

Assessing consumption efficiency of TSSM by predatory mites and the influence of biorational products on predator.

Leslie Aviles¹, and Laura L. Ingwell¹

¹Department of Entomology, Purdue University, West Lafayette, IN, USA

High tunnels (HT) are a protected agriculture tool for specialty crop farmers. Cucumbers (*Cucumis sativa* L.) are well suited for HT production because their vertical growth pattern allows for space optimization and repeated flowering, offering multiple harvest opportunities. However, the twospotted spider mite (*Tetranychus urticae* Koch; TSSM) is one of the primary pests of cucumbers in HT systems. TSSM often goes unnoticed by farmers until the damage is irreversible and the pest is difficult to control. Current recommendations are based on field or greenhouse production and rely on conventional miticides. However, more is needed to satisfy HT growers who wish to use organic pest management methods. Selecting the most efficacious and economical control methods for TSSM management in HT growing systems is difficult for growers because of the need for research-based evaluations in these unique growing environments. Here, we will present results from bioassays under laboratory conditions—first, the evaluation of different predatory mite species, varying in lifestyle type, consuming TSSM under high tunnel simulated temperature in incubators and second, assessing the mortality effect of biorational pesticides on the same predatory mites (*Amblyseius andersoni*, *Neoseiulus californicus*, *N. cucumeris*, *N. fallacis*, and *Phytoseiulus persimilis*). The information gained through this work can help growers select biorational products that reduce TSSM populations and minimize the negative effects on predatory mites.