

Asparagus miner integrated pest management research update

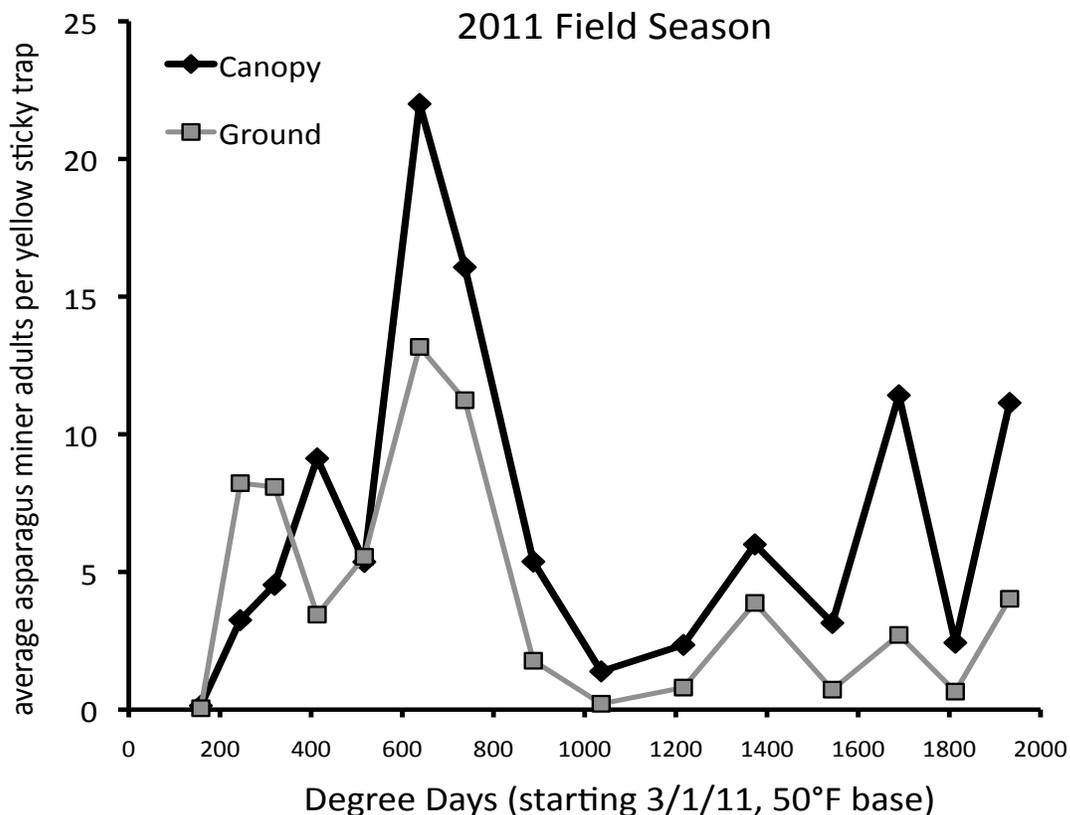
Research in the vegetable entomology lab focuses on the integrated pest management of the asparagus miner (*Ophiomyia simplex* (Loew), Diptera: Agromyzidae). This insect is a putative vector for pathogenic species of *Fusarium* fungus, which is the causative agent for “early decline syndrome” in asparagus fields. *Fusarium* can decrease the life span of an asparagus field by 5-8 years, making it economically unsustainable to continue production.



Asparagus miner adults mating.

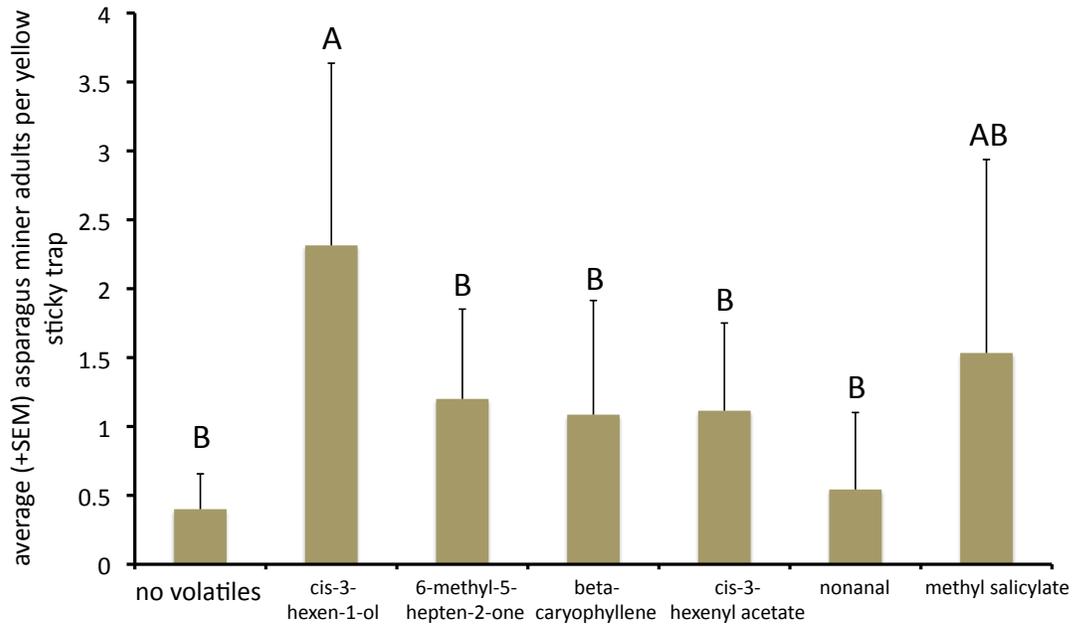
ASPARAGUS MINER DEGREE DAY MODEL DEVELOPMENT

We have been monitoring the abundance of asparagus miners throughout the 2011 field season, by counting the adult flies weekly on yellow sticky cards placed at five commercial asparagus fields in the Hart area. At each trapping site, one trap was placed at ground level and another at canopy level. We started monitoring in early May, and are still checking traps as of this week. We observed a peak in adult activity in mid- to late-June corresponding to ca. 700 Growing Degree Days and a smaller peak in mid- August, around 1700 Growing Degree Days. Last year we observed a prolonged period of adult activity from mid-July to early-August, which in Degree Days corresponds approximately to the second, smaller peak of adult activity in the 2011 growing season. For the 2012 field season we will particularly focus on communicating asparagus miner flight activity to growers around the 700 and 1700 Growing Degree Day periods of the growing season.



ASPARAGUS MINER MONITORING WITH BAITS

We are exploring the chemical interaction of the asparagus miner with the asparagus. In particular, we are looking for plant volatiles involved in the attraction of the miner to plants. Plant volatiles can be used in management by incorporating them into baits on traps to improve monitoring or using them in the population management of adult miners. In the 2011 growing season, we tested 7 plant volatiles that were identified from asparagus plants or are known attractants for related insects. The different plant volatiles were attached to yellow sticky traps in the field and the number of adult miners was counted on the traps weekly. Yellow sticky traps baited with cis-3-hexen-1-ol caught about 6 times more adults than most of our other plant volatile treatments, including the no-volatile control. Methyl salicylate baited traps caught the second highest number of adults on average, but this was not significantly different from any of the other treatments.



ASPARAGUS MINER BIOLOGICAL CONTROL

We are currently in the process of identifying naturally occurring arthropod parasitoid species of the miner pupae, as well as examining their abundance in commercial asparagus fields.

So far, parasitoids have been identified from the *Pteromalidae*, *Eulophidae* and *Braconidae* insect families. These all belong to the larger group of parasitic wasps.

About 6% of the asparagus miner pupae were parasitized by the two most abundant groups. We are still in the process of collecting data on asparagus miner parasitism for the 2011 season.

