

# Soybean Aphid *Aphis glycines* Populations in Northeast Iowa, 2004

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## Introduction

We are developing an economic threshold for application of a foliar insecticide for soybean aphid management. We employed an experimental design that has been replicated across five states in an attempt to refine the current action threshold of 250 aphids per plant. This experimental design was expanded to address how adjusting planting date, a practice recommended for bean leaf beetle *Certoma trifurcata* management, may also affect soybean aphids.

## Materials and Methods

The experimental layout was a completely randomized block design with four replications of six treatments in two planting dates. Plots measured 110 ft long × 30 ft wide. Soybeans (NK Brand S24-K4 RR) were planted using a no-till planter in 30-in. rows at 196,000 seeds/acre. The first planting was on May 6 and the second planting on May 20.

The six treatments included: 1) untreated control, 2) an aphid-free treatment and insecticide applications when aphid populations reached 3) 2,000 cumulative aphid days (CAD), 4) 4,000 CAD, 5) 8,000 CAD, and 6) 16,000 CAD. The average number of aphids/plant was calculated each week by counting all the aphids on 10 randomly selected plants from each plot. This average was added to the previous week's

average and divided by the number of days between samples to calculate aphid days. We applied Warrior (lambda-cyhalothrin) insecticide at 3.2 oz/acre using 20 gallons of water/acre as carrier. Nozzles used were TeeJet 11002 twin jets with 15-in. spacings at 40 PSI. Plots were harvested mechanically with a combine on September 28 and October 5 for the early and late planting dates, respectively.

## Results and Discussions

Due to low aphid populations in 2004, the only insecticide treatment applied was to the aphid-free control on July 24. All other treatments (3 to 6) were included in the untreated control (1) for statistical analysis.

The number of aphid days accumulated between the treatments was significantly different, but there was no significant difference in the number of aphid days between planting dates (Figure 1). There were no yield differences between treated and untreated plots in 2004 (Figure 2).

## Acknowledgments

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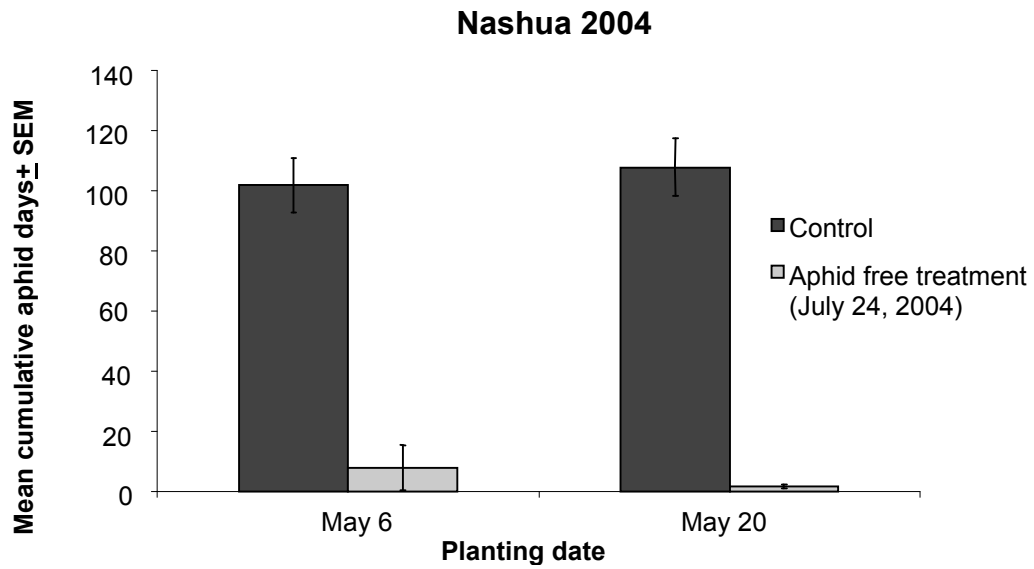


Figure 1. The effect of planting date and insecticide on soybean aphid populations.

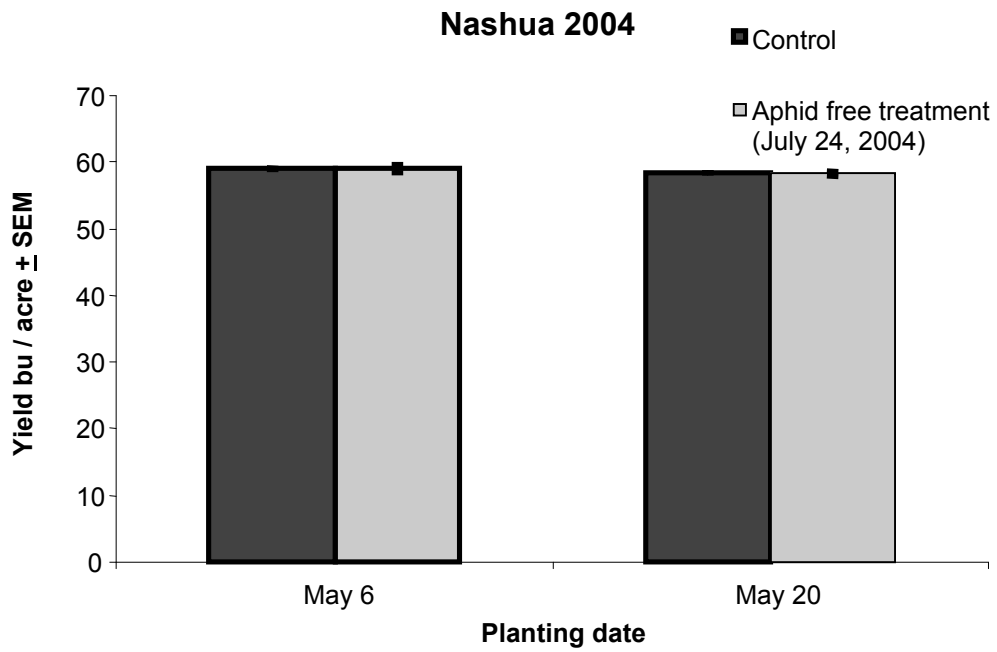


Figure 2. Yield comparisons between treated and untreated plots planted at two planting dates. Yields corrected to 13% moisture.