XIII. RESPONSE OF COTTON TO SEED AND IN-FURROW TREATMENTS FOR NEMATODE CONTROL (Rick Morgan Farm, Deer Forest Rd., Suffolk, VA)

A. PURPOSE: To compare seed and in-furrow treatments for control of southern root-knot nematode

B. EXPERIMENTAL DESIGN:
   1. Four, randomized complete blocks
   2. Two, 30-ft rows per plot with 38 in. row spacing
   3. Fifteen-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: Granular in-furrow treatments with Temik 15G were applied to the seed furrow at planting. Seed treatments were applied by Syngenta Crop Protection.

D. TREATMENT AND RATE (seed treatment rates are a.i.; in-furrow treatment rates are formulated product):
   1. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed
   2. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed
   3. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed
   4. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)
   5. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)
   6. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)

E. ADDITIONAL INFORMATION:
   1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk
   3. Land preparation: strip tillage into stale beds with cotton stalks from 2003
   4. Planting date and cultivar: 29 Apr; ST 4892 BR
   5. Herbicide: Cotoran 1 qt + Prowl 1 qt/A (6 May)
      Roundup Ultra Max 22 fl oz/A (18 May, 1 Jun)
      Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, direct/hooded spray (17 Jun)
      Valor 1 lb + Roundup Ultra Max 22 fl oz/A (23 Jun)
   6. Insecticide: Orthene 97S 6 oz/A (18 May, 1 Jun)
      Baythroid 2 fl oz (15 Jul, 21 Jul)
   7. Growth regulator: Pix wick bar 6 oz/A (8 Jul)
      Pix 16 fl oz/A (20 Apr)
   8. Defoliant/Boll opener: Finish 1 qt + Aim 1 fl oz/A (9 Oct)
   9. Fertilization: 6-0-40 200 lb/A (20 Apr)
      Liquid nitrogen (32%) 80 lb/A (30 Jun)
      Liquid boron 1 qt/A (30 Jun)
  10. Harvest date: 10 Nov 2004
Table 47. Emergence and growth of cotton with seed and in-furrow treatments for control of nematodes.

<table>
<thead>
<tr>
<th>Treatment and rate</th>
<th>Plants/ft² (May 27)</th>
<th>Plant height (in.)³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jul 1</td>
<td>Aug 6</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed</td>
<td>1.68 a</td>
<td>24.4 c</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed</td>
<td>1.70 a</td>
<td>24.8 bc</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed</td>
<td>1.71 a</td>
<td>24.6 bc</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)</td>
<td>1.70 a</td>
<td>25.9 a</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)</td>
<td>1.84 a</td>
<td>25.2 a-c</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)</td>
<td>1.62 a</td>
<td>25.4 ab</td>
</tr>
<tr>
<td>LSD</td>
<td>0.23</td>
<td>0.98</td>
</tr>
</tbody>
</table>

1 Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.
2 Determined from counts of two, 30-ft rows per plot.
3 Determined from measurements of six plants per plot (1 Jul) and four plants per plot (6 Aug).
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).
Table 48. Number of node and bolls/plant in cotton with seed and in-furrow treatments for control of nematodes.

<table>
<thead>
<tr>
<th>Treatment and rate*</th>
<th>No. of nodes**</th>
<th>No. of bolls** (Aug 6)</th>
<th>Open bolls** (Sep 12)</th>
</tr>
</thead>
</table>
| Dynasty CST 1.04FS 32 g  
+ Systhane 40WSP 21 g/100 kg seed  
+ Cruiser 5FS 0.34 mg/seed............................... | 11.5 a | 15.6 ab | 12.0 a | 6.6 a |
| Dynasty CST 1.04FS 32 g  
+ Systhane 40WSP 21 g/100 kg seed  
A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed.. | 11.7 a | 15.6 ab | 10.7 a | 7.1 a |
| Dynasty CST 1.04FS 32 g  
+ Systhane 40WSP 21 g/100 kg seed  
A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed. | 11.3 a | 15.8 ab | 10.1 a | 6.6 a |
| Dynasty CST 1.04FS 32 g  
+ Systhane 40WSP 21 g/100 kg seed  
+ Temik 15G 3.5 lb (F)................................. | 11.9 a | 16.5 a | 11.6 a | 6.9 a |
| Dynasty CST 1.04FS 32 g  
+ Systhane 40WSP 21 g/100 kg seed  
+ Temik 15G 5 lb (F)................................. | 11.7 a | 15.4 b | 11.8 a | 7.1 a |
| Dynasty CST 1.04FS 32 g  
+ Systhane 40WSP 21 g/100 kg seed  
A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed  
+ Temik 15G 5 lb (F) ................................... | 11.7 a | 15.9 ab | 12.6 a | 7.3 a |
| LSD........................... | 0.75 | 1.04 | 2.83 | 0.76 |

* Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.

** Determined from measurements of six plants per plot (1 Jul) and four plants per plot (6 Aug, 12 Sep). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).
Table 49. Nematode populations, root galling and yield in plots planted to cotton with seed and in-furrow treatments for control of nematodes.

<table>
<thead>
<tr>
<th>Treatment and rate&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Nematodes /500 cc soil&lt;sup&gt;2&lt;/sup&gt; (Root-knot)</th>
<th>Root galling&lt;sup&gt;3&lt;/sup&gt; (0-6)</th>
<th>Yield&lt;sup&gt;4&lt;/sup&gt; lb/A</th>
<th>bales/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed</td>
<td>1698 a</td>
<td>2.4 ab</td>
<td>3675 b</td>
<td>3.22 b</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed</td>
<td>1038 a</td>
<td>2.6 a</td>
<td>4084 a</td>
<td>3.57 a</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed</td>
<td>688 a</td>
<td>1.9 ab</td>
<td>3953 ab</td>
<td>3.46 ab</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)</td>
<td>450 a</td>
<td>2.5 ab</td>
<td>3998 a</td>
<td>3.50 a</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)</td>
<td>803 a</td>
<td>2.4 ab</td>
<td>4208 a</td>
<td>3.68 a</td>
</tr>
<tr>
<td>Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)</td>
<td>943 a</td>
<td>1.6 b</td>
<td>4148 a</td>
<td>3.63 a</td>
</tr>
<tr>
<td>LSD</td>
<td>1482</td>
<td>0.92</td>
<td>289</td>
<td>0.25</td>
</tr>
</tbody>
</table>

<sup>1</sup> Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.

<sup>2</sup> Soil was sampled on 1 Jul.

<sup>3</sup> Rating scale: 0=none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root system with galls. Ratings were made on 12 Nov.

<sup>4</sup> Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 42% of total weight and 480 lb/bale. Plots were harvested on 10 Nov 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.