1988

Surface drainage trial.

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Laser levelling demonstration areas at Vasse Research Station have improved surface drainage and reduced waterlogging, flooding and salt accumulation.

Re-seeding these laser treated areas has resulted in greater pasture productivity and stock carrying capacity. The overall cost of this exercise has to be met by increased animal productivity.

In 1986 an experiment was established.

1) To quantify the response of annual pastures to improved surface drainage by laser levelling.

2) From the pasture response data determine the cost/benefit ratio of pasture improvement following laser levelling.

A randomised block design contained four replications of 3 treatments, viz.

A) Control - no laser levelling, no reseeding
B) Pasture renovation - light cultivation and reseeding
C) Laser levelling and reseeding.

All 12 plots are stocked by wethers according to the amount of pasture available.

RESULTS AND DISCUSSION

Throughout the 1988 growing season only small differences between treatments were recorded in pasture on offer, pasture growth rates and total pasture production.

The slightly lower August/September stocking rates in treatments (B) and (C) was offset by slightly higher stocking rates in October/November.

These results differ markedly from the 1987 growing season where the treated plots (B and C) had significantly lower pasture growth rates and stocking rates than the untreated control plots (A).

It appears that the response to the (B) and (C) treatments is occurring but at a much slower rate than was expected, and what would be economically acceptable. A possible reason for the sluggish response is the position of the trial site on the lower part of a flattish drainage area. This has resulted in the high salty water table adversely affecting all plots. Furthermore, rapid surface drainage runoff from the laser plots (C) has been restricted by low gradients into the overall farm drainage system.

The laser plots were certainly better drained but unfortunately were uniformly waterlogged for extended periods, in contrast to the control plots which had reasonably well drained productive "mounds" surrounded by a "winter lake" system.

This trial will continue until December 1989.
### Mean 1988 pasture assessment *

<table>
<thead>
<tr>
<th></th>
<th>Control (A)</th>
<th>Renovation (B)</th>
<th>Laser + reseeding (C)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pasture on offer (t/ha)</td>
<td>2.4</td>
<td>2.3</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Total pasture produced (t/ha)</td>
<td>6.2</td>
<td>6.0</td>
<td>6.3</td>
<td>6.1</td>
</tr>
<tr>
<td>Pasture growth rates (kg/ha/day)</td>
<td>32</td>
<td>31</td>
<td>33</td>
<td>32</td>
</tr>
<tr>
<td>Visual composition subclover (%)</td>
<td>12</td>
<td>20</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>grass (%)</td>
<td>23</td>
<td>18</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>others (%)</td>
<td>65</td>
<td>62</td>
<td>56</td>
<td>61</td>
</tr>
<tr>
<td>Stocking rate (sheep/ha) **</td>
<td>10.8</td>
<td>9.8</td>
<td>11.0</td>
<td>10.5</td>
</tr>
</tbody>
</table>

* Mean of 7 observations at three weekly intervals from July through to November.

** S.R. data recorded from July to December.