

## EVALUATION OF FOLIAR INSECTICIDES FOR THRIPS MANAGEMENT ON COTTON IN MISSISSIPPI 2001

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**ABSTRACT:** The purpose of this trial was to evaluate foliar insecticides for control of thrips, (*Thysanoptera:thripidae*), on cotton. Tests were planted at the North Mississippi Research and Extension Center, Verona, MS. The average number of immature thrips before treatment with insecticide was 20 thrips per plot. Mature thrips pressure was light and there were no significant yield-related effects from thrips. There were no statistically significant differences in yield between treated plots. Efficacy of methyl parathion was intermediate between the efficacy of other insecticides and the untreated check plots, but did not reduce thrips numbers below threshold. Treatments and the rates (lb ai/ac) included in this trial were: Karate Z 2.08 EC, 0.02; Asana XL 0.66 EC, 0.03; Baythroid 2 EC, 0.0125; Capture 2 EC, 0.032; Decis 1.5 EC, 0.013; Fury 1.5 EC, 0.016; Bidrin 8 EC, 0.2; Orthene 75 SP, 0.2; Declare 4 EC, 0.2; Karate Z 2.08 CS, 0.02; and Centric 40 WG, 0.047+ Leverage 2.7 SE, 0.063.

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**MATERIALS AND METHODS:** The statistical design was randomized complete block with 4 replicates. Cotton, variety ST 4892 BR, was planted with untreated seed at the North Mississippi Research and Extension Center on 5/09/01 at a seed rate of 3 per ft. Plots were four rows wide and 40 (12.2 m) ft long arranged with four rows of cotton (ST4892BR treated) between plots and a planted buffer of 10 feet at the end of each plot. Insecticides were applied 6/13/01 with a high-clearance plot spray tractor with nozzles (Spray Systems, Tx4, hollow cone) spaced for a 38-in (96.5 cm) row spacing at 19-in (48.3 cm) centers with one nozzle directly over the row and one directly between rows. The carrier was water, and the volumetric application rate was 10 gallons (37.8L) per acre. Windspeed, temperature and relative humidity at time of application was 0-4.2 mph, 94<sup>o</sup>F and 48.9%, respectively. After 48hr, five plants from each plot were cut and transferred into a plastic bag for transport to the lab. The samples were then washed in a Clorox-detergent solution to remove the thrips from the plants. Thrips and other arthropods were transferred onto a filter paper for identification and counting by use of a dissection microscope. Yield was estimated by mechanically harvesting the center two rows of each plot and converting the yield to pounds of seed cotton per acre.

**RESULTS AND DISCUSSION:** The average number of immature thrips before treatment was 20.4 thrips per five plants, which is above the threshold (one thrips per plant). All insecticide treatments reduced immature thrips numbers below threshold significantly through 6/15/01, however Asana XL and methyl parathion (Declare) treatments were at or above threshold on that date. Adult thrips were low throughout the sampling period of the study. By 6/18/01, the immature thrips were still below threshold in all of the insecticide treatments except the Declare and Asana XL treatments. Declare was not effective in controlling thrips and the number of immature thrips were significantly higher in Declare treated plots than in plots treated with other compounds. There were no differences in yield between treatments as a result of the single application of insecticide.

**COOPERATOR:** Normie Buehring, North Mississippi Research and Experiment Station, Verona, MS.

**Table 1.** Mean insects per five plants, Verona location, June 15, 2001.

| Treatment         | Lb ai/ac | Immature thrips | Tobacco thrips | Flower thrips | Western flower thrips |
|-------------------|----------|-----------------|----------------|---------------|-----------------------|
|                   |          | 6/15/01         | 6/15/01        | 6/15/01       | 6/15/01               |
| Karate Z 2.08 EC  | 0.02     | 1.3 cd          | 0.7 bc         | 0.3 bc        | 0.0 a                 |
| Asana XL 0.66 EC  | 0.03     | 5.0 bc          | 0.3 bc         | 0.0 c         | 0.0 a                 |
| Baythroid 2 EC    | 0.0125   | 3.0 bcd         | 0.3 bc         | 0.5 bc        | 0.0 a                 |
| Capture 2 EC      | 0.032    | 2.3 cd          | 1.0 b          | 0.5 bc        | 0.0 a                 |
| Decis 1.5 EC      | 0.013    | 1.8 cd          | 0.3 bc         | 0.0 c         | 0.3 a                 |
| Fury 1.5 EC       | 0.016    | 2.3 cd          | 0.3 bc         | 0.0 c         | 0.0 a                 |
| Bidrin 8 EC       | 0.2      | 1.3 cd          | 0.0 c          | 0.8 b         | 0.0 a                 |
| Orthene 75 SP     | 0.2      | 2.5 bcd         | 0.0 c          | 0.0 c         | 0.0 a                 |
| Declare 4 EC      | 0.2      | 6.0 b           | 1.0 b          | 1.5 a         | 0.0 a                 |
| Karate Z 2.08 CS  | 0.02     | 0.7 d           | 0.7 bc         | 0.0 c         | 0.0 a                 |
| Centric 40 WG +   | 0.047    | 2.5 bcd         | 0.8 bc         | 0.0 c         | 0.0 a                 |
| Leverage 2.7 SE   | 0.063    |                 |                |               |                       |
| Untreated         |          | 12.5 a          | 2.3 a          | 2.0 a         | 0.3 a                 |
| Lsd (P=.05)       |          | 3.73            | 0.99           | 0.73          | 0.29                  |
| Treatment Prob(F) |          | 0.0001          | 0.0044         | 0.0001        | 0.5177                |

Means within a column not sharing a common letter differ significantly (LSD; P=0.05).

**Table 2.** Mean thrips per five plants, Verona location, June 18, 2001, and yield.

| Treatment         | Rate   | Immature thrips | Tobacco thrips | Flower thrips | Western Flower Thrips | Yield lb seed cotton |
|-------------------|--------|-----------------|----------------|---------------|-----------------------|----------------------|
|                   |        | 6/18/01         | 6/18/01        | 6/18/01       | 6/18/01               | 10/04/01             |
| Karate Z 2.08 EC  | 0.02   | 1.3 c           | 0.3 cd         | 0.0 a         | 0.0 a                 | 1843.8 a             |
| Asana XL 0.66 EC  | 0.03   | 6.0 c           | 1.3 bcd        | 2.3 a         | 0.0 a                 | 2126.1 a             |
| Baythroid 2 EC    | 0.0125 | 2.5 c           | 0.0 d          | 2.8 a         | 0.0 a                 | 2178.0 a             |
| Capture 2 EC      | 0.032  | 4.8 c           | 2.0 abc        | 3.0 a         | 0.0 a                 | 2212.6 a             |
| Decis 1.5 EC      | 0.013  | 2.3 c           | 1.3 bcd        | 1.5 a         | 0.0 a                 | 2108.9 a             |
| Fury 1.5 EC       | 0.016  | 3.5 c           | 0.8 cd         | 0.8 a         | 0.3 a                 | 2178.0 a             |
| Bidrin 8 EC       | 0.2    | 4.0 c           | 1.5 a-d        | 2.0 a         | 1.0 a                 | 2178.0 a             |
| Orthene 75 SP     | 0.2    | 3.8 c           | 0.3 cd         | 2.0 a         | 0.5 a                 | 2229.9 a             |
| Declare 4 EC      | 0.2    | 28.0 b          | 2.8 ab         | 3.5 a         | 1.8 a                 | 2057.0 a             |
| Karate Z 2.08 CS  | 0.02   | 2.8 c           | 0.5 cd         | 1.8 a         | 0.0 a                 | 2350.9 a             |
| Centric 40 WG +   | 0.047  | 1.8 c           | 0.5 cd         | 3.5 a         | 0.3 a                 | 2247.1 a             |
| Leverage 2.7 SE   | 0.063  |                 |                |               |                       |                      |
| Untreated         |        | 39.3 a          | 3.3 a          | 4.0 a         | 0.5 a                 | 2247.1 a             |
| LSD (P=.05)       |        | 10.75           | 1.86           | 2.59          | 1.33                  | 386.43               |
| Treatment Prob(F) |        | 0.0001          | 0.0193         | 0.1135        | 0.2380                | 0.5631               |

Means within a column not sharing a common letter differ significantly (LSD; P=0.05).