

Influence of Nematicide Treatment, In-Furrow Insecticide/Nematicide Treatment, and Nitrogen Rate on Growth and Yield of Cotton II

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Methods: Stoneville 4646 BG II RR cotton seed were planted on a Sharkey clay soil on 10 May. Plot size was four rows (40 inch centers) by 50 feet. Treatments were replicated four times in a randomized complete block design. Nematicide treatments (Telone II 3 gal product/acre) were applied on 18 Apr with a coultter applicator at ca. 12 inches below the soil surface. Granular in-furrow insecticide/nematicide treatments (Temik 15G 0.5 lb AI/acre) were applied with the granular pesticide applicators on a John Deere 1700 row crop planter on 10 May. Fertilizer treatments (32% UAN) were applied with an applicator equipped with coulters (1/row) designed to apply liquid fertilizers and a John Blue VR-2455 variable rate pump and controller on 7 Jun. Plant density was determined by counting all plants on the center two rows of each plot at 18 and 29 days after emergence (DAE). Plant height was determined by measuring 10 randomly selected plants from the center two rows of each plot at 29 DAE. Plots were harvested on 21 Sep. All four rows of each plot were mechanically harvested using a spindle type harvester. Yields were converted to lb seedcotton/acre.

Comments: There was no significant interaction between nematicide treatment, in-furrow insecticide treatment, and nitrogen rate observed for plant density, plant height, or seedcotton yield. There was no significant interaction between in-furrow insecticide treatment and nitrogen rate observed for plant density, plant height, or seedcotton yield. There was no significant interaction between nematicide treatment and nitrogen rate observed for plant density, plant height, or seedcotton yield. There was no significant interaction between nematicide treatment and in-furrow insecticide treatment observed for plant density, plant height, or seedcotton yield. There were no significant differences among nematicide treatments for plant density, plant height, or seedcotton yield. There were no significant differences among in-furrow insecticide treatments for plant density, plant height, or seedcotton yield. There were no significant differences among nitrogen rates for plant density or plant height. Plots treated with 90, 120, or 150 lb of nitrogen per acre produced significantly more seedcotton compared to plots that received 60 lb of nitrogen per acre or the non-treated plots.

Table 1. Influence of nematicide treatment, in-furrow insecticide/nematicide treatment, and nitrogen rate on plant density, plant height, and seedcotton yield.

Nematicide Treatment	In-Furrow Treatment	Nitrogen Rate Lb/acre	Plants / acre		Plant Height (in)	Seedcotton Yield
			18 DAE ¹	29 DAE ¹	29 DAE ¹	Lb/acre
Telone II	Temik 15G	0	25,711	24,797	23.2	1,382
Telone II	Non-Treated	0	30,057	29,893	26.3	2,208
Non-Treated	Temik 15G	0	20,126	20,190	19.9	1,420
Non-Treated	Non-Treated	0	22,869	24,209	23.7	1,377
Telone II	Temik 15G	60	30,187	29,893	22.8	2,450
Telone II	Non-Treated	60	33,618	31,363	25.5	2,544
Non-Treated	Temik 15G	60	26,790	26,594	25.2	2,501
Non-Treated	Non-Treated	60	23,229	23,228	20.3	2,480
Telone II	Temik 15G	90	33,389	32,115	24.9	2,671
Telone II	Non-Treated	90	32,833	27,737	26.0	3,066
Non-Treated	Temik 15G	90	32,507	29,436	26.1	3,104
Non-Treated	Non-Treated	90	21,987	21,072	24.1	2,797
Telone II	Temik 15G	120	27,312	20,713	24.3	3,037
Telone II	Non-Treated	120	32,082	31,331	25.3	3,134
Non-Treated	Temik 15G	120	30,187	30,971	25.1	3,448
Non-Treated	Non-Treated	120	23,359	23,817	26.0	3,224
Telone II	Temik 15G	150	31,592	29,370	24.1	2,977
Telone II	Non-Treated	150	23,588	23,719	22.5	2,783
Non-Treated	Temik 15G	150	22,412	21,726	19.9	2,793
Non-Treated	Non-Treated	150	23,359	21,867	27.8	3,206
<i>P>F</i>			0.18	0.09	0.17	0.36

Means within columns followed by a common letter are not significantly different (FPLSD, P=0.05).

¹Days after emergence.

Table 2. Influence of in-furrow insecticide/nematicide treatment and nitrogen rate on plant density, plant height, and seedcotton yield.

In-Furrow Treatment	Nitrogen Rate Lb/acre	Plants / acre		Plant Height (in)	Seedcotton Yield
		18 DAE ¹	29 DAE ¹	29 DAE ¹	lb/acre
Temik 15G	0	22,918	22,493	21.5	1,401
Non-Treated	0	26,463	27,051	25.0	1,793
Temik 15G	60	28,488	28,243	24.0	2,475
Non-Treated	60	28,423	27,296	22.9	2,512
Temik 15G	90	32,948	30,775	25.5	2,887
Non-Treated	90	27,410	24,404	25.1	2,931
Temik 15G	120	28,750	25,842	24.7	3,242
Non-Treated	120	27,721	27,574	25.7	3,179
Temik 15G	150	27,002	25,548	22.0	2,885
Non-Treated	150	23,474	22,788	25.1	2,994
<i>P>F</i>		0.35	0.10	0.58	0.81

Means within columns followed by a common letter are not significantly different (FPLSD, P=0.05).

¹Days after emergence.

Table 3. Influence of nematicide treatment and nitrogen rate on plant density, plant height, and seedcotton yield.

Nematicide Treatment	Nitrogen Rate Lb/acre	Plants / acre		Plant Height (in)	Seedcotton Yield
		18 DAE ¹	29 DAE ¹	29 DAE ¹	lb/acre
Telone II	0	27,884	27,345	24.7	1,795
Non-Treated	0	21,497	22,199	21.8	1,399
Telone II	60	31,902	30,628	24.1	2,497
Non-Treated	60	25,009	24,911	22.8	2,490
Telone II	90	33,111	29,926	25.5	2,868
Non-Treated	90	27,247	25,254	25.1	2,950
Telone II	120	29,697	26,022	24.8	3,086
Non-Treated	120	26,773	27,394	25.5	3,336
Telone II	150	27,590	26,544	23.3	2,880
Non-Treated	150	22,885	21,791	23.9	2,999
<i>P>F</i>		0.92	0.41	0.81	0.53

Means within columns followed by a common letter are not significantly different (FPLSD, P=0.05).

¹Days after emergence.

Table 4. Influence of nematicide treatment and in-furrow insecticide/nematicide treatment on plant density, plant height, and seedcotton yield.

Nematicide Treatment	In-Furrow Treatment	Plants / acre	Plants / acre	Plant Height (in)	Seedcotton Yield
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Treatment	Treatment	18 DAE ¹	29 DAE ¹	29 DAE ¹	Lb/acre
Telone II	Temik 15G	29,638	27,377	23.9	2,503
Tellone II	Non-Treated	30,435	28,808	25.1	2,747
Non-Treated	Temik 15G	26,404	25,783	23.2	2,653
Non-Treated	Non-Treated	22,961	22,836	24.4	2,617
<i>P>F</i>		0.06	0.26	0.51	0.28

Means within columns followed by a common letter are not significantly different (FPLSD, P=0.05).

¹Days after emergence.

Table 5. Main effects of nematicide treatment, in-furrow insecticide/nematicide treatment, and nitrogen rate on plant density, plant height, and seedcotton yield.

	<u>Plants / acre</u> 18 DAE ¹	<u>Plants / acre</u> 29 DAE ¹	<u>Plant Height (in)</u> 29 DAE ¹	<u>Seedcotton Yield</u> Lb/acre
Nematicide Treatment				
Telone II	30,037a	28,093	24.5	2,625
Non-Treated	24,682b	24,310	23.8	2,635
<i>P>F</i>	0.03	0.08		0.89
In-Furrow Treatment				
Temik 15G	28,021	26,580	23.5	2,578
Non-Treated	26,698	25,822	24.8	2,682
<i>P>F</i>	0.18	0.68	0.17	0.41
Nitrogen Rate (lb/acre)				
0	24,690	24,772	23.2	1,597c
60	28,456	27,769	23.5	2,493b
90	30,179	27,590	25.3	2,909a
120	28,235	26,708	25.2	2,940a
150	25,238	24,168	23.6	3,211a
<i>P>F</i>	0.10	0.29	0.61	<0.01

Means within columns followed by a common letter are not significantly different (FPLSD, P=0.05).

¹Days after emergence.