ECTOPARASITES OF VETERINARY AND MEDICAL IMPORTANCE IN TEMPERATE AREAS

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The prevalence and control of cattle lice

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Whilst cattle lice cause irritation and restlessness there are conflicting opinions amongst farmers and research workers concerning their effects on livestock production. Under New Zealand conditions Chalmers and Charleston (1980a) found no significant difference in weight gain or haematocrit levels between louse-infected and louse-free animals. Cummins and Tweedle (1977) were also unable to demonstrate a response to treatment in Australia. In America significant weight responses to treatment have been reported (Snipes 1948; Collins and Dewhirst 1965).

Due to the high costs of development most commercial companies are interested in assessing new chemicals for ectoparasite control against a wide range of insects and acari of veterinary importance. Cattle lice can cause considerable damage to the coat and many farmers are prepared to treat animals for the improvement of appearance that follows lice control. The purpose of this study was to find sufficient numbers of infested animals on local farms to evaluate some existing and developmental chemicals for lice control, particularly the synthetic pyrethroids.

Survey

During the winters of 1981 and 1982 a survey was carried out on 100 farms in Ayrshire. Ten calves on each farm were carefully examined for lice and an assessment made of the level of infestation. Samples of lice were taken for identification. The results of this survey are given in Table 1. All of the four louse species recorded from U.K. were observed. Of these, the long-nosed cattle louse, *Linognathus vituli* and the biting louse, *Damalinia bovis* were the most common. The short-nosed cattle louse,

Haematopinus eurysternus and *Solenopotes capillatus* were less common. These findings are in agreement with observations made on calves in New Zealand (Chalmers and Charleston 1980b).

In comparison with a previous survey of cattle lice in Great Britain by Craufurd-Benson (1941) the relative frequency of *L.vituli* is much greater whilst that of *H. eurysternus* much less. The abundance of *L. vituli* could be explained by the survey being concerned mainly with dairy calves and conducted in an area of high rainfall, since both of these factors have been shown to favour this species (Roberts 1938; Crauford-Benson 1941). *H. eurysternus* infestations are more often observed in older animals (Scharf 1962) and it is not surprising this species was infrequent since most calves examined in this survey were approximately 12 weeks of age.

Whilst infestations of a single species of lice on an animal were most frequently observed (Table 2) there was no evidence of antagonism between lice species as described by Lewis *et al* (1967). Double infestations mainly *L. vituli* and *D. bovis* were common and there were a few cases of triple infestations. No animal was found to harbour all four lice species.

Chemical trials

None of the calves in the survey had been treated for lice and most farmers were surprised to find such young animals so heavily infested. A moderate or severe louse problem was observed on a total of 47 farms (Table 1) which were then used for chemical control trials.

Following manufacturers instructions two applications of a standard louse powder containing HCH gave good control of *D. bovis* and *L. vituli*. On some animals a few *L. vituli* survived both treatments. At the concentration used for warble treatment (10 ml per calf) phosmet as Poron-20 (R. Young & Co. Ltd.) gave complete control of *D. bovis* and

L. vituli on calves. These results conflict with those obtained in New Zealand where phosmet proved less efficacious against *L. vituli* (Kettle and Lukies 1979; Kettle and Watson 1981).

Cypermethrin spray (Barricade, Shell) when lightly applied at the concentration suggested for fly control gave complete clearance of all species of lice after one treatment. This method of application was particularly suitable for larger calves loose housed. Cypermethrin when incorporated in a plastic ear tag (Shell) gave good control of *D. bovis* and *H. eurysternus*. On two animals moderate numbers of *L. vituli* survived 4 and on one animal 6 weeks after insertion of the tag. In comparison with the cypermethrin spray the cypermethrin tag had little effect on *S. capillatus* located around the eyes of animals. This is one of the favoured feeding sites of this species. Deltamethrin (Wellcome) as a spot-on treatment proved highly effective against *D. bovis*, *L. vituli* and *H. eurysternus*. Two weeks after application this compound had completely cleared lice from the head and body of animals except for a few *L. vituli* in the hock joints. This residual population of *L. vituli* disappeared by 6 weeks post treatment.

References

CHALMERS, K. & CHARLESTON, W.A.G. (1980). Cattle lice in New Zealand: effects on host liveweight gain and haematocrit levels. N.Z. vet. J. 28: 235-237.

CHALMERS, K. & CHARLESTON, W.A.G. (1980). Cattle lice in New Zealand: observations on the prevalence, distribution and seasonal patterns of infestation. N.Z. vet. J. 28: 198-200.

COLLINS. R.V. & DEWHIRST, L.W. (1965). Some effects of the sucking louse, *Haematopinus eurysternus* in cattle on unsupplemented range. J. Am. Vet. Med. Ass. 146: 129-32.

CRAUFURD-BENSON, H.J. (1941). The cattle lice of Great Britain. Parasitology. 33: 331-358.

CUMMINS, L.J. & TWEEDLE, N.E. (1977). The influence of light infestations of *Linognathus vituli* on the growth of young cattle. Aust. vet. J. 53: 591-592.

KETTLE, P.R. & LUKIES, J.M. (1979). The efficacy of some pour-on insecticides for the control of long-nosed sucking lice (*Linognathus vituli*) on cattle. N.Z. vet. J. 27: 78-79.

KETTLE, P.R. & WATSON, A.J. (1981). The efficacy of phosmet as a "pour-on" for the control of long-nosed sucking lice (*Linognathus vituli*) on cattle. N.Z. vet. J. 29: 187-188.

LEWIS, L.F., CHRISTENSEN, D.M. & GAINES, W.E. (1967). Rearing of long-nosed cattle louse and cattle biting louse on host animals in Oregon. J. Econ. Ent. 60: 755-757.

ROBERTS, F.H.S. (1938). Cattle lice; their economic importance in Queensland. Aust. vet. J. 14: 55-58.

SCARF, D.K. (1962). An investigation of the cattle lice problem. J. Econ. Ent. 55: 684-688.

SNIPES, B.T. (1948). Beef cattle freed of lice in one treatment control. Agric. Chemicals. 3: 30-34.

TABLE 1. LOUSE INFESTATION ON A SAMPLE OF 100 AYRSHIRE FARMS

LEVEL OF INFESTATION		SPECIES OBSERVED	
Severe	25	*Linognathus vituli*	56
Moderate	22	*Damalinia bovis*	48
Slight	33	*Haematopinus eurysternus*	11
None	20	*Solenopotes capillatus*	7

TABLE 2. SINGLE AND MULTIPLE LOUSE INFESTATION ON 100 AYRSHIRE FARMS

SINGLE INFESTATION		DOUBLE INFESTATION		TRIPLE INFESTATION	
L. vituli	28	*L. vituli D. bovis*	18	*L. vituli D. bovis H. eurysternus*	6
D. bovis	17	*D. bovis H. eurysternus*	3	*L. vituli D. bovis S. capillatus*	1
S. capillatus	1	*D. bovis S. capillatus*	2	*D. bovis H. eurysternus S. capillatus*	1
		L. vituli S. capillatus	2		
		L. vituli H. eurysternus	1		
TOTAL	46	TOTAL	26	TOTAL	8