

May 16, 2020

Pest Alerts... The slowly starting season has delayed some planting and also delayed some pests. Our normal, early season usual suspects are now out, like a few brassica flea beetles, and beet leafminers; also cabbage maggots are probably now actively feeding on roots where no protection was used. We may now be past any more chances for frost. But there will still be nights ahead that are to chilly for basil, unprotected cucurbits, and eggplant. If you've had tomatoes out for some time already and they haven't been damaged by frost, you can expect that the first set of fruits will be cat-faced.

Produce Safety Rule (public hearing-virtual-scheduled for Monday, May 18, 2020 at 2PM) and more from RIDEM: <https://mailchi.mp/ef6fa69ead5e/psrri-gap-grower-training-december-5-6-register-now-7966932?e=adce649c0e>

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

Cutworm apprehended, found guilty of destroying 50 Pepper Plants



The scene of the crime was in a high tunnel, where 50 plants counts for a lot. Plants cut at this stage will not recover because there are no buds formed in the axils of the cotyledons. They must be replaced. When doing so, the old trick of putting a Dixie-cup collar around the stem really does work. On valuable high tunnel real estate, it's worth it to take care of individual plants like this. Further, a B.t. spray on all plants in the tunnel would insure that when the cutworms (and there are probably a few around) next feed, they will ingest B.t. delta-endotoxin and meet their demise. It makes sense to employ both strategies.

What Price Nitrogen?

As far as actual **plant nutrients** are concerned, nitrogen is the most limiting— if there isn't enough N available when plants need it, then uptake of the other important nutrients isn't possible. Sometimes we see both N deficiency and others at the same time because lack of available N is

causing a secondary deficiency in another nutrient. When micronutrient symptoms are seen, it is often N deficiency bringing it on, rather than a lack of that particular element.

The price of fertilizers containing N can vary, depending on the source and whether or not you are interested in using organic N sources. Remember that when we use the word organic in the context of N, we are referring to ma-

What Price N?

materials that were once part of some living tissue and have N tied up in organic molecules.

Remember that you can grow some of your N, too, in the form of legume cover crops. Environmentally, that is clearly a good choice. Economically, it has a cost, which is the land you might otherwise be growing saleable crops on. The cost of N derived in that way is more difficult to calculate. Ideally, you would be growing a legume cover crop underneath a saleable crop and that once it is harvested, the legume is established and beginning to fix N.

Many of you have already made your choices for the season, though you may well see additional need over the course of the season, which is only just beginning. Consider the following table of materials....

and does have P. If you apply it diluted in water (which you pretty much have to), those numbers are actually much smaller. If you are trying to fertigate with it, you have to apply an awful lot of P in order to get the amount of N you want. Also, most of the other substances contained in it are only worth something as the elements that make up these hyped molecules, which themselves, are not plant nutrients.

Included here are synthetic N sources for comparison. Interesting factoid about sulfur-coated urea, which is slow release: what gets sold in the bag is a mixture of 10 different thicknesses of sulfur on the outside of urea pellets. As bacteria degrade the sulfur, urea is released at a rate that is correlated with a particular thickness.

Without question, the inexpensiveness of synthetics has hidden environmental costs associated with their manu-

Material	%N	%P ₂ O ₅	%K ₂ O	Availability*	Package price	Price/lb of N
Alfalfa Meal	3	0.5-1	1-2	moderate	\$39/50# \$1024/2000#	\$26.00 \$17.07
Blood meal	12	0	0	rapid	\$80/50#	\$13.33
"Chilean" nitrate	15	0	2	Immediate	\$36/50#	\$4.80
Composts	1-2	1-2	1-2	slow		
Feather meal	12	0	0	moderate	\$45/50# \$1,680/2000#	\$7.50 \$7.00
Fish emulsion**	2	5	0	moderate	\$100/50#=5gal	\$100
Fish meal	8	12	2	rapid	\$87.50/50#	\$21.88
Poultry manure compost	5	4	3	Mod/rapid	\$450/2000#	\$4.50
Poultry man./Feather meal mix	8	2	2	Mod/Rapid	\$955/2000#	\$5.97
Peanut meal	8	1	2	moderate	\$31.50/50#	\$7.88
Seabird Guano	12	11	2	rapid	\$80/40#	\$16.67
Soybean meal	7	1.5	3	moderate	\$50/50# \$1040/2000#	\$14.29 \$7.43
Ammonium sulfate	21	0	0	Immediate	\$11.00/50#	\$1.05
Sulfur-coated urea	35	0	0	Moderate	\$12.50/50#	\$0.71
Urea	46	0	0	Immediate	\$15.50/50#	\$0.65

*Approximate rate of nutrient release from the material.

**Liquid products' fertilizer analysis based on weight of material in the jug

Most of these prices are about as good as you can get. Some of them are eyebrow-raising. Some of these materials that cost a little more have attributes that make the extra expense worthwhile. For instance, if you are in need of phosphorus (and a soil test by a New England Land Grant University soil lab will tell you), fish meal or seabird guano gives you that and some N. BUT: if you do not need P (and this is often the case on organic farms), you have options that are much cheaper per pound of N without the P. Notice also that fish emulsion, which is very popular in organic production systems, does not have a lot of N,

fertilizers used to produce those plants before they are processed into fertilizers. The N in synthetic fertilizers comes from the air. A recent study from Cornell, however, showed that methane leakage from fertilizer production plants is far greater than was believed, and one of the problems is that the manufacturers have been left to self-report emissions. Hmm... maybe that's not the way things should be done.

factory and greenhouse gas emissions. But such costs are also associated with organic N fertilizers. Animal-based fertilizers, of course, have a carbon footprint consisting of many aspects, including the crops used to feed the animals, emissions from the animals, and then transport and processing. Plant-based fertilizers have land use, field operations, and additional

Products with Biological Active Ingredients: What Works? Part 2

Just a quick re-mention from last time: while this article is not meant as endorsements of specific companies, there are relatively few that actually manufacture such products.

Continuing on with products from Certis USA, an addendum to the use of copper. Cueva isn't so cheap, but copper hydroxide products are. So if you have whole apple trees to spray, it makes more sense to use CuOH.

Bacillus thuringiensis products are ubiquitous in farming. All of them work in the digestive system of insects after they are consumed. B.t. products themselves are actually not live bacteria; The one(s) used the most are for control of Lepidoptera larvae (a.k.a. caterpillars), applied as a spray on brassicas and other crops. There are actually two strains, kurstaki and aizawai, but the former is far more common on the shelves. In truth, both strains should be used equally in order to reduce the probability of insecticide resistance arising in insect populations. Certis actually has two of each in their product line.

Trident may be a familiar form of B.t. to some you that is active on Colorado potato beetle larvae. While it is not currently available, they expect to have it back on the market for the 2021 season. Their existing culture became contaminated and as a result, jugs of product were swelling up, and the product smelled really bad...

Neem oil and **Azadirachtin** are related products in that they both come from the seeds of the tropical leguminous neem tree. The two, however, are separate. Neem oil has no azadirachtin in it. Instead, it is extracted from the neem oil as soon as it has been pressed because outside of the seed, azadirachtin, which is a potent insect growth regulator, is very unstable. It disrupts the molting process, and also can have repellent and anti-feedant effects. Clarified neem seed oil, on the other hand, is a contact fungicide and miticide, and also repels thrips. **Neemix** is the Azadirachtin product and **Trilogy** is the neem oil product. These products are in heavy use in the drier areas of the west but have not been well-tested in the Northeast, but they are promising.

Finally, a product worth mentioning here is called **Requiem**, which is an extract of *Chenopodium ambrosioides*. It is a very low-toxicity product, allowing for same day harvest. Efficacy has been shown on a wide range of soft-

bodied insects, including thrips, whiteflies, and aphids. It *seems* promising. In my own conversation with the company representative, I encouraged him to get the company to financially support more efficacy trials in New England, which is an area they would like to sell more of their products. They do understand that it's hard to get you to take a chance and spend money on products that don't have much track record around here. Having said that, if anyone has a specific pest or disease issue that may be addressed by one of these products from either of the two companies, we should talk. We can certainly get samples of any of these.

Report from Johnston: Aim High Tunnel 3!

Here is an update from another RI veg farm, **Foggy Notion Farm**, operated by Adam Graffunder and Nathaniel Wood at the Snake Den Farm site:

We are having an interesting season so far! The two business owners are in good health, and spent the winter cleaning the fields and getting organized for the spring. Our overwintered hightunnel crops (spinach, kale, cilantro, mustards, boc Choi, scallions and Parsley) did really well. We plant for the winter AFTER removing summer tomatoes and cucumbers so it's always a bit of a gamble for the survival of the crops in our Unheated tunnels. We could not have planned for COVID, and lost about a week of restaurant sales as they shut down. Fortunately the organization that we sell through (market mobile by farm fresh R.I.) started home deliveries and our sales sky rocketed. We sold everything in our high tunnels! The downsides at the moment are that field crops are having a hard time establishing in the cold, wet, windy spring weather that we are having and our tunnels are picked out! Fortunately it looks like we will have a good crop of Peas and Strawberries to get us off to a good start. We also purchased our tomato starts this year and they are all grafted onto fancy rootstock so we look forward to that. Our employee was stricken with Lyme Disease this spring but seems to be recovering. We are investing in more tick proof clothing for ourselves.

We are aiming for a third High tunnel this year So that we can prepare more for the increased interest in local food year round!

Report from Chepachet: It's been a wild one!

This week we have an update from an operation known as the **The Farm in RI**, which is operated by Sammie Vallone and William Morin. Theirs is a certified organic mixed vegetable operation with high tunnels and some chickens in the mix. From Will:

It's been an interesting spring, both from a COVID and weather perspective. At least for the early part of the season there has been an uptick in sales from people looking for a local food source. While we hope there is some resolution to the virus situation and people can go on with their lives, we hope folks continue to look to local producers.

The growing season has been slow to start vs last season. The colder and seemingly cloudier start of the season had slowed the growth of some of our early season crops. The cold nights have also been a challenge. We have our tomato and peppers in the tunnels and tonight is the second night we have had to use supplemental heat to protect against frost. Yesterday we had hail but didn't sustain any real damage. Luckily the high winds have not damaged our tunnels or crops.

And this from Sammie, off of their Facebook page:

Where to begin... The past 48 hours have been INSANE. We shuffled over 3000 plants out today alone. We worked with @sourcewhatsgood to deliver the majority of these right to customers door steps. We had a few hiccups along the way but overall it went smoothly. Special shout out to @jessebmorin @tortemarie for being kick ass women.

COMMUNITY is where it's at. Our hearts are exploding with gratitude. From the donations of face masks, lending tables, and everyone just bearing with us through these crazy times and continuing to support us by being part of the farm family. THANK YOU.

The world can keep throwing whatever it wants at us, we will keep doing all we can to bring you as much produce as possible !

From Arcadian Fields...

Finally, it was great to hear from Diana Kushner in the blink-of-an-eye hamlet of Barberville, some-

where in the borderlands of Richmond and Hopkinton. Says Diana:

This year I'm not planning on selling as much to restaurants. Instead, we will continue doing some wholesale. Plus, the CSA is bigger. This was a decision we made last fall (kind of prescient). To that end, there has been incredible interest in the CSA. Whereas last year, there was not much interest at all. We are now sold out. We'll also continue to sell through Market Mobile.

We will also be growing lots of kale for Hope's Harvest. Last year we harvested over 2000 pounds. This year we hope to harvest over 5000 pounds. Hope's Harvest is reimbursing us for expenses, but we are donating most of our time and labor. It is a good feeling to know that we can help out in our own, albeit, small way.

As far as changes to be made, we will see.

Your Input is Welcome

Please submit updates from your farm— a paragraph or two in an email is all it takes. Also, please submit suggestions for articles, meeting topics, and research needs from us at URI.

