1976

**Ryegrass control - cultural and chemical systems**

J. E. Holmes  
G. A. Pearce

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RYEGRASS CONTROL

CULTURAL AND CHEMICAL SYSTEMS

J. B. Holmes

and

G. A. Pearson

Weed Agronomy
RYEGRASS CONTROL - SPRAYTOP - SPRAY SEED + AUTUMN CULTIVATION

75M48

LOCALITY: Merredin Research Station

TREATMENTS

Spraytop in October 1975. Autumn Cultivation 29/4/76, Spray seed applied 1/7/76 planted to wheat Gamunya 7/7/76.

RESULTS

<table>
<thead>
<tr>
<th>SPRAYTOP RATE ML/HA</th>
<th>0</th>
<th>350</th>
<th>550</th>
<th>750</th>
<th>1050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viable Seeds/ 8098 sq.m Dec. 1975</td>
<td>1276</td>
<td>1717</td>
<td>792</td>
<td>927</td>
<td></td>
</tr>
<tr>
<td>March 1976</td>
<td>4475</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plants/sq.m Before planting</td>
<td>AC</td>
<td>Nil</td>
<td>AC</td>
<td>Nil</td>
<td>AC</td>
</tr>
<tr>
<td>In Crop</td>
<td>324</td>
<td>234</td>
<td>150</td>
<td>225</td>
<td>213</td>
</tr>
<tr>
<td>Wheat Yield Kg/ha</td>
<td>1045</td>
<td>1024</td>
<td>1058</td>
<td>998</td>
<td>1106</td>
</tr>
</tbody>
</table>

COMMENTS

Spraytop worked well in reducing the ryegrass seed numbers to a low level. The poor opening of the season did not allow any effect of autumn cultivation to show up in the numbers of plants germinating apart from the Nil treatment.

Ryegrass numbers in the crop were reduced by the autumn cultivation treatment, particularly in the nil spray top treatment.

Crop yields reflect the ryegrass numbers, with increased yields occurring on the autumn cultivation treatments due in part to the better planting which occurred where the soil was broken up. In general the dry season reduced the establishment of the wheat and the expression of treatment differences.
RYEGRASS CONTROL - SPRAYTOP - SPRAY SEED + AUTUMN CULTIVATION

75WH67

LOCALITY: Wongan Hills

TREATMENT: - Spray top October 1975
- Autumn Cultivation April 76
- Sprayseed at 2 l/ha 11/6/76
- Planted by combine 24/6/76

CROP: - Gamenya wheat

RESULTS

<table>
<thead>
<tr>
<th>SPRAY TOP</th>
<th>0</th>
<th>350</th>
<th>525</th>
<th>700</th>
<th>1050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viable Seeds/ sq.m Dec '75 *</td>
<td>13982</td>
<td>1436</td>
<td>689</td>
<td>757</td>
<td>373</td>
</tr>
<tr>
<td>Viable Seeds* March 75</td>
<td>3471</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>280</td>
</tr>
<tr>
<td>Plants Germinated follow autumn</td>
<td>AC</td>
<td>Nil</td>
<td>AC</td>
<td>Nil</td>
<td>AC</td>
</tr>
<tr>
<td>Cultivation /Sq.m</td>
<td>967</td>
<td>626</td>
<td>234</td>
<td>321</td>
<td>203</td>
</tr>
<tr>
<td>Plants in Crop /Sq.m</td>
<td>350</td>
<td>545</td>
<td>59</td>
<td>126</td>
<td>78</td>
</tr>
<tr>
<td>Yield Kg/ha</td>
<td>625</td>
<td>525</td>
<td>1125</td>
<td>925</td>
<td>1025</td>
</tr>
</tbody>
</table>

* Based on germination test x visually viable seeds.

COMMENTS

The Spraytop technique reduced the number of viable seeds to quite a low level.

This reduction was reflected in the number of plants in the crop. Only the higher rates of Spraytop plus autumn cultivation reached acceptable levels of ryegrass control.
RYEGRASS CONTROL - SPRAYTOP - SPRAYSEED + AUTUMN CULTIVATION

75 N 22

LOCALITY: Newdegate Research Station

TREATMENTS
- Spraytop November 1975
- Autumn Cultivation 27/4/76
- Spray seeded at 2 l/ha, 29/6/76
  Egret Wheat planted
  Planted following ripping with scarifier as ground was hard 2/7/76
- Trial sprayed with DDT, for webworm

SEED VIABILITY: Determined by Lab germination tests

FERTILIZER: Agran 24-24 at 45 kg/ha

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>SPRAY TOP RATES</th>
<th>Viable seeds/ sq.m Dec '75</th>
<th>Viable seeds/ sq.m March</th>
<th>No. of RG plants before seeding/sq.m</th>
<th>No. of RG plants in crop/sq.m</th>
<th>Crop yield Kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ML/HA</td>
<td>0</td>
<td>21746</td>
<td>44385</td>
<td>433</td>
<td>703</td>
</tr>
<tr>
<td></td>
<td></td>
<td>350</td>
<td>3090</td>
<td>1267</td>
<td>704</td>
<td>1218</td>
</tr>
<tr>
<td></td>
<td></td>
<td>550</td>
<td>2810</td>
<td></td>
<td>704</td>
<td>1109</td>
</tr>
<tr>
<td></td>
<td></td>
<td>750</td>
<td>2641</td>
<td></td>
<td>1528</td>
<td>1796</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1050</td>
<td>1579</td>
<td></td>
<td>1538</td>
<td>1593</td>
</tr>
<tr>
<td>No. of RG plants before seeding/sq.m</td>
<td></td>
<td>703</td>
<td>1085</td>
<td>396</td>
<td>383</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1050</td>
<td>704</td>
<td>252</td>
<td>383</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>350</td>
<td>3090</td>
<td>230</td>
<td>162</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>550</td>
<td>2810</td>
<td>377</td>
<td>312</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>750</td>
<td>2641</td>
<td>230</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1050</td>
<td>1579</td>
<td>352</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>283</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>121</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>225</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>206</td>
<td></td>
</tr>
</tbody>
</table>

COMMENTS
Spray top reduced the seed numbers to a level at which substantial yield increases were obtained. The reduction in seed numbers were reflected in the numbers of ryegrass plants appearing at the different points of measurement. It can be seen that at this site autumn cultivations stimulated an increase in the number of seed which germinated only in the nil Spraytop treatment. This appears to be due to the dispersal of seeds by
the treatment into zones of poorer germination potential. Where large numbers of seed are present this does not matter as more seed is placed into zones of higher potential.

Autumn cultivation produced a yield increase in all treatments. This increase is due in part to ryegrass control and to other factors such as greater availability of N due to the extra cultivation.

None of the treatments achieved ryegrass control which would be acceptable in the field. This is about 50 plants/sq.m below which level not a great deal of loss is incurred.
RYEGRASS GERMINATION – EFFECT OF CULTIVATION

76A10

LOCALITY - Avondale Research Station

TREATMENTS
- Spraytop in 1975, October
- Autumn cultivation, ploughing, Scarifier
  All existing plants spray seeded off after each counting.

RESULTS

Effect of Spray top

<table>
<thead>
<tr>
<th>Viable Seeds/sq. meter</th>
<th>0</th>
<th>350</th>
<th>550</th>
<th>750</th>
<th>1050</th>
</tr>
</thead>
<tbody>
<tr>
<td>December '75</td>
<td>25445</td>
<td>6404</td>
<td>3699</td>
<td>4474</td>
<td>2568</td>
</tr>
<tr>
<td>March '76</td>
<td>13432</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CULTIVATION TREATMENTS

<table>
<thead>
<tr>
<th>Plants/sq. metre</th>
<th>NIL</th>
<th>SPRAYTOP</th>
<th>SPRAYTOP AT 1050mls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Nil</td>
<td>Autumn Cult.</td>
<td>Nil</td>
</tr>
<tr>
<td>Following</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autumn Cultivation 25/5/76</td>
<td>226</td>
<td>189</td>
<td>84</td>
</tr>
<tr>
<td>Follow by Ploughing or Scarifier</td>
<td>P SC N*</td>
<td>P SC N*</td>
<td>P SC N*</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>203</td>
<td>49</td>
</tr>
</tbody>
</table>

*N = No. Cultivation, P = Plough, SC = Scarifier

COMMENTS

There was a reduction in numbers emerging on the Autumn cultivated plots. This is due to the effect of drying out of the soil by the cultivation treatment and low amounts of rain following.

The Cultivation treatments show major differences between the plough scarifier and non cultivated areas. The plough reduced germination, whereas the scarifier encouraged emergence. This is probably due to the greater proportion of seed in the zone where germination can occur left by the scarifier, compared to the plough.

The trial was discontinued at this stage as lack of rain.
RYEGRASS CONTROL - CULTURAL SYSTEMS

75A31

LOCALITY - Avondale Research Station

TREATMENTS
- Spraytop at 550 mls/ha October 1975
- Burning March 1976
- Autumn Cultivation - April 1976
- Spray seed 2 l/ha 25/6/76
- Conventional Cultivation - Plough 1st June, work back plant
- Planted at same time as spray seed treatment.
- Post emergent herbicide Hoe. 23408. Applied at the 3-4 leaf stage of Ryegrass

CROP - Wheat Variety Gamenya

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>VIABLE SEEDS/SQ.M Dec 75</th>
<th>VIABLE SEEDS/SQ.M March '76</th>
<th>PLANTS/SQ.M Before Floughing 25/5</th>
<th>PLANTS/SQ.M In crop</th>
<th>CROP YIELD/KG/HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>C*</td>
<td>30500</td>
<td>4675</td>
<td>4298</td>
<td>314</td>
<td>1643</td>
</tr>
<tr>
<td>C+AC</td>
<td>30500</td>
<td>4675</td>
<td>4423</td>
<td>145</td>
<td>1949</td>
</tr>
<tr>
<td>C+AC+ST</td>
<td>1432</td>
<td>655</td>
<td>887</td>
<td>39</td>
<td>2098</td>
</tr>
<tr>
<td>C+ST</td>
<td>1432</td>
<td>655</td>
<td>785</td>
<td>71</td>
<td>1882</td>
</tr>
<tr>
<td>C+ST+B</td>
<td>1432</td>
<td>655**</td>
<td>853</td>
<td>39</td>
<td>2003</td>
</tr>
<tr>
<td>C+ST+AC+B</td>
<td>1432</td>
<td>655</td>
<td>576</td>
<td>17</td>
<td>2081</td>
</tr>
<tr>
<td>SS+AC</td>
<td>30500</td>
<td>4675</td>
<td>4423</td>
<td>143</td>
<td>1693</td>
</tr>
<tr>
<td>SS+AC+ST</td>
<td>1432</td>
<td>655</td>
<td>887</td>
<td>25</td>
<td>1863</td>
</tr>
<tr>
<td>SS+AC+ST+B</td>
<td>1432</td>
<td>655</td>
<td>576</td>
<td>17</td>
<td>2215</td>
</tr>
<tr>
<td>C+Hoe</td>
<td>30500</td>
<td>4675</td>
<td>4298</td>
<td>10</td>
<td>2306***</td>
</tr>
</tbody>
</table>

* C = Conventional, Hoe + Hoe.23408, ST + Spraytop
SS = Sprayseed, B = Burning
** Burnt post sampling
*** High response due to wild oat control as well. Trial infested heavily with wild oats.

COMMENTS:
Spraytop reduced viable seed set to a low level. This reduction continued to be evident in counts of ryegrass plants before planting and in the crop.
Burning following Spraytopping further reduced the quantity of seed and this is reflected in the counts.

Autumn cultivation did not appear to greatly increase the numbers of seeds germinating, yet in crop numbers were lower. The dry period before ploughing would have suppressed the germination of ryegrass seeds at this time and it was noted that autumn cultivation did tend to dry the surface of the soil out. The Hoe.23408 performed well and eliminated ryegrass and wild oats from the site. Yields of this trial were suppressed by the uneven wild oat infestation which occurred on this site.

The Sprayseed plus Spraytop, Autumn Cultivation and Burning sowing method performed quite well on this site.
ANNUAL RYEGRASS CONTROL - CULTURAL SYSTEMS

75M49

LOCALITY: Merredin Research Station

TREATMENTS
- Spraytop at 550 mls/ha product, October 1975
- Autumn Cultivation, April 1976
- Conventional - cultivated twice and planted
  Initial cultivation 1/6/76
- Spray seed - 2 l/ha 1/7/76
- Trial planted 7/7/76
- Hoe 23408 at 2 l/ha, ryegrass 2-3 leaf stage sprayed 3/8/76

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT *</th>
<th>Viable RYEBRASS SEEDS /SQ.M</th>
<th>RYEBRASS PLANTS IN CROP /SQ.M</th>
<th>WHEAT PLANT NOS /SQ.M</th>
<th>YIELD WHEAT KG/HA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEC</td>
<td>MARCH</td>
<td>156</td>
<td>140</td>
</tr>
<tr>
<td>C</td>
<td>5850</td>
<td>2866**</td>
<td>136</td>
<td>138</td>
</tr>
<tr>
<td>C+AC</td>
<td>433</td>
<td>888</td>
<td>55.9</td>
<td>148</td>
</tr>
<tr>
<td>C+ST</td>
<td>433</td>
<td>888</td>
<td>(55.9**)</td>
<td>110</td>
</tr>
<tr>
<td>C+AC+ST+Hoe</td>
<td>433</td>
<td>888</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>5850</td>
<td>2866</td>
<td>245</td>
<td>112</td>
</tr>
<tr>
<td>SS+AC</td>
<td>433</td>
<td>888</td>
<td>144</td>
<td>114</td>
</tr>
<tr>
<td>SS+ST+AC</td>
<td>433</td>
<td>888</td>
<td>65</td>
<td>120</td>
</tr>
<tr>
<td>SS+ST+AC+Hoe</td>
<td>433</td>
<td>888</td>
<td>(65**)6</td>
<td>134</td>
</tr>
</tbody>
</table>

* C = Conventional; AC = Autumn cultivation; SS = Sprayseed; ST = Spray top; Hoe = Hoe.23408

** No of plants present at spraying

COMMENTS

In general the autumn cultivated treatments showed better growth than the non cultivated plots. Spray top was efficient in reducing ryegrass seed to a low level. There is some variation between the number of viable seed collected in December and March. This appears to be in part sampling error. The levels of ryegrass seed found in the field is reflected in the numbers of plants present in the crop. Autumn cultivation did not have a great effect on the numbers of weeds in the crop, yet increased yield.

The Hoe.23408 treatments reflect the control achieved by this chemical of Ryegrass.

Dought suppressed the yields considerably.
RYEGRA SS CONTROL - CULTURAL SYSTEMS

75 E 20

LOCALITY: Esperance Downs Research Station

TREATMENTS
- Spray top November 1975
- Autumn cultivation May 1975
- Spray seed Rate 2 l/ha;
- Conventional cultivation - plough, work back as needed, plant.
  Planted at same time as spray seed treatments.
- Post emergent - Hoe 23408 at 2 l/ha

CROP: Wheat Variety Madden

RESULTS

| Treatment                  | Viable seeds/sq.m. | \begin{tabular}{c|c|c} \hline Plant/sq.m. & \multicolumn{2}{c}{Ryegrass} \\ \cline{2-3} & Pre-plant & In crop \\ \hline C *                   & 3 200        & 82         & 2 340 \\ C + AL                  & 3 200        & 132        & 1 684 \\ C + ST                   & 2 220        & 59         & 2 499 \\ C + AL + ST               & 2 220        & 92         & 2 262 \\ C+AL+ST+Hoe             & 2 220        & (92)**5    & 2 856 \\ SS                   & 3 200        & 252        & 822 \\ SS + AL                   & 3 200        & 413        & 1 170 \\ SS + ST                   & 2 220        & 274        & 1 186 \\ SS + AL + ST               & 2 220        & 361        & 1 492 \\ SS+AL+ST+Hoe             & 2 220        & (193)7     & 2 740 \\ \hline
\end{tabular}| Crop yield kg/ha |

C * = Conventional; SS = spray seed; ST = spray top AC = Autumn cultivation; Hoe = Hoe 23408; ** (plants at spraying)

COMMENT

Spray top was not effective due to the occurrence of rainfall after treatment. Rainfall encourages regrowth, which sets considerable quantities of seed.

Autumn cultivation tended to increase the number of ryegrass plants which germination before planting.

With the removal of ryegrass competition by spraying with Hoe 23408, good yield increases were obtained under both sowing systems. The spray seed sowing system response to the removal of ryegrass shows that ryegrass is one of the major problems with this system.
RYEGRASS CONTROL - CULTURAL SYSTEMS

75 SG 16

LOCALITY: - Salmon Gums Research Station

TREATMENTS: - Spray top November 1975 with 550 mls/ha product
- Autumn cultivation April
- Conventional - rip up, worked back, planted at same time as spray seed
- Spray seeded 6/7/76, planted 12/7/66
- Seeded to Gamenya wheat

RESULTS

<table>
<thead>
<tr>
<th>Treatment*</th>
<th>A.R.G. Plants/sq.m. Sept</th>
<th>Yield kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>333</td>
<td>300</td>
</tr>
<tr>
<td>C + ST</td>
<td>143</td>
<td>414</td>
</tr>
<tr>
<td>C + AC</td>
<td>128</td>
<td>508</td>
</tr>
<tr>
<td>C + AC + ST</td>
<td>90</td>
<td>650</td>
</tr>
<tr>
<td>SS</td>
<td>286</td>
<td>295</td>
</tr>
<tr>
<td>SS + AC</td>
<td>200</td>
<td>500</td>
</tr>
<tr>
<td>SS + ST</td>
<td>123</td>
<td>422</td>
</tr>
<tr>
<td>SS + ST + AC</td>
<td>90</td>
<td>600</td>
</tr>
</tbody>
</table>

C = Conventional; AC = Autumn cultivation; SS = spray seed; ST = Spray top

COMMENTS

The drought affected this site to such a degree that the crop was not expected to finish when inspected in late September. Spray top can be seen to have an effect in reducing numbers of ryegrass. Autumn cultivation had had the same effect. Plots that were autumn cultivated appeared to have a better moisture status and the increase achieved by this treatment could have been due to this factor.
CONTROL OF RYEGRASS - CULTURAL SYSTEMS

75 N 23

LOCALITY: Newdegate Research Station

TREATMENTS
- Spray top - November 1975 at 550 mls/ha
- Burning - in December
- Autumn Cultivation 20th April 1976
- Conventional; ploughed 3/6/76, worked back 17/6/76, planted 2/7/76
- Spray seed at 2 l/ha. Note all treatments were ripped with scarifier on day of planting as too hard for combine. Sprayed 4 days before planting. Planted 2/7.
- Hoe 23408 applied at 2-3 leaf stage of ryegrass.
- DDT applied to all treatments for webworm control.
- Wheat Variety Gamenya

RESULTS

<table>
<thead>
<tr>
<th>TREATMENTS*</th>
<th>VIABLE SEED IN DECEMBER 1 sq.m</th>
<th>VIABLE SEED IN MARCH 1 sq.m</th>
<th>RYEGRASS PLANTS/ SQ.M AFTER AC, BEFORE CULTIVATION</th>
<th>RYEGRASS PLANTS IN CROPS 1 sq.m</th>
<th>YIELD kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>11680</td>
<td>5857</td>
<td>863</td>
<td>399</td>
<td>1067</td>
</tr>
<tr>
<td>C+AC</td>
<td>11680</td>
<td>5857</td>
<td>1128</td>
<td>310</td>
<td>1411</td>
</tr>
<tr>
<td>C+ST</td>
<td>2072</td>
<td>1570</td>
<td>470</td>
<td>192</td>
<td>2057</td>
</tr>
<tr>
<td>C+AC+ST</td>
<td>2072</td>
<td>1570</td>
<td>282</td>
<td>147</td>
<td>1937</td>
</tr>
<tr>
<td>C+B+ST</td>
<td>113</td>
<td>492</td>
<td>235</td>
<td>62</td>
<td>2369</td>
</tr>
<tr>
<td>C+AC+B+ST</td>
<td>113</td>
<td>492</td>
<td>207</td>
<td>39</td>
<td>1259</td>
</tr>
<tr>
<td>C+HOE</td>
<td>11680</td>
<td>5857</td>
<td>(399)**15</td>
<td>2419</td>
<td></td>
</tr>
<tr>
<td>SS+AC</td>
<td>11680</td>
<td>5857</td>
<td>473</td>
<td>1208</td>
<td></td>
</tr>
<tr>
<td>SS+AC+ST</td>
<td>2072</td>
<td>1570</td>
<td>211</td>
<td>1870</td>
<td></td>
</tr>
<tr>
<td>SS+ST+B+AC</td>
<td>113</td>
<td>492</td>
<td>65</td>
<td>2364</td>
<td></td>
</tr>
</tbody>
</table>

* C = Conventional; SS = Spray seed; B = Burning; ST = Spray top; AC = Autumn cultivation; Hoe = Hoe 23408

** Ryegrass present at spraying.

COMMENT
Spray top worked fairly well, despite being reduced in effectiveness by some rain post spraying. Burning achieved extremely good control of ryegrass seed. The variations between the December and March samples appear to be due to sampling errors. Summer rainfall on the site and destroyed a lot of seed. The number of plants which were present before cultivation after autumn cultivation showed the effectiveness of this treatment in encouraging germination of ryegrass. The plant numbers in crop reflected seed numbers present on the site at the start of the season.

Hoe 23408 achieved good ryegrass control.
RYEGRASS CONTROL - CULTURAL SYSTEMS

75 WH 68

LOCALITY: Wongan Hills Research Station

TREATMENT
- Spray top at 550 mls/ha September-October, 1975
- Burning - November 1975
- Autumn Cultivation - April 1976
- Conventual Cultivation - plough, 18/5/76
  Work back, and planted 24/6/76 to Gamenya Wheat.
- Spray seed at 2 l/ha, 13 days before seeding, Sown same time
  as for conventual.

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT*</th>
<th>VIABLE RG SEED/SQ.M</th>
<th>RG PLANTS EMERGING PRIOR TO SPRAY SEED</th>
<th>PLANTS /SQ.M.</th>
<th>W.WHEAT /SQ.M.</th>
<th>YIELD kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>5000</td>
<td>2812</td>
<td>553</td>
<td>88</td>
<td>1008</td>
</tr>
<tr>
<td>C + AC</td>
<td>5000</td>
<td>2812</td>
<td>293</td>
<td>100</td>
<td>1166</td>
</tr>
<tr>
<td>C + ST</td>
<td>122</td>
<td>199</td>
<td>42</td>
<td>102</td>
<td>1660</td>
</tr>
<tr>
<td>C+AC+ST</td>
<td>122</td>
<td>199</td>
<td>15</td>
<td>105</td>
<td>1758</td>
</tr>
<tr>
<td>C+ST+B</td>
<td>75</td>
<td>122</td>
<td>9</td>
<td>112</td>
<td>1800</td>
</tr>
<tr>
<td>C+ST+AC+B</td>
<td>75</td>
<td>122</td>
<td>8</td>
<td>105</td>
<td>1874</td>
</tr>
<tr>
<td>C+HOE</td>
<td>5000</td>
<td>2812</td>
<td>(308)**10</td>
<td>104</td>
<td>1541</td>
</tr>
<tr>
<td>SS+AC</td>
<td>5000</td>
<td>2812</td>
<td>360</td>
<td>87</td>
<td>516</td>
</tr>
<tr>
<td>SS+ST+AC</td>
<td>122</td>
<td>199</td>
<td>61</td>
<td>103</td>
<td>1558</td>
</tr>
<tr>
<td>SS+ST+B+AC</td>
<td>75</td>
<td>100</td>
<td>20</td>
<td>101</td>
<td>1558</td>
</tr>
</tbody>
</table>

* C = Conventual; SS = Spray seed; AC = Autumn Cultivation; B = Burning; ST = Spray top
** Plants present at spraying, 2-leaf stage.
*** Counts made after autumn cultivation and only on spray seeded plots as others cultivated at that time.

COMMENT

Spray top worked well and under conventual systems a satisfactory control of ryegrass was achieved. When autumn cultivation was added its effectiveness was further enhanced. The differences in viable seed numbers collected from the Spray topped sites appear due to sampling errors.

Autumn cultivation improved ryegrass control but it is only satisfactory when coupled with Spray top.

Burning further reduced the ryegrass numbers.

Spray seed with autumn cultivation with Spray top was fairly good, but without spray top was not satisfactory. Burning did not seem to improve this treatment.

Hoe 23408 did not give as great a yield increase, as did the treatments which controled ryegrass emegance. This is due to damage occurring to the crop before the ryegrass was removed.
SOWING SYSTEMS

76 NA 41

LOCATION: Boddington - R. Kock

DETAILS: Conventional, ploughed 20/5/76 worked back

- Spray seed - split spray seed application 14 and 2 days before sown; 2L/ha total.
- Triple disc drill + single cultivation
  Initial cultivation, as for conventional, spray seed applied as per spray seed treatment. Planted with triple disc drill
- Triple disc drill - spray seed application as per spray seed treatment.

SOWING DATE: 19/7/76

CROP: Wheat

HARVEST: 13/1/77

RESULTS: Treatment Yield wheat kg/ha

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield wheat kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>2 310</td>
</tr>
<tr>
<td>Spray seed</td>
<td>1 390</td>
</tr>
<tr>
<td>TDD + Cult.</td>
<td>1 870</td>
</tr>
<tr>
<td>TDD</td>
<td>631</td>
</tr>
</tbody>
</table>

COMMENT

Conditions were very dry at planting, and slot closure was not good. This plus severe insect damage reduced the establishment of the crop in the spray seed and triple disc drill plots to a low level. DDT was applied to the trial in early September.
RYEGRASS CONTROL DEMONSTRATION

LOCATION - C.R. Cunningham, Kalgarin, Experiment 76 NA 32

DETAILS

The following treatments were applied to a wheat crop. Harvested 9/12/76
Wimmera Ryegrass seeds in harvest sample. Sprayed 20/7/77

RESULTS

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield/ha</th>
<th>Plant/sq.m.</th>
<th>4/11/76*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosanex 1.7 ha/ha</td>
<td>470</td>
<td>567</td>
<td>1 661</td>
</tr>
<tr>
<td>2.5 &quot;</td>
<td></td>
<td></td>
<td>1 351</td>
</tr>
<tr>
<td>Hoechst 1.5 l/ha</td>
<td>706</td>
<td>741</td>
<td>221</td>
</tr>
<tr>
<td>2 l/ha</td>
<td></td>
<td></td>
<td>166</td>
</tr>
<tr>
<td>3 l/ha</td>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>Control</td>
<td>366</td>
<td>1107 plant/sq.m. at spraying</td>
<td>1 637</td>
</tr>
</tbody>
</table>

* On rep only counted as differences so clear cut.

COMMENT

Hoe 23408 controlled to a reasonable degree the very heavy ryegrass population at this site.

Dosanex did not achieve the same degree of yield recovery.
RYEGRASS CONTROL DEMONSTRATION

76 LG 21
Location - Gray, Kukerin

Details

Chemical Treatments, Dosanex sprayed 25/6/76 WRG at 1½ leaf stage and late at same time as Hoe.
Hoe 23408 sprayed 8/7/76, at WRG 4 leaf stage

Crop - Wheat

Soil - Heavy grey sandy clay

Results

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>19/8/76 Plants in crop /sq.m.</th>
<th>Yield crop kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosanex</td>
<td>1.7</td>
<td>138</td>
<td>2 205</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>100</td>
<td>2 300</td>
</tr>
<tr>
<td>Hoe 23408</td>
<td>1.1 + wetter</td>
<td>33</td>
<td>2 578</td>
</tr>
<tr>
<td></td>
<td>1.5 1</td>
<td>20</td>
<td>2 610</td>
</tr>
<tr>
<td></td>
<td>2 1</td>
<td>8</td>
<td>2 650</td>
</tr>
<tr>
<td></td>
<td>3 1</td>
<td>5</td>
<td>2 681</td>
</tr>
<tr>
<td>Dosanex (late)</td>
<td>2.5 kg</td>
<td>130</td>
<td>2 157</td>
</tr>
<tr>
<td>Nil</td>
<td></td>
<td>385</td>
<td>1 815</td>
</tr>
</tbody>
</table>

Comments

Hoe 23408 yielded better than Dosanex. Dosanex applied at the 4 leaf stage showed the expected reduced effectiveness.

At the lower rates of Hoe 23408, Ryegrass plants showed marked growth reduction and very reduced root growth.
RYEGRASS HERBICIDE TRIAL

LOCATION - Cooks, Beverley 76A26

DETAILS

The chemicals were applied to a crop of barley in the 5 leaf stage and the ryegrass was in the 6-9 leaf stage. Sprayed 28/7/76.

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT/HA</th>
<th>13/10/76 VISUAL ASSESSMENT</th>
<th>27/10/76 VISUAL ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Isoproturon 50% 3.5 kg</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>2. &quot; 4.0 kg</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>3. &quot; 5.0 kg</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>4. Dosanex 1.7 kg</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>5. Hoe. 23408 1.5 l + W.A.</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>6. Hoe. 23408 2 l</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

COMMENT

Isoproturon is not as good as Hoe 23408. It did appear to weaken the barley straw just below the head at the neck. More heads appeared to be lost on these plots. Unless this material is very cheap, it will not be competitive with Hoe. 23408. The dosanex was sprayed too late.
RYEGRASS IN CEREALS

LOCATION - Allan Eva at Finnelly, Experiment 76NA44

DETAILS

The following treatments were applied to a crop of wheat when ryegrass was in the 4 to 9 leaf stage. Sprayed 5/8/76.

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>YIELD /HA</th>
<th>MEAN OF 3 REPS</th>
<th>WEED COUNT 7/10/76/SQ.M</th>
<th>WEED COUNT 10/8/76/SQ.M</th>
<th>VISUAL 7/10/76% WEED KILL</th>
<th>VISUAL WEED KILL 15/9/76</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.23409 2 l/ha</td>
<td>1412</td>
<td>9</td>
<td>144</td>
<td>96%</td>
<td>96%</td>
<td></td>
</tr>
<tr>
<td>H.23408 1.5 l/ha</td>
<td>1500</td>
<td>13</td>
<td>121</td>
<td>94%</td>
<td>99%</td>
<td></td>
</tr>
<tr>
<td>&quot; 1.5 &quot; + W*</td>
<td>1552</td>
<td>10</td>
<td>132</td>
<td>96%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>&quot; 1.0 l/ha</td>
<td>1439</td>
<td>26</td>
<td>111</td>
<td>88%</td>
<td>87%</td>
<td></td>
</tr>
<tr>
<td>&quot; 1.0 &quot; + W</td>
<td>1430</td>
<td>21</td>
<td>103</td>
<td>90%</td>
<td>93%</td>
<td></td>
</tr>
<tr>
<td>&quot; .75 &quot;</td>
<td>1308</td>
<td>91</td>
<td>141</td>
<td>43%</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>&quot; .75 &quot; + W</td>
<td>1474</td>
<td>37</td>
<td>118</td>
<td>85%</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>&quot; .5 &quot;</td>
<td>1186</td>
<td>86</td>
<td>121</td>
<td>33%</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>&quot; .5 &quot; + W</td>
<td>1317</td>
<td>84</td>
<td>128</td>
<td>42%</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Dosanex 1.7 kg/ha</td>
<td>1247</td>
<td>156</td>
<td>152</td>
<td>14%</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>985</td>
<td>227</td>
<td>171</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

* W = Wetting agent, agral.

COMMENTS

Hoe. 23408 achieved good control at 1.5 l/ha with and without wetting agent. At lower rates, wetting agents improved its activity considerably. Dosanex was not good as the Ryegrass plants were too advanced. The ideal stage for Dosanex is the 1-2 leaf stage.
RYEGRASS CONTROL - CHEMICAL CONTROL EARLY POSTEMERGENCE
HEAVY SOIL

LOCALITY - D.P. Holmes, Gnowangerup
CROP - Wheat - Gamenya
SPRAYED - 28/7/76, weeds 1-3 leaf, most 2 leaf.
RAINFALL - 4 mm in 1st week post spray, 12 mm 2nd week.
SOIL TYPE - Sandy clay - "moort flat"

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>YIELD KG/HA</th>
<th>VISUAL EFFECT 2 WEEKS POST SPRAY</th>
<th>ARG DENSITY PLANT/SQ.M NOVEMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diuron 1.25 Kg/ha</td>
<td>2292</td>
<td>Yellowing</td>
<td>27</td>
</tr>
<tr>
<td>Diuron 1.75 Kg/ha</td>
<td>2250</td>
<td>Yellowing</td>
<td>23</td>
</tr>
<tr>
<td>Diuron 2.25 Kg/ha</td>
<td>2167</td>
<td>Yellowing</td>
<td>16</td>
</tr>
<tr>
<td>Hoe 23408 2 Kg/ha</td>
<td>2650</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>3 l/ha</td>
<td>2563</td>
<td>Very Slight Yellow</td>
<td>1</td>
</tr>
<tr>
<td>Dosanex 1.7 Kg/ha</td>
<td>2458</td>
<td>Slight Yellow</td>
<td>22</td>
</tr>
<tr>
<td>Dosanex 2.5 Kg/ha</td>
<td>2438</td>
<td>Some Yellow</td>
<td>22</td>
</tr>
<tr>
<td>Nil</td>
<td>2483</td>
<td>-</td>
<td>44*/34</td>
</tr>
</tbody>
</table>

LSD 5% 139 Kg/ha * at spraying

COMMENTS

The expected ryegrass infestation did not eventuate. Hoe 23408 was the best herbicide and even at the low level of infestation caused some increase in yield. Diuron did reduce the weed level some what but damaged the crop. Damage could still be seen at harvest.

The excellent crop tolerance of Hoe 23408 and Dosanex are shown up by the lack of ryegrass.
RYEGRASS CONTROL DEMONSTRATION

LOCATION: Coxall - Gibson 76ES35

DETAILS:
Crop extremely poor, about 6" high at harvest time, wasn't harvested. Extra treatment of ½ litres/ha of Hoechst looked quite effective with ryegrass hanging on longer than the higher rates but still effectively "dead". Whole trial infested with sorrel.

Hoechst treatments did not affect the sorrel but Dosanex at both rates had 100% kill.

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>RYEGRASS COUNTS/SQ. M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosanex 1.7 kg</td>
<td>520</td>
</tr>
<tr>
<td>Dosanex 2.5 kg</td>
<td>295</td>
</tr>
<tr>
<td>Hoechst 1.5 l</td>
<td>44</td>
</tr>
<tr>
<td>Hoechst 2 l</td>
<td>18</td>
</tr>
<tr>
<td>Hoechst 3 l</td>
<td>6</td>
</tr>
<tr>
<td>Hoechst 1 l + Wetting Agent</td>
<td>52</td>
</tr>
<tr>
<td>Control</td>
<td>1080</td>
</tr>
</tbody>
</table>

COMMENT

Hoe 23408 has a very specific range of weeds which it will kill. They are wild oats, ryegrass and annual philaris in the W.A. cereal situation. Dosanex will kill many broad leaf weeds as well as affecting ryegrass. It may have a place in cereal crops for some of these situations.
RYEGRASS CONTROL DEMONSTRATION

76 NO 27

LOCATION: W. Adams, Cunderdin

DETAILS
The chemicals were sprayed on when the ryegrass was at the 1-2 leaf stage.

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>RATE/HA</th>
<th>YIELD kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosanex</td>
<td>1.7 kg</td>
<td>1 800</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>1 780</td>
</tr>
<tr>
<td>Hoe 23408</td>
<td>1.5 l</td>
<td>2 360</td>
</tr>
<tr>
<td></td>
<td>2 l</td>
<td>2 320</td>
</tr>
<tr>
<td></td>
<td>3 l</td>
<td>2 450</td>
</tr>
<tr>
<td>Nil</td>
<td></td>
<td>1 500</td>
</tr>
</tbody>
</table>

COMMENT
Both chemicals gave yield increases. Hoe 23408 is considerably more efficient than Dosanex against ryegrass.
RYEGRASS CONTROL

76 KA 22

LOCATION: Lloyds, Dumbleyung

DETAILS

The chemicals were sprayed to wheat and counts of ryegrass in crop made on the 17/8/76.

RESULTS

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>RATE/HA</th>
<th>PLANT IN CROP</th>
<th>YIELD CROP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>/sq.m.</td>
<td>kg/ha</td>
</tr>
<tr>
<td>Dosanex</td>
<td>1.7</td>
<td>163</td>
<td>790</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>105</td>
<td>1 000</td>
</tr>
<tr>
<td>Hoe 23408</td>
<td>1 l + wetter</td>
<td>21</td>
<td>1 240</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>15</td>
<td>1 160</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>9</td>
<td>1 120</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>5</td>
<td>1 170</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>231</td>
<td>800</td>
</tr>
</tbody>
</table>

COMMENT

This site appeared droughted during late September and this may be the cause of the low yields.

Hoe at 1 l + wetter worked well, and achieved good ryegrass suppression and yield response.

Dosanex at the lower rate did not perform well. This may have been due to dry conditions following spraying.
Hoe 23408 Demonstration

These results are of unreplicated trials in farmers' paddocks. They yield data on the stability of Hoe 23408.

**LOCALITY:** Bells, Kataining

**CROP:** Wheat

### Result

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>1 425 kg/ha</td>
</tr>
<tr>
<td>1.5 L/ha Hoe 23408</td>
<td>2 060</td>
</tr>
<tr>
<td>2 L/ha Hoe 23408</td>
<td>2 060</td>
</tr>
</tbody>
</table>

**LOCALITY:** Jones, Dumbleyung

**CROP:** Wheat

### Result

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>910 kg/ha</td>
</tr>
<tr>
<td>1.5 L/ha Hoe 23408</td>
<td>1 450</td>
</tr>
<tr>
<td>2 L/ha Hoe 23408</td>
<td>1 480</td>
</tr>
</tbody>
</table>

**Comment**

Hoe 23408 has achieved good yield responses when sprayed in a ryegrass infested crop.
RYEGRASS CONTROL DEMONSTRATION
76 Mo 30

LOCATION: McDonald, Yerecoin
CROP: Wheat

DETAILS
The crop was sprayed at the 2 leaf stage for Dosanex and 2-3 leaf stage for Hoe 23408.
Weeds present at spraying not counted.
Spraying date - 26/7/76

RESULTS

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>RATE/HA</th>
<th>19/8/76 PLANT IN CROP</th>
<th>YIELD kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>/sq.m.</td>
<td></td>
</tr>
<tr>
<td>Dosanex</td>
<td>1.7 kg</td>
<td>88</td>
<td>1 230</td>
</tr>
<tr>
<td></td>
<td>2.5 kg</td>
<td>67</td>
<td>1 200</td>
</tr>
<tr>
<td>Hoe 23408</td>
<td>1.5 l</td>
<td>33</td>
<td>1 590</td>
</tr>
<tr>
<td></td>
<td>2 l</td>
<td>32</td>
<td>1 640</td>
</tr>
<tr>
<td></td>
<td>3 l</td>
<td>15</td>
<td>1 500</td>
</tr>
<tr>
<td></td>
<td>1 l + wetter</td>
<td>64</td>
<td>1 410</td>
</tr>
<tr>
<td>Control</td>
<td>1.5 l</td>
<td>64</td>
<td>1 200</td>
</tr>
</tbody>
</table>

COMMENT
Hoe 23408 performed well at 1.5 l and higher rates.
Dosanex did not achieve any worthwhile gains.
CANARY GRASS CONTROL DEMONSTRATION

Phalaris canaryriensis - 76LG22

LOCATION: D. Timperley - Kukerin

DETAILS

Dosanex sprayed 22/7/76 when canary grass 1-2 leaf wheat 3-4 leaf. 10 m rain fell 1½ days later.

Other treatments when canary grass 3-4 leaf, on 9/8/76. Soil moist, plants slightly damp.

RESULTS

<table>
<thead>
<tr>
<th>TREATMENTS</th>
<th>RATE/HA</th>
<th>PLANTS IN CROP / sq.m.</th>
<th>YIELD WHEAT kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosanex</td>
<td>1.7</td>
<td>440</td>
<td>1 321</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>290</td>
<td>1 421</td>
</tr>
<tr>
<td>Hoe</td>
<td>16 + weather</td>
<td>15</td>
<td>1 546</td>
</tr>
<tr>
<td></td>
<td>3 L</td>
<td>7</td>
<td>1 628</td>
</tr>
<tr>
<td>Matravin</td>
<td>3 L</td>
<td>417</td>
<td>1 177</td>
</tr>
<tr>
<td>Average</td>
<td>1.2</td>
<td>675</td>
<td>1 058</td>
</tr>
<tr>
<td>Nil</td>
<td></td>
<td>842</td>
<td>1 058</td>
</tr>
</tbody>
</table>

COMMENT

Hoe 23408 was most effective in controlling this plant.

Matravin stunted the surviving plants but didn't achieve a great deal of yield increase. Dosanex was not as good as Hoe 23408, despite ideal conditions.