Lice Control in Cattle

Is It Worthwhile?

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CATTLE lice are parasitic insects which depend on their hosts for a place to live and for food.

Lice are relatively large, when compared with other disease-causing organisms. Therefore, when cattle fail to thrive and an examination is carried out to determine the reason, lice are often the first possible factor detected. This raises the question: are lice a symptom or a cause of ill thrift?

Four species of cattle lice have been recorded in New Zealand. They are, in probable order of importance: Linognathus vituuli, long-nosed cattle louse; Damalinia hordei, biting louse; Solenopotes capillatus, curvisterus, short-nosed cattle louse.

Cattle lice have received little attention in the past, but now, with several chemical companies investing in large-scale advertising programmes, farmers are becoming more aware of the possible effects of lice on their beef and dairy cattle. Data used to substantiate the claims made in some of the advertisements are inadequate and it is very doubtful whether the benefits claimed often accure.

Sucking lice feed by sucking blood from their host, while biting lice live on skin debris rather than living tissue.

An extreme infestation of long-nosed sucking lice on escutcheon of calf suffering from malnutrition and a severe internal parasite burden.

All species of lice occur in small numbers during the summer but in autumn populations increase rapidly and may peak and remain high throughout winter only to crash in spring. Calves are an exception, because louse populations reach a peak in the summer if the hosts were autumn born. Some breeds of cattle have been reported as being more susceptible to louse infestation than others but an even wider difference in susceptibility can occur within a breed. It appears that only 1 per cent to 2 per cent of cattle are highly susceptible, and, consequently, are "infestors".

Louse damage can be divided into two categories: firstly, irritation, which leads to the cattle rubbing against fences and other objects, sometimes causing damage to these articles as well as their own hides, and, secondly, damage caused by blood-sucking activities in the case of Linognathus.

Overseas the question of economic importance has been investigated in some detail but often with conflicting results as the following extracts from publications illustrate.

(1) "When free of lice, beef cattle gain more weight and dairy cows produce more milk."

(2) "Calves, young stock, and old, weak, poorly nourished cattle suffer most from the ravages of lice. Heavily infested calves do not grow and thrive or gain weight normally during the winter season, and often remain stunted until the old coat of hair is shed in the spring, when most of the lice disappear. The animals then may grow and fatten, but the loss experienced during the period of arrested growth is a loss not easily regained. Lice act as a contributing cause to increase the death rate among poorly nourished cattle of low vitality, especially old range cows exposed to inclement weather. Although mature cattle in full vigour suffer less seriously from infestation with lice, nevertheless if they become very lousy they will not gain weight and there will be a loss in the production of either meat or milk."

(3) "These parasites, although
very small, can be responsible for serious financial losses as their presence leads to retarded growth rates and reduced milk yields."

(4) "An examination of the North American literature on cattle lice revealed that they are considered by many to be a major economic problem of the livestock industry."

(5) "Lice are among the most important and widespread external parasites of livestock in the United States. Although losses attributable to these pests have not been ascertained, they add up to a significant figure."

(6) It was stated that every winter, cattle lice are serious pests in the northern United States. Lowered vitality, retarded growth rates, reduced milk production, and continual irritation, have been attributed to louse infestations. Such attributions appear in the literature as undocumented generalisations; further literature search failed to reveal the research on which these generalisations have been based.

(7) It was demonstrated that very heavy populations of *Haematopinus eurysternus* (Nitzsch) cause severe anaemia and death in cattle, but there appears to be little or no critical information available on the effects that moderate or light populations of cattle lice may have on the host.

(8) From weight-gain trials it was found that louse-free cattle did not gain weight significantly faster than lousy cattle under the conditions of the experiment. It was concluded that (in Montana) cattle lice are of minor economic importance and that control measures are probably of little or no economic benefit on more than 95 per cent of the cattle in the State.

(9) It was considered that the loss caused by cattle lice was serious even when the cattle were fed adequate rations.

(10) Biting louse infestations were found to be heaviest on cattle maintained on low rations while others (11) reported similar findings when dealing with *Haematopinus eurysternus*. These supported the comments in that they found no correlation between average daily weight gains and the lice counted on an animal.

At Wallaceville, two trials have been run by the author to examine whether lousiness adversely affects weight gain. Trial 1 involved mainly biting lice and Trial 2 mainly long-nosed sucking lice. Results are shown in the accompanying tables.

**Trial 1** was carried out near Feilding (150km north of Wellington).

Twenty rising two-year-old Belted Galloway steers which had been running together for some months were selected. The first ten cattle to enter the race were assessed for lice, and drenched for helminths with thiabendazole. The remaining ten cattle were weighed, drenched and sprayed with dazuron; a second spraying was given 14 days later.

Both groups were kept in separate paddocks throughout the trial. Supplementary feed (hay and potatoes) was given equally to each group when required. The groups alternated between two paddocks on a weekly basis and every four weeks both groups were drenched. All animals were rated for lice every four weeks.

**Trial 2** was located at Pirinoa (southern Wairarapa) and, initially, involved 40 calves approaching yearling status. The calves were of mixed breed with Angus, Shorthorn, and Hereford traits being the most evident.

The herd was divided into two on a weight basis and one group was treated for lice by spraying twice, 13 days apart. All were drenched and assessed for lice at four-weekly intervals throughout the trial period. Animals here grazed on a weekly rotation basis through several paddocks.

**Trial 1** was run under difficulties.

**RESULTS OF TRIALS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Lousy Group</th>
<th>Louse-free Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean weight (kg)</td>
<td>Biting louse Mean rating</td>
</tr>
<tr>
<td>June 10</td>
<td>326</td>
<td>0.9</td>
</tr>
<tr>
<td>July 8</td>
<td>329</td>
<td>2.4</td>
</tr>
<tr>
<td>Aug. 5</td>
<td>336</td>
<td>4.6</td>
</tr>
<tr>
<td>Sept. 23</td>
<td>348</td>
<td>11.1</td>
</tr>
<tr>
<td>Oct. 26</td>
<td>343</td>
<td>10.4</td>
</tr>
</tbody>
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Mean total gain: 17kg
Gain as percentage of initial weight = 5.2 per cent

Mean total gain: 25kg
Gain as percentage of initial weight = 7.1 per cent

Statistical significance:

1 = 1.047 indicating no significant difference in weight gain between the two groups.
Associated with the ferocity of the cattle involved, necessitating some compromise in the selection of groups and louse assessments.

The lousy group may have fetched a lower price, on the basis of poorer coat condition, i.e. auctioned. Selling after the loss of the winter coat (November, in the Wellington region) would eliminate this difference in appearance.

The louse burden (D. bovis) was high and almost certainly can be considered to be above average for untreated stock.

Trial 2 was run under near ideal conditions, there being more beasts and a greater weight gain associated with younger animals on better pasture.

Lice (L. vituli) were never present in great numbers but were comparable with those found on an untreated herd of 50 bulls of similar age being studied near Masterton.

It appears that under the two sets of conditions studied it would not have been economic to treat for lice if the criterion was improved weight gain. By the end of the trial the two groups were not distinguishable on coat condition, so their market value would not have differed.

After weight gain and coat appearance, a third point to be considered is the problem of lousy cattle causing damage to fences and gates when scratching. Clearly, this would not apply where enclosures are properly maintained and are of solid construction, but in any event, it is doubtful whether the difference between lousy and louse-free groups is significant; louse-free cattle suffer irritation with winter coat fall and also rub at this time.

Under the conditions of the two trials, which are considered to be typical of both poor and good growth, no economic benefit from louse treatment could be demonstrated.

Investigations into claims of increased milk yield from dairy herds following treatment for lice have been made. Milk production figures of herds treated with insecticide have often shown marked increases but when these increases have been compared with neighbouring untreated herds, and district averages, no significant difference has been detected, thus the rise in production cannot be attributed to a new freedom from lice.

Two further factors require attention when considering treatment for lice:
- Most preparations cannot be used on lactating cows.
- Beef animals are subject to a withholding period before slaughter, after being treated with some products. Labels, by law, specify restriction and should always be consulted.

If the criteria on which treatment is to be judged are added weight gain or increased milk production, it appears that treatment for cattle lice is probably uneconomic. However, if cattle are to be auctioned, the cosmetic effect of louse treatment by spraying may well prove economic — whether or not lice are present before treatment being unimportant.

It follows, therefore, that lice generally may be considered as indicators of ill thrift rather than the causative agents.