

## ULTRA NARROW ROW (UNR) COTTON RESPONSE TO SOIL INSECTICIDES FOR EARLY SEASON INSECT CONTROL

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**ABSTRACT:** A field study was conducted on a Catalpa silty clay loam soil, Verona, Mississippi, evaluating ultra narrow row (UNR) cotton response to selected soil in-furrow insecticides for early season insect control (thrips). Cotton was planted on 6/12/01 at 150,000 seed per acre in 9.5 inch rows with a vacuum planter. Thrip counts were made June 21, June 28, and July 5, 2001. Seedcotton yields were equal for all treatments including the untreated check. Results of the ultra-narrow row planting of cotton incorporating Temik (aldicarb) as an in-furrow insecticide resulted in all treatments, except the seed treatment alone, being effective through July 5 when sampling for thrips was completed. Adult thrips were found in plots treated with Gaucho (imidacloprid) in roughly the same numbers as found in the untreated check. This has been historically the case with Gaucho, but the adults have not been incriminated in harming the plant. The addition of Temik to the Gaucho effectively controlled adults. Results of this trial indicate that Gaucho is not needed when Temik is applied. Additionally, the rates of Temik applied in this trial are very high and rates above 3.5 lb of Temik per acre are probably not necessary. High rates of Temik have reduced yields in some trials and should be avoided.

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**MATERIALS AND METHODS:** A field study was conducted on a Catalpa silty clay loam soil, Verona, Mississippi, evaluating UNR cotton response to selected soil insecticides in a randomized complete block design with 4 replications. Treatments included: a check (no seed treatment or Temik applied in-furrow); Temik in-furrow; Gaucho seed treatment; a Gaucho/Temik combination; and 4 rates of Temik ranging from 0.53 to 2.1 lb ai/ac. Gaucho was applied to the seed at 0.25 lb ai/100 lb of seed and mixed in a seed treater until thoroughly coated. Temik was applied in the seed-furrow at planting. Sure-Grow 501BR was planted no-till with a vacuum planter at 150,000 seed/ac in 9.5 inch rows on 6/11/01. Plots were rolled following planting.

Fertilizer (P&K) was applied according to soil test recommendations. Potash (K<sub>2</sub>O), at 200 lb/ac was applied broadcast to the entire study on 10/30/00. Ammonium nitrate was applied broadcast at 90 lb N/ac on 7/03/01. The area was subsoiled 11/22/00 and disked 12/11/00. The entire study was field cultivated and harrowed on 3/27/01 and 4/02/01. Plots were burned down with Gramoxone Max (paraquat) + surfactant at 0.50 lb ai/ac + at 0.5 pt/ac on 4/21/01. Roundup Ultra Max (glyphosate) at 0.75 lb ai/ac was applied as a second burndown on 5/08/01. Gramoxone Max + surfactant at 1.0 lb ai/ac + 0.5 pt/ac was applied on 6/12/01 as a burndown application after planting.

Roundup Ultra (glyphosate) was applied postemergence at 1.0 lb ai/ac to 4 and 5 leaf cotton on 6/26/01. Staple (pyrithiobac) at 1.5 oz ai/ac was applied postemergence 7/10/01. Select (clethodim) + crop oil at 0.125 lb ai/ac + 2 pt/ac was applied postemergence. Pix (mepiquat chloride) was applied at 0.044 lb ai/ac on 8/30/01.

Thrip Insect counts were taken on June 21, June 28, and July 5, 2001. Five plants were cut from each plot, placed in plastic bags, and taken to the laboratory where insects were washed from the plants into micro sieves, placed on filter paper, and counted under a microscope. All insecticides for bollworm and budworm control were applied at 5 gpa with TXVS-4 nozzles when insect pests were at or above thresholds, based on twice weekly scoutings. Karate-Z (lambda cyhalothrin) at 0.03 lb ai/ac was applied for bollworm control 8/30/01.

The cotton was defoliated with Finish (ethephon + cyclanilide) + Dropp (thidiazuron) + Folex (phosphorotrithioate) + at 1.0 + 0.125 + 0.083 + 0.38 lb ai/ac on 10/10/01. The center 11 rows of each plot were harvested with a finger stripper on 10/23/01. The seedcotton was ginned with a mini gin (a small scale gin equipped the same as a standard sized gin plus stalk cleaner). All data was statistically analyzed and treatment means were separated with Fisher's Protected LSD at the 5% probability level.

**RESULTS AND DISCUSSION:** Results of the ultra-narrow row planting of cotton incorporating Temik as an in-furrow insecticide resulted in all treatments except the seed treatment alone being effective through July 5 when sampling for thrips was stopped. Adult thrips were found in plots treated with Gaucho in roughly the same numbers as found in the untreated check. This has been historically the case with Gaucho, but the adults have not been incriminated in harming the plant. Addition of Temik to the Gaucho effectively controlled adults. Results of this trial indicate that Gaucho is not needed when Temik is applied. Additionally, the rates of Temik applied in this trial are very high and rates above 3.5 lb of Temik per acre are probably not necessary. High rates of Temik have reduced yields in some trials and should be avoided. Stripper-seedcotton yield indicated no difference between treatments.

**Table 1.** Early season insect control in UNR cotton as influenced by Gaucho and Temik in 2001, Verona MS.

Treatment	lb ai/ac	Seedcotton yield lb/ac
Untreated	----	2943
Gaucho	0.25 <sup>1</sup>	3058
Gaucho + Temik 15G	0.25 <sup>1</sup> + 1.05	3118
Temik 15G	0.53	3427
Temik 15G	1.05	3074
Temik 15G	1.5	3111
Temik 15G	2.1	3058
LSD 0.05		NS
CV		8

<sup>1</sup>Goucho was applied 0.25 lb ai/ 100 lb of seed.

<sup>2</sup>Rating was based on a 1 (slight damage) up to 4 (having damage to the point of near termination of the plant) scale.

**Table 2.** Immature and adult thrips per five plants collected on June 21, June 28, and July 5, 2001, Verona, MS.

Treatment lb ai/ac	21 June		28 June		05 July		----- Trial Mean - -----		
	Immatures	Adults	Immatures	Adults	Immatures	Adults	Immatures	Adults	
Gaucho	0.25 <sup>2</sup>	1.00 a <sup>1</sup>	3.25 a	5.25 b	5.00 a	5.25 b	0.75 b	3.83 b	3.00 a
4FS	0.25 <sup>2</sup>	0.00 a	0.50 b	3.00 b	1.50 b	0.00 c	0.25 ab	1.00 b	0.75 b
Gaucho 4FS + Temik	1.05								
Temik	0.53	0.00 a	0.00 b	0.00 b	0.50 b	1.50 bc	0.50 b	0.50 b	0.33 b
Temik	1.05	0.00 a	0.00 b	3.50 b	1.50 b	0.25 c	0.00 b	1.25 b	0.50 b
Temik	1.50	0.00 a	0.00 b	0.50 b	1.75 b	0.25 c	0.00 b	0.25 b	0.58 b
Temik	2.10	0.00 a	0.75 b	0.25 b	1.25 b	0.25 c	0.25 b	0.167 b	0.75 b
Untreated		2.50 a	3.25 a	25.50 a	6.00 a	8.25 a	1.50 a	12.08 a	3.58 a
LSD		2.045	2.389	7.413	3.116	4.512	0.963	4.2186	1.587
P>F		0.455	0.0192	<0.0001	0.0098	0.0058	0.0501	<0.0001	<0.0001

<sup>1</sup> Means within a column not sharing a common letter differ significantly (LSD; p=0.05).

<sup>2</sup> Lb ai/100 lb of seed.

**Table 3.** Early season insect control as influenced by Gaucho and Temik rates in 2000, Verona MS.

Treatment	lb ai/ac	----- Per/5 plants -----		Thrip damage rating <sup>2</sup>	Plant population Plt/ac x 1000	Lint yield Lb/ac
		Aphid	Immature thrip			
Untreated		198	2.0	3.0	122	1192
Gaucho	0.25 <sup>1</sup>	154	2.0	1.0	120	1376
Gaucho + Temik 15G	0.25 <sup>1</sup> + 1.05	56	0.0	0.5	119	1400
Temik 15G	0.53	159	0.8	0.3	116	1363
Temik 15G	1.05	91	0.0	0.8	116	1382
Temik 15G	1.5	66	0.8	0.3	117	1335
Temik 15G	2.1	61	0.5	0.5	112	1404
LSD 0.05		77	NS	0.9	NS	113
CV		46	166.8	63.9	4	6

<sup>1</sup>Goucho was applied 0.25 lb ai/ 100 lb of seed, Temik was applied lb ai/ac.

<sup>2</sup>Rating was based on a 1 (slight damage) up to 4 (having damage to the point of near termination of the plant) scale.