It's a bug-eat-bug world on New York strawberry

NORTHEAST SARE Sustainable Agriculture Research & Education

Cornell AgriTech
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What is biological control?

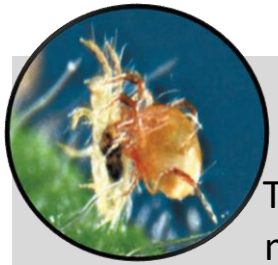
Biological control, or "biocontrol" is a method of pest management using natural enemies, including predators, parasitic wasps and pathogens, to control weeds, insects and pathogenic pests.

Why is it important?

Biocontrol provides an natural and sustainable way to combat pests. Using biocontrol alone, or in conjunction with other management tactics, can provide a healthier and more productive agricultural system and reduce the reliance on pesticides for pest control.

Biocontrol on strawberry

There are many pests of strawberry, and each has a suit of natural enemies. However, there are only a few strawberry pests that can be actively managed using biocontrol as part of a pest management regime. These include aphids, thrips, two-spotted spider mites and tarnished plant bugs. The latter two are particularly devastating pests of strawberry, and are often the primary targets for biocontrol.



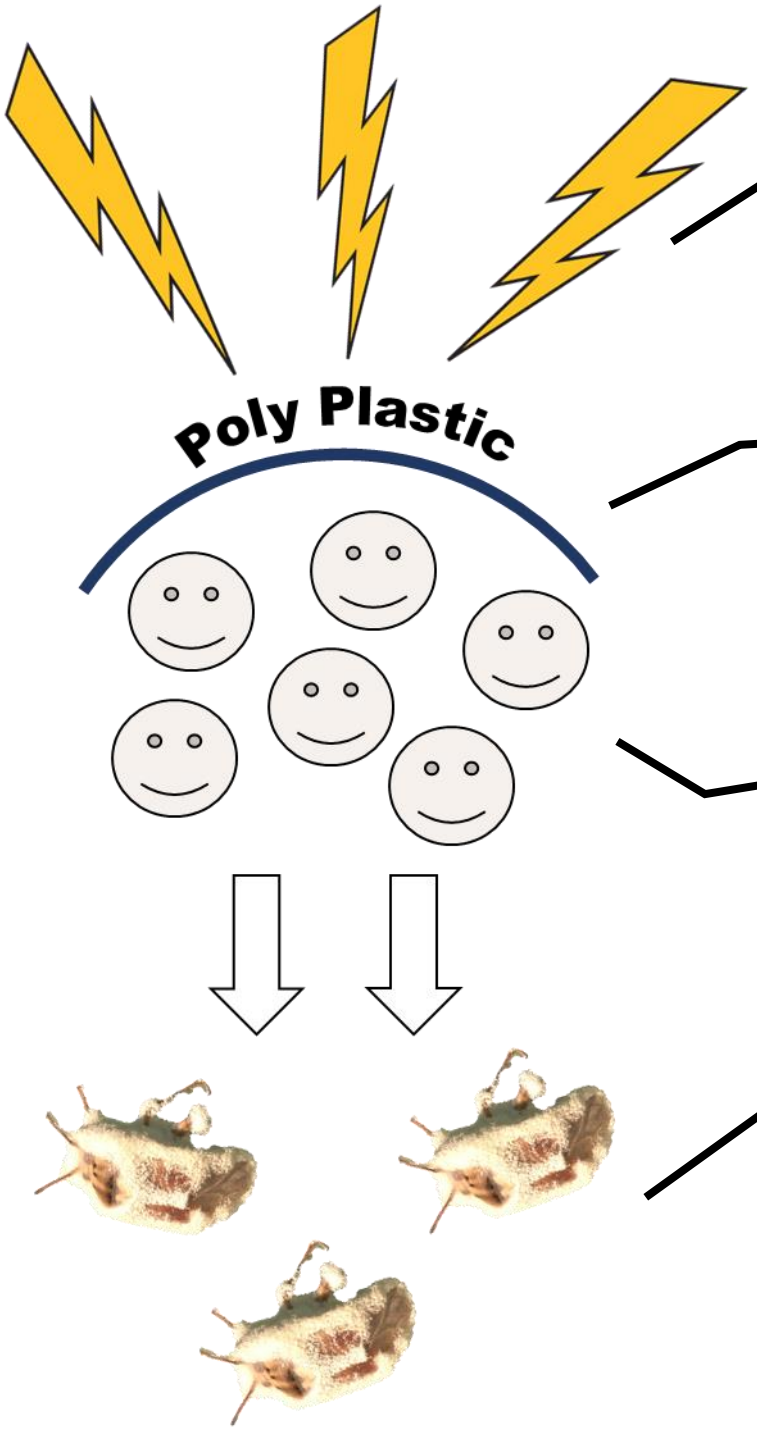
Mites-eat-mites: Is it cannibalism?

Two-spotted spider mites (*Tetranychus urticae*) are major pests of strawberry. They reproduce rapidly and are difficult to manage. Predatory mites (Phytoseiidae) are often used to control this pest, but because they are in a different mite family, this is not cannibalistic. However, predatory mites will happily cannibalize their siblings if food is lacking. Current studies are evaluating cannibalism and intraguild predation between predators to improve biocontrol success.

Death by fungus

Beauveria bassiana is a soil-dwelling insect pathogen that has been formulated into several biopesticides. It can be used against tarnished plant bugs (*Lygus lineolaris*), a bug causing "catfaced" strawberry damage. This pathogen has limited success on strawberry, but current research is evaluating its efficacy under low tunnels, a production system that can provide an optimal environment for this pathogen to be successful. (see back)

Samantha Willden | PhD student in Entomology | saw326@cornell.edu



UV radiation from the sun reduces *Beauveria bassiana* survival in the open field

Polyethylene plastics can block UV radiation

Blocking UV leads to longer *Beauveria* survival and higher rates of spore germination

Better survival and germination leads to successful infection of tarnished plant bug hosts by *Beauveria,* providing to better biocontrol