

July 27, 2019

**PEST ALERTS:** Onions— pay attention as bulbs near maturity; Basil downy mildew has been reported in New Haven County, CT, Barnstable County, MA, and Erie County, NY— Meg McGrath of Cornell has an extensive piece here: <http://vegetablemendonline.ppath.cornell.edu/NewsArticles/BasilDowny.html> ; Check beans for Mexican bean beetle feeding; common bacterial blight was also seen at a community garden on beans— it's usually seed-borne, so if you save some special bean seeds, look at them; there have been reports of black rot on brassicas— look for v shaped lesions starting on the edges of leaves; cross-striped cabbage worms are appearing; Squash vine borer moths are flying and no doubt some eggs have hatched— look for wilting branches of winter squashes (though bacterial wilt is also possible); Squash bug eggs have hatched; Cucurbit downy mildew was reported in Barnstable county— this is an isolated case, no other reports closer than South Jersey; Eggplants have been seen afflicted with two-spotted spider mite, hopper burn from potato leafhoppers, and Verticillium; Broad mites were seen on high tunnel peppers— twisted young foliage and russeted fruit are sure signs; bacterial leaf spot of pepper has been seen in Middletown; blossom end rot of bell pepper has been seen on a farm in Exeter— soil is well drained; late blight of potato was reported in Erie County, PA; leaf mold has been seen on high tunnel tomatoes (no reports of powdery mildew yet...); Septoria and early blight is scattered around on field tomatoes; Hornworm damage is showing up now— keep your eyes peeled for frass and damage; caterpillar pests of sweet corn are out and about but low numbers have been reported regionally; if you grow amaranth for greens, you may have round hole damage from pigweed flea beetles, which are much larger than brassica or potato flea beetles, and are striped— they also feed on... pigweed!

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

## Onions on Plastic Mulch: Win the weed fight but risk Rot

Onions are bulbing and tops are beginning to yellow, but have you checked in with your crop lately? Black plastic mulch + 95°F + over 2 inches of rain could equal neck rot. And there's more. Thanks to excellent research done at Cornell and Penn State, we now know the importance of spacing. Often, we are tempted to give plants lots of space because in so many crops, more space=more harvestable product. With onions, more space=much bigger plants. With bigger plants come **bigger necks**. These big necks act like vessels to catch and hold water, and that's where neck rot begins. Furthermore, big-necked onions take longer to reach maturity, which is when they begin to die down. In fact, Hoepfing et al's study showed that when plant spacing was reduced from 6 or 8 inches to 4 inches (with 3 or 4



rows per 3-foot plastic mulch bed), 53% to 64% control of bacterial bulb decay was achieved. Marketable yield increased 1.4 to 2.4 times. In the same study, they compared three mulches with bare ground: Black plastic mulch, degradable black plastic mulch, and silver reflective mulch. Silver and biodegradable black were far superior to black plastic and bare ground, reducing bacterial bulb decay by from 59% to 75%. Together, these practices can significantly reduce bulb decay problems. You can read the full article here: [https://rvpadmin.cce.cornell.edu/uploads/doc\\_24.pdf](https://rvpadmin.cce.cornell.edu/uploads/doc_24.pdf) . As to delayed maturity, excessive available nitrogen too late in the growth cycle (July) can cause plants to remain too vigorous to start dying down. If using more slowly available sources (organic N), avoid applying final N after early June.

## Report from Middletown

After a weekend of high heat followed by 2.5 inches of cold rain on Tuesday, we've enjoyed three whole days of pleasant, seasonable weather. Pest pressure has been variable. Japanese and Asiatic beetles usually wreak havoc on our leafy greens, but they've been almost non-existent this summer. Flea beetle activity has dropped but imported cabbage worm is everywhere – especially under row covers. We are alternating Dipel with Entrust and they seem to be working pretty well in rotation.

We are definitely having some issues with onions (see Andy's comments above). For weeks we had a booming trade in Spring onions from sets grown on plastic. When they dropped – especially after Tuesday's rain – they dropped with wet necks, and a lot of them went down fast. Perhaps the plastic made a humidity dome? After pulling them as quickly as we could we laid them out to see what we had left. We're guessing that about 30-40% of them will be okay, but the rest are wet through the shoulders. For some reason, the nondescript whites, reds, and Roderique shallots fared better than the Stuttgarters, which are famed as strong keepers. We don't grow that many (about 10,000) and we only count on them to last through October, so we shall see what happens and report back.

All signs looking good for high season (fingers crossed). We've not seen much in the way of tomato problems, peppers look pretty good, and the leafhoppers left our eggplant to devour our potato foliage. Winter squash and pumpkins seem to double every day. We hope you're all prospering and that you have better bolt-resistant lettuce varieties than we do!

## Make Time for Early Summer Crop Residue Cleanup

As the first squash planting is withering, the early chard and kale are struggling to put out nice, spotless green leaves, beans are picked and plants are toasted, and broccoli trunks have formed hollows that hold water and breed mosquitos, try to find time to remove or turn in all of this material. Thorough decomposition of residue in the soil will kill or at least reduce inoculum that can infect next year's crop, and it will also reduce spread to this year's later planted brassicas. The same is the case for *Cercospora* on beets and chard. By cleaning these patches up, you can take advantage of a remaining window of opportunity to plant a fast summer cover crop, like buckwheat or Japanese millet. Supplemental N will help these summer covers do their job better, which is to suppress weeds and grow biomass. They will also mop up excesses of other nutrients that might get leached away by the next 2 inch rainfall.

If you have areas that will not be used for additional cash cropping, now is the time to sketch out planting dates for the fall cover crops. And consider, if it works out for your rotation, daikon or "tillage" radish, which grows very long taproots, pulls phosphorus up to the surface, and winter kills. The earlier it is planted, the more biomass it will grow and the more "tilling" it will perform. It can also leave a surprisingly weed-free surface next spring. Bear in mind that it is a brassica, so may be susceptible to disease and in-

sect pests of this family. However, in late summer and fall, a number of these are less of a problem.

Also, prevent annual weeds from going to seed: at least mow them down if they have not yet set seed, but don't underestimate them: most require a very short time period for seed ripening. Cover cropping at this time can also reduce late summer germination of those pesky winter annual weeds, like chickweeds, and a variety of mustards. See this great ID resource from Missouri Botanical Garden that has great pictures of so many of the same winter annuals that we have here in Rhode Island: <https://www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/pests-and-problems/weeds/winter-annual.aspx>.



# Enemies in the field: Don't let those annuals go to seed!



Top row: , Red-root Pigweed, Lamb's Quarters  
Second row: Hairy Galinsoga, Lady's Thumb  
Smartweed; Third row: Common Ragweed,  
Hairy Crabgrass, Green Foxtail grass; Bottom  
right: Yellow Nutsedge.

# ENHANCING SOIL HEALTH IN RHODE ISLAND

Regional Conservation Partnership Program



**“Soil is at the foundation of everything that we and the other life on earth need to live...”**

*-The Cornell Framework Manual*

Your soil is an ecosystem teeming with life! When managed properly, this ecosystem will function at its full capacity to sustain productivity, improve environmental quality and increase net farm profit.

## Economic Benefits of Healthy Soil

- ⇒ Better plant growth, quality & yield;
- ⇒ Reduced risk of yield loss during periods of environmental stress;
- ⇒ Better field access during wet periods;
- ⇒ Reduced fuel costs by requiring less tillage;
- ⇒ Reduced input costs by decreasing losses, improving efficiency of fertilizer, pesticide, herbicide, and irrigation application.

Healthy soil is characterized by good soil tilth, sufficient root depth, good water storage capacity & drainage, sufficient supply of nutrients, low populations of plant pathogens & insect pests, large populations of beneficial organisms, low weed pressure, freedom from chemicals and toxins that harm crops, resistance to degradation, & resilience when unfavorable conditions occur.

## HOW CAN MY FARM'S SOIL HEALTH BE EVALUATED?

Have a *Comprehensive Soil Health Assessment* conducted on your cropland, hayland or pasture. This Regional Conservation Partnership Program (RCPP) for enhancing Soil Health provides access to *Cornell University's Comprehensive Assessment of Soil Health* when you apply for technical assistance. The Conservation District Soil Health staff will collect soil samples from your property, send the samples to Cornell Soil Health Testing Lab and interpret those results in a Soil Health Management Plan.

## HOW CAN MY FARM'S SOIL HEALTH BE IMPROVED?

A Soil Health Management Plan interprets the results of the *Comprehensive Assessment of Soil Health* and provides recommendations for best management practices to address your soil's physical, biological & chemical functionality. Financial assistance is available through this program to execute those practices, based on the recommended schedule.

Program Partners, left to right:

- USDA Natural Resources Conservation Service
- RI Conservation District (Eastern, Northern & Southern)



- RI State Conservation Committee
- Narragansett Indian Tribe
- RI Department of Environmental Management, Office of Customer & Technical Assistance

| Cornell Soil Health Assessment   |  |   |                                     |   |
|--|--|---|-------------------------------------|---|
| Agricultural Service Provider:<br>None   |  | Sample ID: Nma_664                        | Field/Treatment: Field #4           |   |
|  |  | Tillage: COW, COS                         | Crops Crowned: COS, COS             |   |
|  |  | Date Sampled:                             | Given Soil Type: No Soil Type Given |   |
|  |  | Given Soil Texture: No Soil Texture Given | Coordinates:                        |   |
| Measured Soil Textural Class: Sandy Loam      Sand: 63%    Silt: 28%    Clay: 9% |  |   |                                     |   |
| Test Results   |  |   |                                     |   |
| Indicator  | Value  | Rating                                    | Constraint                          |   |
| Physical   | Available Water Capacity                               | 0.18                                      | 75                                  |   |
|  | Surface Hardness                                       | 253                                       | 17                                  | Rooting, Water Transmission             |
|  | Subsurface Hardness                                    | 263                                       | 71                                  |   |
| Biological   | Aggregate Stability                                    | 65.0                                      | 60                                  |   |
|  | Organic Matter   | 3.8                                       | 68                                  |   |
|  | ACE Soil Protein Index                                 | 10.3                                      | 62                                  |   |
|  | Respiration  | 0.42                                      | 30                                  | Soil Microbial Abundance and Activity   |
| Chemical   | Active Carbon  | 520                                       | 55                                  |   |
|  | pH   | 4.7                                       | 0                                   | Low pH, Toxicity, Nutrient Availability |
|  | Phosphorus   | 3.5                                       | 100                                 |   |
|  | Potassium  | 19.4                                      | 3                                   | Plant K Availability                    |
|  | Minor Elements<br>Mg 13    Pn 23.4    Mn 4.3    Zn 0.6 |   | 56                                  | Deficient Magnesium                     |
| Overall Quality Score  |  | 50  | Low                                 |   |

## WHAT CAN I EXPECT FROM A SOIL HEALTH MANAGEMENT PLAN?

Your Soil Health Management Plan (SHMP) will be developed by Conservation District staff with you (the producer) to address short & long-term objectives that will address constraints identified in the *Cornell Soil Health Assessment*. [An example of assessment results at left.] Your SHMP will recommend & describe practices that will build or maintain a healthy soil that can supply the needs of the soil organisms, prevent overall environmental degradation, & contribute to improved economic benefits.

## WHAT ISSUES ON MY FARM WILL BE ADDRESSED?

- ♦ Soil Quality Degradation
- ♦ Water Quality Degradation
- ♦ Soil Erosion
- ♦ Degraded Plant Condition

## WHAT ARE A FEW EXAMPLES OF POTENTIAL RECOMMENDATIONS?

- ♦ Developing & instituting Crop Rotations
- ♦ Planting Cover Crops
- ♦ Conducting or increasing Nutrient Management
- ♦ Mulching
- ♦ Improving management of irrigation water
- ♦ Implementing rotational grazing
- ♦ Conducting deep tillage (to break up a plow pan)



Pictures in this publication were taken in New England, by K. Bousquet, SRICD.

Pg 1: (left to right) Hayland; Vegetable crops; Pasture.

Pg 2: (left, top to bottom) Rainfall simulator / Soil health demo; Soil sampling; Cover crops; Deep Tiller

### Contact:

Eastern RI Conservation District ♦ schurgin.ericd@gmail.com ♦ 401.934.0842

Northern RI Conservation District ♦ ksayles.nricd@gmail.com ♦ 401.934.0840

Southern RI Conservation District ♦ kormerod.sricd@gmail.com ♦ 401.500.0422