AgriLIFE EXTENSION
Texas A&M System

Applied Research Report

Evaluation of Insecticides for Early Season Insect Pests in Cotton

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Summary

A trial was conducted with the purpose of evaluating the effects of Temik Insecticide and insecticidal seed treatments on early season insect management.

Materials and Methods

A trial was planted on 15 April 2009 with the purpose of evaluating Temik insecticide and insecticidal seed treatments on early season insect management. . Plots were four 38-inch rows wide and 21 feet long. The study was established as a randomized complete block with 4 replications.

Treatments were as follows:

1. Untreated
2. Aeris seed treatment
3. Avicta seed treatment
4. Aeris seed treatment
   Temik (3.5 lb/A)
5. Avicta seed treatment
   Temik (3.5 lb/A)
6. Temik (3.5 lb/A)
7. Temik (5 lb/A)

Emergence occurred within 7 days of planting. Insect population assessments were made 14, 21, 28 and 35 days after planting by cutting 5 consecutive plants from the 2nd row and putting them into a jar containing soapy water. In the lab, the plants

were rinsed and the rinse solution from the jars was filtered. Thrips adults and nymphs were counted on filter paper using a dissecting microscope.

Harvest occurred on 20 August 2009 by hand picking seed cotton from 0.001 acre in the 3ed row of each plot. Samples were ginned using a laboratory gin and lint samples were sent off for fiber quality analysis.

Data was analyzed using ARM 8.2.0.

Results and Discussion

While there were differences between treatments, thrips populations were well below the economic thresholds throughout the duration of this trial (Table 1, 2 and 3).

Fourteen days after planting (DAP), no differences were detected between treatments for larvae and adult thrips but the untreated had higher total thrips numbers than the insecticide treatments.

By 21 DAP, the larval numbers in the Avicta treated plots was lower than the untreated but greater than the other insecticide treatments. For total thrips, the Aeris treated plots was not different from the Avicta or the Temik treated plots.

On 28 days after planting, the Avicta and Aeris seed treatements has similar numbers of thrips larvae as the untreated plots. Temik treated plots continued to keep thrips larval populations below untreated plots but all insecticide treatments began to have less effect on adult thrips. And 35 days after planting, the insecticide treatments were no longer maintaining thrips numbers below that of the untreated plots.

Since thrips populations remained below economic levels, it is not surprising that lint yield from the treated and untreated plots was not different with all plots yielding between 607 and 670 lbs. of lint per acre and none of the fiber qualities measured were affected by treatment.

Conclusions

This trial was conducted to evaluate the effectiveness of insecticidal seed treatments and the at-planting use of Temik insecticide. However, since thrips populations remained below levels that can cause economic losses, no impact on lint yield was detected. Past research has indicated the need for control of thrips can result in economic benefit to the grower.

Table 1. Thrips larvae per five cotton plants counted 14, 21, 28 and 35 days after planting (Victoria County, 2009).

Pest Name			Tobacco thrips	Tobacco thrips	Tobacco thrips	Tobacco thrips
Rating Date			4/29/2009	5/6/2009	5/13/2009	5/20/2009
Pest Stage Majority			NYMPH	NYMPH	NYMPH	NYMPH
Plant-Eval Interval			14 DP-1	21 DP-1	28 DP-1	35 DP-1
Plant Growth Stage			Cotyledon	2 True Leaves	4 true leaves	6 true leaves
Trt No.	Treatment Name	Rate				
1	Untreated		0.3 a	4.5 a	4.5 a	18.5 a
2	Aeris		0.0 a	0.5 c	2.8 ab	19.3 a
3	Avicta		0.0 a	2.5 b	3.8 a	19.3 a
4	Aeris		0.0 a	0.3 c	1.5 bc	13.5 a
	TEMIK	3.5 LB/A				
5	Avicta		0.0 a	0.0 c	0.8 c	18.5 a
	TEMIK	3.5 LB/A				
6	TEMIK	3.5 LB/A	0.0 a	0.3 c	1.0 bc	15.3 a
7	TEMIK	5 LB/A	0.0 a	0.3 c	0.5 c	11.3 a
LSD (P=.10)			0.2	1.8	1.90	13.47
Standard Deviation			0.2	1.5	1.55	10.98
CV			529.15	126.94	73.72	66.56
Grand Mean			0.04	1.18	2.11	16.5
Replicate F			1.000	1.633	3.015	3.358
Replicate Prob(F)			0.4155	0.2170	0.0570	0.0419
Treatment F			1.000	5.128	4.105	0.339
Treatment Prob(F)			0.4552	0.0031	0.0091	0.9074

Means followed by same letter do not significantly differ (P=.10, LSD).

Table 2. Thrips adults per five cotton plants counted 14, 21, 28 and 35 days after planting (Victoria County, 2009).

Pest Name			Tobacco thrips	Tobacco thrips	Tobacco thrips	Tobacco thrips
Rating Date			4/29/2009	5/6/2009	5/13/2009	5/20/2009
Pest Stage Majority			ADULT	ADULT	ADULT	ADULT
Plant-Eval Interval			14 DP-1	21 DP-1	28 DP-1	35 DP-1
Plant Growth Stage			Cotyledon	2 True Leaves	4 true leaves	6 true leaves
Trt No.	Treatment Name	Rate				
1	Untreated		0.5 a	1.5 a	3.8 b	14.0 a
2	Aeris		0.0 a	0.5 b	9.5 a	10.5 a
3	Avicta		0.0 a	0.3 b	3.8 b	9.0 a
4	Aeris		0.0 a	0.0 b	1.3 b	7.3 a
	TEMIK	3.5 LB/A				
5	Avicta		0.0 a	0.0 b	0.5 b	7.5 a
	TEMIK	3.5 LB/A				
6	TEMIK	3.5 LB/A	0.0 a	0.0 b	3.3 b	6.8 a
7	TEMIK	5 LB/A	0.0 a	0.0 b	0.5 b	4.5 a
LSD (P=.10)			0.5	0.8	4.80	5.72
Standard Deviation			0.4	0.7	3.92	4.66
CV			529.15	215.58	121.86	54.85
Grand Mean			0.07	0.32	3.21	8.5
Replicate F			1.000	1.463	1.952	1.492
Replicate Prob(F)			0.4155	0.2581	0.1574	0.2505
Treatment F			1.000	2.554	2.550	1.722
Treatment Prob(F)			0.4552	0.0574	0.0577	0.1732

Means followed by same letter do not significantly differ (P=.10, LSD).

Table 3. Thrips adults and larvae per five cotton plants counted 14, 21, 28 and 35 days after planting (Victoria County, 2009).

Pest Name		Tobacco thrips	Tobacco thrips	Tobacco thrips	Tobacco thrips
Rating Date		4/29/2009	5/6/2009	5/13/2009	5/20/2009
Pest Stage Majority		MIXED	MIXED	MIXED	MIXED
Plant-Eval Interval		14 DP-1	21 DP-1	28 DP-1	35 DP-1
Plant Growth Stage		Cotyledon	2 True Leaves	4 true leaves	6 true leaves
Trt No.	Treatment Name Rate				
1	Untreated	0.8 a	6.0 a	8.3 ab	32.5 a
2	Aeris	0.0 b	1.0 bc	12.3 a	29.8 a
3	Avicta	0.0 b	2.8 b	7.5 abc	28.3 a
4	Aeris TEMIK 3.5 LB/A	0.0 b	0.3 c	2.8 bcd	20.8 a
5	Avicta TEMIK 3.5 LB/A	0.0 b	0.0 c	1.3 cd	26.0 a
6	TEMIK 3.5 LB/A	0.0 b	0.3 c	4.3 bcd	22.0 a
7	TEMIK 5 LB/A	0.0 b	0.3 c	1.0 d	15.8 a
LSD (P=.10)		0.4	2.2	6.33	17.29
Standard Deviation		0.4	1.8	5.16	14.10
CV		337.75	116.99	96.99	56.41
Grand Mean		0.11	1.5	5.32	25.0
Replicate F		1.000	1.686	1.367	3.236
Replicate Prob(F)		0.4155	0.2057	0.2847	0.0467
Treatment F		2.455	6.278	2.611	0.681
Treatment Prob(F)		0.0652	0.0011	0.0533	0.6674

Means followed by same letter do not significantly differ (P=.10, LSD).

Table 4. Cotton yield and fiber quality parameters for insecticide seed treatments and in-furrow Temik applications (Victoria County, 2009).

		YIELD LB/A	MIC	LENGTH	UNIF.	STRENGTH
Trt No.	Treatment Name Rate					
1	Untreated	607.5 a	4.4 a	1.02 a	81.1 a	27.1 a
2	Aeris	618.6 a	4.5 a	1.03 a	81.1 a	26.6 a
3	Avicta	629.0 a	4.5 a	1.01 a	81.1 a	26.9 a
4	Aeris TEMIK 3.5 LB/A	613.6 a	4.4 a	1.01 a	80.6 a	26.2 a
5	Avicta TEMIK 3.5 LB/A	651.6 a	4.5 a	1.03 a	81.7 a	27.0 a
6	TEMIK 3.5 LB/A	670.4 a	4.5 a	1.03 a	81.7 a	28.0 a
7	TEMIK 5 LB/A	652.7 a	4.3 a	1.02 a	81.2 a	26.6 a
LSD (P=.10)		56.12	0.18	0.026	0.80	1.57
Standard Deviation		45.77	0.15	0.021	0.65	1.28
CV		7.21	3.29	2.1	0.8	4.77
Grand Mean		634.79	4.42	1.02	81.22	26.9
Replicate F		11.833	1.556	1.403	0.134	0.582
Replicate Prob(F)		0.0002	0.2346	0.2743	0.9384	0.6345
Treatment F		1.069	0.662	0.635	1.349	0.761
Treatment Prob(F)		0.4163	0.6812	0.7008	0.2872	0.6098

Means followed by same letter do not significantly differ (P=.10, LSD).

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