UNIVERSITY OF MARYLAND EXTENSION

Greenhouse TPM/IPM Report

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Pilea Aphid

By: Stanton Gill

While visiting greenhouses in February, I am seeing a big increase in the number of tropical foliage plants being rooted for sales through garden Centers. Greenhouse growers are loving the situation – demand is high and many of the tropical plants species either do not have patents or the patent expired. Also, many of the tropical foliage plants are relatively easy to root, though a little slower during the dead of winter. Much of the plant material is coming from the Homestead area of Florida. I love Florida and it has been one of the only warm places in the continental United Sates for much of February. Bugs and mites love Florida also.

If you are getting plant cuttings from Florida, I would suggest dipping the cuttings in Suffoil –X. There are directions on the label for dunking cuttings which will help suppress mites, aphids, and scales that may be tagging along on the cuttings. Dan Gilrein, Cornell University Extension, reported finding Pilea aphid, *Myzus fatauna*, in greenhouses on Long Island in February of 2021. If you find an aphid on Pilea, please send in a sample to me at CMREC or email me at Sgill@umd.edu.

Myzus fataunae is a relatively small aphid (0.9-1.0 mm). They look somewhat similar in size and body shape to green peach aphid with which most growers are familiar but much smaller. The adult, wingless forms are two-toned, with a brown head and thorax and yellow abdomen. Young immatures are entirely greenish white, while older instars develop the bi-coloration.

DPI issued the first report of *Myzus fataunae,* the Pilea aphid, in the Western Hemisphere. Specimens were collected from an aluminum plant (*Pilea cadeirei*) in Florida. These aphids are native to Japan and Korea. Alecia Kelley of IFAS reported that the aphid was found in Florida in an article in January 2019. **For photos of this aphid,** please go to the FL Department of Agriculture and Consumer Services Division of Plant Industry pest alert at https://www.fdacs.gov/content/download/82780/file/PEST-ALERT-Pilea-Aphid-Myzus-Fataunae.pdf.

Avoiding Problems With Vinca

By: Stanton Gill

February of 2021 has been brutal, weather-wise. The extreme cold gripped much of America for the month and we were shrouded in cloud cover for many of the days of February. Often the morning and evening time looked the same - gray and little sunshine. Shipping of plugs occurred in the worst of conditions due to the delays from snow and ice in many areas. A crop that many greenhouse growers started in February is suffering from this cold and cloud cover. It is annual flowering vinca. Annual vinca is native to Madagascar and is prized for its nonstop show of spectacular flowers from early summer until fall.

Keep in mind, Madagascar is hot and dry for most of the year so this plant is adapted for these conditions, not cold and cloudy. Diseases such as root rots, stem rots, and foliar diebacks can occur if the right conditions are not met.


Recently planted plugs in the greenhouse

I called Will Healy of Ball Horticultural and asked for his wise advice on the best way to grow this crop in February. Dr. Healy said looking at the shape your vinca plugs are in when they arrive at your greenhouse is a good start. If plugs have an abundance of white roots and a very full plug root system, then you can go ahead and use a mechanical transplanter. If the root system is not fantastic, then hand dibble the receiving pots and substrate and insert the plug by hand.

When you run it through the water tunnel, aim the nozzles so they spray sideways so it pushes the soil around the plug and does not drench the surrounding substrate. Keep the new transplant on the dry side for several days, checking it by pulling the plug gently to feel when it has rooted into the surrounding substrate. Once it is rooted then you can begin to water thoroughly. Do not fertilize until the plant is rooting into the surrounding substrate. Even applying a fungicide drench for root rot pathogens when the weather is cool and cloudy can provide too much moisture and set back root development on delicate vinca plugs that have not yet rooted into the surrounding substrate. Keep the nighttime temperature of the soil between 65 °F and 72 °F.

Old Tried, True and Tested' cultivars such as 'Pacifica' are relatively inexpensive compared to some of the new hybrids that have been released. Cultivars like 'Pacifica' tend to have a poorer germination rate and many plug suppliers who just put in one seed, instead of 2 or 3 per plug, often have more inconsistent, fuller plug trays.

Aphids on Hellebore and Artemesia

By: Stanton Gill

Hellebore is looking good at this time of year in the greenhouse and will be moving out into the marketplace in mid to late March, depending on the weather.

Meanwhile, check foliage for aphids on the undersides of foliage. If you get a big population, let me know because we are looking for aphids for a biological control project.


Reports of aphids on hellebores have increased in recent years so monitor plants closely

Check other crops for aphids. We have found aphids active on Artemesia this week. For control, the stylet blockers, Endeavor and Aria, work well. The new systemic, Altus, is another good material to use.

Pull back the foliage of artemesia to check for aphids in cryptic areas of the plant

More About Phosphorus Fertility for Production of Vinca and Other Annuals

By: Andrew Ristvey

Vinca (*Catharanthus roseus*) is a popular and valuable plant in the nursey trade. Recently, researchers from North Carolina State University ran some phosphorus (P) fertility experiments to understand fertilizer requirements on the growth of vinca and other annuals. The results were not surprising.

As a note for history, at one time it was thought that ammoniacal-nitrogen (NH_4^+) was responsible for stem stretch. However research conducted by Paul Nelson (NC State) and others showed that, not only was NH_4^+ innocent of the bad rap, but that nitrogen (N) in any form, was not the culprit. It turned out that P was the guilty party and the reason why NH_4^+ got the blame was because acid fertilizers with NH_4^+ contained high amounts of P. Guilt by association, I guess.

This research also seem to have sparked a new era of studies on "how low can you go" with phosporus. For the past couple years I have been relating some of that new P research to you. Even in flowering crops, minimal P levels below 15 ppm in soluble feeds do not affect growth or flowering in many annuals. In the 1990's, Lynch and others from Penn State showed that aluminum oxide (alumina) could be charged with phosphate and added to substrates as an amendment. The P-charged alumina would release a steady but very low flow of P into the substrate. This material was not unlike a controlled release fertilizer (CRFs), but it was not predisposed to dumping. While most CRF's release by temperature, alumina released by diffusion (or desorption), a chemical principle where materials move from high to low concentrations. In my opinion, I think the term CRF is a misnomer…there is nothing controlled about the way most CRF's release nutrients, but I diverge

The alumina experiments showed that P could be maintained in the substrate-solution in concentrations well below 5ppm without loss of plant growth. So why did we continue to fertilize at P-rates above 30 ppm? Old habits are hard to break, maybe? This alumina material is now being sold commercially by a company called Phospholutions LLC, but it has not made it commercially as a P-source amendment for greenhouse production yet.

In some recent research from Henry and others at NC State U (2017), vinca ('Cora Burgundy' and 'Pacifica Blush XP') and impatiens ('Tamarinda Dark Red' and 'Pure Beauty Red on Pink') were treated with five P rates of 0, 2.5, 5, 10 and 20 ppm, with 150 ppm N and minors, hand-watered daily with a soluble feed. At maturity (7 weeks for vinca and 10 weeks for impatiens), plants were measured for height, diameter, and dry mass. They

found that vinca and impatiens could be grown with P concentrations of 6 and 12 ppm, respectively, with no loss to growth and flowering.

That being said, there are a couple possibilities as to why P fertility has continued to remain high with many growers. Our soilless substrates have low retention of anions like P, and our irrigation practices typically leach P quickly. Amendments like lime which contain calcium, can bind P and make it unavailable for plants. Concentrations of P may need to be kept relatively high, although this recent research may contradict that. Finally, let's talk about the fertilizers that are available to us. When you look at the N:P ratios in the study I summarized, the highest P treatment was 150N:20P or 3:1, taking into account that our fertilizers analysis is for P_2O_5, not P. This research and others found that plants require half that or less. The typical 20:10:20 fertilizer at 100 ppm N supplies 3 to 4 times the P required by our annuals. On the other hand, a 15-5-15 CalMag at 100 ppm N supplies the top end of P required by plants. We should understand that there is some plant-to-plant variation, as you can see from the results between vinca and impatiens. Some of our fruiting vegetable plants need higher P rates than the flowering annuals to support fruit production, but in Henry et al, that rate was 15 ppm P. It may also be impractical to vary fertilizer P rates when producing hundreds of different annuals in a cycle. However, some growers I know have opted to grow only plants that have particularly low P and water requirements.

I do know that many Maryland growers have adopted low P rates to keep their risk assessments low for their nutrient management plans. I know that in most cases, this has worked well. My colleagues John Lea-Cox, David Ross and Marc Teffeau spent many hours examining the research and assessing crop fertility requirements to come up with those risk assessment numbers. I also feel that there is a lot of work still to be done. I think that the fertilizer companies can take part of the blame with their "root growing, blossom booster" recipes, all seemingly false advertisement for soilless substrate production. While I am conservative with it comes to changing a fertilizer program, I do think that growers should try new low-P fertilizers and find out what works for them. I am always here to help. For more information, Andrew Ristvey can be contacted at aristvey@umd.edu.

References:

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Hydroponic Seminar – October 2021

By: Stanton Gill

Dr. John Erwin, Department Chair of the Plant Science, University of Maryland is working with our University Extension team in organizing an educational seminar for people growing plants hydroponically. We are looking at a date in the 3rd week of October of 2021. If you are growing hydroponically, or thinking of trying it, please contact me at Sgill@umd.edu. We would love to have your input on what topics you would like covered. Let us know what you want covered under: Fertility management, Temperature control, Supplemental lighting, Insect control and mite control, Disease control, and Other topic you want covered