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USDA-ARS AREA-WIDE CONTROL PROGRAM FOR TARNISHED PLANT BUG: LOUISIANA UPDATE

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Abstract

A study to evaluate the effects of native winter-spring host plant management on tarnished plant bug, *Lygus lineolaris* (Palisot de Beauvois), infestations in cotton, *Gossypium hirsutum* (L.), was conducted in Tensas Parish, LA during 2000, 2001, 2002, 2004, and 2005. This study was conducted on commercial farms near Newellton and Waterproof, LA. Two sites, a treated and a non-treated site were established each year. During 2000, the sites were 300 to 500 ha in size. During 2001, 2002, and 2004 the sites were ca. 800 ha. During 2005, the treated site was ca. 1,554 ha and the non-treated site was ca. 2,331 ha. Each site was divided into four quadrants and during January, 100 sample locations were established at each site (25 per quadrant). These locations were sampled with a 38.1 cm diameter sweep net from February until June at least bi-weekly to estimate densities of tarnished plant bug adults and nymphs. During late February to early March, a combination of 2, 4-D, mecoprop, and dicamba (Strike 3, Agriliance, LLC, St. Paul, MN) was applied to the field margins at the treated sites to destroy all broadleaf plants. These herbicide applications were made ca. three to five weeks prior to cotton planting. Random cotton fields within each quadrant at each site were sampled with a sweep net at least bi-weekly to estimate the densities of tarnished plant bug adults and nymphs from May until August. Plant bug densities on native vegetation were similar at each site prior to herbicide application in all years, except 2002, in which densities of tarnished plant bug adults and nymphs were higher at the non-treated site compared to the treated site. Following herbicide applications to field margins, densities of tarnished plant bug adults and nymphs at the treated sites declined and remain low until the end of sampling in May. Densities of tarnished plant bug adults and nymphs collected from cotton fields at treated and non-treated sites were similar and generally low during 2000 and 2001. During 2000 to 2002, the Boll Weevil, *Anthonomus grandis grandis* Boheman, Eradication Program was in the active phase, and malathion was applied to cotton fields at almost weekly intervals as a portion of this program. These insecticides greatly suppressed densities of tarnished plant bug adults and nymphs. During 2004, tarnished plant bug densities were higher in cotton fields at the non-treated site compared to the treated site during June and early July. During late July and early August, densities of tarnished plant bug adults were similar between sites. Densities of tarnished plant bug nymphs were greater than two fold higher in cotton fields at the non-treated site compared to fields at the treated site. During 2005, densities of tarnished plant bug adults at the two sites were generally similar during mid to late June. Densities of tarnished plant bug adults were ca. 2.6 fold higher in cotton fields at the non-treated site compared to fields at the treated site during early July. During mid to late July plant bug adult densities were higher in cotton fields at the treated site compared to the non-treated site. Densities of tarnished plant bug nymphs were 1.1 fold to 2.2 fold lower in cotton fields at the treated site compared to fields at the non-treated site from mid June to late July. Results from this study indicate that this management strategy has the potential to reduce tarnished plant bug infestations in cotton.