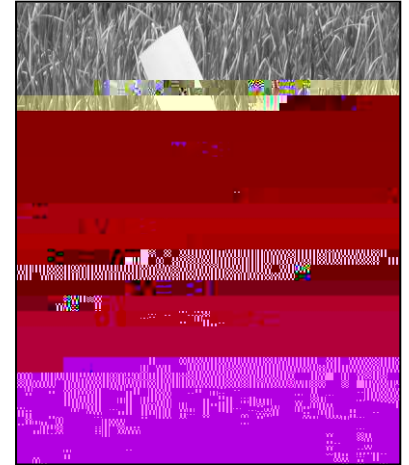


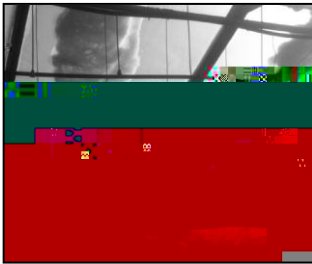
Greenhouse Integrated Pest Management (IPM)
University of Vermont

established. The immature thrips would serve as prey for the predatory mite, *Neoseiulus cucumeris*, sustaining them and encouraging their dispersal through the crop. Thrips escaping predation would drop to the soil to pupate, where they would become infected with fungi. The granular formulation would enable the fungus to colonize the potting mix, eliminating the need for reapplication. This represents a low-cost, organic approach, achieving thrips IPM through a holistic system: ATTRACT, SUSTAIN & KILL. Because fungal treatments and mite releases are applied to the guardian plants rather than the entire crop, management costs will be reduced, while control is maximized. Marigolds were tested as a GPS in greenhouses of organic vegetable crops: one with the GPS and predatory mites and fungi, one using marigolds as a GPS with predatory mites and no fungi and one with no marigolds. Predatory mites were released onto the marigold GPS canopy in hanging sachets two times throughout the experiment duration and the soil was treated with granular fungi once before placing them in the greenhouse. For 12 weeks thrips and mite numbers were monitored biweekly with plant tapping on marigolds and a random assortment of crops and yellow sticky cards. Blossom samples from the GPS were taken after 6 weeks and 12 weeks to assess predatory mite and thrips populations within and soil samples and thrips samples taken and tested for presence of fungi. Thrips populations were higher in the greenhouse that had only predatory mites on the marigolds than in the greenhouse that had the combined fungus and mite treatment. More mites and thrips were present in the marigold blossoms than on foliage with lower numbers of thrips occurring in blossoms that had the fungus and mite treatment. Thrips numbers were also lower overall on sticky traps in the fungus/mite greenhouse than the house with predatory mites alone. Thrips were found to be infected with fungus at the end of the experiment and fungal growth was consistent throughout the experiment duration on the soil surface. These results demonstrate the potential of the marigold GPS as a useful tool for thrips management in organic greenhouses.



Marigold GPS in organic commercial greenhouse onion crop.

Greenhouse Energy Efficiency



Bubble generation

Greenhouses are oftentimes significant consumers of energy. We are currently testing cost-effective environmentally-friendly greenhouse designs. This involves technologies to reduce heat loss. Specialists in greenhouse design, solar energy have been enlisted to collaborate on this project being demonstrated at a local commercial greenhouse operation. At this location, we are testing the energy saving of three greenhouse designs, a bubble insulating system and a solar energy curtain and a traditional poly greenhouse. This project is just getting underway and observations of significant heating cost reductions have already been noticed!

Scientists and Technicians Currently Involved with these Activities

Bruce L. Parker
Margaret Skinner
Svetlana Gouli

Vladimir Gouli
Cheryl E. Frank
Jae-Su Kim

Don Tobi

Funding Sources and Grower Collaborators (Alphabetical Order)

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