

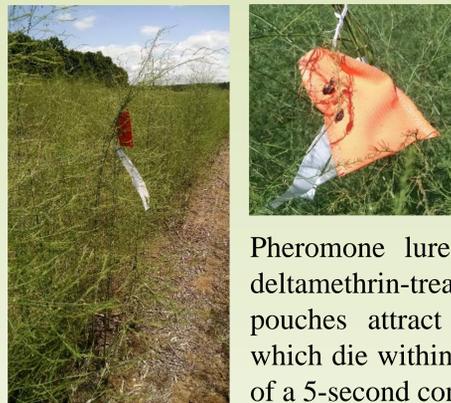
Developing innovative tactics for pest management in asparagus

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Insect pests of asparagus reduce long-term crop yields, but chemical pest management tactics are limited for this specialty crop

Attract-and-kill strategy targets Japanese beetle, a generalist defoliator

Japanese beetles cause scarring damage to asparagus ferns, affecting subsequent crop production.



Pheromone lures inside deltamethrin-treated pouches attract beetles, which die within 3 hours of a 5-second contact.

Kill pouches were deployed in two spatial arrangements in mid-Michigan asparagus fields.

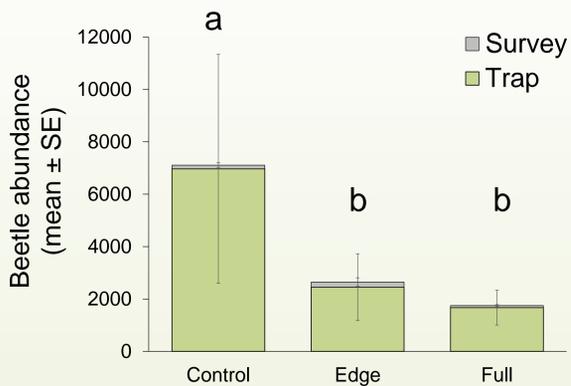
Beetle abundance was measured weekly for 9 weeks with (1) capture data from pheromone-baited traps, and (2) a 25-point-grid count survey.



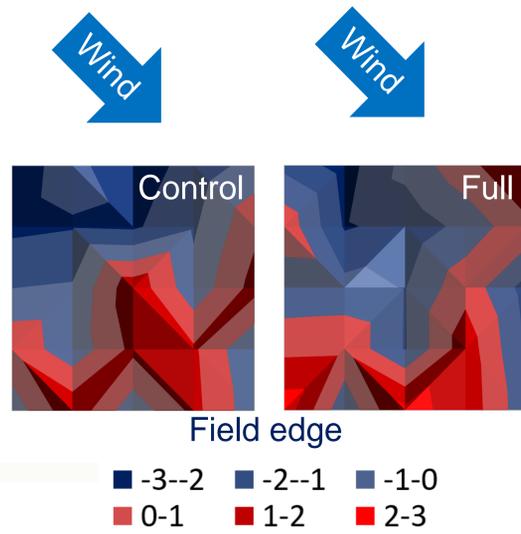
Full field: 5 x 5 half-acre grid
Field edge: 2 x 12 strip



Control: pheromone trap only



Trapped beetles were most abundant in the plots without the devices. Very few beetles were found on plants, with no differences in abundance across deployment treatments.

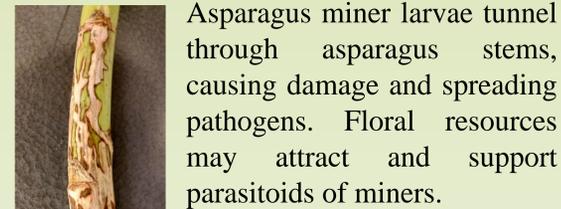


Beetles appeared more aggregated (positive numbers, in red) near the trap and plume in control plots, and near the field edge in treatment plots (NS).

Low beetle abundances and cryptic plant damage make determining the efficacy of attract-and-kill in asparagus difficult, but trap data suggest the devices in either spatial arrangement are altering Japanese beetle behavior in the field.

Future projects will address effects of attract-and-kill deployment on defoliation by Japanese beetles

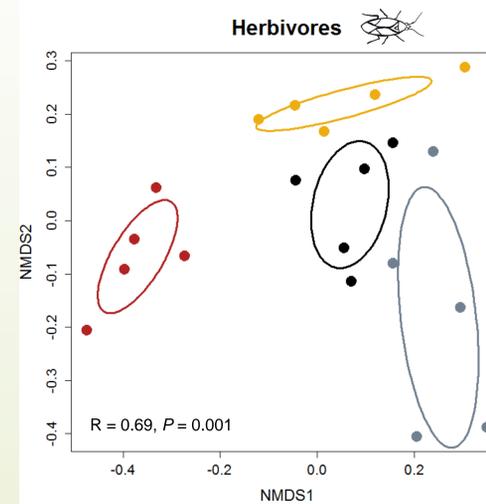
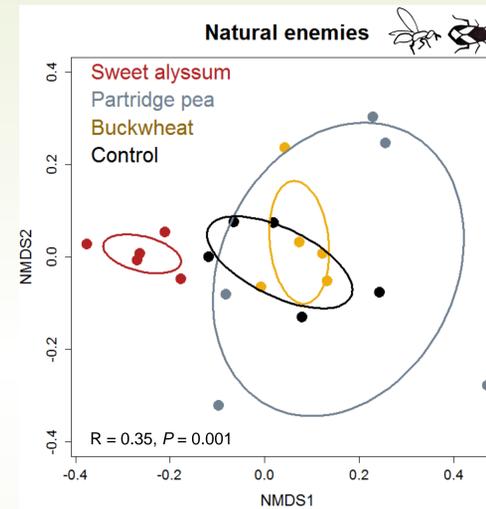
Floral resources promote natural enemies of asparagus miner, a specialist stem miner



Asparagus miner larvae tunnel through asparagus stems, causing damage and spreading pathogens. Floral resources may attract and support parasitoids of miners.

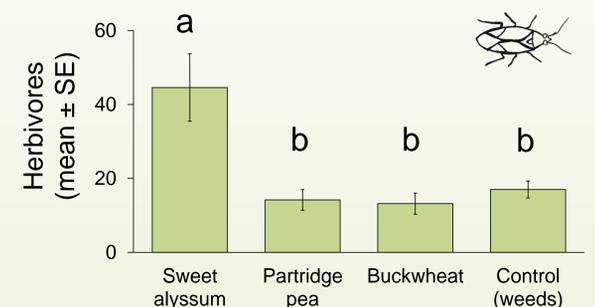
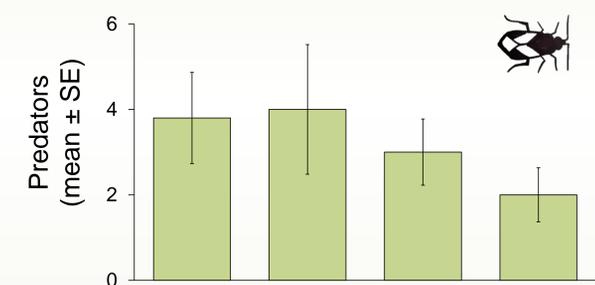
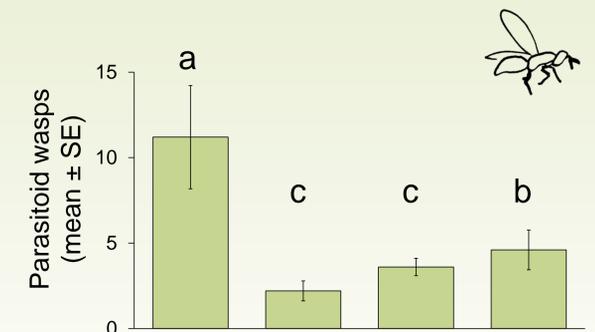


Sweet alyssum, partridge pea, and buckwheat are poor resources for adult asparagus miners. A common garden contained 1-m² plots of these species, and a weedy control.



Community composition differed among flower species, particularly sweet alyssum.

The generalist herbivores found in sweet alyssum (mostly tarnished plant bugs) are generally not significant pests of asparagus, making sweet alyssum a good candidate to attract natural enemies.



H' = 1.89 2.31 2.34 2.14

Sweet alyssum attracted the most parasitoids and herbivores, and had lower overall diversity.

Future projects will address the effects of floral resources on parasitism rates and asparagus miner damage in asparagus fields