The Persistent Activity of Topical Ivermectin Against *Bovicola bovis*

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The biting louse *Bovicola bovis* is an important ectoparasite of cattle from health, welfare and economic points of view during the winter months, particularly in housed cattle.[1,2] In the only large survey of lice of cattle conducted in the UK in the last 20 years,[3] *bovicola bovis* together with *Linognathus vituli*, the long nose sucking louse, were found to be the most prevalent species. There is no antagonism between species and it is not uncommon for cattle to be infested with both species simultaneously.

Whilst there are a number of topical insecticides available for the treatment of lice, until the introduction of the avermectins and closely related milbemycins, no single product could provide control of lice and other important external parasites as well as the economically important endoparasites. As a result of the broad spectrum endo-and ectoparasitic activity of these endectocide products, they have now become the treatment of choice when cattle are housed. However, although they demonstrate a high level of efficacy against the three species of sucking lice, ivermectin as a topical formulation (IVOMEC® Pour-on, MSD Agvet) is also fully effective against the biting louse *Bovicola bovis*.[4]

With the very high level of efficacy of topical ivermectin against both biting and sucking lice, it is reasonable to expect that following treatment, housing cattle would remain free of lice during the winter. The only risk to this strategy would be from the introduction of untreated cattle with lice as could arise when batches of cattle are housed over a period of several days or weeks and are placed in pens adjacent to treated animals. Under these circumstances there could be a risk of reinfection of the treated animal.

The persistent effect of ivermectin against a range of the economically important gastro-intestinal and lung nematodes of cattle has already been established. This study was designed to investigate persistent activity against *B. bovis* and to determine the duration of any such activity. Twelve Limousin x Friesian heifer calves free of lice were randomly allocated to two groups of six; an unmedicated control group and a group treated with a 0.5% solution of ivermectin administered topically. The product was applied as directed, along the dorsal midline from the withers to the tail, at a dose rate of 1 ml/10 kg body weight (500 mcg ivermectin/kg), contact between the groups.

On Day 14 a group of four donor calves, heavily infested with *B. bovis*, was introduced into each pen of trial animals to serve as a continuous challenge to each group. During the course of the study the louse counts started to decline on the donor calves and, in order to maintain the challenge to the ivermectin treated calves, another four calves heavily infected with *B. bovis* were substituted on Day 35 of the study to replace the four original donors.

Louse counts were performed on Day 0, and a weekly intervals until the end of the study on Day 55. Similarly, counts were conducted on the donor calves on Day 14, just before they were mixed with the trial animals, and thereafter at weekly intervals until Day 55. One week after introduction of the donor calves, five of six control calves were infested with *B. bovis*; thereafter, all controls were positive for lice at each inspection. During the following three weeks the geometric mean count rose to a peak mean of 94.8 on Day 42. In contrast, lice were not detected on any of the treated calves until Day 49, seven weeks after treatment with topical ivermectin, when one animal had four lice, By Day 55 infestation was present on four of the six ivermectin-treated animals and the study was terminated. It was concluded that treatment with topical ivermectin prevented establishment of lice infestations for up to 7 weeks post treatment, in the face of heavy challenge.

References

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Proceedings XIX World Buiatrics Congress, Edinburgh, Scotland, July 8-12 1996