COTTON: *Gossypium hirsutum* (L.) ‘Phytogen 400 W3FE’

**Foliar Insecticide Efficacy Against Thrips in Cotton, 2020**

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Cotton (cottonseed) | *Gossypium* spp.

Tobacco thrips | *Frankliniella fusca*

Selected insecticides were evaluated for control of thrips spp. in seedling cotton at the Research and Education Center at Milan, TN. Cotton was planted on 21 May. The test was arranged in an RCB design with four replicates. Individual plots were 13.3 x 30 ft and planted at a rate of four seeds per row ft on 40-inch row spacing. Treatments were applied with a high clearance sprayer calibrated to deliver 9.2 GPA at 40 PSI with 8001 flat fan nozzles. The first application was made 5 June to cotton with one true leaf and high thrips numbers present. A second application was made 11 June as populations in plots for all treatments exceeded five thrips per plant, and there were obvious signs of injury on emerging leaves. Insects were sampled by cutting five random plants near the soil level and immediately placing in a 70% isopropyl alcohol solution. Samples were taken to the lab, and individual plants were washed with fresh alcohol solution. Each sample was sieved through a 150-μm sieve, and immature and adult thrips were counted using a dissecting microscope. Thrips control was evaluated 8 June, 3 d after the initial application (3 DAT1) and 15 June (4 DAT2). Additionally, thrips injury ratings were determined 10 June (5 DAT1), 14 June (3 DAT2), and 18 June (7 DAT2) by examining whole plots using a 0–5 scale with 0 = no injury and 5 = plant death. However, only injury data from the final evaluation will be presented. Yield was taken 9 November by harvesting the two center rows of each plot with a spindle picker modified for this purpose. Counts of immature thrips and total thrips at 4 DAT2 were log transformed (x + 1) prior to the ANOVA, and Fisher’s protected least significant difference (P ≤ 0.05) was used to distinguish treatment mean differences. Nontransformed means are presented in Table 1.

The test was conducted under poor seedling emergence conditions and severe thrip pressure. Tobacco thrips composed the vast majority (>95%) of the adult thrips observed in this test. Immature thrips were not distinguished by species. Warrior II and the untreated check resulted in similar immature and total thrips numbers and thrips injury throughout the duration of this trial (Table 1). All other insecticide treatments significantly reduced the number of immature and total thrips found 3 DAT1 compared with the untreated check. At 3 DAT1, plots treated with Radiant and the higher rate of Orthene had fewer immature and total thrips numbers than those treated with Dimethoate. Following the second application, at 4 DAT2, the higher rate of Orthene significantly reduced the number of immature thrips compared with the untreated check, Warrior II, and the lower rate of Orthene. Plots treated with the higher rate of Orthene had fewer total thrips than did all other insecticide treatments except Radiant at this timing. Perhaps the most telling evaluation was thrips injury at 7 DAT2. Plots treated with Warrior II and the untreated plots exhibited the most injury, whereas plots treated with Intrepid Edge or Radiant had the least amount of thrips injury.

All insecticide treatments, except Warrior II, resulted in more seed cotton than the untreated check. Also with the exception of Warrior II, there were no differences in yield among the insecticide treatments. No phytotoxicity was observed with any treatment.

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| Treatment/formulation          | Rate/acre (oz form.) | Numbers per 5 plants | 7 DAT2 |
|-------------------------------|----------------------|----------------------|--------|
|                               |                      | 3 DAT1               | 3 DAT1 | 4 DAT2 | 4 DAT2 | Thrips injury | Seed cotton |
| Untreated check               | —                    | 125.0a               | 135.0a | 70.5ab | 96.8ab | 4.3a          | 700b        |
| Intrepid Edge 3SC             | 3.0                  | 50.0bc               | 56.0bc | 12.3cd | 33.3c  | 1.9d          | 1,390a      |
| Orthene 97S                   | 3.4                  | 53.8bc               | 57.5bc | 22.0bc | 33.3c  | 2.9b          | 1,242a      |
| Orthene 97S                   | 8.3                  | 34.5c                | 36.8c  | 9.5d   | 16.3d  | 2.5c          | 1,419a      |
| Bidrin 8EC                    | 3.2                  | 35.5bc               | 40.3bc | 21.0bcd| 43.5bc | 2.5c          | 1,392a      |
| Dimethoate 4EC                | 6.4                  | 72.8b                | 79.3b  | 17.0cd | 35.8c  | 2.7bc         | 1,431a      |
| Radiant 1SC + Dyne-Amic       | 1.5 + 0.5d           | 23.5c                | 28.3c  | 9.8cd  | 32.8cd | 2.1d          | 1,484a      |
| Warrior II 2.08SC             | 1.28                 | 159.8a               | 166.8a | 110.3a | 135.0a | 4.2a          | 613b        |
| P > F                         | <0.01                | <0.01                | <0.01  | <0.01  | <0.01  | <0.01         | <0.01       |

Column means followed by the same letter are not significantly different (P ≤ 0.05, F-protected LSD).

a Immature thrips, any species.
b Tobacco and other thrips, adults + immatures.
c Data transformed due to unequal variances (log (x + 1)); nontransformed means presented.
d v/v in %.