Blowfly strike and wool growth. 1. Role of anorexia in mediating effects on wool

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Blowfly strike initiated by *Lucilia cuprina* has profound effects on wool growth and quality. This experiment investigated mechanisms for these effects by testing the following hypotheses:

1. The effect of fly strike on wool growth is mediated primarily by reduced feed intake
2. Effects on wool growth are not influenced by proximity to the strike site

Finewool Merino wethers (18 months old) were placed in individual pens in a fly–proof animal house 28 days before allocation to treatments, and offered an *ad libitum* diet of wheaten chaff with 2% urea and 0.2% mineral mix. Treatments allocated on day 0 were: Control (***C,*** n = 6) uninfected; Fly Struck (***FS,*** n = 5) infected with 500 1st instar *L. cuprina* larvae on days 0–7; Pair Fed Control (***PFC,*** n = 5) pair fed with a ***FS*** sheep. Pair feeding was continued until day 42 when the animals were returned to pasture. Feed intake was monitored daily and wool growth measured by autoradiography at three sites (10 and 20 cm from the mid–side infection site and opposite mid–side); 0.01 µci of ^{35}S–cysteine in 0.2 ml was injected intradermally at each site on days –14, 0, 14, 28 and 42. Wool was harvested on day 52 for autoradiographic analysis. Further wool samples were collected from each site on day 164 for staple strength and length measurement. Animals were shorn a week later.

Results are presented as mean ± S.E.M. Struck sheep developed moderate areas of myiasis (452 ± 102 cm^2) associated with fever and reduced feed intake (Figure 1). ***FS*** or ***PFC*** treatments had no effect on final fleece weight but ***FS*** significantly reduced staple strength (27.0 ± 2.6, 12.8 ± 2.6 and 23.4 ± 1.7 for ***C***, ***FS*** and ***PFC*** respectively, P<0.05). Autoradiography revealed significant depression in wool growth during days 1 to14 in ***FS*** sheep (Figure 2) and overall depression of wool growth relative to ***C*** of –20.4% over days 1 to 42. In contrast, ***PFC*** sheep had a non–significant depression of 5.5% over the same period. There was no effect of site on any variable.

These results confirm the effects of moderate flystrike on wool growth and staple strength (Broadmeadow *et al*. 1983), but show that only about a quarter of the effect (27% in this experiment) can be attributed to reduced feed intake. They also show that proximity to the strike site does not influence the effects on wool, suggesting that the mechanisms involved are systemic.

Broadmeadow, M., Butcher, G., O'Sullivan, B.M. and Hopkins, P.S. (1983). Effect of flystrike on wool production and economic returns. *Sheep Blowfly and Flystrike in Sheep,* pp. 48–51 (ed. H.W. Raadsma), NSW Agriculture.

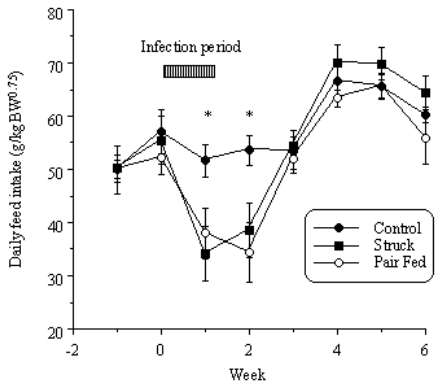

Figure 1 Voluntary feed intake from 2 weeks before, to 6 weeks after treatments were initiated (*P<0.05).

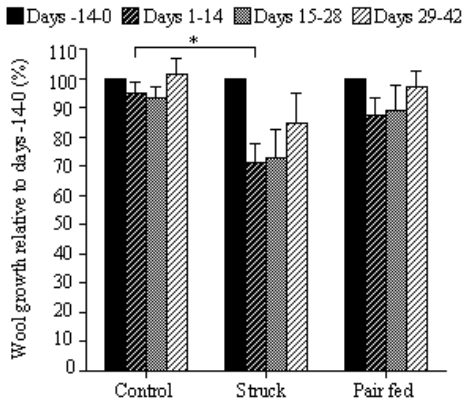

Figure 2 Wool growth relative to pre–treatment values, from autoradiographic measures of fibre diameter and length (* P<0.05).