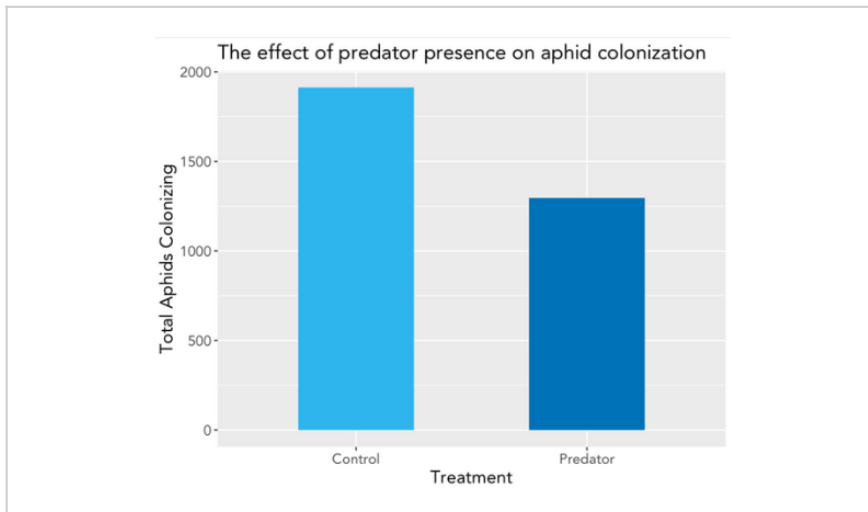


Semiochemicals to disrupt herbivorous pests and reduce crop damage

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Predator presence on aphid colonization

Technology Summary

This invention exploits natural enemy semiochemicals (i.e. volatile odor cues) to manipulate and/or disrupt the behavior of pest insects to enhance crop plant yield. The researchers invented certain compositions of natural enemy semiochemicals to repel and modify behavior of herbivorous pests. The invention may utilize a carrier to tailor the delivery or release the composition, which may be applied to a targeted surface, such as plant leaves, or released as an aerosol. The repellent formulation(s) signal risk to prey and trigger(s) non-consumptive effects on prey that includes predator avoidance and a decrease in fecundity. Early-stage laboratory research and preliminary fieldwork suggest that this strategy results in less damage to crop plants and significantly reduced pest (aphids) populations. This research studies aphid behavior, survival, performance and pest status on crops.

Application & Market Utility

Integrated pest management use biological controls by increasing predator and/or parasitoid abundance and direct predation to control pest insect populations. Biocontrol products have an estimated US market value \$4.5+ billion. However, predatory insects used in integrated pest management move freely about the landscape and are difficult to maintain in a cost-effective manner. Aphids are prolific pests worldwide. Damage from aphids occurs directly through plant nutrient consumption and their ability to transmit a suite of plant pathogens.

Next Steps

Using internal and federal research funding, the researchers continue to explore the commercial potential for manipulation of natural enemy cues as a pest management tactic.

TECHNOLOGY READINESS LEVEL

3

Seeking

Licensing | Research

Keywords

- Insect control
- Herbivorous pests
- Agriculture
- Integrated pest management
- Biological control

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