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Ounces of prevention

Writing anonymously in the Pennsylvania Gazette on February 4, 1735 on seeing how ill-prepared his adopted City was in the area of fire prevention, Benjamin Franklin advised an “Ounce of Prevention is worth a Pound of Cure” and provided practical suggestions for citizens on avoiding potentially fatal fire-related disasters.

Where greenhouse pests are concerned, the consequences of runaway infestations can be somewhat less dire though still painful. Fortunately we can learn from history and experience about preventive and practical strategies that help avoid some problems we’ve been seeing in recent years. Here are a few suggestions as spring production gets underway and proceeds.

Older plants are often where it starts. Some growers keep stock or older plants over winter and into the spring production period. Spider mites, aphids, thrips, virus, and other threats can start here, and in our northern climate they are highly unlikely to be originate from outdoors this time of year. These Trojan Horses don’t belong in areas where plugs are introduced and finished.

Weeds too. Western flower thrips can spread tospoviruses (we’ve already seen several cases this spring), with chickweed, bittercress, and oxalis just some of the common greenhouse weeds that are hosts for both. Until it can be demonstrated that they make good ‘banker plants’ for maintaining biological controls, for now consider weeds *non grata* in the greenhouse.

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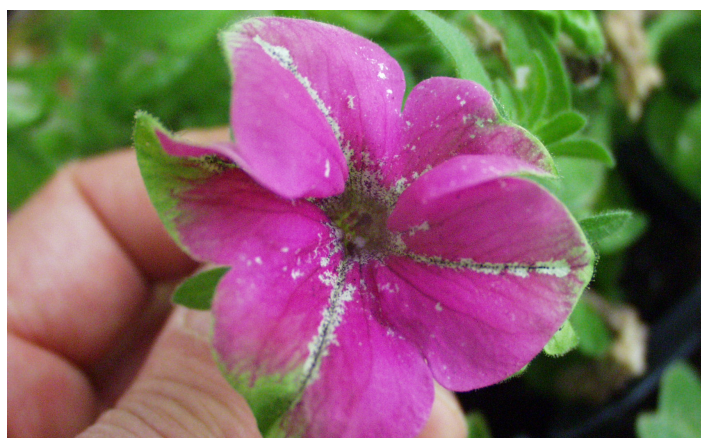


Seedlings rarely have insect or mite problems. While not unheard of, it's not particularly common to see pests on seed-grown plugs (insects and mites are not seed-borne after all). The few instances include fungus gnat larvae damaging roots, shore flies that built up to unacceptable levels after successive crops or developed in wet areas of the greenhouse, or other pests that migrated from infested crops nearby. Among other options, drenches with nematodes or several labeled insecticides (take care not to overdose especially on plugs) can help take care of the fungus gnat larvae; shore fly adults can be knocked down with light overhead applications of Conserve on bedding plants and larval shore flies managed by controlling algae.

Rooted cuttings and pests. Vegetatively propagated annuals occasionally appear in the Diagnostic Lab or as the subject of complaints. Broad mite (on begonias, salvias, New Guineas, others) and aphids (several species especially on calibrachoa) top the list of culprits, though we've seen twospotted spider mite, western flower thrips, whiteflies, and a few others. With increasing interest in hemp, vegetative propagation can keep russet mite and cannabis aphid going. This is one case where I feel preventive insecticide or miticide treatments can be justified, particularly for plants destined for out-of-sight hanging baskets. Consider treating plants in their flats before sticking, especially with highly effective translaminar materials (be sure they are labeled for this use!) as getting good coverage is often an issue with overlapping and low foliage. This will also use much less spray than delaying the application until after planting. Some of these materials are quite compatible - perhaps after a short period for residues



Cast 'skins' and shiny droplets of honeydew are signs to look closer for aphid infestation.



Petunia flower showing signs of western flower thrips damage.



Sunken pale areas on petunia foliage from western flower thrips feeding. A few thrips are visible on the leaf.



Mini-rose leaf with flecking due to twospotted spider mite injury. Ozone exposure and other factors can sometimes cause similar symptoms.



Check under leaves - especially older leaves - to confirm spider mites are present. Symptoms on this leaf were light but there is a high number of mites and eggs.

to degrade - with biological controls to be released later. For twospotted spider mite and where there were concerns for miticide resistance we've found it helpful to remove lower leaves and use materials (insecticidal soap, horticultural oil) that have contact activity and no issue of resistance.

Sticky cards are useful for detecting some pests. Anyone with experience sporting a certain shade of yellow in summer might have noticed some bugs or bees unusually bothersome. The color is attractive to some insects, which may partly explain why many kinds of insect-pollinated flowers are yellow. Yellow sticky cards capitalize on this; a few clipped vertically (or perhaps horizontally for shore flies) just above the crop canopy and strategically placed - but not close to where flying biocontrols (like *Aphidius*) are released as they can also be attracted and trapped - are helpful for detecting and monitoring fungus gnats, shore flies, whiteflies and thrips. Place these where the pests are most likely to be present, such as among cutting-grown and older plants or in areas of air movement that carry the insects along. Don't forget to check them periodically and replace as needed. They are not effective at nor intended for controlling infestations, just to help in detection. Don't depend upon them too heavily as they may not always correlate to the pest population level or indicate where spot infestations are brewing and take care when interpreting what is trapped once weather turns mild and insects migrate in from outdoors. They are of course not useful for monitoring spider mites, broad mites, or mealybugs; aphids may only be trapped once populations have built to a high level and start producing winged adults. Some growers use sticky bands of yellow 'hopper tape' stretched down bench rows to continually trap and suppress pests that have a flying adult stage (like thrips and shore flies), but this may not be desirable for use with some biocontrols and it can be messy to work with.

Observe and train staff to observe.

Eyeballs are the most useful tool of all, but knowing how to look and what to look for are key. Scars on expanding leaves or flowers might indicate western flower thrips in buds. Lightly blow into flowers or tap flowers and foliage over a white surface to check for thrips. Wispy pale cast skins on leaves with tiny, shiny dots of honeydew can be early signs of aphids. Bronzing of leaf undersides or new growth, tan scabby stems, or stunting and distortion of expanding leaves can be early indications of broad or cyclamen mite. Some cultural or environmental problems can look a lot like pest-related damage. A hand lens is helpful here and there are inexpensive stereoscopes some growers use to enhance ability to see small things. Checking pH and soluble salts levels will also be helpful in sorting things out. As always, connect with a diagnostic lab that can provide these services if necessary. We sometimes see the same issue multiple times over the season and know what to expect, though there are always surprises.

Reference

Independence Hall Assn. Accessed 2-12-2020 at <https://www.ushistory.org/franklin/philadelphia/fire.htm>



Yellow sticky card for monitoring placed just above the crop. Note many thrips are trapped.

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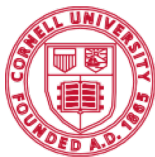
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