VII. EFFECT OF FUNGICIDE SPRAYS ON HARDLOCK IN COTTON (Phillip Edwards Farm, Smithfield, VA)

A. PURPOSE: To compare the efficacy of various fungicides for control of hardlock in cotton

B. EXPERIMENTAL DESIGN:
   1. Five, randomized complete blocks
   2. Two, 30-ft rows per plot with one border row between each pair of treated rows
   3. Row spacing 36 in.
   4. Ten-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: All treatments were over sprayed with insecticides during the bloom period to control stinkbugs and boll damage by insects in general. Fungicide sprays were applied with a CO2, backpack sprayer delivering 13.9 gal/A with two, 8002 nozzles/row at 17 psi.

D. TREATMENT AND RATE/A: (1st bloom = 50% of plants have 1 open bloom – Jul 8)
   1. Untreated check
   2. Topsin M 0.5 lb (1st bloom + 2 wks + 2 wks)
   3. Topsin M 1 lb (1st bloom + 2wks + 2 wks)
   4. Thiram 75W 3 lb (1st bloom + 2 wks + 2 wks)
   5. Quadris 2.08SC 6 fl oz (1st bloom + 2 wks + 2 wks)
   6. Quilt 10 fl oz (1st bloom + 2 wks + 2 wks)
   7. Folicur 3.6F 4 fl oz + Induce 1.2 fl oz (1st bloom + 2 wks + 2 wks)
   8. Stratego 7 fl oz (1st bloom + 2 wks + 2 wks)
   9. Headline 250EC 3 fl oz (1st bloom + 2 wks + 2 wks)
  10. Headline 250EC 6 fl oz (1st bloom + 2 wks + 2 wks)

E. ADDITIONAL INFORMATION:
   1. Location: Phillip Edwards farm, Smithfield, Va
   2. Crop history: cotton 2001-2003
   3. Land preparation: strip tillage into wheat cover crop
   4. Planting date and variety: 21 Apr 2004, FM 989BR
   5. Soil fertility report (Mar 2004):
      pH.................  6.7
      Ca.................. 0.4 ppm
      Mg.................. 73 ppm
      P...................  63 ppm
      K................... 171 ppm
      Zn..................  1.8 ppm
      Mn................... 7.4 ppm
      Cu..................  0.4 ppm
      Fe................... 9.2 ppm
      B...................  0.2 ppm
      Soil type .......... Slagle fine sandy loam
   6. Herbicide: Roundup Weather Max 22 fl oz/A (12 May, 24 May)
      Dual Magnum 16 fl oz/A (24 May)
      Cotton Pro 1 qt + MSMA 1.3 qt + Harvade 6.4 fl oz/A, directed spray (20 Jun)
7. Insecticide: Temik 15G 5 lb/A in furrow (21 Apr)  
   Orthene 97S 4 oz (12 May)  
   Bidrin 4 oz/A (19 Jun, 1 Jul)  
   Mustang Max 4 fl oz/A (6 Aug)
8. Growth regulator: Pix 6 fl oz (13 Jun); 12 fl oz/A (27 Jun)
9. Defoliant/Boll opener: Cotton Quick 2 qt + Dropp 1.6 oz + Def 8 oz/A (1 Nov)
10. Fertilization: 30-25-40 100 lb/A (18 Apr)  
    Liquid nitrogen 15.5 gal (50 units) + boron 1.5 lb/A (2 Jun)  
    Boron 0.25 lb/A (6 Aug)
11. Harvest date: 22 Nov 2004

Table 24. Number of flowers at the time of fungicide applications.

<table>
<thead>
<tr>
<th>Rep</th>
<th>Jul 8</th>
<th>Jul 22</th>
<th>Aug 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>109</td>
<td>70</td>
<td>44</td>
</tr>
<tr>
<td>II</td>
<td>103</td>
<td>71</td>
<td>36</td>
</tr>
<tr>
<td>III</td>
<td>87</td>
<td>96</td>
<td>51</td>
</tr>
<tr>
<td>IV</td>
<td>56</td>
<td>72</td>
<td>71</td>
</tr>
<tr>
<td>V</td>
<td>99</td>
<td>99</td>
<td>50</td>
</tr>
</tbody>
</table>

* Total number of flowers per one row of plot.

Table 25. Effect of fungicide applications on incidence of hard lock and yield of cotton.

<table>
<thead>
<tr>
<th>Treatment and rate/A (^1)</th>
<th>Total bolls (^2)</th>
<th>Total locks (^2)</th>
<th>% hard lock (^2)</th>
<th>Yield (^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated check</td>
<td>59 bc</td>
<td>235 bc</td>
<td>8.5 a-c</td>
<td>3328 a</td>
</tr>
<tr>
<td>Topsin M 0.5 lb</td>
<td>73 a</td>
<td>290 a</td>
<td>9.3 a-c</td>
<td>3570 a</td>
</tr>
<tr>
<td>Topsin M 1 lb</td>
<td>59 bc</td>
<td>234 bc</td>
<td>8.4 a-c</td>
<td>3376 a</td>
</tr>
<tr>
<td>Thiram 75W 3 lb</td>
<td>68 ab</td>
<td>273 ab</td>
<td>7.6 bc</td>
<td>3279 a</td>
</tr>
<tr>
<td>Quadris 2.08SC 6 fl oz</td>
<td>59 bc</td>
<td>234 bc</td>
<td>8.5 a-c</td>
<td>3340 a</td>
</tr>
<tr>
<td>Quilt 10 fl oz</td>
<td>59 bc</td>
<td>237 bc</td>
<td>8.0 a-c</td>
<td>3231 a</td>
</tr>
<tr>
<td>Folicur 3.6F 4 fl oz + Induce 1.2 fl oz</td>
<td>55 c</td>
<td>219 c</td>
<td>12.6 a</td>
<td>3424 a</td>
</tr>
<tr>
<td>Stratego 7 fl oz</td>
<td>60 bc</td>
<td>240 bc</td>
<td>7.4 c</td>
<td>3134 a</td>
</tr>
<tr>
<td>Headline 250EC 3 fl oz</td>
<td>59 bc</td>
<td>236 bc</td>
<td>11.7 a-c</td>
<td>3303 a</td>
</tr>
<tr>
<td>Headline 250EC 6 fl oz</td>
<td>56 c</td>
<td>224 c</td>
<td>12.0 ab</td>
<td>3376 a</td>
</tr>
</tbody>
</table>

Minimum significant difference........ 10 40 4.6 772 0.66

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\(^1\) Treatments were applied at first bloom (8 Jul) and thereafter at two-week intervals (22 Jul, 4 Aug).
\(^2\) Counts are plants from 1 meter of each plot (ca. 7 plants) at harvest.
\(^3\) Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 41% of total weight and 480 lb/bale.

Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.