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THRIPS MANAGEMENT IN NORTHEAST ARKANSAS

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Abstract

Thrips annually cause crop delay and yield loss in Arkansas. New seed treatments offer ease of use and safety over traditional in-furrow insecticides. Gaucho, Cruiser and the experimental seed treatment L0263+L0112 (Gustafson) were evaluated against various rates of the in-furrow standard aldicarb for their efficacy against early season thrips in 2002 and 2003. In 2002, thrips pressure was extremely high and all treatments controlled thrips up to 21 days after planting (DAP). In 2003, thrips pressure was much lower and all treatments again controlled thrips up to 23 DAP. Significant yield increases were observed in 2002 ranging from 275lbs to 400+ lbs of lint over the untreated control. No significant yield increases were observed in 2003.

Introduction

Thrips are an early season pest of cotton in Arkansas, causing stunting, terminal loss and even stand loss under heavy infestations (Leigh et al 1996). Control with foliar insecticides is often difficult and does not always result in increased yields. Growers in the Mid-South are encouraged to take preventative measures at planting using an in-furrow insecticide or seed treatment for control. Due to the short growing season in Northeast Arkansas, thrips can be very detrimental due to their damage resulting in crop delay. In some years, the crop can literally run out of time to mature what bolls have been set. New seed treatment insecticides claim control levels similar to those found with in-furrow insecticides. Growers also find the ease of use and safety of seed treatments attractive.

Materials and Methods

Plots of PM1218 BB/RR cotton were planted in plots 4-rows wide by 45 feet long on 38-inch row spacing on 24 May (2002) and 28 May (2003) at the Northeast Research and Extension Center in Keiser, AR. Plots were arranged in a RCB with 4 replications. Plots were maintained with conventional tillage practices. Plots were irrigated and maintained according to University of Arkansas Cooperative Extension Service recommendations for weed and insect control. In-furrow insecticides were applied with a beltcone small plot planter along with the cottonseed. Foliar treatments were applied with a backpack sprayer fitted with TX-6 hollowcone nozzles calibrated to deliver 10 gpa through 2 nozzles per row. Pesticides were mixed and sprayed from 3-liter plastic bottles pressurized to 45 psi with a CO_2 gas canister. Plots were sprayed on 17 Jun 2003. Plots were evaluated on 7, 14, 21 and 26 Jun in 2002 and on 13, 20, and 27 Jun and 3 Jul in 2003. Thrips were counted by clipping 5 plants from each plot, washing them in alcohol and filtering out the dislodged thrips through filter paper marked with grid lines. The filter paper was then examined under a dissecting microscope for thrips. Yields were taken by harvesting the center four rows of each plot. Data were analyzed with Agricultural Research Manager 6.1.12 (Gylling Data Management, Inc.).

Results and Conclusions

The numbers of thrips per 5 plants are reported in Tables 1 and 2. Pressure was much higher in 2002 than in 2003 (90+ thrips/5 plants compared to 30+thrips in the untreated check each year). All treatments gave significant thrips control up through 21 to 23 days after planting (DAP) each year. Only Temik 15G at 3.5 lbs/acre continued to control thrips at 30 DAP in 2003. Control had broken down in all treatments by 33 to 36 DAP both years. All treatments had significantly higher yields than the untreated control (275 – 400 lbs higher) in 2002, while no differences in yield were observed in 2003.

There were few differences in the materials tested up to 21 to 23 DAP. All treatments did well under the extremely high thrips pressure experienced in 2002. All treatments out yielded the untreated control by over 200 lbs of lint with Temik at 5 lbs/acre and Cruiser seed treatment having the highest yields. Temik at 3.5 lbs/acre was the overall best treatment in the test in 2003, giving longer control and the highest yield. Overall yields in 2003 were low across the study. This is most likely the result of the test being planted late due to rainy wet conditions delaying the planting date, coupled with cool weather early in the fall of the year. Basically, there was not enough time to mature out the entire crop. There were many bolls on the plant that never opened, even after applying a heavy rate of boll opener in October.

Johnson et al (1996) reported that systemic granular insecticides applied in-furrow gave longer lasting control than the seed treatments (primarily acephate) at that time. However, it appears that the newer seed treatments, primarily belonging to the

neonicotinoid class of chemistry, give similar control lasting as long as the granular insecticides, and will continue to be adopted by growers due to their ease of application and safety concerns.

References

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Leigh, T.F., S.H. Roach, and T.F. Watson. 1996. Biology and ecology of important insect and mite pests of cotton. *In* Cotton Insects and Mites, E. King, J.R. Phillips and R.J. Coleman, eds. The Cotton Foundation, Memphis, TN.

Table 1. Number of thrips adults and larvae per 5-plant sample at various treatment intervals and yields in 2002.

Insecticide and Rate	Thrips Adults & Larvae/5 Plants				Yield
lb ai/acre	14 DAP	21 DAP	28 DAP	33 DAP	Lbs/acre
Untreated	90.75 a	95.00 a	44.25 ab	27.00 a	414.74 c
Cruiser seed trt	4.75 b	21.25 c	23.50 ab	16.00 a	842.09 a
Gaucho seed trt	5.50 b	44.75 b	39.50 ab	9.50 a	736.83 ab
L0263+L0112 seed trt	10.00 b	33.50 bc	24.50 ab	17.25 a	765.19 ab
Temik 15G 0.5	6.00 b	18.00 c	22.25 b	10.75 a	703.42 b
Temik 15G 0.6	19.50 b	21.75 c	57.00 a	13.50 a	730.53 ab
Temik 15G 0.75		19.50 c	35.50 ab	9.50 a	824.44 a

Means within a column followed by the same letter do not significantly differ (P=0.05).

Table 2. Number of thrips adults and larvae per 5-plant sample at various treatment intervals and yields in 2003.

Insecticide and Rate	Thrips Adults & Larvae/5 Plants				Yield
lb ai/acre	16 DAP	23 DAP	30 DAP	36 DAP	Lbs/acre
Untreated	32.80 a	29.50 a	19.75 a	13.00 a	645.02 a
Cruiser seed trt	1.12 c	9.00 bc	12.75 a	12.25 a	603.88 a
Gaucho seed trt	1.11 c	12.50 bc	14.75 a	8.50 a	670.00 a
L0263+L0112 seed trt	2.25 c	9.00 bc	9.00 a	13.00 a	650.90 a
Temik 15G 0.5	3.25 c	7.50 c	6.00 a	5.75 a	755.21 a
Temik 15G 0.6	5.78 bc	5.50 c	18.75 a	13.25 a	675.87 a
Temik 15G 0.75	1.11 c	12.75 bc	13.00 a	7.25 a	709.66 a
Temik 15G 1.0	4.5 c	9.00 bc	8.75 a	4.50 a	684.70 a

Means within a column followed by the same letter do not significantly differ (P=0.05).