Very nice growing weather is now in session! Get the rest of those plants into the ground, direct seed successions, and keep in mind that FALL brassicas should be seeded a few weeks from now. Consider direct seeding those in an outdoor bed, rather than in flats- they can be dug out and transplanted with very little root damage.

Take a close look at **high tunnel tomatoes**: are they showing signs of deficiency? Are they "bullish"? Keep up with side branch pruning, and it’s time to begin removing lower leaves to keep humidity down. Pay attention to the start of powdery mildew. Prune clusters of slicing tomatoes to 3 or 4: allowing excessive fruit set right now can rapidly deplete potassium and calcium. Leaf tissue testing can give you a sense how you are doing- if you need tips on how to sample correctly, please call. Use your local land-grant university labs: UConn, UMass- they do great work, and we are all in communication with each other. We are **LOCAL**: we know your growing conditions, and we even know YOU! And we have nothing to sell to you! OK, putting away the soap box now...

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**The High Season for Disorders...**

I led off with **beet leafminer** last week, and I will again: just about the crispiest case I’ve ever seen here in this picture. Spinosad can give good results. While the following practice is useless for beets, **chard can be renovated** by running a lawnmower over the beds. This may seem harsh, and if the cutting height is too low, it most certainly is. But once you throw in the towel on that big early harvest, it can be liberating, and the results can be great. It’s not a bad time to top-dress following that treatment.

They weren’t aware that I was taking their picture, but these **Striped Cucumber Beetles** were feeding in their favorite part of the cucumber plant, engaging in their favorite activity. There was widespread bacterial wilt last year, which is carried in the gut of these insects and transmitted while feeding. No telling what this year will bring but make sure your row covers are tight, or else prepare to spray when there’s an average of one beetle per two plants. However, butternut, pumpkin and zucchini are less wilt-susceptible. Surround has been found to be effective, though it needs to be re-applied with growth. There are several other effective products- check the New England Vegetable Management Guide for options.

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Need to discuss? Got something you need looked at? URI Extension: 401-874-2967/andy_radin@uri.edu, hfaubert@uri.edu
This is kind of like a children’s magazine picture: How many *Colorado potato beetles* can YOU find in the picture?

There’s several egg masses on this tiny plant, too. Don’t let this happen to your potato plants- or your eggplants!

How can you avoid this? Depending on your scale and how much CPB pressure there is in your neck of the woods, summer-weight row covers are the way to go. Did you know that you can buy row cover in widths of up to 50 feet, by 500 or 1000 feet? While a little ungainly to handle in the wind, you can effectively exclude large areas from the initial invasion of adults, which is when they do their worst damage to small plants. Uncover them about 5 weeks after planting, do a thorough weeding and hilling, and cover back over again. For $450, you can cover 1/2 an acre. That is a great value if you can get $2.00/lb at the market! Think about it: a reasonable yield per acre is about 15,000 lbs. 7,500 lbs (on a half acre) X $2.00= $15,000. That’s a small fraction of your gross to spend on what can be among the most limiting factors for yield. If you can make that cover last for two seasons, this fraction is cut in half.

**Exploding tomato stems**

*Pith necrosis on tomatoes* is caused by the bacteria *Pseudomonas corrugata*. This bacteria can reside in soil or on seed. It is much more common in high tunnels than in the field. Every year I see it right about this time. There are several symptoms, including yellowing and wilting upper leaves, along with stems seemingly bursting with roots. If you cut open the stem, you will see that the pith has gone brown or black. Interestingly, I usually see about three plants in a whole high tunnel that get afflicted. While they can survive for some time, they won’t produce much so it makes sense to yank ‘em.

My educated speculation as to why I always find this right about now is based on a few things. Rapidly growing tomato stems of plants that are very well watered can split, and this is an opening for the bacteria to enter. Stems are especially prone to splitting if there is excessive nitrogen in the soil. **Excessive N fertilization in high tunnel tomatoes** is pretty common. It so happens that if you are using an organic N source like chicken manure or seed meals, mineralization of those materials (that is, breakdown from organic forms into inorganic, “available” form) is taking place at a peak rate right now in the warm, well-watered high tunnel soil. There’s too much N right now, so the stems get very succulent and “splitty.” Excessive early N invites problems- less can be applied “up-front”, and the rest can be fertigated or topdressed over the season.
Verticillium wilt of Eggplant, a common and perennial problem

The early stage of this pathogen, shown here, was found this week. Unfortunately, this soil-borne pathogen caused by either *Verticillium dahliae* or *Verticillium albo-atrum* has a very wide host range, afflicting over 400 plant species (American Phytopathological Society). This is known as a “vascular wilt” pathogen: infection occurs through the roots and the fungal hyphae grow from the root cortex into the xylem (water conducting) tissue. As conidia (asexual spore bearing structures) are produced, they are conducted further up into the plant, eventually clogging the xylem and preventing water from reaching the leaves. But the first sign is asymmetrical chlorosis, as seen above. The asymmetry is because certain columns of xylem cells get clogged, and other columns do not. Another common vascular wilt, *Fusarium*, causes a similar asymmetrical yellowing. According to Andy Wyenendt of Rutgers, a 4 to 5 year rotation away from eggplant, tomato, pepper, potato, strawberries or any brambles is necessary because of the long-lived microsclerotia that remain in the soil. However, WATER MANAGEMENT may be the best way to manage it in season: that is, do not over water. Warm, moist soil really favors pathogen development. If your eggplant is on a drip line along with tomatoes, consider separating them so you can only lightly water eggplant. If you are growing on a heavier soil, you may rarely ever need to water. As for choosing resistant varieties: There are None. Some varieties can be pushed along with regular fertigation, but again, this introduces more water, which can be detrimental.

The pathogen attacking the lower stems of these pepper seedlings is *Rhizoctonia solani*, another common soil-borne, wide host-range disease. Generically, such diseases are called “damping off”, presumably because the young stem gets damp and mushy, and then the top of the plant falls off. *Pythium* diseases, which are water molds, most often cause this, and the stems do, indeed, get “damp.” But stems infected with *Rhizoctonia* stay pretty dry, but collapse on themselves.

Bear in mind that many pathogens are present in many places, but if the conditions don’t favor them, plants remain healthy and grow through their most susceptible stage. In this case, disease developed in the greenhouse, where the conditions were perfect, in terms of temperature and liquid moisture. In particular, these plants were in 128 cell trays, and had grown tall and leggy were literally dying to be transplanted. Shortly after they were set out in the field, disease symptoms developed. And this sometimes happens that you just don’t get the chance to pot up seedlings to bigger cells, or you run out of greenhouse space. If you do end up with this problem, it’s important to remove infected seedlings from the field to avoid build up of inoculum, because it can be persistent. And keep your stems dry!
More sightings...

**Colorado Potato beetles eggs** are everywhere, and larvae are no-doubt beginning to feed. Get ready with the B.t. galleria (Trident)- it’s very effective on young larvae ONLY.

**Leaf mold** has been seen on **high tunnel tomatoes** in Connecticut- keep the humidity down by removing lower leaves and side branches as they appear. Also immediately remove diseased leaves from the building.

Keep checking onions and leeks for **onion thrips**: populations are beginning to build up, with lots of first generation nymphs feeding alongside of adults. They can get out of control fast. The **New England threshold** is 1 to 3 thrips per leaf. When scouting make note of how many leaves are on the onion plant. Count insects in groups of 5 plants in a row; do that in at least 4 locations. Example: The plants are at the 6 leaf stage; you look at four groups of 5 plants and get 32, 26, 22, 48; Do the math: the average is 128/4 = 32 per 5 plants, which is >6 per plant, and that means >1 per leaf. Though this may be above threshold, also make assessment of how much damage is being sustained, and vigorousness of plant growth.

**Brassica caterpillars** continue to increase in numbers- look into the growing points of plants for injury, frass.

Out and about at the URI Agronomy Farm

*Hopefully Dr. Rebecca Brown will not have to INDICT any of the zucchinis, though it seems that they should be on hot sweaty days when they must get picked, no ifs ands or buts. She will be looking at many qualities of dozens of varieties, including yield, quality, disease resistance, and maybe more...*

**Zucchini Trial of the Century!**

**Tomato Foliar Feeding**

This will be a disease-free, redesigned version of work I started in 2017. This year I will look at several foliar feed products in detail in three planting successions. Pictured here is the first planting, from May 24. The second planting will go in on June 15, and the third on July 6. Stay tuned.