

**Pest Alerts...** With a lot of help from my friends, namely, the vegetable crop extension people from New England and New York, here is an aggregation of concerns from around the region:

**Onion thrips** now active in W. Mass— keep an eye out and if they start, don't let them get out of control; anything else interesting on your onions and leeks, let us know, there are new pests in the region but we have not sightings yet in RI; **Asparagus**, if you've got it, is now in full swing— don't over-pick young plantings, and apply fertilizer amendment at the end of your picking season; if **asparagus beetles** are really compromising quality with egg-laying, spinosad works; also, pick the patch clean to keep from allowing fern foliage to open, which is favored by the beetles; **leaf miners** in beets and chard continue, locally; if putting **cucurbits under rowcover**, USE HOOPS— young transplants get heavily damaged by rowcovers wafting in the wind; cucumber beetles have been seen in tunnels— they most likely overwintered inside of the tunnels; I destroyed a **Colorado potato beetle** in a high tunnel at URI last week... they are probably just discovering your **potatoes** now, and hopefully not your **eggplants**, which should be covered to protect against them as well as **potato flea beetles (no sightings yet)**; if your high tunnel tomatoes now have their first fruits developing, take a look at them— if they are deformed (**catfaced**), you may as well pluck them off— they've experienced too much chilling which fouls up pollination; **European corn borer moths** are beginning to be caught in W. NY traps, and there's probably a few around here, too— only crop of concern for this first generation is early sweet corn— second flight is probably what affects peppers, potatoes, middle season sweet corn, and dahlias. Finally— beware of **Tomato Spotted Wilt Virus** on your field or high tunnel tomato plants— if your transplants came from thrips-infested greenhouse, there's a real chance that you will start seeing diseased plants.

**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

## Soil Management affects how well your irrigation serves your crops

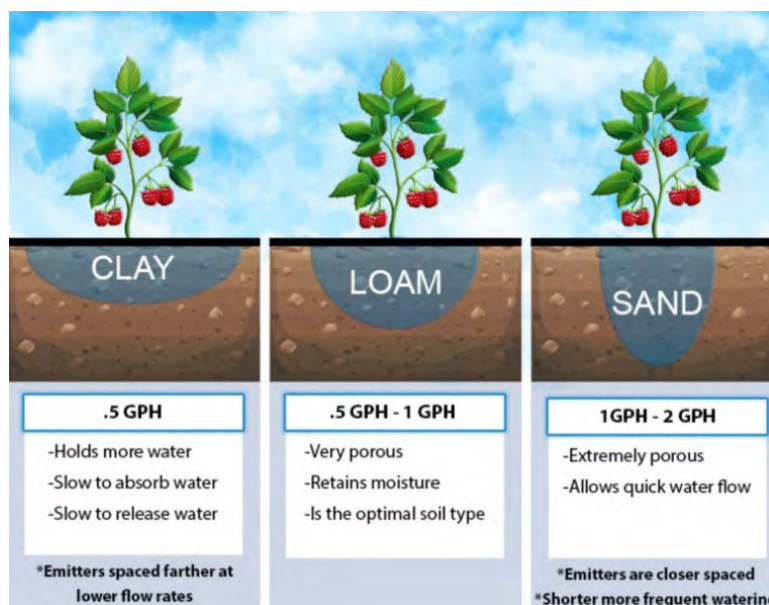
We all have seen how our crops perk up and seem to grow in front of our eyes after a steady two-inch rain. This is really a soil water "re-charging" event.

Slow, steady rainfall works its way down into the soil

profile where previously undiscovered nutrients can be solvated, making them available for uptake. Roots will follow the water and pick up the nutrients along the way.

Timely irrigations are not quite as effective, but still can make the difference between poor crops and high quality ones. Application of irrigation water

is only as good as the condition of the soil it's being applied to. Texture, of course, plays a role, too, but water can infiltrate into fine-textured soils with good management.



At this time of year, everyone grapples with the double-edged sword of Tillage, though it's pretty hard to imagine small-scale New England vegetable farming without it. It uproots perennial weeds, creates a smooth seedbed for running a vegetable seeder over, and easily incorporates added soil amendments down through the top 6 inch-

es. This incorporation is particularly important for organic N and P amendments which need good contact with soil bacteria and moisture in order to become available. Tillage is not a cardinal sin, but excessive tillage and cultivation can be. These practices eventually destroy surface aggregates, the crumbs cemented together by microbial byproducts, and hastens decomposition of organic matter bits on the surface. Water-stable surface aggregates disperse large raindrops on impact, spreading finer droplets which can infiltrate. The impact of



raindrops on soil without surface aggregates or organic matter bits causes the fine soil particles to disperse, which is the beginning of erosion. And because full-size raindrops are not broken into finer ones that can seep in between the aggregates, little water infiltrates. Instead, the moisture on the surface binds the fine particles together, creating a crust on the surface which is even less permeable.

In addition to destroying surface aggregates, excessive tillage can create a compaction layer down at the depth of the tines, and bare-ground cultivation can create compaction layers just an inch below the surface. The former interferes with deep root penetration and the latter also reduces infiltration and can cause gullies to form in the aisles. Not saying here to not do these practices, but avoid excessive use of them. Because it's also really important to efficiently clean out the weeds. I have, however, seen a nursery where they've used clean cultivating in three directions for many decades and that soil is like pavement.

If you continue to use tilling and cultivating, keeping the surface covered with an organic mulching material helps maintain soil organic matter and does the job of dispersing large rain drops. And holds down the weeds. Many are also using landscape fabric in the aisles. It certainly saves on weeding labor and reduces surface evaporation. I do sometimes wonder about the possibility of the overall effect on the soil in terms of biological activity. And is that effect just local to the aisles or is its influence more widespread? This is how research studies are born...

Many have taken to "tarping," a.k.a. "occultation." While this has certainly been done informally for many years by many gardeners and small-scale growers using old, warped 4' X 8' particle boards, horrible, cigarette-burned shag carpets removed from old houses, and shredding blue tarps in their last incarnations, it seems to have been institutionalized by the writing of Jean-Martin Fortier of Quebec. His version is neater and less polluting, making use of plastic sheeting used for covering bunkers full of silage. If well taken care of, these tarps are reusable for quite a few years.

A recent study (published on-line on May 14) describes a controlled study done with tarps in Maine, Long Island, and the Finger Lakes Region of NY. While farmers should feel free to use tarps in ways that seem to work for them, controlled studies are useful in order to see if there are useful generalities that can be easily communicated and produce consistent results. The findings, based on replicated experiments of tarps in place for a range of time periods versus no tarps, are positive, but not earth-shattering:

- Soil moisture was generally 10% to 55% higher under tarps at the time of removal compared with untarped areas, but not consistently
- Temperature was generally 1 to 3°C higher under tarps at the time of removal compared with untarped areas, but not consistently



## Report from Middletown: Cool Temperatures, Flea Beetles, and Plastic Fantastic Potatoes

It's been one of the coolest Springs we can remember on Aquidneck Island. Last year on May 29th our Growing Degree Days (Base 50 F) measured 288; this year it is 147. Soil temperatures edged over 60 F for the first time this week, and even with plastic our squash and cuke plantings were about a week behind usual.

Flea beetle pressure is as high as we have ever seen. There was a moment last week when we could actually see crowds of beetles jumping around on the row covers over the bok choy and tat soi. Later in the day, when the beetles were less active, we were able to take a look at the plants as we adjusted and tightened the covers. Actual infestation only worked out to one beetle per 24 plants, a pretty good argument for the efficacy of row cover. But we have the Pyganic ready, just in case.



**Pomme de Plastique-Blanc à la Ferme de Garman**

We are very modest potato growers, marketing them only to our CSA members and occasionally to wholesale accounts. If we want to distribute three pounds of potatoes to 100 members on eight occasions, then we need about 2,400 pounds (and it is nice to have some for ourselves). Our CSA members prefer small, round potatoes, like Elba or Satina, to larger Russet-types. So we plant between

250 and 300 pounds and look for yields of 8: 1 to 10:1 to meet our goal. Those are obviously quite low ambitions, but they are achievable with a minimum amount of labor.

We are growing three varieties on white-on-black plastic mulch this year. The mulch keeps the soil two to three degrees cooler and takes cultivation out of the picture. We try to achieve 170 pounds of N; about 135 pounds are put down pre-plant, and the balance is fertigated via Chilean nitrate in splits during the season. There is no hilling involved, obviously, although there will be addition of compost at the base of the plants to prevent sun exposure. This is not a system for large-scale potato production, but for a small grower who needs a modest level of production without a lot of labor, it is cost effective and efficient.

We hope everyone is off to a solid start, and we look forward to hearing news from your place in upcoming newsletters!

## TOMATO SPOTTED WILT VIRUS



## Report from Charlestown: A cool, slow start for Sweet Pea Farm's Third Season

Kathan Tepee operates Sweet Pea Farm on a beautiful open patch of old pastures in the middle of the woods. Here are some of her Spring 2020 musings.

Hello from Charlestown! I'm excited to be going into my third season at Sweet Pea Farm. After a two year trial period, I signed a five-year lease at the historic Amos Greene Farm this past fall. It's been a busy spring, despite the late start. I'm about two weeks behind my planting schedule because we had several cold snaps this May. CSA demand has increased significantly due to COVID-19 concerns, so I tilled up a few extra plots in order to accom-

modate a few more members. I'm grateful to have an amazing base of volunteers and work share members this season, as well as an incredible mentor. They are keeping me on track! I've made a few changes to the farm this season, including increasing flower production, adding in a fertigation system (per Andy's suggestion), and almost tripling potato production. I also put in a high tunnel through the NRCS last fall, so I am learning how to manage that and use it to increase production. It does seem like pest pressure is very high this spring (especially flea beetles), I'm covering almost everything in row cover. I hope everyone has a wonderful season and a great harvest!

### Soil management, continued....

- Tarps significantly increased soil nitrate concentrations 2X to 21X that of untarped controls
- Tarps did not affect the amount of soil covered by cover crop residue and had no consistent effects on weed seed survival of pigweed and lamsquarters
- Tarping for at least 3 weeks reduced the weed



A quiet moment at the end of a long day at the Amos Greene Farm in Charlestown

percent cover by 95% to 100% at the time of removal

- Only soil nitrate was further affected (increased) by leaving tarps on longer than three weeks

Excessive cover crop residue still seems to be a problem in this system, but from what I've seen, the treatment leaves a nice surface texture and depending on the circumstances, some residue may be removable with a rake. It would be interesting to find out if the tarping treatment increases water infiltration after removal. That is an important management objective— getting rainfall and irrigation water to seep down deeply. Applying that water in the best possible way is pretty important, too. **More soon...**

**Tarp study link:** <https://journals.ashs.org/hortsci/view/journals/hortsci/aop/article-10.21273-HORTSCI14792-19/article-10.21273-HORTSCI14792-19.xml>



## Yellow Nutsedge = No Fun

Chufa, Coco, Cocosedge, earth almond, Edible galin-  
lae, Edible nutgrass, Ground almond, Northern nut-  
grass, Rush nut (I used to live in Canada and I knew a  
number of these), Tiger nut, Watergrass, Yellow nut-  
grass. *Cyperus esculentus*. Call it what you want.



What you see in this picture is a planting of winter squash, from seed, through degradable black plastic mulch on a Rhode Island farm field. What's remarkable is the 3" to 6" yellow nutsedge plants that have punched right up through the mulch material. This is really a problem. The following is a list of factoids about Yellow Nutsedge gleaned from an excellent fact sheet from THE Ohio State University.

- Native to N. America and Eurasia, found worldwide
- Considered one of the world's worst weeds
- Thrives in diverse soil types, moisture conditions

"Yellow nutsedge is an erect, grass-like perennial, characterized by its shiny yellowish-green leaves, triangular stem, golden-brown flower head and shallow **rhizomes (horizontal underground stems) that produce many nut-like tubers**. Young seedlings are

often confused with grasses. This species **reproduces primarily by tubers** and less often by seeds. Rhizomes help to enlarge patches."

"Tuber germination typically begins as **soil temperatures reach about 54 Farenheit degree** (12 Celsius) (in May), and shoots continue to emerge through mid-July. Tuber formation begins in late July and continues through the rest of the growing season."

"Yellow nutsedge reproduces and spreads primarily by **tubers, which are the only structures (besides seeds) that can survive the winter. All foliage, rhizomes, roots and basal bulbs die with the first hard frost.**"

"Tubers remain dormant over the winter, and many germinate the following spring. **Most tubers remain viable for no more than 3 years** (rarely 10 years)."

- over 75% of tubers are formed within the top 6 inches of the soil
  - Shaded conditions severely limit tuber production
  - Tubers are easily spread by farm equipment and on crop transplants
  - Since rhizomes lack buds, new plants cannot be produced from rhizome fragments
  - Few herbicides effective and when used, can eliminate competition for the nutsedge
  - Known to have allelopathic effect on some crops
  - Can produce **10 to 32 million tubers per acre**
  - Rhizomes can penetrate potato tubers
- Control?** On small scale problems, **silage tarps** may well be too tough for the new shoots to penetrate. There is an herbicide specialized to it which produces mixed results, as seen on a farm in Portsmouth, RI.

### 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.