Influence of Neonicotinoid Insecticides on Infection by *Neozygites fresenii* (Nowakowski) Batko (Entomophthorales: Neozygitaceae) in the Cotton Aphid, *Aphis gossypii* Glover (Homoptera: Aphididae) in South Carolina

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**ABSTRACT** Incidence of infection by *Neozygites fresenii* (Nowakowski) Batko in the cotton aphid, *Aphis gossypii* Glover was monitored biweekly during the summer of 2002 in a cotton field in Bamberg County, SC. Five treatments were evaluated to determine the effects of insecticides on incidence of *N. fresenii*: acetamiprid, dicrotophos, thiamethoxam, imidacloprid, and control. Aphids were sampled by taking 24 leaves from 12 cotton plants from each plot and placed into 30-ml screw cap vials filled with 70% ethanol. Fungus infection in aphids, numbers of aphids, percentage of winged aphids, and fungus infection in winged aphids were determined from aphids for each plot.

The highest fungus infection occurred on July 12 and 16. Acetamiprid treated plots had infection levels of *N. fresenii* lower than other treatments. Cotton aphid numbers in acetamiprid and thiamethoxam plots were significantly lower than in the dicrotophos treatment and untreated plots. None of the treatments caused reductions in percentage of winged aphids or in infection levels by *N. fresenii* in winged aphids.

**KEY WORDS** cotton aphid, *Aphis gossypii*, Homoptera, Aphididae, *Neozygites fresenii*, Entomophthorales, neonicotinoid insecticides, dicrotophos

The cotton aphid, *Aphis gossypii* Glover (Homoptera: Aphididae), is an economic pest of cotton in the southeastern and southwestern United States (Steinkraus et al. 1991). High aphid populations can have negative impacts on cotton yield and result in economic losses. Williams (2003) reported that in 2002, the cotton aphid was regarded as the sixth most damaging pest of U.S. cotton. The aphid infested 70.3% of U.S. cotton, causing a 0.119% reduction in yield in 9,307,757 infested acres, resulting in a loss of 31,450 bales. This pest continues to be a concern because of its potential for rapid reproduction and ability to develop resistance. Outbreaks of cotton aphids have been associated with reductions in natural enemy populations and aphid resistance to pesticides (Grafton-Cardwell 1991).

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