THE UNIVERSITY OF RHODE ISLAND COOPERATIVE EXTENSION

VEGETABLE PRODUCTION

THE WEEK IN VEGETABLES

April 18, 2020

Pest Alerts...

Yes, indeed: pay attention to **aphids** building up on your high tunnel greens; **beet leafminer** eggs and damage have already been seen on high tunnel beets and chard; and that peculiar problem of **ants girdling early brassicas** right at ground level was also seen in a high tunnel– this seems to be a fairly recent issue (last 5 years); **Cabbage maggot Flies** are beginning to emerge, though peak emergence is probably a few weeks away, though inland areas will be ahead of coastal and island areas… get row covers in place! ALSO: **Seed corn maggot** may be around peak flight RIGHT NOW– these flies lay eggs around the bases of LARGER-seeded crops like (at this time of year) PEAS and FAVA Beans– if you see erratic emergence of these crops, gently uproot seeds and look for damage– see image down on the lower right-hand corner of this page.

The Latest COVID-19 Resources: https://web.uri.edu/coopext/coronavirus-resources/

--> **Need to discuss? Got something you need looked at? URI Extension: 401-874-2967/andy_radin@uri.edu, hfaubert@uri.edu**

Have you top-dressed your garlic yet? (Bottom-dressing optional on webcam)

Your **garlic** leaves should certainly be well up out of the ground already. They may have been nipped by the night or two in the low 20s but should otherwise be fine. Aside from any frost-damaged edges, how do they look? If you mulched too heavily, they may be twisted. Everything should be up by now so if you have big skipped areas, it's possible you over-mulched or else these are wet spots. And speaking of wet, if your mulch is, indeed, heavy, you may want to rake some off to allow the soil to dry down ***IF*** you are on a heavier soil.

Now, or even as early as two weeks ago would be the time to apply an additional amendment containing Nitrogen. How much to apply depends on what you applied in the fall. One hundred or more lbs/acre is advisable, unless you plowed in a thick cover crop last October before planting. If your soil is light, 1/3 of the total is often recommended in the fall, followed by 1/3 at the end of March, and 1/3 by no later than mid May. In heavier soils, you could go with 1/2 in the fall and 1/2 in the early spring. If using an organic form of N, make sure that the amendment you put on makes good contact with bare soil so that the bacteria can get at it. If using urea, make sure to apply immediately before a rain to minimize loss of ammonia.

Early spring and/or late spring are **times to fertilize asparagus beds**: that is, right before spears begin emerging, or at the end of the harvest period. Ultimately, the purpose of fertilization is to make sure that ferns grow up big and strong through the summer in order to store carbohydrates in the fleshy roots and promote development of new buds on the rhizome for next year's crop. Well established plantings need some maintenance P and K every few years, and these can be applied early. Some N should be applied every year at the end of harvest. Another option is to spread composted manure over the top of the planting. Spring is also a time to dig out troublesome perennial weeds when they begin

Seed Corn Maggot on pea seedling. Photo: Emmalea Ernest, U of Delaware

Spring activities...

sprouting, though this can be difficult within the beds of well-established plantings. Also remember that in such plantings, the rhizomes have already extended away from the original planting furrow, so pathways get smaller. Also, depending on how long the planting has been in, it doesn't hurt to check the soil pH. Don't let it get lower than 6, but it's OK for it to be all the way up into the low 7s.

What shape are your seedling transplants or "starts" in? Will they be ready to plant at the right time? Ask yourself:

* Do they have strong stems? Excellent! Strong, as in thick, not strong as in nearly woody. In the latter case, you have plants that are hungry, stunted and pot-bound and should have been either potted up to larger cells or transplanted outside already… OR, they were started too early.
* Too tall? Crowding is the most common reason for this, but also, it may be *too warm.* Or, if they have been started under artificial light, the intensity of that light was not strong enough. The best quality transplants are grown slowly and steadily.
* Regularly going into a wilt? If you are seeing tiny black insects flying around, these may be fungus gnat adults. While they are flying around looking for nice damp media to lay eggs into, their larvae are feeding on tender, nutritious roots, which can interfere with water uptake. Poor drainage and perennially wet media can also cause root rot, and that too, can interfere with uptake of water. **But:** very often, the problem is that watering is never thorough enough: the top two-thirds of the cell is getting wet, but the bottoms of the cells are as dry as a powder puff. In general, watering should be thorough and then the cells should be allowed to dry down, but not far enough to allow wilting. It is particularly difficult to re-wet peat-based media. Where and when practical, **bottom watering** is the best policy. This problem is very common.
* Are they very green with extra large leaves? Probably too much N was applied or available in the media; or plants are not getting sun all day. If the media drains well, it might be a good idea to try to leach the media, but only if it drains well. Keep the growing conditions cool to slow the growth.
* Pale green? This is very common, especially about now when established plants are beginning to show hunger signs. This is usually N deficiency. Applying water soluble N is easy, and best applied at low concentration, frequently. If using an organic source of N, applications should begin early and applied frequently, and the solution should be very dilute. Remember that these products are suspensions, which means there are very fine organic particles suspended in water. These particles are nutrient-rich and land on the surface of the media in the cells. In excess, this is a perfect place for algae to grow, and a scummy skin can form over the surface, preventing good infiltration of water applied from overhead. Again, **bottom watering** is a wonderful thing if it is possible to do.
* Yellow? The plants are probably well behind on N, assuming that it's lower leaves that are turning. If new leaves are turning yellow, this is usually iron deficiency.
* Purple? Phosphorus deficiency. Very common late in the game.
* A little stunted? Or a LOT stunted? This may well be a general nutrient deficiency. It's a sign that plants just aren't taking up nutrients. This could be from under-fertilization. Or fungus gnats. Or overwatering. It can also be a problem with the soilless media that you are using. Your media is typically unable to supply nutrients through the

Report from Middletown: Cold Spring, Deer, and the Best Laid Plans

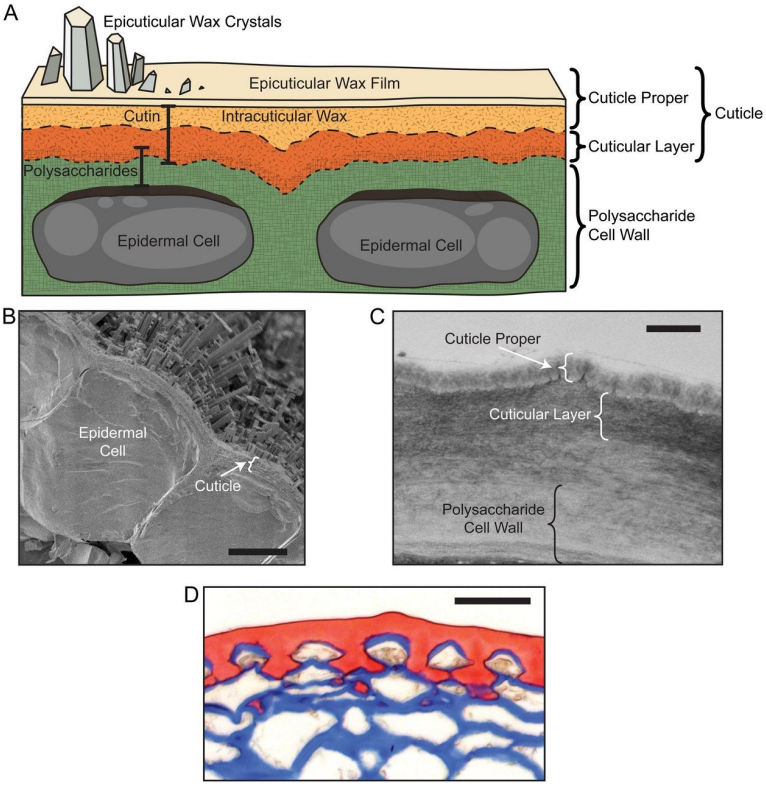
Greetings from cold and rainy Middletown. A non-existent winter has yielded to a cold and rainy Spring. Current Growing Degrees (Base 50 degrees F) are just 16.5 here, down from 30 at the same point last year. Soil temperature is averaging 48 degrees F over the last five days, which is a bit warm for Aquidneck Island in mid-April.

We have managed to get most of our early crops in, although it has been a little bit of a struggle around the various periods of rain. Garlic has been fertilized in line with Andy's recommendations, and is looking pretty good. Pests have been limited to early sightings of cabbage moth and observations of deer in unusually high numbers. Everyone has a great solution for deer intrusion, so here's ours: we like three tiers of 60-pound test fishing line tied to T-posts at heights of four, twelve, and 24 inches. No, it can't actually stop a deer, but brushing against it seems to spook them, and early plantings have been relatively unmolested.

Covering over the garlic top-dressing fertilizer. In case you can't tell, there's a 20-lb 6 month old baby that's hitched a ride on mother Michelle Garman. Here's to all the new mothers, especially the ones who keep on farming!

Did COVID-19 force you into a new calculus of planting? It certainly did for us. Like many of you, we are looking at a severe decline in restaurant sales; conversely, our CSA sales are up 42%. That means some significant adjustments, as there are specialty crops we grow for chefs and staple crops we grow for CSA members. We survey our CSA members twice a season, and we have pretty good data on what they like and don't like. So a lot of the January seeding plan has gone out the window as we scramble to adjust. We are backing away from greens mixes and focusing more on head lettuce; increasing onions, potatoes, and winter squash; doubling down on honey production; and cutting back a bit on kohlrabi, Hakurei turnip, snow peas and other early crops destined for restaurants. It was not our intent to become a primarily CSA operation, but we have to take the money when it comes, and build up as the situation changes.

We hope everyone is faring well during these turbulent times, and we wish everyone success as we all struggle along in this Brave New World.



entire seedling production process, regardless of what you use, unless you are growing very short-cycle seedlings like cucumber or summer squash plants. But most run out of nutrient supply

Spring activities… cont.

starting anywhere from the 2 to 4 week mark. But another media problem may be that it has subsided and become overly dense. This may be from an excessive proportion of fine particles in the mix. These work their way down into the macropores with repeated waterings, reducing oxygen in the mix. Anaerobic conditions prevent roots from taking up water and the nutrients that are dissolved in them.

Getting seedlings ready to transplant outside partly depends on what they are and what setting you plant them into. One thing is for certain: stunted plants that survive transplanting still produce lower yields than they might otherwise. On the other hand, excessively green, rapidly growing and succulent plants don't stand a chance outside unless they are going inside of a high tunnel AND under hooped row covers. Even unprotected in a high tunnel, the wind blowing in from the sides can be damaging.

Hardening-off is the term used to get seedlings ready for outdoor conditions. One aspect of this is stem strength. Most of this probably is accomplished during the growing period. Overcrowded, over-fertilized, and poorly-lighted plants will have a hard time standing up to wind, regardless of the hardening process.

The actual hardening that takes place is the protective layer of waxy cuticle over the epidermal layer of plant tissue. There's been a lot of study by plant physiologists of the protective layers of leaf tissue. This is composed of a molecule known as cutin, which is called the "cuticular layer", and an overlying waxy layer known as the "cuticle proper." These are shown in the (really cool) pictures on the following page, taken from a review, The Formation and Function of Plant Cuticles (*Plant Physiology,* Yeats and Rose, 2013).

[Incidentally, this is the same waxy jungle where, if conditions are right, spores of foliar pathogens can germinate and find their way through to where the nutrients that they need are located: inside of cells. An exception to this are the powdery mildews: they are actually deriving nutrients, especially the energy containing reduced carbon, right there in the cuticle.]

While there's no need to get into the physiochemical complexity of how plants respond to environmental conditions to develop these layers, it's clear that we can induce plants' self protection by gradually acclimating them to harsher conditions than what they had been experiencing. Some growers use flat-bed wagons to roll plants out and back inside every day. Others use the old cold frame system, though this is usually seen mainly where the growers' farmsteads and land are contiguous. Since many now have high tunnels, it makes sense to reserve some landscape fabric-covered ground for moving flats of plants onto. Again, be careful of extra strong breezes blowing in through rolled up sides. Gradualness is important. Reducing water and nitrogen can be a part of this transition period but the object is NOT to halt growth completely, just to slow down. Be careful of the midday sunshine of cloudless days: the solar intensity right now is about the same as the third week of August– still beach days, right?