1980

Grass control and minimum tillage herbicides

J. E. Holmes

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# EXPERIMENTAL SUMMARY 1980

## GRASS CONTROL AND MINIMUM TILLAGE HERBICHIDES

<table>
<thead>
<tr>
<th></th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Bromegrass</td>
<td>1</td>
</tr>
<tr>
<td>b) Wild oats</td>
<td>8</td>
</tr>
<tr>
<td>c) Ryegrass</td>
<td>11</td>
</tr>
<tr>
<td>d) Barley grass</td>
<td>12</td>
</tr>
<tr>
<td>e) Pasture manipulation</td>
<td>14</td>
</tr>
<tr>
<td>f) Atrazine in cereals</td>
<td>24</td>
</tr>
<tr>
<td>g) Minimum tillage herbicides</td>
<td>26</td>
</tr>
</tbody>
</table>

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J. E. Holmes  
Research Officer  
Plant Research Division
**WHEAT LOSS CAUSED BY BROMEGRASS 80WH47**

**Site:** Wongan Hills Research Station

**Trial details:**
- Sown to bromegrass by hand June 13. Seed incorporated with harrows
- Planted June 16 to Gamenya wheat.

**Trial results:**

<table>
<thead>
<tr>
<th>Bromegrass planned density</th>
<th>Actual bromegrass density</th>
<th>Wheat No/m²</th>
<th>Yield as a% of paired weed free plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>36</td>
<td>117</td>
<td>100%</td>
</tr>
<tr>
<td>33</td>
<td>51</td>
<td>111</td>
<td>67</td>
</tr>
<tr>
<td>66</td>
<td>72</td>
<td>112</td>
<td>73</td>
</tr>
<tr>
<td>100</td>
<td>114</td>
<td>108</td>
<td>58</td>
</tr>
<tr>
<td>135</td>
<td>107</td>
<td>109</td>
<td>55</td>
</tr>
<tr>
<td>160</td>
<td>113</td>
<td>103</td>
<td>59</td>
</tr>
<tr>
<td>200</td>
<td>159</td>
<td>112</td>
<td>57</td>
</tr>
<tr>
<td>300</td>
<td>185</td>
<td>111</td>
<td>48</td>
</tr>
<tr>
<td>400</td>
<td>211</td>
<td>111</td>
<td>43</td>
</tr>
<tr>
<td>600</td>
<td>250</td>
<td>109</td>
<td>34</td>
</tr>
</tbody>
</table>

Mean nil yield 745 kg/ha on nil plots

**Comment:**

The data from this trial has not been fully analysed. It appears that a good relationship exists between bromegrass numbers and wheat yield loss. However, the dry season prevented the establishment of the expected bromegrass numbers particularly at the higher densities. It is not clear if this would have altered significantly the relationship between density and yield.

It can be seen though that moderate densities can affect yield quite significantly.
HERBICIDES FOR BROMEGRASS CONTROL 80WH48

Site: Wongan Hills Research Station

Trial details: - Bromegrass hand sown June 13
- Treatments 2 - 14 applied June 17
- Trial sown June 17 to Gamenya wheat + 92 kg/ha Agras
- Treatment 15 to 17 applied June 18

<table>
<thead>
<tr>
<th>Wheat plants/ ARG/ Bromegrass/ Doublegee Wheat yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>m²</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Nil</td>
</tr>
<tr>
<td>Hoegrass 2 l PPI</td>
</tr>
<tr>
<td>Hoegrass 3 l PPI</td>
</tr>
<tr>
<td>Yield 1.1 l PP</td>
</tr>
<tr>
<td>Yield 1.6 l PP</td>
</tr>
<tr>
<td>Yield 2 l PP</td>
</tr>
<tr>
<td>Stomp 1.8 l PP</td>
</tr>
<tr>
<td>Stomp 2.5 l PP</td>
</tr>
<tr>
<td>DPX 40 g PP</td>
</tr>
<tr>
<td>DPX 60 g PP</td>
</tr>
<tr>
<td>Trifluralin 1 l PPI</td>
</tr>
<tr>
<td>Trifluralin 1.5 l PPI</td>
</tr>
<tr>
<td>Trifluralin 2 l PPI</td>
</tr>
<tr>
<td>Trifluralin 1.5 Post Plant</td>
</tr>
<tr>
<td>Dual 2 l Pre</td>
</tr>
<tr>
<td>Dual 4 l Pre</td>
</tr>
<tr>
<td>LSD 5%</td>
</tr>
</tbody>
</table>

PPI = Pre plant incorporated; PP = Pre plant; Pre = Post plant pre emergent

Comment:

DPX 4189 appears to be the best herbicide. The very high plant numbers at counting don't reflect the actual situation. Bromegrass plants were stopped at the two to four leaf stage so that competition was reduced. Dry matter production would have been more appropriate. DPX 4189 also caused crop damage, particularly at the 60 g + rate. This took the form of reduced plant size and number of tillers. DPX also controlled doublegees and ryegrass as well. Dual didn't appear to be controlling bromegrass at a great deal, yet appears to be promising when the yield is compared.

Hoegrass appeared to have some potential.

Trifluralin caused crop damage where control of bromegrass was significant.

Stomp didn't appear to be useful, while Yield didn't appear to have any significant advantage over trifluralin.

All the dinitroaniline based herbicides showed significant doublegee control. How useful this is in the field is uncertain but confirms occasional farmer reports.
BROMEGRASS CONTROL - SPRAYTOP 79No41, 3982EX

Site: Sewell, Goomalling

Trial details:  
- Spraytop applied - see dates in results  
- Plant counts at opening season prior to direct drilling  
- Incrop plant counts  
- No harvest yields

Trial results:

<table>
<thead>
<tr>
<th>Bromegrass Numbers/m²</th>
<th>September 21, 1979</th>
<th>October 5, 1979</th>
<th>October 20, 1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>500/21</td>
<td>340/26</td>
<td>120/26</td>
</tr>
<tr>
<td>425 ml Spraytop</td>
<td>340/26</td>
<td>140/9</td>
<td>80/13</td>
</tr>
<tr>
<td>850 ml Spraytop</td>
<td>120/26</td>
<td>250/14</td>
<td>250/26</td>
</tr>
<tr>
<td>1200 ml Spraytop</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: 1st figure counted May 16, 1980  
2nd figure counted August 20, 1980

No significant wheat number differences

Comment: 

Spraytop appears to be the most effective on October 6, 1977 at this site.  
This corresponded to the condition of the pasture which was at the correct  
stage of growth for spraying. The huge differences measured at the start of  
the season were not reflected in the crop. This may have been due to either a  
substantial germinate prior to planting depleting the seed bank, or the dry  
condition not allowing any more seed to germinate.
Site: Badgingarra Research Station

Trial details: - Sprayed October 2, October 16, October 31, 1979
- Counted pre-planting and incrop
- Planted after sprayseed at 21 by direct drilling to wheat

Results:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>October 2</th>
<th>Spraying times</th>
<th>October 16</th>
<th>October 31</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>October 2</td>
<td>October 16</td>
<td>October 31</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bromegrass plants/m²</td>
<td>Bromegrass plants/m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>210/26</td>
<td>1173</td>
<td>1050/16</td>
<td></td>
</tr>
<tr>
<td>425 Sprayseed/ha</td>
<td>61/8.6</td>
<td>2322</td>
<td>2110</td>
<td></td>
</tr>
<tr>
<td>850 Sprayseed/ha</td>
<td>50/1.2</td>
<td>1768</td>
<td>2185</td>
<td></td>
</tr>
<tr>
<td>1200 Sprayseed/ha</td>
<td>44/21</td>
<td>2777</td>
<td>1887</td>
<td></td>
</tr>
</tbody>
</table>

Note: 210/26 = 210 plants pre plant
26 plants in crop

Wheat yields kg/ha

Spraying times

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>1810</td>
<td></td>
<td>2110</td>
</tr>
<tr>
<td>425 ml</td>
<td>3152</td>
<td>2322</td>
<td>2159</td>
</tr>
<tr>
<td>850 ml</td>
<td>2780</td>
<td>1768</td>
<td>2185</td>
</tr>
<tr>
<td>1700 ml</td>
<td>1744</td>
<td>2777</td>
<td>1887</td>
</tr>
</tbody>
</table>

Ryegrass levels - plants/m²

Spraying times

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>425 ml</td>
<td>51</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>850 ml</td>
<td>69</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>1700 ml</td>
<td>45</td>
<td>9</td>
<td>25</td>
</tr>
</tbody>
</table>

Comment:
Yields were fairly variable on the site. The site proved to be more variable than originally appeared.
Bromegrass levels at the opening of the season followed the treatments quite closely. Incrop levels were far lower but again reflected the levels prior to planting.

Ryegrass levels tended to follow the spraytop rates, as did the bromegrass levels, but the ryegrass at this site appears to be maturing a little late than the ryegrass.

Spraytop appears very promising for brome grass controller at the recommended rate of 850 ml. Sprayseed or 550 ml Gramoxone plus wetting agent.
BROME AND BARLEY GRASS CONTROL 80Na62

Site: N. Wilkinson, Brookton

Trial details: - DPX, Yield, applied July 2 and incorporation with light harrows  
- Dual applied July 4 (accidental delay) with incorporation  
- Crop planted June 29 - soil dry  
- Crop variety Eagret  
- Sencor and Fixaven sprayed August 28 crop 1-3 leaf

Results: Based on two ratings only, drought badly affected crop, crop not harvested, yield estimate 75 to 100 kg/ha.

Weeds present. Very low populations of bromegrass and cape weed only. No barley grass appeared contrary to expectations. Population 5 to 10 m².

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>Post-plant</th>
<th>Rating August 8</th>
<th>Rating</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product/ha</td>
<td>Pre-emergent</td>
<td>Crop Grass weed</td>
<td>Crop Capeweed</td>
<td>Grasses</td>
</tr>
<tr>
<td>Nil</td>
<td>-</td>
<td>-</td>
<td>0   0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield</td>
<td>1.6 l</td>
<td>X</td>
<td>0   1.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield</td>
<td>1.9 l</td>
<td>X</td>
<td>0   3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield</td>
<td>2.2 l</td>
<td>X</td>
<td>0   3.5</td>
<td>0</td>
<td>1**</td>
</tr>
<tr>
<td>DPX 4189</td>
<td>40 g</td>
<td>X</td>
<td>0.4 4</td>
<td>0</td>
<td>4.25</td>
</tr>
<tr>
<td>DPX 4189</td>
<td>60 g</td>
<td>X</td>
<td>1.5 3.3</td>
<td>1</td>
<td>4.8</td>
</tr>
<tr>
<td>DPX 4189</td>
<td>80 g</td>
<td>X</td>
<td>2   4</td>
<td>1</td>
<td>4.9</td>
</tr>
<tr>
<td>Dual</td>
<td>1 l</td>
<td>X</td>
<td>0.3 2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Dual</td>
<td>2 l</td>
<td>X</td>
<td>0   3.25</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Dual</td>
<td>3 l</td>
<td>X</td>
<td>0   3.75</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Fixaven</td>
<td>2 l</td>
<td>-</td>
<td>-   -</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Fixaven</td>
<td>2.5 l</td>
<td>-</td>
<td>-   -</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Sencor</td>
<td>200 g</td>
<td>-</td>
<td>-   -</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Sencor</td>
<td>300 g</td>
<td>-</td>
<td>-   -</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

* X = treated

** Density not appreciably reduced, but root damage obvious on smaller grass plants

Rating: 0 = No effect  
5 = 100 per cent control

Comment:

This site was badly drought affected with very few weeds appearing. Conditions were not good for herbicide action, as plants appeared to be under stress for most of the season.

DPX 4189 damaged the crop at 80 and 60 g/ha. Tiller numbers were reduced. However, it was by far the most active herbicide and shows promise for bromegrass suppression.
Fixaven didn't appear to do very much, but this herbicide was included mainly as a barley grass control canadate. The expected barley grass infestation didn't appear. Fixaven did show up useful barley grass activity in farmer trials.

Sencor didn't appear very active. Again drought contributed to this.

Dual appears to require higher rates, and or more moisture.

Yield showed some root pruning activity at its higher rates. However, crop yield responses would have been required for evaluation of the activity. DPX and Dual appear to require further work.

DPX appears quite promising against bromegrass, while Dual needs testing at higher rates to determine if any worthwhile selectivity exists against bromegrass and in a barley grass situation to determine its profile.
WILD OAT CONTROL - COMPARISON OF COMMERCIAL TREATMENTS

Site: L. Camaron-Bolgart 80No44

Trial details: - Crop wheat Gameya sown June 14
- Pre-plant herbicides applied June 14 and incorporated
- Post-plant herbicides all except Mataven or Hoe late July 16
- Last spraying July 24
- Banex applied to all treatments mid-August
- Visual rating October 7

Object: To compare the commercially available wild oat herbicides.

Results:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate/ha</th>
<th>Crop stage</th>
<th>Visual ratings of wild oat control***</th>
<th>Yield kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td></td>
<td></td>
<td>0</td>
<td>632.7a</td>
</tr>
<tr>
<td>Avadex BW</td>
<td>2.1 l</td>
<td>Pre-plant</td>
<td>4</td>
<td>1095.7bc</td>
</tr>
<tr>
<td>Stampede</td>
<td>2.1 l</td>
<td>Pre-plant</td>
<td>4</td>
<td>1219.1cd</td>
</tr>
<tr>
<td>Neoban</td>
<td>550 ml</td>
<td>2-3 leaf</td>
<td>2</td>
<td>833.3b</td>
</tr>
<tr>
<td>Fixaven</td>
<td>2.0 l</td>
<td>2-3 leaf</td>
<td>2</td>
<td>956.8b</td>
</tr>
<tr>
<td>Avenge**</td>
<td>1.15 kg</td>
<td>2-3 leaf</td>
<td>4.8</td>
<td>1265.4cd</td>
</tr>
<tr>
<td>Mataven</td>
<td>4.5 l</td>
<td>5 leaf</td>
<td>4.5</td>
<td>910.5b</td>
</tr>
<tr>
<td>Hoegrass*</td>
<td>1.5 l</td>
<td>2-3 leaf</td>
<td>5</td>
<td>1327.2cd</td>
</tr>
<tr>
<td>Hoegrass*</td>
<td>1.5 l</td>
<td>5 leaf</td>
<td>5</td>
<td>1342.6cd</td>
</tr>
<tr>
<td>Hoegrass*</td>
<td>2.0 l</td>
<td>2-3 leaf</td>
<td>5</td>
<td>1496.9d</td>
</tr>
</tbody>
</table>

LSD @ 5% = 200 kg/ha
CV = 10.3%

* plus 0.5% wetter
** plus 0.75% wetter  *** 0 = no effect, 5 = 100% control

The pre-plant applications were done seven days before sowing.

Wild oat population not counted but was of moderate high density plus an unexpected moderate ryegrass infestation of approximately 200 plants/m².

Comments:

With the presence of ryegrass the results are biased against herbicides specific for wild oats only.

The failure of Neoban, to achieve good wild oat control appears to have been due to application being slightly too late. Fixaven didn't perform well. Again it could have been due to the failure of the Barben component of the mixture.

The poor yield response with Mataven appears due to late spraying needed by the herbicide and lack of ryegrass control. Stampede performed slightly better than Avadex BW, due in part to better ryegrass control achieved with the Trifluralin component.
Hoegrass performed well. There appears to be a slight yield increase at the high rate. Avenge performed well, but does not control ryegrass and the results reflect this.

For normal ryegrass - wild oats situations Hoegrass would be the best herbicide.
WILD OAT CONTROL - MINIMUM TILLAGE SYSTEM - HIGH CHALLENGE SITE 80No45

Site: L. Camaron - Bolgart

Trial details:
- Sprayseed at 2 l/ha at 2 leaf stages of pasture June 3
- Yield applied immediately pre-planting June 14
- Sown to Gamenya at 50 kg/ha June 14
- All treatments except Mataven and late hoegrass applied July 16
- Balance applied July 24
- Site treated with Banex mid-August

Results:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate/ha</th>
<th>Crop stage</th>
<th>Visual rating, wild oat control***</th>
<th>Yield kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td></td>
<td></td>
<td>0</td>
<td>663.6a</td>
</tr>
<tr>
<td>Neoban</td>
<td>550 ml</td>
<td>1-2 leaf</td>
<td>2</td>
<td>706.8a</td>
</tr>
<tr>
<td>Average**</td>
<td>1.15 kg</td>
<td>2-4 leaf</td>
<td>4.8</td>
<td>1188.3bc</td>
</tr>
<tr>
<td>Fixaven</td>
<td>2.0 l</td>
<td>2-4 leaf</td>
<td>3</td>
<td>833.3a</td>
</tr>
<tr>
<td>Mataven</td>
<td>4.5 l</td>
<td>5 leaf</td>
<td>4.5</td>
<td>867.3a</td>
</tr>
<tr>
<td>Hoegrass*</td>
<td>1.5 l</td>
<td>2-4 leaf</td>
<td>5</td>
<td>1234.6c</td>
</tr>
<tr>
<td>Hoegrass*</td>
<td>2.0 l</td>
<td>2-4 leaf</td>
<td>5</td>
<td>1234.6c</td>
</tr>
<tr>
<td>Hoegrass*</td>
<td>1.5 l</td>
<td>5 leaf</td>
<td>5</td>
<td>1064.8b</td>
</tr>
<tr>
<td>Yield</td>
<td>1.6 l</td>
<td>Pre-plant</td>
<td>4.5</td>
<td>1342.6c</td>
</tr>
</tbody>
</table>

LSD 187 kg/ha
CV = 10.2%

* Wetter added at 0.5%
** Wetter added at 0.75%
*** 0 = No effect, 5 = 100% control

Wild oat population moderate, ryegrass level approximately 200/m². Level not counted.

Comment:

Yield performed well, which indicates that probably the bulk of the wild oat seed was near the surface. This result was unusually good. However, consistent wild oat control by Yield cannot be expected.

Again Neoban, Fixaven and Mataven were not good performers.

Hoegrass performed well. There appeared a timing effect in this trial with the late spraying.

Avenge does not control ryegrass and as such, is usually at a disadvantage when compared to hoegrass.

It is worth noting that trials 80No44 and 80No45 which were adjacent but one direct drilled and the other cultivated were so close in overall yields.
RYEGRASS CONTROL
HOEGRASS EFFECT OF RATES x VOLUMES x TIMES OF APPLICATION 80SG41

Site: Kartroni, Salmon Gums

Trial details: - Planted to wheat, var Madden late May on fallow
   - Timing 1 sprayed July 16 crop pre-tilling ARG - 1-2 leaf
   - Timing 2 sprayed July 28 crop tilling ARG 2-2.5 leaf
   - Timing 3 spray August 6, crop tilled ARG 2.5-4 leaf

Wetting agent added to all treatments.
Nozzle used to achieve rates.
Hughes No. 1, 2 and 3 to achieve 25, 50 and 100 l/ha respectively. Same pressure for each treatment.

Summary of results - Treatments:
Yields, ratings and ryegrass nos./m²

<table>
<thead>
<tr>
<th>Rate of Hoegrass Rate</th>
<th>Volume Volume</th>
<th>1st spraying</th>
<th>1st spraying</th>
<th>2nd spraying</th>
<th>2nd spraying</th>
<th>3rd spraying</th>
<th>3rd spraying</th>
</tr>
</thead>
<tbody>
<tr>
<td>l/ha</td>
<td>l/ha</td>
<td>Rye Rating</td>
<td>Yield kg/ha</td>
<td>Rye Rating</td>
<td>Yield kg/ha</td>
<td>Rye Rating</td>
<td>Yield kg/ha</td>
</tr>
<tr>
<td>0</td>
<td>-</td>
<td>916 3.8</td>
<td>358</td>
<td>311 525 3.3</td>
<td>260 362 3.6</td>
<td>255</td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>100</td>
<td>212 3.6</td>
<td>388</td>
<td>346 380 1.6</td>
<td>3656 430 3.0</td>
<td>289</td>
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<tr>
<td>0.5</td>
<td>100</td>
<td>267 3.0</td>
<td>388</td>
<td>380 1.6</td>
<td>327 300 2.3</td>
<td>265</td>
<td></td>
</tr>
<tr>
<td>0.75</td>
<td>100</td>
<td>98 1.6</td>
<td>381</td>
<td>326 2.6</td>
<td>327 300 2.3</td>
<td>256</td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>100</td>
<td>178 1.3</td>
<td>381</td>
<td>326 2.6</td>
<td>313 502 3.3</td>
<td>224</td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>50</td>
<td>142 2.0</td>
<td>357</td>
<td>427 326 2.6</td>
<td>463 190 3.0</td>
<td>224</td>
<td></td>
</tr>
<tr>
<td>0.75</td>
<td>50</td>
<td>55 2.3</td>
<td>381</td>
<td>326 2.6</td>
<td>348 306 2.6</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>50</td>
<td>194 2.3</td>
<td>348</td>
<td>326 2.6</td>
<td>348 306 2.6</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>50</td>
<td>119 2.6</td>
<td>445</td>
<td>195 1.3</td>
<td>296 356 2.6</td>
<td>245</td>
<td></td>
</tr>
<tr>
<td>0.75</td>
<td>25</td>
<td>230 2.6</td>
<td>372</td>
<td>195 1.3</td>
<td>296 356 2.6</td>
<td>244</td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>25</td>
<td>118 2.0</td>
<td>363</td>
<td>257 3.0</td>
<td>375 508 4.3</td>
<td>173</td>
<td></td>
</tr>
<tr>
<td>0.75</td>
<td>25</td>
<td>234 3.3</td>
<td>384</td>
<td>220 2.0</td>
<td>233 420 3.3</td>
<td>236</td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>25</td>
<td>114 1.6</td>
<td>315</td>
<td>260 3.0</td>
<td>409 344 3.0</td>
<td>254</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
Rating: 1 = 100% control
   5 = 0% control: made on October 17
Rye density = Plants/m². Counted October 17
Wheat density = 98 plants/m²

Comment:
The ryegrass levels present in this trial were high. The overall low yield did not allow the full expression of yield responses the removal of ryegrass.
**BARLEY GRASS CONTROL IN WHEAT 80SG40**

**Site:** Salmon Gums Research Station

**Trial details:** Herbicides applied July 23. Two weeks late due to late arrival of chemicals. Crop early tilling.

**Treatments and ratings**

* 4.5 weeks post-spraying

<table>
<thead>
<tr>
<th>Crop Rating</th>
<th>Barley grass Numbers/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = No effect</td>
<td>5 + 100% Kill</td>
</tr>
<tr>
<td>Nil</td>
<td>0</td>
</tr>
<tr>
<td>Yield 1.6 l/ha</td>
<td>0</td>
</tr>
<tr>
<td>Yield 1.9 l/ha</td>
<td>0</td>
</tr>
<tr>
<td>Yield 2.2 l/ha</td>
<td>0</td>
</tr>
<tr>
<td>Yield 2.5 l/ha</td>
<td>0</td>
</tr>
<tr>
<td>Sencor 285 g</td>
<td>4</td>
</tr>
<tr>
<td>Sencor 200 g</td>
<td>3</td>
</tr>
<tr>
<td>Fixaven 2 l</td>
<td>0</td>
</tr>
<tr>
<td>Fixaven 2.5 l</td>
<td>0</td>
</tr>
<tr>
<td>Fixaven 3 l</td>
<td>0</td>
</tr>
</tbody>
</table>

**Comment:**

Trial yields not useful due to drought. Sencor proved to be quite toxic to the crop at this rate/time, but also appeared to be the most active chemical against barley grass. Fixaven showed no effect despite good results observed in a farmer trial in another drought area.
Site: Avondale

This trial was laid down in 1979, and reported in the 1979 report.

1980 pasture ratings:

<table>
<thead>
<tr>
<th>1979 treatment</th>
<th>Rate/ha</th>
<th>Grass control rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Sprayseed</td>
<td>750 ml</td>
<td>1</td>
</tr>
<tr>
<td>Gramoxone</td>
<td>450 ml</td>
<td>0.5</td>
</tr>
<tr>
<td>Gramoxone + surflan</td>
<td>450 ml + 750 g</td>
<td>3.8</td>
</tr>
<tr>
<td>Surflan</td>
<td>750 g</td>
<td>4.2</td>
</tr>
<tr>
<td>Kerb</td>
<td>1.5 kg</td>
<td>4.8</td>
</tr>
</tbody>
</table>

0 = No difference, 5 = 100% grass control

Comment:

It was most noticeable that with the very poor clover density on the site in 1979 (10 to 15%) alot of bare ground was left in the Kerb, and Surflan treatment. This tended to seal over and poor germination occurred on these bare areas in 1980. There is a need for some surface organic matter to assist in the retention of water flowing across slopes, and in the creation of micro sites suitable for seed trapping and germinate.

Clovers compensated to a large degree when grass control had been achieved in 1979, but still alot of bare ground was showing at the end of 1980.
Site: ABRI, Katanning

Trial details: - All treatments in 40 l/ha water applied July 3, 1980
- Pasture composition
  Clover 10 to 15%, 10-20 leaf
  Capeweed 20% to 250 mm
  Barley grass highly patchy 10 to 70% well tillered.
Balance bare ground with low amount of other grasses and broad leaf weeds.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Grass* control October 10</th>
<th>Clover** growth October 10</th>
<th>Capeweed** October 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kerb 0.75 kg/ha</td>
<td>4.6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Kerb 1 kg/ha</td>
<td>4.8</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Kerb 1.25 kg/ha</td>
<td>5</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Kerb 1.5</td>
<td>5</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Yield 1.5 l/ha</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield 2 l/ha</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield 2.5 l/ha</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Paraquat 550 ml</td>
<td>2.6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Paraquat 450 ml</td>
<td>2.3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Paraquat 350 ml</td>
<td>0.8</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Ratings on October 10
* 0 = No effect
5 = 100% control
** 0 = Plants very small and stunted, no change
5 = Very vigorous plots

Comment:

Kerb performed well as a grass killer. All grasses present were controlled. The excellent result of the lowest rate indicates that rates may be possibly lowered provided that the low herd of survivors can be tolerated. The grass plants were quite well established at the time of spraying which is quite late for measuring clover response. Further rate work is needed.

Yield failed. Probably due in part to the dry well which occurred after spraying.

Paraquat showed a strong rate response and the pasture was too advanced for good grass control at the rates used. Rates should be increased to compensate. Clover tolerance appeared good.

Some clover retardation appeared in the Kerb plots. The exact reason is uncertain as this is the first time any possible damage to clover has been noted. This will need careful investigation. Quite probably this is due to the even grazing.
**HERBICIDES FOR GRASS CONTROL IN PASTURE, RATES x TIMES 80Ba39**

**Site:** Badgingarra Research Station

**Trial details:** - All herbicides applied in 100 to 150 l/ha on dates stated.
- Pasture growth stage indicated
- Soil sandy gravel

**Results:** Composite of visual ratings made over the season.

Ratings: 0 = No effect, 5 = 100% control or death of clover

<table>
<thead>
<tr>
<th>Herbicide and rate product per ha</th>
<th>2/5 Clover</th>
<th>Grass</th>
<th>9/6 Clover</th>
<th>Grass</th>
<th>25/6 Clover</th>
<th>Grass</th>
<th>7/8 Clover</th>
<th>Grass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerb 1 kg</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4.5</td>
<td>0.1</td>
<td>4.8</td>
<td>0</td>
<td>4.3</td>
</tr>
<tr>
<td>Kerb 1.25 kg</td>
<td>0</td>
<td>4.25</td>
<td>0.5</td>
<td>4.7</td>
<td>0.3</td>
<td>4.9</td>
<td>0</td>
<td>4.4</td>
</tr>
<tr>
<td>Kerb 1.5 kg</td>
<td>0</td>
<td>4.25</td>
<td>0.4</td>
<td>4.9</td>
<td>0.5</td>
<td>5</td>
<td>0.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Yield 1.5 l</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield 2.25 l</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield 3 l</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Paraquat 350 ml</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.1</td>
<td>3.4</td>
<td>0</td>
<td>1.25</td>
</tr>
<tr>
<td>Paraquat 450 ml</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.1</td>
<td>4.6</td>
<td>0</td>
<td>1.5</td>
</tr>
<tr>
<td>Paraquat 550 ml</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>2.2</td>
</tr>
</tbody>
</table>

**Pasture composition:**
- 6.0% clovers
- 25% bromegrass
- 10% ryegrass
- Balance capeweed and odd brassicas

**Growth stages:**
1st time - 1-3 leaf
2nd time - Clover 6-10 leaf - Grass 3 leaf to 4 tillers
3rd time - Clover well developed
4th time - Clover very well developed, grasses nearly finished tilling, some jointing

**Comments:**

Kerb preformed well and was the most outstanding herbicide. It was noted that at high rates the pasture was very short, with the leaf size quite small. This may be due to herbicidal retardation, or more likely the effect of grass removal and uneven grazing on sprayed plot.

Rates can be cut back.

Yield failed to work at all. Possibly dry conditions failed activate this herbicide.

Paraquat performed well, and the initial spraying was probably fairly late.

-16-
The highest rates used gave the best result, which tended to approach Kerb at kg/ha. Clover tolerance appeared satisfactory, probably earlier spraying at the clover 6 leaf stage would improve its effectiveness.

Wetting agent was not added to the paraquat, and this should improve its performance.
HERBICIDES FOR GRASS CONTROL IN PASTURE, RATES x TIMES 80A37

Site: Avondale

Trial details:
- 1st time of spraying April 29
  Clover and doublegees cotelydon stage
- 2nd time of spraying May 29
  Clover, cot to 5 leaf, grasses 1 1 to tillering, capeweed to 5 cm
- 3rd time of spraying June 26, 1980
  Grass tilling, clover to 10 leaf
- 4th time of spraying August 21, 1980
  Growth stage - grasses late tilling, few heads on barley grass, capeweed and clover well advanced. Pasture moisture stressed.

Pasture composition:
- Barley grass - 40 to 50%
- Clovers - 15 to 20%
- Capeweed - to 20%
- Bare ground - balance

Results:

Summary of ratings of grass killed, or clover damage

0 = No effect, 5 = 100% grass removed

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate (product/ha)</th>
<th>April 29</th>
<th>May 29</th>
<th>June 26</th>
<th>August 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kerb 1 kg</td>
<td></td>
<td>4.5</td>
<td>5</td>
<td>4.9</td>
<td>3</td>
</tr>
<tr>
<td>Kerb 1.25 kg</td>
<td></td>
<td>5</td>
<td>4.8</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Kerb 1.5 kg</td>
<td></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Yield 1.5 l</td>
<td></td>
<td>0</td>
<td>0.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield 2.25 l</td>
<td></td>
<td>0.1</td>
<td>0.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield 3 l</td>
<td></td>
<td>0</td>
<td>0.1</td>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>Paraquat 350</td>
<td></td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Paraquat 450</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Paraquat 550</td>
<td></td>
<td>-</td>
<td>-</td>
<td>3.8</td>
<td>1</td>
</tr>
</tbody>
</table>

Comment:
Where grass control occurred and sufficient moisture was available, clover compensated well.

Kerb was the best performer. The first time of spraying was particularly encouraging as the herbicide was applied in temperatures of 25 to 28°C which persisted for some time after application with little rainfall. Kerb will break down rapidly in temperatures above 25°C. The last time of spraying was not followed by a rain and the poor results reflect this. Kerb was tested at too high a rate to detail the time response clearly, and indicates the tremendous tolerance of the herbicides to plant size and conditions.
Yield did not perform well at all. This is due in part to the dry season.

Paraquat showed useful activity at 55 ml/ha at the 3rd time of spraying. Spraying at the earliest possible timing (clover 6 leaf stage) would improve this result.
Site: N. Wilkinson, Kewedu
Trials Details: Sprayed 2/7
Treatment
Kerb 0.75, 1, 1.25, 1.5 kg/ha
Yield 1.5, 2, 2.5 l
Paraquat 350, 450, 550 mls
Spray top 400 and 550 mls/ha

Results
Paraquat didn't completely kill the grasses on the site and some recovered. Some difference was apparent by the end of the season.

Drought prevent Yield from showing any activity. Kerb was slightly active in the dry conditions, but not better than paraquat.

Site in severe drought for most of the season.

The Spray top treatment cannot be evaluated until after the opening rains 1981.
Comment:
Kerb worked well. The lowest rate was still very effective.
Yield was not good, and possibly the season was not wet enough.
Paraquat was used without wetters and this may be why it didn't perform that well. Rates need to be increased.
HERBICIDE FOR GRASS CONTROL IN PASTURES - 80MO36

Site: J. McKinley, Moora

Trial Details: Kerb and Yield applied 27/5.

Pasture composition -

<table>
<thead>
<tr>
<th>Grass Type</th>
<th>Percentage to First Tiller</th>
<th>Plant Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver grass</td>
<td>10 to 15 per cent</td>
<td>to First tiller</td>
</tr>
<tr>
<td>Ryegrass</td>
<td>50 per cent</td>
<td>to First tiller</td>
</tr>
<tr>
<td>Brome grass</td>
<td>15 per cent</td>
<td>to First tiller</td>
</tr>
<tr>
<td>Capeweed</td>
<td>10 per cent</td>
<td>3 to 4 leaf</td>
</tr>
<tr>
<td>Clover</td>
<td>Balance</td>
<td>3 to 4 leaf</td>
</tr>
<tr>
<td>Erodium</td>
<td>5 per cent</td>
<td>25 to 50 mm</td>
</tr>
</tbody>
</table>

Soil - clay loam

Paraquat applied 25/6

All grasses tillering, mostly 2 to 4 tillers, with capeweed to 100 mm and clover to 8 to 12 leaf.

All herbicides applied in about 100 l/ha water.

Summary of Ratings:

Grass 0 = No effect, 5 = 100 kill
Clover 0 = No change from untreated, 5 = very vigorous improvement

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>Clover Rating</th>
<th>Grass Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerb</td>
<td>0.75 kg</td>
<td>3 *</td>
<td>4.5</td>
</tr>
<tr>
<td>Kerb</td>
<td>1 kg</td>
<td>3.5*</td>
<td>4.8</td>
</tr>
<tr>
<td>Kerb</td>
<td>1.25 kg</td>
<td>3.5*</td>
<td>4.9</td>
</tr>
<tr>
<td>Kerb</td>
<td>1.5 kg</td>
<td>4 *</td>
<td>4.95-5</td>
</tr>
<tr>
<td>Yield</td>
<td>1.5 l</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yield</td>
<td>2 l</td>
<td>0</td>
<td>0.7</td>
</tr>
<tr>
<td>Yield</td>
<td>2.5 l</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Paraquat</td>
<td>350 ml</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Paraquat</td>
<td>450 ml</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Paraquat</td>
<td>550 ml</td>
<td>2</td>
<td>3.5</td>
</tr>
</tbody>
</table>

* Clover tended to be very flat and slightly smaller leaf than untreated plot. This appears to be mainly due to the removal of competition for light, and possible differential grazing habits of the sheep on site.
Location: W. Short, Yumimning

Trial Details: Kerb and Yield applied
Parasquat applied 2/7
Spraytop applied 19/9
Grasses in head

Pasture: Mainly barley grass, with some ryegrasses, 60 to 70 per cent capweed to 5 per cent, clover balance. Some clover flowering, grass at late tillering.

Treatment and Results

Summary of visual ratings -

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Herbicide</th>
<th>Rate kg/ha</th>
<th>Ratings - mainly based on last rating 9/10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grass Control</td>
</tr>
<tr>
<td>Nil</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kerb</td>
<td>0.75</td>
<td>4.3</td>
<td>0</td>
</tr>
<tr>
<td>Kerb</td>
<td>1.00</td>
<td>4.7</td>
<td>0</td>
</tr>
<tr>
<td>Parasquat*</td>
<td>0.4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Parasquat</td>
<td>0.45</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Yield</td>
<td>2.1</td>
<td>0.6</td>
<td>0</td>
</tr>
<tr>
<td>Spraytop**</td>
<td>400</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spraytop</td>
<td>550</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* No wetter added.
** Paraquat plus wetter at 0.25 per cent.

Comments:

This trial was applied late and clovers didn't have a great deal of time to take advantage from the removal of grass.

Kerb worked slowly but very effectively. Barley grass is quite sensitive to Kerb.

Parasquat was applied too late or too low a rate for good grass control. Wetter was not added and this appears to be needed.

Yield didn't work.

The Spraytop treatment will be evaluated in early 1981 following opening rains.

-23-
ATRAZINE MIXTURES FOR CEREALS - 80MO44

Site: Dam boring

Trial Details: Sprayed 15/7, crop 2.5 to 3.5 1 leaf stage
Weeds present - capeweed 1 to 3 leaf
doublegee 2 to 4 1
radish 1 to 3 1
mustard 3 to 5 1

Volume used 93 l

Results
Summary of ratings made 8/8 and 25/11. Crop not harvested due to drought.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate mls/ha</th>
<th>Rating - 8/8</th>
<th>Crop</th>
<th>Doublegee</th>
<th>Capeweed</th>
<th>Radish/turnip</th>
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* Wheel track only

Comment:

There is not a great deal of difference in the price of Diuron + MCPA and Atrazine MCPA and as such a significant improvement in use or crop safety would be needed to its use. It would appear that Atrazine MCPA at 400 + 400 mls is the probable rate which is sufficiently active to remove most weeds.
No significant crop damage has been noted except wheel tracking damage in the 600 mls rates.

There does not appear to be any significant benefit over Diuron MCPA and as such, this mixture should not be developed further unless a major problem occurs which it can solve or a major price difference develops in its favour.
**Site:** Avondale Research Station

**Trial Details:** Soil - red clay loam

Area autumn scratched to depth of 30 mm at first available rain.

District practice cultivated prior to application of herbicide.

Pre-plant incorporated herbicide for district practice applied and incorporated with combine and harrows down plot immediately 29/5.

Pre-plant herbicides applied 5/6.

Also all sprayseed - pre-plant herbicide tank mixes and sprayseed only applied just prior to planting.

Weeds present, fumitory, grasses, doublegees quite small and scattered.

Post planting herbicides - delayed until 21/8 due to other commitments.

### Results:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Herbicide Product/ha</th>
<th>Applic. method</th>
<th>Sowing method</th>
<th>Wheat leaf /sqm</th>
<th>Broad leaf /sqm</th>
<th>Rye /sqm</th>
<th>Other Grass /sqm</th>
<th>Yield Crop Rye Other Grass kg/ha</th>
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</table>

**LSD 19.6; NS; 8.03; NS; NS.**

-26-
PPI = Pre-plant incorporated  
PP = Pre-plant  
Post = Post emergent  
DP = District practice  
DD = Direct drilled following sprayseed with combine + harrows

Visual rating - 0 = No effect  5 = Total kill

* Plants still alive but damaged.

Principal weeds on site - annual ryegrass, patches of wild oats, native grass, brome grasses and a few doublegeee and fumitary plants. Not sufficient broadleaf weeds appeared to rate any effects of herbicides.

Comment:

Wheat emergence - no significant reduction occurred in the district practice although some thinning was visually noted with trifluralin at 1.5 l.

With the direct drilling, wheat numbers were lower than district practice. The highest rates of trifluralin caused visually noticeable crop thinning. Ryegrass control was satisfactory for all treatments with surviving plants not growing well. Yield performed particularly well in this case.

Other grass control was quite evident with Yield and trifluralin. There was a marked rate response. Hoegrass plus linuron caused crop damage due to its late application.

It is quite significant that there was no difference between the direct drilled crop and district practice in yield.
**MINIMUM TILLAGE HERBICIDES - 80BA41**

**POST PLANTING - PRE-EMERGENT**

**Site:**  
Badgingarra Research Station

**Trial Details:**  
Soil sand over gravel  
Planted 27/5 to Miling wheat. Seed bed satisfactory.  
Sprayed 27/5, 150 l/ha water, 7:1 log reduction.  
Site sprayed with 2 l Sprayseed 26/5.

**Results:**

There are composite visual results of various ratings conducted during the season. Rates of herbicide are 1 or kg product/ha.

Weeds present - brome grass, some clover, capeweed and erodium. Some barley grass.

**Diuron 4 l/ha**

No brome grass control at any level. Crop tolerance satisfactory, broadleaf control difficult to rate, some activity at start.

**Linuron 4 kg**

Some broad leaf control at 3.8 l +. Not very significant.

**Sencor 1.5 kg**

Crop damage severe to 1.25 kg, broad leaf control fairly good over all of the plot. Minimum rate 180 g. Brome grass control reasonable to 600 g.

**Tribunil 4 kg**

No crop damage, very slight broad leaf control noted only.

**DPX 4189 100 g**

No ryegrass noted in whole plot, nor broad leaf weeds. Brome grass control good to 51 g suppression to 18 g noted. Tame oats suppressed considerably to 40 g (patch left in sheep feeding area which didn't cover whole plot).

**Atrazine 2 l**

Some broad leaf control noted at rate not apparently damaging crop. Grass control only good where crop killed. Not selective.

**Igran 6 l**

Very little effect on any weeds and crop at all rates.
Ametryne 4 l

Crop tolerance good, but very slight broadleaf control noted at highest rates. No grass control noted.

Dual 4 l

Some grass control at higher rates. 3 l +. Crop tolerance good. Some broad leaf activity as well.

Yield 3 l

Slight grass control at 2.5 l +, with some crop damage at 2.8 l/t.

Stomp 3 l

No significant activity.

Duralin 4 l

No activity at this rate.

Bladex 6 kg

Crop damage severe to 3.8 kg. No really useful selectivity. Weed control good where crop damaged.

Comments:

Sencor appears to have some promise.

DPX 4189 is very promising. The effect on tame oats confirms wild oat activity noted at Avondale. The grass control aspects appear good in the post plant, pre-emergent situation. If brome grass control is achieved by this herbicide, good ryegrass and broad leaf control will result as they are more sensitive to it.
HERBICIDES FOR MINIMUM TILLAGE SYSTEMS - 80A41

**Site**
Avondale Research Station

**Trial Details**
Soil - sandy loam

Sprayed with 2 l spray seed 4/6
Sown Gamenya wheat 5/6
Herbicides applied in 150 l water, 5/6
Log sprayed with 7 to 1 reduction.

Herbicides top rate indicated, in l or kg/ha product.

Results set out below are composites of visual ratings made during season.

Weeds present - very patchy dense wild oats, some brome grass, ryegrass and barley grass. Broad leaf weeds not very dense at all and rather difficult to rate results. Capeweed and Erodium most common broad leaf weeds.

**Diuron 4 l/ha**
Crop damage to 2.8 l on one plot only. Grass control, wild oats suppressed to 2.25, ryegrass to 1.48 and broad leaf weed to 1.08. Only time Diuron really controlled grasses.

**Linuron 4 kg 50**
Very little effect, nothing useful.

**Sencor 1.5 kg**
Very severe crop damage to 0.700 kg. Wild oats failed to set seed 0.6 kg. Some useful selectivity.

**Tribunil 4 kg**
Broad leaf control to 2.8 kg, no crop damage.

**DPX 4189 100 g**
Wild oat control to 18 to 25 g. Plants very suppressed. Crop damage in form of reduced tillers at 70 g +. Barley brass present to 95 g. No useful control of barley grass.

**Atrazine 2 l**
Crop damage severe to 1.2 to 0.9 l, with broad leaf control to 0.66 l. No useful selective grass control.

**Igran 6 l**
No crop damage, doublegee control apparent to 4 l, no grass control.

**Ametryne 4 l**
Plots swamped with wild oats, little crop damage at all, slight broad leaf control possible at 3.5 l +.

-30-
Dual 4 l

Crop tolerance good, some grass control to 2.8 l. Does not affect wild oats greatly.

Yield 3 l

Grasses suppressed to 2.1 l, with noticeable root damage to 1.7 l. Not highly effective.

Stomp 3 l

No noticeable effects.

Duralin 4 l

Some grass control to 3 l. Not a great deal of activity against wild oats.

Bladex 6 kg

No useful selectivity, bare plots till 3.25 kg. Erodium appears most tolerance of all weeds present.

Comments:

The weed spectrum present was dominated by wild oats. Broad leaf weed numbers were low and difficult to rate. Herbicides which appear worthy of future work are DPX 4189, which show excellent activity against ryegrass, broad leaf weeds and useful activity against brome grass. The effect against wild oats was very good and rather unexpected following pre trial reports.

Sencor appears to have a narrow band of selectivity, Diuron appears useful, but both herbicides appear to have more potential as a pre-plant application as do Yield and Stomp.

Further evaluation of Dual could be useful.
MINIMUM TILLAGE HERBICIDES - KNOCKDOWN 80Ba40

Site: Badginarra Research Station

Trial details: - Soil sand over gravel.
- Pasture at spraying.
  Bromegrass 50% 1 leaf to 2 Tillers
  Clovers 10% 1 - 6 leaf
  Capeweed 40% 6 leaf
  Odd barley grass

Herbicides log sprayed in 150 L/ha 7 to 1 reduction
Soil moist, but plants only just recovering from a severe drought spell and still fairly stressed.

- Herbicide application 23/5
- Sown 26/5 to Miling wheat
No problem with seed bed

Results are composite of the visual ratings carried out during the season, with main emphasis at anthesis.

Diuron 4 L/ha plus wetter:

No significant weed control after 2.8 L with good grass knockdown only for first few meters to 3.8 L. Reasonable weed control to 3.4. Some crop damage apparent above 3.5 L.

Linuron 4 kg plus wetter:

Treatment mis-sprayed, no wetter added little effect noted.

Sencor 1.5 kg plus wetter:

Crop damage severe above 1.2 kg/ha good weed control apparent to 500 g.

Tribunil 4 kg plus wetter:

No grass control; no crop damage, little broad leaf activity noted.

DPX4189 100g plus wetter:

Very little effective control of plants growing at spraying. Bromegrass control is best pre-emergent.

Atrazine 2 L plus wetter:

Very little useful selectivity, grass control is good only where wheat damage is unacceptable.

Ametryne 4 L plus wetter:

No useful control.

Roundup 3 L:

Control of existing weeds to 1.25 L/ha. This is as expected.
Sprayseed 3 L:
Good control to 1.7 L/ha of existing plants.

Duralin 4 L:
No useful activity.

Yield 3 L plus Sprayseed at flat rate of 2 L:
Crop damage to 2 L, good grasses control to 1.25 L/ha.

Trifluralin 3 L plus Sprayseed at flat rate of 2 L:
Crop damage to 1.8 - 2 L/ha, good grass control to 1.25 L/ha.

Stomp 3 L plus Sprayseed at flat rate 2 L:
Slight crop damage at 2.8 L, but reasonable grass control only above 1.8 L.

Bladex 6/kg plus wetter:
Very severe damage to wheat where weed knockdown satisfactory. Very little useful selectivity. Crop damage to 2.5 kg/ha.

Comments
Sprayseed plus trifluralin and Yield performed well. The larger bromegrass plants were hard to kill and DPX 4189 and Diuron could not handle these plants.

Sencor appears to have some slight selectivity and its activity is such that examination in the range of 500 - 800 g/ha or 250 - 500 + Sprayseed may be useful.
HERBICIDES FOR MINIMUM TILLAGE - PRE-PLANT - 80A40

Site: Avondale Research Station

Trial details: Sprayed 4/6
   Soil moist, rain fell hour after final of application
   - Sown 5/6 to Gamenya wheat with spring tyne combine.
   - Pasture, brome silver and rye grass at 2 tilling stage.
     Low level of clover or 1 - 6 leaf stage.
   - Erodium at 75 mm diam.

Application method:

Plots sprayed with log sprayer, set to deliver 150 L/ha total volume and 7 to 1 reduction in concentration along plots.

Ratings based on visual ratings of crop and weed presence and vigour.

All rates product/ha

Wetting agents at 0.5% added to all except Roundup and Sprayseed mixtures.

Diuron 4 L/ha:
   Reasonable grass control to 2.5 L/ha. Broadleaf control difficult to rate. Crop damage at 3.6 L and above.
   Doesn't kill large grower plants readily. There is not sufficient selection activity to use without a knockdown herbicide.

Linuron 4kg/ha plus wetter
   Crop damage to 3.5 kg.
   Weed control poor are whole plot. Not a great deal of knockdown.

Sencor 1.5 kg/ha plus wetter
   Major crop damage to 0.9 kg with some damage to 0.5 kg. Very good grass control to 0.33 kg.
   A very active herbicide with good knockdown. It may have some potential in this area if selectivity can be maintained.

Tribunil 4.0kg/ha plus wetter
   No crop damage, no significant weed control.

DPX 4189 100 g plus wetter
   Slight crop damage to 80 g. Shows as reduced size and tiller numbers.
   Grass control, particularly Bromegrass to 50 g good. Broad leaf control good.
   Appears to be very useful.
Atrazine 2 kg plus wetter

Very severe crop damage if weed control achieved. No useful selectivity.

Trifluralin 3 L plus Spray seed at 2 L flat rate

3.0

Grass control noted to 0.75 L/ha. Some crop damage at 2.5 L plus.

This result corresponds to some incorporated results. The use of Trifluralin in Sprayseed tank some appears to warrant more investigation.

Stomp 3 L, plus Spray seed at 2 L flat rate

Safer on crop than Yield or Trifluralin, crop thin above 2.5 L. Grass control above 1 L/ha.

Igran 6 kg/ha plus wetter

No appreciable crop damage. No grass control.

Ametryne - 4 L/ha plus wetter

Some crop damage to 3.6 L, with some grass control to 2.8 L. Overall not very active at rates tested.

Roundup - 3 L/ha

Weed control tended to fail below 1.8 L. Rainfall about 4 hours after spraying which may have reduced its activity.

Sprayseed - 3 L/ha

Grass control failed after 1.2 L/ha. Crop failed at this point due to weeds.

Dual 4 L/ha plus flat rate Sprayseed at 2 L

Good weed control to 2L/ha, with crop damage to 3.5 L/ha.

More testing required to define exact weed spectrum and usefulness.

Yield 3 L/ha plus flat rate Sprayseed at 2 L

Crop damage above 2.5 L. Grass control fails below 1.25L. This product demonstrated its usefulness in this situation.

Barley grass control to 1.3 L.
Comment

Sencor appears to have some promise as a knockdown plus residual herbicide, Diuron would be useful in mixtures, supplemented with a knockdown herbicide. DPX4189 does not control barley grass and would be useful in mixtures with a knockdown herbicide.

Yield and Trifluralin are excellent when combined with a suitable knockdown herbicide but additional broad leaf activity is needed. Perhaps Sencor, Yield and Trifluralin plus Sprayseed or Roundup, or DPX, Yield, plus knockdown, or Diuron, Yield mixes could be useful.
**HERBICIDES FOR MINIMUM TILLAGE. PRE-PLANT, WITH SOME KNOCKDOWN 80N23**

**Site:** Newdegate Research Station

**Trial details - Sandy gravel soil.**

Mainly Barley grass, erodium and clover.
Whole site sprayed with 2 L Sprayseed 14 days pre-spraying of trial. Weeds 5% alive. Weeds stressed by moisture lack.
- Soil moist at depth, dry on surface.
- Sprayed at 150 L/ha, log ratio of 7:1 on 18/19/6.
- Sown to Gamenya wheat.

**Results - Summary of visual rating.**

Weed numbers were very low and patchy. Ratings difficult. Dry conditions prevailed.

Weeds in crop were capeweed, Barley grass, rye grass and erodium.

- **Diuron 4 L/ha plus wetter:**
  No control of barley grass, crop damage to 3.2 L.

- **Linuron 4 kg plus wetter:**
  No effects noted.

- **Sencor 1.5 kg plus wetter:**
  Crop damage noted to 700 g as above, moderate 400 g, and slight 300 g, weed control grass to 300.

- **Tribunil 4 kg plus wetter:**
  No effect noted.

- **DPX4189 100 g plus wetter:**
  Slight crop damage to 65 g. Shallow planting appears to have aggravated it. Weed control difficult to rate, as few weeds but appear to be effective above 30 g. Barley grass not controlled.

- **Atrazine 2 L plus wetter:**
  Total crop kill to 750 mls/ha, unacceptable crop damage to 300 mls, no useful selective weed control.

- **Igran 6L plus wetter:**
  No observable effects.

- **Ametryne 4 L plus wetter:**
  Slight crop damage at 3.8 L plus; with some weed control to 3 L, but difficult to rate due to low weed numbers.
Duralin 4 L:

No crop damage, possible weed control at 3.5 L plus in one plot only.

Yield 3 L plus Sprayseed at flat rate of 2 L:

Crop damage to 2.5 L, with grass control evident to 2 L very low levels of grasses prevented clear determination of cut off point.

Trifluralin 3 L plus Sprayseed at flat rate of 2 L:

Crop damage evident to 2.5 L, with an indistinct cut off to grass control at 2 - 1.8 L.

Stomp 3 L plus Sprayseed at flat rate 2 L:

A little crop damage at 2.25 L plus. Not possible to define grass control levels due to drought.

Dual 4 L 4 L plus Sprayseed at 2 L/ha flat rate

Plus Sprayseed at 2 L flat rate

Some slight crop damage to 3.4 L, thinning mainly. Weed control, grasses only to 3 L.

Bladex 6 kg plus wetter:

Severe crop damage to 4.2 kg. Unacceptable crop damage to 2.5 kg. No useful crop selectivity.

Comments

This site was very dry and the expression of crop tolerance and weed control should be considered to be fairly uncertain, it varies greatly from other sites. Weed density was low and this made rating difficult.

The use of Sprayseed some time prior to application did not result in the expected establishment more weeds, so that the effects noted would correspond more closely to planting at the opening rains than originally planted.

Herbicides which appear promising are DPX4189, Diuron appears selective, Dual needs more work and Yield and Trifluralin are confirmed as useful components of tank mixes.

Ametryne showed slight selectivity, which was not shown at other sites.
HERBICIDES FOR MINIMUM TILLAGE - 80WH46

Trial site: Wongan Hills Research Station

Trial details: Site sandy, loam
- Weeds thin, mainly Brome grass, 3 leaf to 3 tiller, barley and rye grass at same growth stage, plus some doublegee and lupins. Fifteen per cent total area covered.
- Area cultivated after first rains.
- Trial sprayed 16/6, planted to Gamenya 17/6 log sprayed 7:1 ratio in 300 L water.

Rates of herbicides expressed as product/ha.

Results - Composite visual ratings are summarised below.

Weed ratings were difficult due to the overall low level of weeds on its sites.

Diuron 4 L/ha plus wetter:
   Some crop damage to 3.5 L, weed control grasses good to 2.5 L and broad leaf to 1.8 L.

Linuron 4 kg plus wetter:
   Some crop damage at 3.5 kg, little useful weed control shown.

Sencor 1.5 kg plus wetter:
   Crop damage to 250 g/ha. Weed control good to 200 g.

Tribunil 4 kg plus wetter.
   Very little effect apparent. Nothing useful. Slight crop damage in one plot at 3.8 L.

DPX4189 100 g 75% plus wetter:
   Good grass and broadleaf control 25 g and above. Broad leaf control poor on doublegee at 12 g. Some crop damage at 70 g and above, very few tillers.

Atrazine 2 L plus wetter:
   No useful selectivity.

Igran 6 L plus wetter:
   No useful effects.

Ametryne 4 L plus wetter:
   Some weed cover activity to 1.5 L, crop damage above 3.5 L.
Roundup 3 L:

Plots fairly clean. Cultivation plus all rates of Roundup killed the few weeds at rates of 0.5 L and above.

Dual 4 L plus Sprayseed at 2 L flat rate:

Good grass control to under 1 L, crop damage at 3.8 L.

Yield 3 L plus Sprayseed at flat rate of 2 L.

Crop damage at 2 L and above, mainly reduced numbers and root stunting.

Good grass control and stunting of doublegee to 1 L.

Trifluralin 3 L plus Sprayseed at flat rate of 2 L:

Crop damage down to 1.8 L, good grass control to less than 1 L.

Stomp 3 L, plus Sprayseed at flat rate of 2 L

Stomp damage at 2.8 plus L, but good weed control to 1 L. Broad leaf weeds not present on plots in sufficient numbers to rate.

Duralin 4 L plus wetter:

Appears to be some grass control to 2.5 L. Crop tolerance good.

Bladex 6 kg plus wetter:

No useful selectivity, very damaging to wheat at rates 3 kg and above.

Comments

Sencor appears to be not very selective. DPX4189 appears very useful, but nore as a component of a total mix with Sprayseed. The Sprayseed mixes with Yield and Trifluralin at the levels between 1 - 1.8 L appear to be very consistent.

Diuron may have a use with Sprayseed.