

XXXI. EVALUATION OF SEED TREATMENTS FOR NEMATODE CONTROL IN SOYBEAN  
(TAREC Research farm)

- A. PURPOSE: To compare the efficacy and benefits of seed and in-furrow treatments for nematode control
- B. EXPERIMENTAL DESIGN:
1. Split-plot design with four randomized complete blocks separated by 15-ft alleyways
  2. Four, 30-ft rows in main plots and varieties in subplots of two rows
  3. Row spacing was 36 inches
  4. Seeding rate was ca. 7 seed/ft of row
- C. APPLICATION OF TREATMENTS: all rates are active ingredient. Syngenta Crop Protection applied seed treatments. Temik 15G was applied to the open seed furrow (F) at planting.
- D. TREATMENT AND RATE (MAIN PLOTS): all rates are product active ingredient
1. Apron Maxx RFC 6.25 g/100 kg seed
  2. Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed
  3. Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed
  4. Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed
  5. Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F)
- E. VARIETIES (SUBPLOTS): two rows of each variety
1. Pioneer 95B42 (Susceptible to soybean cyst and southern root-knot)
  2. Pioneer 95B43 (Partially resistant to soybean cyst and southern root-knot)
- F. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Farm, Hare Rd., Suffolk, VA
  2. Crop history: 2004 peanut, 2003 wheat/soybean, 2002 peanut
  3. Planting date: 23 May 2005
  4. Soil fertility report:
 

pH.....	6.6
Ca .....	297 ppm
Mg .....	46 ppm
P .....	31 ppm
K.....	42 ppm
Zn .....	0.9 ppm
Mn .....	2.0 ppm
Soil type .....	Goldsboro fine sandy loam
  5. Herbicide: Prowl 1 pt/A (23 May)  
Roundup Ultra Max 22 fl oz/A (13 Jun, 19 Jul)
  6. Harvest date: 1 Nov, 12 Nov 2005 (combine breakdown and weather delay)

Table 107. Effect of seed treatments on emergence of soybeans.

Treatment and rate (a.i.)	Plants/ft*			
	Jun 10		Jun 24	
	Pioneer 95B42	Pioneer 95B43	Pioneer 95B42	Pioneer 95B43
Apron Maxx RFC 6.25 g/100 kg seed .....	4.3	4.3 a	3.8	3.8 a
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed .....	4.2	3.6 b	3.9	3.4 ab
Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed .....	4.1	3.5 b	3.8	3.3 b
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed.....	4.2	3.5 b	3.6	3.3 b
Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F).....	4.1	4.4 a	3.8	3.9 a
<b>LSD</b> .....	<b>n.s.</b>	<b>0.3</b>	<b>n.s.</b>	<b>0.5</b>
<b>Treatment mean</b>				
Apron Maxx RFC 6.25 g/100 kg seed ....	4.3		3.8	
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed .....	3.9		3.6	
Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed .....	3.8		3.5	
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed.....	3.8		3.5	
Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F).....	4.3		3.9	
<b>LSD</b> .....	<b>--</b>		<b>n.s.</b>	
<b>Variety mean</b>				
Pioneer 95B42.....	4.2		3.8 a	
Pioneer 95B43.....	3.9		3.6 b	
<b>LSD</b> .....	<b>--</b>		<b>0.2</b>	
<b>Split-plot analysis</b>				
Treatment .....	.0003		.1902	
Variety.....	.0002		.0095	
Treatment x variety .....	.0012		.1197	

\* Determined from counts of two, 30-ft rows per plot.

Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (P=0.05). "n.s."=not significant; "--" = LSD not valid due to significant variety by treatment interaction.

Table 108. Effect of seed treatments on incidence of soybean cyst nematode (SCN) and northern root knot nematode on soybean roots.

Treatment and rate (a.i.)	Root ratings (0-6)*			
	Pioneer 95B42		Pioneer 95B43	
	SCN	Root knot	SCN	Root knot
Apron Maxx RFC 6.25 g/100 kg seed .....	0.4	2.6 a	0.3	2.9 a
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed .....	0.1	2.4 ab	0.3	2.4 a
Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed .....	0.4	2.3 ab	0.6	2.6 a
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed .....	0.6	1.9 bc	0.8	2.3 a
Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F) .....	0.3	1.3 c	0.3	1.1 b
<b>LSD</b> .....	<b>n.s.</b>	<b>0.7</b>	<b>n.s.</b>	<b>0.9</b>
<b>Treatment mean</b>	<b>SCN</b>		<b>Root knot</b>	
Apron Maxx RFC 6.25 g/100 kg seed ....	0.3		2.8 a	
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed .....	0.2		2.4 ab	
Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed .....	0.5		2.4 ab	
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed .....	0.7		2.1 b	
Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F) .....	0.3		1.2 c	
<b>LSD</b> .....	<b>n.s.</b>		<b>0.49</b>	
<b>Variety mean</b>				
Pioneer 95B42 .....	0.4		2.1	
Pioneer 95B43 .....	0.4		2.3	
<b>LSD</b> .....	<b>n.s.</b>		<b>n.s.</b>	
<b>Split-plot analysis</b>				
Treatment .....	.5694		.0156	
Variety .....	.5466		.2672	
Treatment x variety .....	.8987		.7913	

\* Determined from observations of two plant samples from each plot or a total of 8 per treatment. Rating scale: 0=none, 1=10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root system with SCN females or root-knot galls with females laying eggs or SCN females. Ratings were made on 30 Jul. Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD test (P=0.05).

Table 109. Effect of seed treatments on nematode populations in Pioneer 95B42 soybeans.

Treatment and rate (a.i.)	Nematodes/500 cc soil*				
	Root knot	Stunt	Stubby root	Cyst	Cyst larvae
Apron Maxx RFC 6.25 g/100 kg seed .....	5,710	275	70	14	25
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed .....	8,373	355	83	13	35
Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed .....	11,728	280	108	7	30
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed.....	10,945	250	83	8	15
Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F) .....	7,848	315	43	14	35
<b>LSD.....</b>	<b>n.s.</b>	<b>n.s.</b>	<b>n.s.</b>	<b>n.s.</b>	<b>n.s.</b>

\* Soil was sampled on 25 Aug.

“n.s.” = means are not significantly different according to Fisher’s Protected LSD (P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.

Table 110. Effect of seed treatments on yield of soybeans.

Treatment and rate (a.i.)	Yield (bu/A)*	
	Pioneer 95B42	Pioneer 95B43
Apron Maxx RFC 6.25 g/100 kg seed .....	26.1	27.4
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed	25.1	24.3
Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed	26.1	25.2
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed .....	28.5	25.9
Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F).....	28.6	26.9
<b>LSD</b> .....	<b>n.s.</b>	<b>n.s.</b>
<b><i>Treatment mean</i></b>		
Apron Maxx RFC 6.25 g/100 kg seed .....	26.8	
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed	24.7	
Apron Maxx RFC 6.26 g/100 kg seed + STAN 500FS 0.2 mg /seed	25.7	
Apron Maxx RFC 6.25 g/100 kg seed + STAN 500FS 0.1 mg/seed + Cruiser 5FS 50 g/100 kg seed .....	27.2	
Apron Maxx RFC 6.25 g/100 kg seed + Temik 15G 0.75 lb/A (F).....	27.7	
<b>LSD</b> .....	<b>n.s.</b>	
<b><i>Variety mean</i></b>		
Pioneer 95B42.....	26.9	
Pioneer 95B43.....	25.9	
<b>LSD</b> .....	<b>n.s.</b>	
<b><i>Split-plot analysis</i></b>		
Treatment .....	.1442	
Variety.....	.1493	
Treatment x variety .....	.4445	

\* Yield of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybean harvest began on 1 Nov and was finished on 12 Nov due to an equipment breakdown.

"n.s." = means are not significantly different according to Fisher's Protected LSD (P=0.05).