



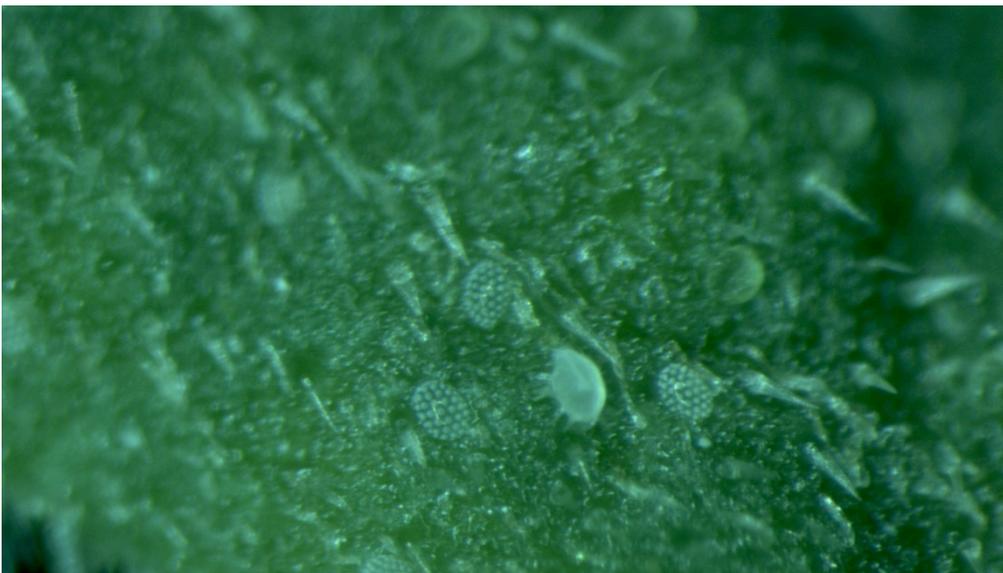
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Spring Fling

Over the past few weeks I've spoken with growers who have had to discard plants due to pest damage, infestation, and/or disease. This is always frustrating to say nothing of impacts on marketing and the bottom line, though in some cases might be the best alternative given time and expense for rescue treatments or where plants will just not look good when they need to go out the door. That's not always the end of the story unfortunately, as often some kind of treatments will be needed for residual pest populations. The good news is in some cases the crops have recovered and looking much better, so likely go out almost on schedule. Following are some of the recent interesting cases seen in the Insect Diagnostic Lab.

Broad mite on celosia, Hedera, and begonias: Cutting-grown plants from different operations, all had very stunted, distorted new foliage and we found broad mites and their eggs present. The eggs (or their collapsed 'shells') have a distinctive dotted appearance that is unmistakable, but you'll need high magnification, around 30X or more, to see them reasonably well if trying to diagnose on your own. Broad mite has a wide host range – I have even seen it on azalea – though I most often see on vegetatively propagated greenhouse annuals like New Guinea impatiens and only rarely on seed-grown material. The mite seems to do best in warm, humid conditions.



Broad mite and distinctive dotted eggs.

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Mid- to late spring, in my area, when greenhouses are full is about when it starts to appear. Typically only one or a few cultivars are affected at one time. It was probably difficult to recognize early signs of broad mite damage on the celosia given how the new foliage develops. The begonias (a *B. boliviensis* cultivar) have been showing symptoms of damage for some time but were overlooked hanging above where the young foliage is less easily seen. Given the appearance and stage (both flowering plants are nearing bloom and most leaves are damaged on the begonia) I suspect these plants are destined for the discard pile. The growers will be treating remaining plants nearby in case mites have spread. The Hedera had just the youngest growth affected and should recover and grow normally after the treatment is applied.

Twospotted spider mite (TSSM) on zonal geranium: I didn't think zonals were a host for TSSM until I started seeing infested plants about 20 years ago. Mite-damaged leaves initially appear to have symptoms resembling a disease problem so samples usually arrive via the Pathology Diagnostic Lab. Older foliage can have brown, dead spots or areas, and yellowing, with edema on the underside especially between veins close to the petiole. Younger leaves may have these symptoms and possibly some distortion. The symptoms are not especially typical for TSSM, which more often causes a kind of pale flecking or bronzing on other kinds of plants like tomatoes and roses. As with broad mite above, I only encounter TSSM on vegetatively propagated zonals, never on seed-grown plants. Due to the plant architecture and difficulty getting really good coverage under older leaves when using contact miticides, we decided upon a translaminar product (or at least to include in the rotation or tank mix) and then to evaluate the results, to make sure we weren't dealing with a miticide-resistant population. With our array of miticides to choose from a back-up plan was discussed, if necessary. I recently checked a sample from the crop and it is good news: no mites. The few damaged leaves in the crop are easily removed or will be covered by new growth and the crop should look great when it's sold in a couple of weeks.



Dark blotching here on verbena leaves is symptom of TSWV infection. Pale scarring on leaves is from thrips feeding.



Bronzing and curling on begonia leaf is typical of broad mite damage

Verbenas, New Guinea impatiens, tospovirus, and thrips: Just to prove that tospovirus hasn't completely gone away, several infected plants were brought in this spring, including cases of TSWV (tomato spotted wilt virus, a tospovirus) on verbenas and New Guinea impatiens.

Western flower thrips (WFT) is the usual culprit vectoring the virus though it can also be spread in cuttings taken from infected plants.

Unfortunately WFT was also present damaging flowers and leaves indicating a rather dangerous situation, given the wide host range for both thrips and TSWV.

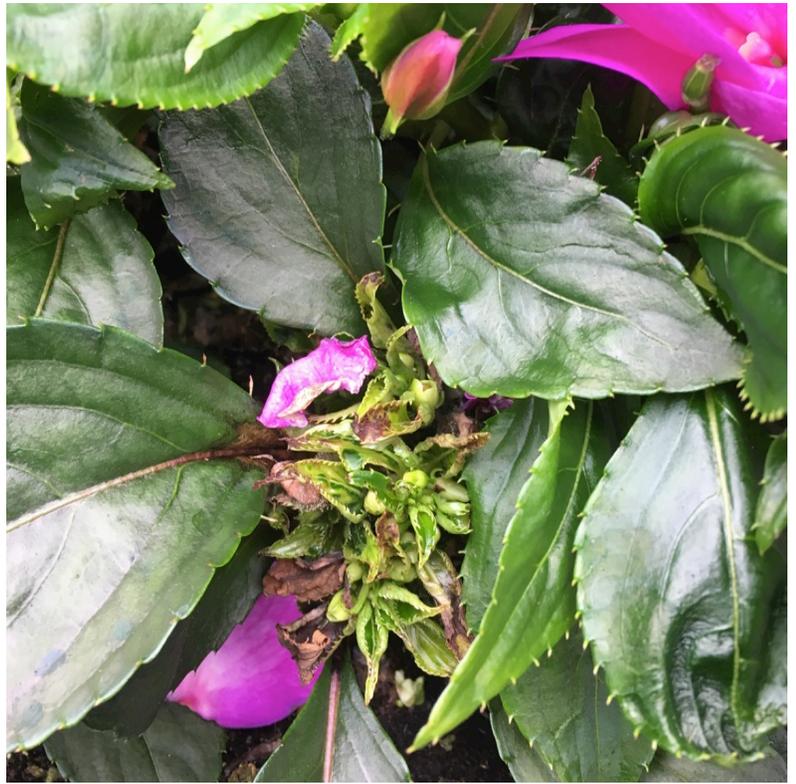
The New Guineas were in hanging baskets out of sight so the virus symptoms were not observed until fairly late. They included strong stunting and black marks or streaking on and under leaves. The verbenas also showed pale tan or chlorotic coloring on leaves from thrips damage as well as dark brownish-black patches at the base and center of leaves, including petioles, and along veins.

Setting up yellow (or if WFT is the main target pest, blue) sticky cards, doing regular foliar inspections for thrips damage symptoms, and tapping flowers over a pale surface (or lightly blowing into them) are all ways to check or monitor for thrips.

Also when checking for thrips damage any plants found showing virus symptoms need to be rogued out (bagged and discarded), since they can't be cured and are a source of infection for others.

Since the virus symptoms can take days or weeks to appear after plants are initially infected, losses may increase. We've seen tomato transplants infected in the greenhouse in such situations, weeks later producing disease symptoms after planting in the field when too late to replant. Immediate treatment of the crop with a product effective against WFT was advised and given the advanced growth stage of these crops - lots of foliage where coverage will be difficult and plants are in bloom - repeat applications may be needed to reduce the thrips population to a tolerable level, which needs to be set especially low when virus is also present.

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Strong stunting on this New Guinea was associated with TSWV infection



Leaves on begonia distorted from broad mite infestation

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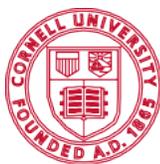
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