic parasiticides, such as doramectin, eprinomectin, ivomectin, or moxidectin, provide long term louse control following a single application. However, winter applications of these, or one of the systemic organophosphate insecticides (coumaphos, famphur, fenthion, phosmet, or trichlorfon), may trigger an adverse host- parasite reaction if cattle grub larvae are in a critical stage of their migration in the animals.

The organophosphate insecticides generally require two applications, at intervals specified on the label. Check the label for lice species that are controlled, some products may not be efficacious against biting lice or tail lice. Do not apply pour-on formulations of these products to lesions or areas covered with mud or manure. Follow any withdrawal times specified on the label.

Non-systemic insecticides

If lice outbreaks are detected during the winter months in herds not treated for cattle grubs, then non-systemic insecticides with active ingredients such as *lambda*-cyhalothrin, cyfluthrin, or permethrin must be used. A variety of formulations, pour-ons, spot-ons, dusts or ear tags, can be applied to cattle during cold weather. Dust bags or back rubbers may be used to dispense these products, as well. Coverage on the animal may not be thorough with low volume treatments but should be sufficient to knock down heavy infestations and greatly reduce stress on the animals. Residual populations of lice may remain on animals for some time after treatment. Live little blue cattle lice around the eyes may survive, as well as a few longnosed cattle lice on the brisket, back legs, and hock joints, especially if insecticidal ear tags are used for louse control.