Comparison of the production effects of two different long acting pre-lamb treatments in poor conditioned twin bearing ewes

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Study objective

The aim of the study was to determine if there was any benefit on production from treating poor conditioned twin bearing ewes with a long acting anthelmintic product pre-lamb and to ascertain if there was any difference between the two treatment options.

Method

This study was a single site, negative control comparative productivity study, with the assessment of productivity based on the body weight and condition score (CS) of twin bearing ewes and the body weight of their lambs. On this farm, the majority of the animals were in poor condition, so the trial was limited to this ‘class’ of stock only. A total of 599 mixed age twin bearing ewes (Average CS 2) were sequentially drafted into three equal groups (Table 1). All ewes were given a 5in1 clostridial vaccine (Ultravac® 5in1). The negative control group received no anthelmintic treatment pre-lamb. The other two groups received either a Bionic® Hi Mineral Combination Sheep Capsule (abamectin 160mg and albendazole 4.62g) or an injection of Cydectin® Long Acting Injection For Sheep (moxidectin 20mg/ml) four weeks prior to the start of lambing. All ewes were body condition scored (0–5 scale) and weighed at pre-lamb, docking (65 days after treatment) and at weaning (127 days after treatment). Faecal egg counts (FEC) and larval cultures were taken at these three times. The lambs were matched to the ewes at weaning by udder painting and weighed. The ewes were set stocked as one mob after treatment and kept together within this area throughout the trial period.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number of ewes</th>
<th>Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative control</td>
<td>199</td>
<td>1ml Ultravac 5in1</td>
</tr>
<tr>
<td>Cydectin LA injection</td>
<td>200</td>
<td>1ml Ultravac 5in1 3.5ml Cydectin LA Inj.</td>
</tr>
<tr>
<td>Bionic Hi-Min Capsule</td>
<td>200</td>
<td>1ml Ultravac 5in1 1 Bionic Capsule</td>
</tr>
</tbody>
</table>

Table 1. Treatment groups, number of ewes and treatments administered at pre-lamb

Results

FEC results

The faecal egg counts at docking (Figure 1) showed a marked reduction in the treatment groups compared to
the control. At weaning all groups had low counts due to the ewes’ immunity reducing the parasite burdens. The Cydectin LA group was significantly lower than the controls at this time.

Figure 1. Arithmetic mean faecal egg count results from each treatment group of ewes at pre-lamb, docking and weaning.

Larval culture results

The larval cultures at both pre-lamb and weaning were similar for treatment and control groups. The predominant species present was *Cooperia* but this was accompanied by smaller numbers of *Haemonchus, Trichostrongylus* and *Teladorsagia*.

At docking the population within all groups had changed substantially (Figure 2). The predominant parasite represented in the control group was now *Haemonchus*, with smaller numbers of *Cooperia, Trichostrongylus* and *Teladorsagia* present. Both treatment groups had higher proportions of *Teladorsagia* and *Trichostrongylus*, compared to the control. This is most likely a result of these species having drench resistance.

Figure 2. Larval culture results showing the parasite species present within each treatment groups of ewes at docking.
Ewe weights

At weaning both ewe treatment groups were significantly heavier (Ave=3.5kg, p<0.0001) than the non-treated ewes. There was no significant difference in weight between the treated groups.

![Live weight of ewes](Image)

Different superscripts in the same column are statistically different (p<0.0001).

**Figure 3.** Live weight of ewes at pre-lamb, docking and weaning.

Condition score of ewes

The proportion of ewes with condition scores <3 increased substantially by weaning in all groups but both treatment groups had significantly (p<0.0001) more better conditioned ewes than the control group (Figure 4).

![Proportion of ewes less than CS3 or ≥ CS3](Image)

Different superscripts in the same column are statistically different (p<0.0001).

**Figure 4.** The proportion of ewes at pre-lamb, docking and weaning with condition scores <3 or ≥3.

Lamb weights

The lambs from both treatment groups were significantly heavier (Ave=2.6kg, p<0.0001) at weaning. There was no significant difference in the weight of the lambs between the treatment groups.
Different superscripts are statistically different (p<0.0001).

**Figure 5.** The average weight of lambs at weaning from each of the treatment groups.

## Return on investment

The return from treating poor conditioned twin bearing ewes with either Cydectin LA Injection or Bionic Capsules was substantial from both a financial (Table 4) and feed saving viewpoint. Ewes that wean at condition score ≥3 do not require extra feeding above maintenance before mating. This extra feed can then be used to either get light ewes up to weight or to fatten lambs. The extra 3.5 kg of weight on the treated ewes is worth approximately 100KgDM per ewe. This equates to a substantial saving in feed, when applied to the whole flock.

<table>
<thead>
<tr>
<th></th>
<th>Cydectin LA</th>
<th>Bionic capsule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of ewe live-weight gain ($/1.36/kg LW)</td>
<td>$4.49</td>
<td>$5.03</td>
</tr>
<tr>
<td>Value of lamb live-weight gain ($/2.00/kg LW) per ewe</td>
<td>$8.74</td>
<td>$8.74</td>
</tr>
<tr>
<td>Total benefit</td>
<td>$13.23</td>
<td>$13.77</td>
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<tr>
<td>Cost of treatment*</td>
<td>$2.62</td>
<td>$3.50</td>
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<tr>
<td>Net benefit</td>
<td>$10.61</td>
<td>$10.27</td>
</tr>
</tbody>
</table>

Overall lambing % was 168% therefore assume 1.68 lambs per ewe. *retail price as at August 2014

**Table 4.** Cost benefit comparison for pre-lamb treatments of poor conditioned ewes with either Cydectin LA injection or Bionic Capsules.

## Conclusion

Treating twin bearing ewes that are in poor condition pre-lamb, with long acting anthelmintic treatments (Cydectin LA or Bionic Capsules) results in both a significant increase in body weight of the ewe (Ave=3.5kg) and lamb (Ave=2.6kg) by weaning. No significant difference was demonstrated between the two treatments in either the weight of the ewe or the lambs by weaning.