

EFFICACY OF LOW RESIDUE LONG WOOL LOUSE CONTROL TREATMENTS

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Changing environmental legislation in major wool markets may lead to marketing difficulties for wool containing high levels of insecticide residues. A large proportion of the total Australian wool residue load results from long wool treatments for lice and flystrike control. This study tested the effectiveness of potential low residue methods for controlling lice infestations in long wool sheep.

Lice were counted in 24, 10 cm wool partings along the sides of 30 medium wool merino sheep with 11 months wool. The sheep were then allocated to four treatment groups and a control of 6 sheep each, balanced for pre-treatment louse counts. The treatments used were spinosad (Extinosad®) applied at concentration of 25 mg/L, a mixture of magnesium fluorosilicate at 2025 mg/L, rotenone at 75 mg/L and sulfur at 1535 mg/L (Flockmaster MkII®), an insecticidal soap registered for use against plant pests with active constituents mixed at 1793 mg/L potassium oleate, 1627 mg/L potassium linolate, 91 mg/L potassium palmitate and 58 mg/L potassium stearate (Natrasoap®) and water. Sheep in the control group remained untreated. All treatments were applied by hand jetting using a Dutjet® handpiece with a 5 hp centrifugal pump which delivered 5.5 L from the handpiece in 20 seconds. Sheep were jetted with one sweep of the handpiece along each side of the backline, timed to deliver 5.5 L per animal. The degree of penetration into the wool was monitored by the addition of 0.4 g/L methylene blue to the jetting fluid. Sheep were inspected and louse numbers assessed as above at 1, 2 and 6 weeks after treatment, except for the water treated group which was removed from the study after week one because of flystrike risk. Louse counts were analysed after log transformation by one way analysis of variance within dates with pre-treatment louse count as a covariate.

Methylene-blue marking indicated that all treatments, except for water, gave relatively good treatment coverage. However, there were some unmarked areas, particularly low on the back legs on sheep in most groups. Change in louse densities over the period of the study is shown in Figure. 1.

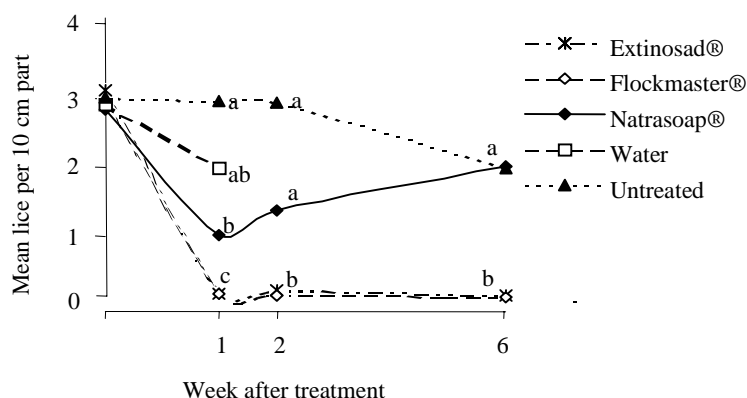


Figure 1. Louse counts (\pm standard errors) before and after treatment. Data points within times marked with different letters are significantly different ($P < 0.05$)

The reductions in louse densities at 1 and 6 weeks after treatment, calculated using the formula of Henderson and Tilton (1955), were 98% and 98% respectively for Extinosad, 98% and 99% for Flockmaster, 66% and 0% for Natrasoap and 32% at 1 week for water. The only live lice found on sheep treated with Extinosad or Flockmaster were in unmarked areas of the fleece, demonstrating the importance of thorough application for good control. This study provided a severe test of the treatments in that the sheep were carrying 11 months wool and were moderately to heavily infested.

HENDERSON, C.F. and TILTON, E.W. (1955). *J. Econ. Entomol.* **48**, 157-61.

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