Project GREEEN

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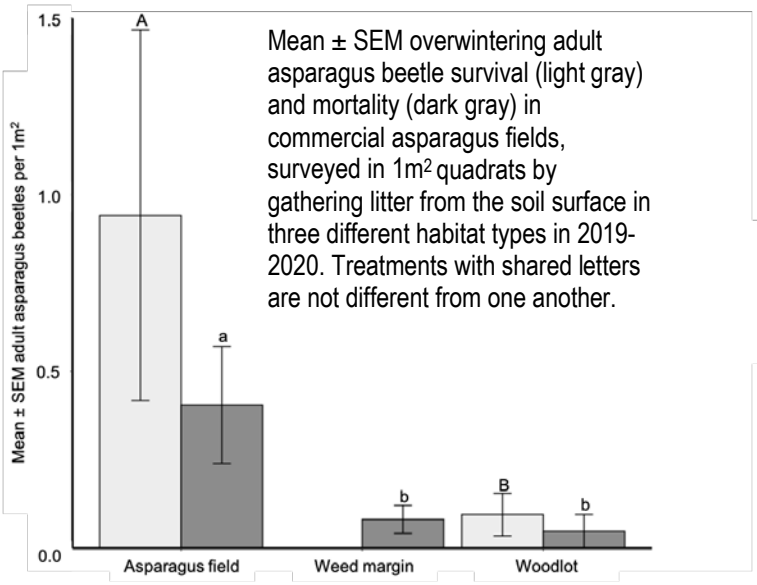
https://vegetable.ent.msu.edu/extension-2/bulletins/asparagus/

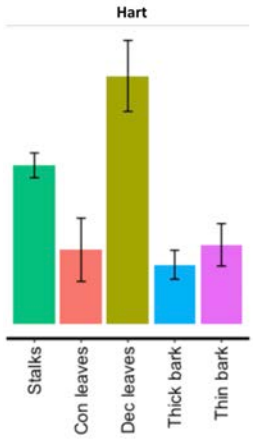
Asparagus beetle overwintering

With fall coming, the weather is getting cooler, the days are getting shorter and it's time for asparagus beetles to seek overwintering sites. Although beetles will only consume asparagus as food, they aren't quite as picky about where they overwinter. Beetles have previously been seen overwintering in decaying asparagus stalks, under leaf litter, and underneath tree bark.
Over the course of a 2-yr project, we found that beetles primarily overwinter **within asparagus fields**. Beetles also overwinter in surrounding woodlots and weed margins, but at significantly lower numbers compared to asparagus fields.



Mean ± SEM overwintering adult asparagus beetle survival (light gray) and mortality (dark gray) in commercial asparagus fields, surveyed in 1m² quadrats by gathering litter from the soil surface in three different habitat types in 2019-2020. Treatments with shared letters are not different from one another.

In terms of substrate, beetles overwintering in **deciduous leaves or decaying asparagus stalks** survive at higher rates, as opposed to pine needles and bark.



Tree characteristics in the habitat next to asparagus fields were assessed; such as number of trees, live or dead, bark rating, tree diameter, etc. The number of dead trees and the number of beetles on fern during the season were negatively correlated, meaning that **the more dead trees, the fewer beetles** there were. This could be because dead trees don't produce leaves that could be used for overwintering.

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Asparagus beetle insecticide trial

We conducted an insecticide trial on June 7, 2020 to determine how currently available 24-hr PHI (Pre-harvest interval) insecticides perform to control asparagus beetle adults and egg laying during harvest on spears. We tested both conventional and organic insecticides in a research plot in Hart. There were 8 insecticides applied (Table 1) by overhead spraying. We released asparagus beetles into the experimental plot and counted numbers of beetles and eggs 24-hrs later.

The best performing conventional insecticides were **Carbaryl, Coragen** and the best organic insecticide was **Entrust**. Two organic insecticides (Permethrin, Neem) did not perform well compared to the other insecticides. We did not find any beetles or eggs in plots with Assail, Pyganic and Carbaryl 1x treatment.

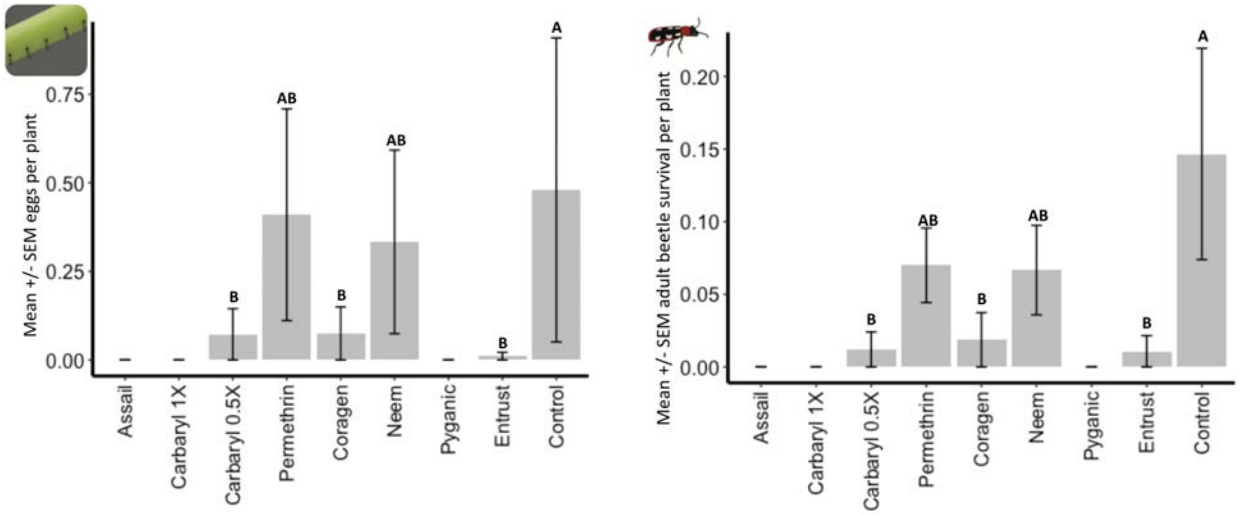

Table 1. Insecticides in the 2020 asparagus insecticide trial.				
Name	**Type**	**Active ingredient**	**Class**	**Rate (per acre)**[1]
Assail (granular)	Conventional	acetamiprid	neonicotinoid	1.1-**2.3 oz**. / 20 gal.
Carbaryl (1X)	Conventional	carbaryl	carbamate	**32 oz.**
Carbaryl (0.5X)	Conventional	carbaryl	carbamate	**16 oz.**
Perm-Up	Conventional	permethrin	pyrethroid	3.2-**6.4 oz.**
Coragen	Conventional	chlorantraniliprole	anthranilic diamide	3.5-7.**5 oz.**
Neem	Organic	extract of neem oil	neem	1-**2 oz.** per gal.
Pyganic	Organic	pyrethrins	pyrethrin	16-**59 oz.**
Entrust	Organic	spinosad	spinosyn	1.25-**2 oz.**

[1] Bolded numbers indicate the rate at which we applied the insecticide. The range indicated is from the label.