Two Spotted Spider Mites (TSSM) are at high levels in many greenhouse/high tunnels across the region. The pest has risen to damaging populations in crops such as peppers, onions, tomatoes and cucumbers. Often they are in high numbers on weeds, which serve as green bridges into vegetables. When not controlled, TSSM will destroy a crop.

Look for stippling, or small white dots on the surface of foliage. TSSM, their webs and eggs can be found on the underside of leaves, except when in very high numbers when they will move throughout the canopy. For many a 10X hand-lens will aid in scouting.

TSSM overwinters in NYS in the soil or crop debris. Controlling weeds and reducing dust (with mulch) are the first preventative steps.

Biological control is possible with TSSM and releases of predators must begin very early. *Phytoseiulus persimilis* can be effective, but requires high relative humidity to survive, so may require repeat releases. Other beneficials to control TSSM include *Feltiella acarisuga* and *Amblyseius californicus*. The benefits of biological control include reduced labor and no PHI/REI concerns. Biocontrol is suitable for both conventional and organic farmers. The spray options for organic control are limited to oils that encapsulate the mite when applied at high pressure to the underside of foliage. Biocontrol, when deployed early is an excellent option.
Whitefly management in high tunnel tomatoes

A rash of whitefly outbreaks this week has a number of high tunnel tomato operations scratching. There are several species of whiteflies; here we likely are facing the Sweet Potato Whitefly. Whiteflies are damaging to tomatoes in several ways:

- Removal of sap from the leaf
- Feeding damage results in uneven fruit ripening
- Whiteflies transmit viruses
- Sooty mold often follows a whitefly outbreak

Whiteflies do not survive NY winters, so allowing tunnels and greenhouses to freeze to ambient temperatures will be the best approach to preventing further problems. Prompt removal of all vegetative matter (including weeds) is important.

Biological control is an option for whitefly control. *Encarsia Formosa* and *Eretmocerus eremicus* are parasitic wasps that control whitefly populations by laying eggs inside the body of the pest. A combination of these two species is a wise approach as exact diagnosis of whitefly species may take too long. Many commercial greenhouses successfully use this approach. However, these species are temperature sensitive and as we enter the late summer, they may not respond well to nighttime lows.

A number of insecticides can be used to control whiteflies, however several of the more effective materials are not registered for high tunnel use in NYS. Close attention to the label is important.

For organic control Azadiractin products can act as anti-feedants and several are OMRI listed. Mycotrol and Molt-X are an organic tank mix that has shown promise in CVP trials. JMS Stylet Oil also is listed for whiteflies.
Fall High Tunnel Check List

High tunnel tomato growers often take a deserved break when fall arrives. If not growing a winter greens crops, the high tunnel may move into the rear-view mirror. But after reviewing soil quality of dozens of high tunnels across New York State, we have observed that Fall is the best time to implement important Best Management Practices. Acting now will increase the likelihood of a profitable crop the following year.

Soil test

Soils are still warm and biologically active in the fall. Sampling now will give a better idea of what nutrient availability will be during the following growing season, in particular phosphorus levels. If there needs to be a pH adjustment having this information in the Fall is best, to allow for an application of either lime or sulfur to take effect.

Leaching

Be sure to request a test of soluble salts when submitting this soil sample. Soluble salts (often measured as Electrical Conductivity or EC) can escalate in tunnel soils over the course of several seasons. Polyethylene covers of high tunnels need to be replaced periodically based on weight and wear with most growers needing to replace plastic after 3 growing seasons. By removing the plastic in the fall the soil will benefit from a full winter’s precipitation to reduce salts (and alkalinity) problems.

Pest Management

At this time of year the crop is near completion and temperatures are cooling. Less attention is given to pests, and unfortunately late season populations of mites, thrips and caterpillars go unmanaged. These will all overwinter and have a jump start in the spring. This is the time to control, then remove as much crop debris as possible.

Cover Crop

There is still time to sow a cover crop, although the window is closing quickly. A winter grain such as rye can scavenge any leftover nitrogen in the soil and hold it in a vegetative form, which when incorporated in the late winter/early spring will be re-released. Note that a living crop may provide habitat for pests, so scouting is essential. If growing a cover crop it is still wise to allow the tunnel to cool down completely during the winter. Although this will inhibit cover crop growth, sub-freezing temperatures should eliminate warm climate diseases and pests such as Powdery Mildew and Whiteflies.

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