A SURVEY OF THRIPS POPULATIONS ON SEEDLING COTTON IN LOUISIANA

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Abstract

Several species of thrips are considered pests on seedling cotton. These include flower thrips, Frankliniella tritici (Fitch); tobacco thrips, Frankliniella fusca (Hinds); western flower thrips, Frankliniella occidentalis (Pergande); onion thrips, Thrips tabaci (Lindeman); and soybean thrips, Neohydatothrips variabilis (Beach). Previous surveys of thrips on cotton have indicated that tobacco thrips are the most abundant thrips species infesting cotton seedlings in Louisiana. Although western flower thrips are considered seedling pests of cotton in California, Georgia, Mississippi, New Mexico, Oklahoma, and South Carolina, this species has not been reported on cotton seedlings in the Louisiana surveys.

Thrips adults were collected from cotton seedlings at the Northeast Research Station, St. Joseph, LA; Macon Ridge Station, Winnsboro, LA; Red River Research Station, Bossier City, LA; and the Dean Lee Research Station, Alexandria, LA in 1996. Collection areas consisted of 8-12 rows x 200 ft. cotton plots. Plants were sampled at 7 days after emergence (DAE) and continued until 42 DAE at 7-day intervals. Each sample consisted of forty plants that were processed with whole plant washing procedures.

Thrips adults also were collected from an at-planting soil insecticide trial at the Macon Ridge Station in 1996. Two seed treatments, Orthene 80S (6.4 oz. AI/cwt of seed) and Gaucho (4.0 oz. AI/cwt of seed); two at-planting in-furrow spray treatments, Orthene 90S (0.9 lb AI/acre) and Admire 2F (0.2 lb AI/acre); one in-furrow granular treatment, Temik 15G (0.5 lb AI/acre), and an untreated control were surveyed for thrips infestations. Randomly selected plants (five per plot) were collected 7 DAE until 27 DAE at 4-day intervals. These samples were also processed with whole plant washing procedures. Thrips adults from each treatment were pooled across replicates to produce a composite sample for each date.

Insect samples from all treatments were preserved in a 70%-30% ethanol-water solution. Thrips adults were mounted on microscope slides with CMC 10 mounting media (Master Chemical Com., Bensenville, IL) and covered with an 18 x 18 mm glass slip. Thrips were identified by morphological characteristics (Stannard [1968], The Thrips, or Thysanoptera of Illinois; Childers and Beshear [1992], J. Entomol. Sci. 27:392-412) utilizing an Olympus microscope.

Flower thrips, tobacco thrips, western flower thrips, and soybean thrips accounted for >99 percent of the total species composition in samples at all locations. At the St. Joseph site, tobacco thrips accounted for 66% of the total species, while flower thrips and soybean thrips represented 19% and 16%, respectively, of the total (n=32) collected over the entire sampling period. Tobacco thrips (39%) were the most abundant species at the Winnsboro location. Western flower thrips, soybean thrips, and flower thrips accounted for 30%, 20%, and 11%, respectively, of the total (n=108). At the Alexandria location, tobacco thrips accounted for 90% of the thrips species collected. Flower thrips, western flower thrips, soybean thrips represented 4%, 3%, and 3%, respectively, of the total (n=237). Tobacco thrips (68%) and western flower thrips (28%) were the most abundant species of the total (n=184) identified at the Bossier City location.

In the insecticide efficacy trial during 1996, tobacco thrips (78%) and western flower thrips (16%) were the most abundant species of thrips (n=206) identified in the untreated plots. In plots treated with Orthene 80S, tobacco thrips represented 61% of the thrips samples, while western flower thrips and soybean thrips represented 22% and 15%, respectively, of the total (n=176). Tobacco thrips and soybean thrips both represented 38% of thrips populations (n=227) in plots treated with Gaucho, followed by western flower thrips at 23%. In plots treated with Orthene 90S, tobacco thrips (42%) were most common species. Also, western flower thrips and soybean thrips comprised 27% and 27%, respectively, of the total thrips (n=190) in the plots treated with Orthene 90S. Western flower thrips (36%), soybean thrips (32%), and tobacco thrips (30%) were the most abundant thrips (n=195) in plots treated with Admire 2F. In plots treated with Temik 15G, western flower thrips represented 43% of the total thrips (n=150), followed by tobacco thrips and soybean thrips at 28% and 23%, respectively.

Western flower thrips were collected on most sampling dates at all locations, except for the St. Joseph location. Also this species was found in all treatments in the at-planting insecticide efficacy trial in 1996. Western flower thrips now appear to be present throughout most of the cotton production regions of Louisiana.

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