MANAGING THRIPS IN MID-SOUTH COTTON

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Abstract

Studies were conducted across the Mid-South to evaluate selected at-planting and foliar insecticide treatments against thrips infesting cotton seedlings. At most locations, thrips densities were low to moderate in the at-planting treatment trials. With few exceptions, all of the at-planting treatments reduced thrips densities and damage ratings from the first to the fourth true leaf stage compared to the control (fungicide only). Also, all of the insecticide treatments resulted in higher yields compared to the control (fungicide only). In the foliar insecticide trials, with few exceptions all of the insecticide treatments, except the pyrethroid Karate, reduced thrips densities and damage from 3 DAT to 14 DAT. At 6-7 DAT and at 10-11 DAT, Acephate performed similar to Intrepid Edge and Radiant. There were no differences in yield in the foliar insecticide trials.

Introduction

There are several species of thrips that infest cotton seedlings including tobacco thrips, *Frankliniella fusca* (Hinds); western flower thrips, *Frankliniella occidentalis* (Pergande); flower thrips, *Frankliniella tritici* (Fitch); onion thrips, *Thrips tabaci* (Lindeman), and soybean thrips, *Neohydatothrips variabilis* (Beach). Tobacco thrips is the predominate species that infests cotton seedlings across much of the Mid-South (Cook et al. 2003, Stewart et al. 2013). Aldicarb (Temik 15G) was the standard at-planting management strategy prior to the introduction of the neonicotinoid seed treatments. Many growers transitioned to the neonicotinoid seed treatments following their introduction, and following the removal of aldicarb from the market thrips have been managed almost exclusively with neonicotinoid seed treatments and supplemental foliar treatments. The two most widely used insecticide seed treatments for thrips management in cotton have been Gaucho (imidacloprid) and Cruiser (thiamethoxam), both are neonicotinoids. However, resistance to thiamethoxam has been observed in tobacco thrips populations from many areas of the Mid-South (Huseth et al. 2016, Darnell-Crumpton et al. 2018). As a result of this, performance of thiamethoxam has declined to the point that it is no longer offered as a commercial seed treatment for thrips control in the Mid-South. Currently almost all of the commercial (from seed companies) seed treatment packages include imidacloprid. Another aldicarb product (AgLogic 15G) was introduced into the market in recent years. Many growers are supplementing neonicotinoid seed treatments (imidacloprid) with Acephate either as an additional seed treatment or as an in-furrow spray, or have started using aldicarb again. One reason these are preferred over supplemental foliar applications for thrips management is that some of the newer transgenic herbicide (dicamba tolerant crops) technologies do not allow

co-application of an insecticide with the herbicide. However, in some case supplemental foliar applications are needed. Acephate has been the standard foliar thrips treatment for decades, but less than satisfactory performance has been observed in some cases. In response, some growers are using spinetoram, either as Radiant or Intrepid Edge for supplemental foliar thrips management. During 2019 studies were conducted in Arkansas, Louisiana, Mississippi, Tennessee, and Texas to evaluate the performance of selected seed treatments containing imidacloprid (Gaucho, Aeris), AgLogic 15G, and Acephate as a seed treatment and as an in-furrow spray treatments (alone and in combination with Gaucho) against thrips infesting cotton seedlings in the Mid-South. Additionally the performance of selected foliar treatments was evaluated in Tennessee, Mississippi, and Texas. These included the representative products from the organophosphate, spinosyn, pyrethroid, and carbamate insecticide classes.

Materials and Methods

Studies were conducted during 2019 in Arkansas, Louisiana, Mississippi, Tennessee, and Texas to evaluate the performance of selected insecticide at-planting treatments against thrips in cotton. Treatments were arranged in a randomized complete block design with four replications. Phytogen 333 WRF cotton seed was used in all trials. Cotton seed were treated by Dr. Gus Lorenz. All seed was treated with Trilex Advanced 300FS (1.6 oz/cwt) fungicide. Additionally, trials were conducted to evaluate the performance of selected foliar insecticides against thrips. These trials were conducted in Mississippi, Tennessee, and Texas. Cotton seed that did not have an insecticide seed treatment (DPL 1646 B2XF in Mississippi, Phytogen 350W3FE in Tennessee, and Nexgen B3XF in Texas) was used in the foliar insecticide trials. Foliar treatments were applied at 10 gpa and trials were initiated at the first to second true leaf stage, depending on location. AgLogic was included as an at-planting comparison. Frequent rainfall occurred across the Mid-South during Apr and May 2019 which delayed planting at several locations. Planting dates ranged from 30 Apr to 28 May for the insecticide seed treatment trials and from 7 May to 14 Jun for the foliar trials.

Thrips densities in the insecticide seed treatment trials were determined by sampling 5 plants per plot at the 1, 2, 3, and 4 leaf stage using a modified whole plant washing procedure. Thrips densities in the foliar trials were determined using the same method at 3, 6-7, 10-11, and 14 days after treatment, DAT, (foliar application). Also, plant damage was estimated at these timings using a 1 – 5 scale, with a rating of 1 = no damage and 5 = severe damage. Plots were machine harvested at crop maturity. Seed cotton yields were converted to lint yield based on 40% gin turnout. Data were subjected to ANOVA procedures, with means separated according to Fisher's Protected LSD.

Results

At-Planting Treatment Trials

At the first true leaf stage there were no differences among treatments for densities of thrips adults (Table 1). All of the insecticide treatments resulted in lower densities of thrips immatures and total thrips compared to the fungicide only treatment, except for Acephate in-furrow for total thrips. Also plots treated with Acephate seed treatment, Acephate seed treatment plus Gaucho, Gaucho, Aeris, or Acephate in-furrow plus Gaucho had lower densities of immature and total thrips than plots treated with Acephate in-furrow. Only plots treated with Acephate seed treatment, Acephate seed treatment plus Gaucho, Gaucho, Aeris, or Acephate in-furrow plus Gaucho had lower thrips damage ratings compared to plots that did not receive an at-planting insecticide treatment (fungicide only). Damage ratings for all treated plots, except Acephate in-furrow, were ≤1.6.

At the second true leaf stage there were no differences among treatments for densities of thrips adults (Table 2). All of the insecticide treatments, except Acephate in-furrow, resulted in lower densities of thrips immatures compared to the fungicide only treatment. Plots treated with Gaucho, Aeris, or Acephate in-furrow plus Gaucho had fewer thrips immatures compared to plots treated with Acephate seed treatment, or Acephate in-furrow. All of the insecticide treated plots had fewer total thrips compared to the plots that only received the fungicide seed treatment. Also, plots treated with Gaucho had fewer thrips immatures compared to plots treated with Acephate either as a seed treatment or in-furrow. All of the insecticide treatments resulted in lower damage ratings compared to the fungicide only treatment. Gaucho and Acephate in-furrow plus Gaucho resulted in lower damage ratings than Acephate applied as a seed treatment or in-furrow. Damage ratings for all treated plots were ≤1.1.

At the third true leaf stage there were no differences among treatments for densities of thrips adults (Table 3). All of the insecticide treatments resulted in lower densities of thrips immatures and total thrips compared to the fungicide only treatment. Also all of the insecticide treatments resulted in less thrips damage compared to the fungicide only

treatment. Plots treated with Acephate in-furrow or AgLogic had higher damage ratings compared all of the other insecticide treated plots, except those treated with Acephate as a seed treatment. Damage ratings for all treated plots were ≤1.6.

At the fourth true leaf stage there were no differences among treatments for densities of thrips adults (Table 4). All of the insecticide treatments resulted in lower densities of thrips immatures and total thrips compared to the fungicide only treatment. Plots treated with AgLogic or Acephate in-furrow plus Gaucho had fewer immature thrips compared to plots treated with Aeris or Admire Pro. Also, plots treated with AgLogic had fewer total thrips compared to plots treated with Acephate as a seed treatment, Gaucho, Aeris, or Admire Pro. Also all of the insecticide treatments, except Acephate seed treatment, resulted in less thrips damage compared to the fungicide only treatment. Plots treated with Aeris or Acephate in-furrow plus Gaucho had lower damage ratings compared to plots treated with Acephate seed treatment, AgLogic, or Acephate in-furrow. Damage ratings for all treated plots were ≤1.8.

All of the insecticide treatments resulted in higher lint yields compared to the fungicide only treatment (Table 5). Yields for treated plots ranged from 1,237.1 lb to 1,279.3 lb lint per acre.

Foliar Treatment Trials

Only Radiant, Vydate, and AgLogic reduced thrips adults compared to the non-treated control at 3 DAT (Table 6). All of the insecticide treatments, except Karate, reduced densities of immature thrips and total thrips compared to the non-treated control. Plots treated with Radiant or AgLogic had fewer immature thrips and total thrips than plots treated with Acephate or Karate. All of the insecticide treatments resulted in lower damage ratings compared to the non-treated control.

All of the insecticide treatments, except Karate, resulted in lower densities of thrips adults compared to the non-treated at 6-7 DAT (Table 7). All of the insecticide treatments, except Karate, reduced densities of immature thrips and total thrips compared to the non-treated control. Plots treated with Radiant or Intrepid Edge had fewer immature thrips than plots treated with Dimethoate. All of the insecticide treatments, except Karate, resulted in lower damage ratings compared to the non-treated control. Plots treated with Radiant, Intrepid Edge, or AgLogic had lower damage ratings than plots treated with Acephate or Karate.

There were no differences among treatments for densities of thrips adults at 10-11 DAT (Table 8). All of the insecticide treatments, except Karate, reduced densities of immature and total thrips compared to the non-treated control. All of the insecticide treatments reduced thrips damage compared to the non-treated control. Also, plots treated with Intrepid Edge, Radiant, Acephate, or AgLogic had lower damage ratings than plots treated with Bidrin or Vydate.

At 14 DAT, only plots treated with Acephate, Karate, or AgLogic had fewer adult thrips than the non-treated plots (Table 9). Only plots treated with Intrepid Edge, Radiant, Acephate, or AgLogic had fewer immature thrips compared to the non-treated plots. All of the insecticide treatments, except Karate and Bidrin, reduced densities of total thrips compared to the non-treated control. Also, plots treated with AgLogic had fewer total thrips than plots treated with Bidrin, Dimethoate, Karate, or Vydate. All of the insecticide treatments reduced thrips damage compared to the non-treated control. Plots treated with Vydate or Karate had higher damage ratings compared to Radiant, Acephate, or AgLogic. AgLogic resulted in lower damage ratings compared to all of the other insecticides

There were no differences among treatments for yield (Table10). Lint yields ranged from 1,059.9 lb to 1,206.8 lb per acre.

Table 1. Impact of selected at-planting treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 1 leaf growth stage.

			Thrips / 5 Plants			
Treatment	Application Method	Rate	Adults	Immatures	Total	Damage Rating
Fungicide only	Seed Treatment	-	2.0	21.9a	23.9a	2.2a
Acephate 97S	Seed Treatment	6.4[1]	1.9	3.2c	5.1c	1.4bc
Acephate 97S + Gaucho 5FS	Seed Treatment	6.4[1]+0.375[2]	1.9	1.1c	2.9c	1.3bc
Gaucho 5FS	Seed Treatment	0.375[2]	1.8	0.8c	2.4c	1.4bc
Aeris[3]	Seed Treatment	0.75[2]	3.0	0.9c	3.9c	1.0c
AgLogic 15G	In-Furrow Granule	0.6[4]	3.3	8.0bc	11.3bc	1.6ab
Acephate 97S + Gaucho 5FS	In-Furrow Spray + Seed Treatment	1.0[5] +0.375[2]	1.4	0.8c	2.2c	1.0c
Acephate 97S	In-Furrow Spray	1.0[5]	3.3	11.9b	15.1ab	2.1a
Admire Pro 4.6SC	In-Furrow Spray	0.33[5]	2.1	3.2bc	5.9bc	1.4bc
P>F			0.18	<0.01	<0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]oz wt product / cwt.
[2]mg AI / seed.
[3]mg AI / seed. Aeris applied at the listed rate contains 0.375 mg AI imidacloprid (Gaucho) and 0.375 mg AI thiodicarb.
[4]lb AI / per acre, in-furrow granule.
[5]lb AI / per acre, in-furrow spray.

Table 2. Impact of selected at-planting treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 2 leaf growth stage.

			Thrips / 5 Plants			
Treatment	Application Method	Rate	Adults	Immatures	Total	Damage Rating
Fungicide only	Seed Treatment	-	3.3	23.8a	27.1a	1.7a
Acephate 97S	Seed Treatment	6.4[1]	3.0	11.4bc	14.4bc	1.0bc
Acephate 97S + Gaucho 5FS	Seed Treatment	6.4[1]+0.375[2]	3.0	2.2cd	5.2cd	0.7cd
Gaucho 5FS	Seed Treatment	0.375[2]	2.6	1.7d	4.2d	0.7cd
Aeris[3]	Seed Treatment	0.75[2]	3.3	1.9d	5.2cd	0.6d
AgLogic 15G	In-Furrow Granule	0.6[4]	2.1	2.8cd	4.9cd	0.8cd
Acephate 97S + Gaucho 5FS	In-Furrow Spray + Seed Treatment	1.0[5] +0.375[2]	3.5	2.0d	5.5cd	0.6d
Acephate 97S	In-Furrow Spray	1.0[5]	2.1	15.1ab	17.1b	1.1b
Admire Pro 4.6SC	In-Furrow Spray	0.33[5]	2.4	4.9cd	7.3bcd	0.8cd
P>F			0.63	<0.01	<0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]oz wt product / cwt.
[2]mg AI / seed.
[3]mg AI / seed. Aeris applied at the listed rate contains 0.375 mg AI imidacloprid (Gaucho) and 0.375 mg AI thiodicarb.
[4]lb AI / per acre, in-furrow granule.
[5]lb AI / per acre, in-furrow spray.

Table 3. Impact of selected at-planting treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 3 leaf growth stage.

			Thrips / 5 Plants			
Treatment	Application Method	Rate	Adults	Immatures	Total	Damage Rating
Fungicide only	Seed Treatment	-	4.6	33.3a	38.0a	2.6a
Acephate 97S	Seed Treatment	6.4[1]	3.8	16.0b	19.8b	1.5bc
Acephate 97S + Gaucho 5FS	Seed Treatment	6.4[1]+0.375[2]	4.0	13.3b	17.3b	1.1cd
Gaucho 5FS	Seed Treatment	0.375[2]	4.5	12.5b	17.0b	1.1cd
Aeris[3]	Seed Treatment	0.75[2]	4.2	11.0b	15.2b	1.0d
AgLogic 15G	In-Furrow Granule	0.6[4]	4.0	11.1b	15.0b	1.6b
Acephate 97S + Gaucho 5FS	In-Furrow Spray + Seed Treatment	1.0[5] +0.375[2]	3.8	8.9b	12.7b	1.1cd
Acephate 97S	In-Furrow Spray	1.0[5]	3.1	16.5b	19.6b	1.6b
Admire Pro 4.6SC	In-Furrow Spray	0.33[5]	3.5	10.5b	14.0b	1.1cd
P>F			0.87	<0.01	<0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]oz wt product / cwt.
[2]mg AI / seed.
[3]mg AI / seed. Aeris applied at the listed rate contains 0.375 mg AI imidacloprid (Gaucho) and 0.375 mg AI thiodicarb.
[4]lb AI / per acre, in-furrow granule.
[5]lb AI / per acre, in-furrow spray.

Table 4. Impact of selected at-planting treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 4 leaf growth stage.

			Thrips / 5 Plants			
Treatment	Application Method	Rate	Adults	Immatures	Total	Damage Rating
Fungicide only	Seed Treatment	-	5.0	31.5a	36.5a	2.0a
Acephate 97S	Seed Treatment	6.4[1]	4.2	17.7bc	21.9b	1.8ab
Acephate 97S + Gaucho 5FS	Seed Treatment	6.4[1]+0.375[2]	4.2	13.0bc	16.8bc	1.3de
Gaucho 5FS	Seed Treatment	0.375[2]	4.3	17.5bc	21.8b	1.5cde
Aeris[3]	Seed Treatment	0.75[2]	4.8	17.8b	22.5b	1.2e
AgLogic 15G	In-Furrow Granule	0.6[4]	2.3	9.4c	11.7c	1.6bcd
Acephate 97S + Gaucho 5FS	In-Furrow Spray + Seed Treatment	1.0[5] +0.375[2]	4.2	11.6c	15.9bc	1.2e
Acephate 97S	In-Furrow Spray	1.0[5]	3.5	15.5bc	19.0bc	1.7bc
Admire Pro 4.6SC	In-Furrow Spray	0.33[5]	3.5	20.8b	24.2b	1.4cde
P>F			0.28	<0.01	<0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]oz wt product / cwt.
[2]mg AI / seed.
[3]mg AI / seed. Aeris applied at the listed rate contains 0.375 mg AI imidacloprid (Gaucho) and 0.375 mg AI thiodicarb.
[4]lb AI / per acre, in-furrow granule.
[5]lb AI / per acre, in-furrow spray.

Table 5. Impact of selected at-planting treatments on cotton yield.

Treatment	Application Method	Rate	Lint Yield (lb / Acre)
Fungicide only	Seed Treatment	-	1,131.9b
Acephate 97S	Seed Treatment	6.4[1]	1,273.9a
Acephate 97S + Gaucho 5FS	Seed Treatment	6.4[1]+0.375[2]	1,279.3a
Gaucho 5FS	Seed Treatment	0.375[2]	1,215.8a
Aeris[3]	Seed Treatment	0.75[2]	1,254.3a
AgLogic 15G	In-Furrow Granule	0.6[4]	1,276.0a
Acephate 97S + Gaucho 5FS	In-Furrow Spray + Seed Treatment	1.0[5] +0.375[2]	1,241.7a
Acephate 97S	In-Furrow Spray	1.0[5]	1,237.1a
Admire Pro 4.6SC	In-Furrow Spray	0.33[5]	1,260.4a
P>F			<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]oz wt product / cwt.
[2]mg AI / seed.
[3]mg AI / seed. Aeris applied at the listed rate contains 0.375 mg AI imidacloprid (Gaucho) and 0.375 mg AI thiodicarb.
[4]lb AI / per acre, in-furrow granule.
[5]lb AI / per acre, in-furrow spray.

Table 6. Impact of selected foliar treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 3 DAT.

			Thrips / 5 Plants			
Treatment	Insecticide Class	Rate	Adults	Immatures	Total	Damage Rating
Non-Treated	-	-	3.3a	21.4a	24.8a	1.8a
Intrepid Edge	Spinosyn + IGR	3.0[3]	2.1a-d	8.8bc	10.8bc	1.3b
Radiant 1SC[1]	Spinosyn	1.5[3]	1.2cd	5.8c	7.0c	1.2b
Acephate 97S	Organophosphate	0.21[4]	2.0a-d	13.3b	15.3b	1.4b
Bidrin 8E	Organophosphate	3.2[3]	2.4a-d	11.4bc	13.8bc	1.2b
Dimethoate 4EC	Organophosphate	6.4[3]	2.9ab	12.5bc	15.4b	1.4b
Karate 2.08CS	Pyrethroid	1.28[3]	2.5abc	21.4a	23.8a	1.8a
Vydate CLV 3.77L	Carbamate	8.5[3]	1.8bcd	11.7bc	13.5bc	1.3b
AgLogic 15G[2]	Carbamate	3.5[5]	0.8d	5.1c	6.0c	1.2b
P>F			0.05	<0.01	<0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]Dyne-Amic included at 0.5% v/v.
[2]AgLogic applied as in-furrow granule at-planting.
[3]fl oz product / acre.
[4]oz wt product / acre.
[5]lb product / acre.

Table 7. Impact of selected foliar treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 6-7 DAT.

Treatment	Insecticide Class	Rate	Thrips / 5 Plants			Damage Rating
			Adults	Immatures	Total	
Non-Treated	-	-	5.1a	26.4a	31.6a	2.8a
Intrepid Edge	Spinosyn + IGR	3.0[3]	2.2bc	6.3c	8.4b	1.6c
Radiant 1SC[1]	Spinosyn	1.5[3]	2.9bc	5.8c	8.7b	1.6c
Acephate 97S	Organophosphate	0.21[4]	2.9bc	11.9bc	14.9b	1.9b
Bidrin 8E	Organophosphate	3.2[3]	1.9c	12.8bc	14.7b	1.7bc
Dimethoate 4EC	Organophosphate	6.4[3]	2.8bc	14.8b	17.6b	1.8bc
Karate 2.08CS	Pyrethroid	1.28[3]	4.1ab	29.6a	33.6a	2.6a
Vydate CLV 3.77L	Carbamate	8.5[3]	2.8bc	8.3bc	11.1b	1.8bc
AgLogic 15G[2]	Carbamate	3.5[5]	3.0bc	10.0bc	13.0b	1.3d
P>F			0.05	<0.01	<0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]Dyne-Amic included at 0.5% v/v.
[2]AgLogic applied as in-furrow granule at-planting.
[3]fl oz product / acre.
[4]oz wt product / acre.
[5]lb product / acre.

Table 8. Impact of selected foliar treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 10-11 DAT.

Treatment	Insecticide Class	Rate	Thrips / 5 Plants			Damage Rating
			Adults	Immatures	Total	
Non-Treated	-	-	3.0	42.9a	45.9a	3.1a
Intrepid Edge	Spinosyn + IGR	3.0[3]	2.0	15.0b	17.0b	1.4ef
Radiant 1SC[1]	Spinosyn	1.5[3]	2.1	5.5b	7.6b	1.5de
Acephate 97S	Organophosphate	0.21[4]	2.1	18.0b	20.1b	1.5de
Bidrin 8E	Organophosphate	3.2[3]	1.9	23.1b	25.0b	2.5b
Dimethoate 4EC	Organophosphate	6.4[3]	2.1	18.3b	20.4b	1.9cd
Karate 2.08CS	Pyrethroid	1.28[3]	3.6	46.3a	49.9a	1.8de
Vydate CLV 3.77L	Carbamate	8.5[3]	2.8	15.5b	18.3b	2.3bc
AgLogic 15G[2]	Carbamate	3.5[5]	1.5	12.4b	14.0b	1.0f
P>F			0.39	<0.01	<0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]Dyne-Amic included at 0.5% v/v.
[2]AgLogic applied as in-furrow granule at-planting.
[3]fl oz product / acre.
[4]oz wt product / acre.
[5]lb product / acre.

Table 9. Impact of selected foliar treatments on densities of thrips adults, immatures, and total thrips and thrips damage at the 14 DAT.

Treatment	Insecticide Class	Rate	Thrips / 5 Plants			Damage Rating
			Adults	Immatures	Total	
Non-Treated	-	-	19.6a	16.5ab	36.1a	3.9a
Intrepid Edge	Spinosyn + IGR	3.0[3]	14.8ab	4.5c	19.3bc	2.3cd
Radiant 1SC[1]	Spinosyn	1.5[3]	13.5ab	5.3c	18.8bc	2.0d
Acephate 97S	Organophosphate	0.21[4]	13.1b	5.9c	19.0bc	1.9d
Bidrin 8E	Organophosphate	3.2[3]	17.5ab	9.4abc	26.9ab	2.1cd
Dimethoate 4EC	Organophosphate	6.4[3]	13.6ab	8.1bc	21.8b	2.6bc
Karate 2.08CS	Pyrethroid	1.28[3]	11.8b	17.0a	28.8ab	3.0b
Vydate CLV 3.77L	Carbamate	8.5[3]	14.1ab	9.4abc	23.5b	2.7bc
AgLogic 15G[2]	Carbamate	3.5[5]	2.8c	2.4c	6.0c	1.3e
P>F			0.01	0.02	0.01	<0.01

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]Dyne-Amic included at 0.5% v/v.
[2]AgLogic applied as in-furrow granule at-planting.
[3]fl oz product / acre.
[4]oz wt product / acre.
[5]lb product / acre.

Table 10. Impact of selected foliar treatments on cotton yield.

Treatment	Insecticide Class	Rate	Lint Yield (lb / Acre)
Non-Treated	-	-	1,059.9
Intrepid Edge	Spinosyn + IGR	3.0[3]	1,165.9
Radiant 1SC[1]	Spinosyn	1.5[3]	1,199.1
Acephate 97S	Organophosphate	0.21[4]	1,164.4
Bidrin 8E	Organophosphate	3.2[3]	1,193.9
Dimethoate 4EC	Organophosphate	6.4[3]	1,164.1
Karate 2.08CS	Pyrethroid	1.28[3]	1,159.2
Vydate CLV 3.77L	Carbamate	8.5[3]	1,104.7
AgLogic 15G[2]	Carbamate	3.5[5]	1,206.8
P>F			0.14

Means within a column followed by a common letter are not significantly different (FPLSD *P* = 0.05).
[1]Dyne-Amic included at 0.5% v/v.
[2]AgLogic applied as in-furrow granule at-planting.
[3]fl oz product / acre.
[4]oz wt product / acre.
[5]lb product / acre.

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