

Was that the last blast? Probably, but who can say?

PEST ALERTS: Overwintering Allium leafminer adults, if they are here, will be feeding on garlic and chives, and laying eggs (see article inside.); Seedcorn maggot adults are likely out locally and looking for your large-seeded early-planted crops like peas and fava beans- row cover can help; onion maggot adults are just beginning to emerge- if you have a history of problems, your newly transplanted onions (or those outside in flats) could be susceptible; expect flea beetles starting on brassicas in high tunnels...

Need to discuss? Got something you need looked at? URI Extension: 401-256-7393/andy_radin@uri.edu, hfaubert@uri.edu

What does **EROSION** look like?

While Southern New England isn't mountainous, or even that hilly, unprotected soil can suffer great damage even with the slightest slope. Watching this happen to land is painful. Here are some types of erosion we unfortunately see.

Erosion by water

Sheet erosion is the uniform removal of soil in thin layers, and it occurs when soil particles are carried evenly over the soil surface by rainwater that does not infiltrate into the ground. The sediments in this runoff can also fill in cracks in the soil surface, creating an impervious "crust" that further reduces water infiltration. **Rill erosion** is removal of soil by concentrated water flow, and it occurs when the water forms small channels in the soil as it flows off site. If rill erosion is not controlled, it can develop into **gully erosion**, where runoff forms deep, wide channels.

The ramifications of erosion are not only bad for a field: erosion pollutes waterways. Sediments are transported by storm water runoff into surface water where they cloud up the water. This results in elevat-



ed water temperature, reduced sunlight penetration to aquatic plants, and clogged fish gills. If the sediment settles to the stream bed, bottom-feeding life may have a hard time finding food, plus the water body becomes shallower and water level will rise, increasing the risk of flooding (Welsch, 1991). Soil particles carried by rainwater can also transport nutrients such as nitrogen and phosphorus into water bodies.

Streambank erosion occurs when the flow of wa-



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Federal Assistance *Extended* for Vegetable & Fruit Producers



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Tom Smiarowski and Paul Russell,
UMass Cooperative Extension Risk
Management Educators



United States Department of Agriculture
National Institute of Food and Agriculture

Two Federal programs, the **Coronavirus Food Assistance Program 2 (CFAP 2)** and the **Paycheck Protection Program (PPP)**, which can provide financial assistance to Rhode Island fruit and vegetable producers, recently announced the reopening/extension of signup periods.

Coronavirus Food Assistance Program 2 (CFAP 2)

Signup reopened on April 5 and **will continue for at least an additional 60 days** (actual signup deadline is yet to be determined) for the second round of Coronavirus Food Assistance Program payments (CFAP 2) at the USDA Farm Service Agency (**FSA**). The purpose of CFAP 2 is to provide financial assistance to producers who faced market disruptions and incurred associated costs because of COVID-19.

*CFAP 2 significantly expanded the number of eligible fruit, vegetable and other crops and uses **2019 calendar year sales of eligible specialty crops as the basis** for payments. CFAP 2 also provides assistance for dairy, livestock, poultry, honey, maple sap, wool, Christmas trees, flowers and eligible nursery crops, (including other crops not listed here) grown by producers.*

Crops purchased for resale are ineligible for CFAP 2. Value-added or processed crops (such as apple cider) are eligible but applicants will have to determine the value of the commodity prior to processing and use that figure rather than the sales of the value added or processed commodity. Eligible crops sold through CSA's may be eligible provided they meet the FSA requirements for eligible CSA's.

Payment reports as of 4/4/21 show that **over \$3.1 million has been paid out to 141 approved Rhode Island applicants under the "Sales Commodities" category.** "Sales Commodities" include fruits and

vegetables. More detailed information can be found here:

<https://www.farmers.gov/cfap>

Producers are encouraged to contact the FSA Office in Warwick with any questions they have, along with procedures to file an application and related paperwork. Producers should call (401) 828-3120 x2 since the FSA Office likely has restrictions in place for in-person office visits. Sales records are not be required at the time of signup but producers will have to provide evidence of total sales if the application is selected for a later spot-check.

Bottom Line: If you grew and marketed an eligible crop, you are eligible for a CFAP 2 payment!

Paycheck Protection Program (PPP)

The U.S. Small Business Administration (SBA) announced on March 30, 2021 that signup for PPP has been extended to **May 31, 2021**. We strongly encourage producers who have not taken advantage of the PPP to take a close look at the PPP, which can provide financial assistance to vegetable and fruit operations. We have found that many agricultural operations don't believe they are eligible for PPP benefits since it is not administered by USDA. **BUT: agricultural operations are eligible!** PPP provides loans to help businesses (including agricultural operations) keep their workforce employed during the Coronavirus (COVID-19) crisis. PPP is offered by the **U. S. Small Business Administration (SBA)** with applications processed by approved local lenders. [NOTE: The RI Small Business Development Center can assist you!] A key component of the PPP is that **the entire loan (or a portion of the loan) may be forgiven provided certain criteria are met!** We believe that the PPP has been an under-publicized/under-utilized program in the agricultural community and encourage all types of agricultural operations to take a closer look at the PPP.

Further details can be found at the SBA website: <https://www.sba.gov/funding-programs/loans/covid-19-relief>

You can watch a good video presentation on the PPP from UMass Extension [at this link](#). Starts at the 2:30 mark.



ter in a stream is strong enough to degrade the bank and detach sediments. It can be caused by increased water flow from runoff or human activity, decreased bank vegetation, and trampling by livestock (USDA-NRCS, 2003).

Erosion by wind

Wind erosion can be caused by a light wind that rolls soil particles along the surface through to a strong wind that lifts a large volume of soil particles into the air to create dust storms. While wind erosion is most common in deserts and coastal sand dunes and beaches, certain land conditions will cause wind erosion in agricultural areas (Government of New South Wales, 2020). This includes Southern New England, though our landscape has no resemblance to Saskatchewan or the Australian Outback. One of the big differences is that we have some really tall vegetation here (known as Trees) that impedes



the wind to some degree: sixty-two percent of Southern New England is forested (USDA-Forest Service). But large areas of land that remain in agriculture are often wide open, like the turf fields of Washington County.

How Erosion Starts

Detachment... not emotional detachment, but soil particle detachment from the land, is how the process of erosion gets started. Particles that are not anchored to the surface or aggregated with other particles are prone to the forces of wind and water. Air movement (wind) is straightforward: the finer the particles, the more easily they can be moved, and if the wind is not impeded by vegetation, the force of the moving air is greater at the surface because its velocity is high. (High School physics reminder: force and velocity are proportional to each other.)

Water acts on soil particles in two ways. Falling raindrops pack a punch and can break apart surface aggregates and send fine particles off in all directions. Flowing water transports particles, but may detach them as well. In flowing water, both the mass of water and its velocity affect the ability of the water to detach and transport particles. Flowing water picks up fine particles and carries them away in the direction of the flow, which is dictated by gravity. And it doesn't take a lot of slope for water to feel its way downhill if the water is not able to soak in immediately.

Poor Infiltration- One of the big problems

Infiltration refers to the ability of the soil to allow water to move downwards, into and through the soil profile. This allows the soil to temporarily store water, making it available for use by plants and soil organisms. The infiltration rate is a measure of how fast water enters the soil, typically expressed in inches per hour (USDA-NRCS, 2021.) If rainfall is accumulating at a rate faster than infiltration, the water will begin to move if there is any slope at all. Otherwise,





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it puddles and eventually soaks in. So infiltration takes time. If a mass of accumulated water is on the move, there's little time for infiltration.

Soil texture is an inherent factor in a soil's ability to allow infiltration: coarser soils (sandy and gravelly) have larger pore spaces so gravity is a stronger force than "matric potential"- water sticking inside of micropores. Soils with silt and clay particles have more micropore space, and so, water moves more slowly through it. However, with good management, even fine-textured soils can have good infiltration.

Vegetation is the Key- Let us count the ways...

- 1) On vegetated soil, falling raindrops get intercepted by plant material, which instantly slows them down and disperses them into droplets.
- 2) When droplets hit the soil, the spatter of soil particles is also intercepted by plant parts.
- 3) The stems of plants make channels from the soil surface down into the soil profile, which allow infiltration.
- 4) During the life cycle of the vegetation, bits of foliage are always dying and dropping to the soil surface, and this also prevents direct raindrop impact.
- 5) Under the surface, new roots grow while old roots die, and these dead roots create porosity in the soil, which allows for more infiltration.
- 6) Living roots and decaying vegetation mean an active rhizosphere, in which microorganisms produce substances like glomalin that cement fine soil particles together into aggregates.
- 7) Aggregates located on the surface are resistant to shattering by raindrops and aggregates in the soil profile create macropores which allow for more rapid infiltration.
- 8) Finally, vegetation impedes the velocity of water flow on the soil surface, preventing soil particles from being carried away. The slower that water moves, the more rapidly particles settle.

What you can do

If you are thinking of opening land up for expansion of your vegetable crop acreage, take a look at existing drainage patterns. Sometimes you can see these on aerial photos, but you should walk the field and look for patterns of vegetation and land contours. Vegetated drainage ways may serve the extremely important purpose of making crop production possible on other sections of a field.

If you are operating on land that is already open, pay attention to its existing drainage patterns. You may be managing that land in a way that promotes run-off and erosion without realizing it. A common example is plastic mulch-covered raised beds with wheel tracks in between. Water runs right off the plastic into the wheel tracks, which are compacted on the surface. Water then runs downhill along these tracks and carries soil along with it. Now, this isn't a recommendation to stop using plastic mulch-covered raised beds, but it is an encouragement to think about how you can lay out your field to minimize this kind of situation. And yes, of course, you have to consider the logistics of having to turn around implements and having rows that are of efficient enough lengths.

Choose the right time for your tillage operations. Effective tillage requires soil moisture, though obviously, soil shouldn't be out-and-out wet, either. Yet every year, farmers can't wait and it's common to see tractors pulling tillage implements with billowing clouds of soil leaving the fields. It's a painful thing to watch, and not necessary if there aren't drought conditions. So check your soil moisture. You can do a quick field test by taking a sample into your palm from 4 to 6 inches down and squeezing it. If it holds together in a ball and doesn't come apart if you poke at it, it's probably too moist. If it forms a ball but crumbles apart when you poke at it, it's in the right



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Fishemulsionitis

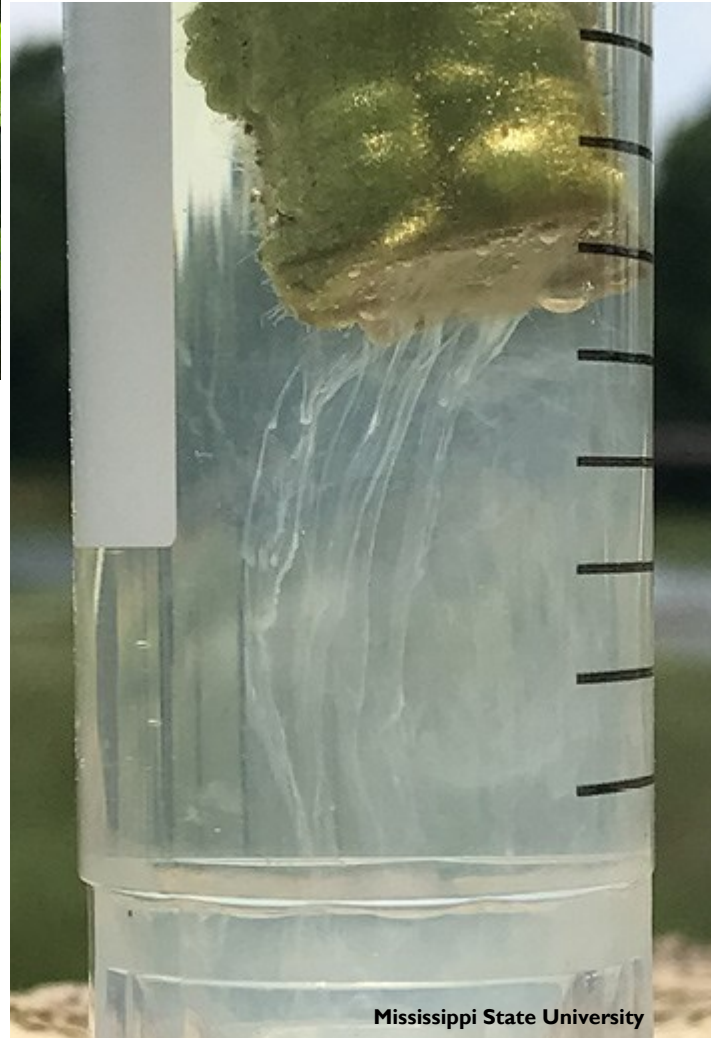


We received a sort of gloomy bunch of photos from a greenhouse shared by number of growers. It seems that everyone's Scotch-bonnet type pepper (*Capsicum chinense*) seedlings had black speckles on all the leaves. It seemed to resemble Bacterial Leaf Spot- BLS- of pepper. When I was told that everyone saved their own seed, I said (I sez to myself), "That's done it. Gotta be BLS," because this is very often transmitted through seed. But I told them to send us a sample for Heather to diagnose. An easy way to diagnose it is to cut into the lesion under water. You will be able to see "bacterial streaming" and according to Heather, BLS is a wonderful streamer. Well- she saw no streaming. A moment later, I had a new theory.

I feel that when trying to figure out the cause for something, it's important to ask the right questions,



but just as important to not ask leading questions. I don't want to put any ideas in someone's head, just get them to tell me the facts. So via text, I asked: "are these people using fish emulsion to fertilize the seedlings?" I immediately received a reply "yes, in fact someone was wondering if it was the fish emulsion!"



Mississippi State University

Bacterial streaming from a cut stem

I have seen toxicity from fish emulsion a few times before. If you are using it, it should be pretty dilute, like dishwater. And since it has a very low fertilizer analysis, you have to use it pretty frequently. So avoid glopping it on: leaves do not react well to it. Furthermore, I have seen impermeable algal biofilm form over the surface of the media in cells, which feeds shore fly larvae and deflects the water you are applying to running down the inside surfaces of the cells rather than penetrating the media, where the roots are trying to grow. I hereby publish this disorder as **Fishemulsionitis**.

Pest Spotlight

Are Allium Leafminers here yet?

Not according to the map the right, though this hasn't been updated for the year 2020. Hampshire County, MA can be added to this. Note Suffolk County, NY, and New Haven County, CT. ALM was first confirmed in the US in Pennsylvania in 2015. It is native to Europe.

Photo: Riley Harding, Cornell University



Life Cycle

ALM adults emerge in early Spring. Initial feeding and egg laying take place from mid April to mid May. Larval feeding- leaf mining- continues to early June, when they pupate, either inside of the plants, or in the soil below them. New adults emerge in mid September, when they lay eggs. These hatch, larvae feed until late November, and then pupation occurs.

Preferred host plants

In short any Allium with green foliage available when adults are flying are preferred. In early Spring, that means overwintering scallions, bulb

onions, and garlic. In Fall, this means primarily Leeks.

Feeding habits

Adults make punctures in leaves and then feed on the juices that are exuded.

It is at these same locations that they lay their eggs. What makes their damage distinctive is that they make lines of these feeding punctures, as seen in the picture. After eggs hatch, larvae burrow, or mine, within the confines of the epidermal layers of the leaves, leaving their traces easily visible on the outside of the leaves.

Identification

Adults are pretty small: 2.5 to 3.5mm. They hold their wings flat over their abdomens and the most distinctive feature is their yellow heads with black eyes. As far as larvae and pupae, identification is circumstantial. Most maggots and fly pupae are very hard to identify without microscopes.

Please let us know if you see any of this distinctive looking damage!

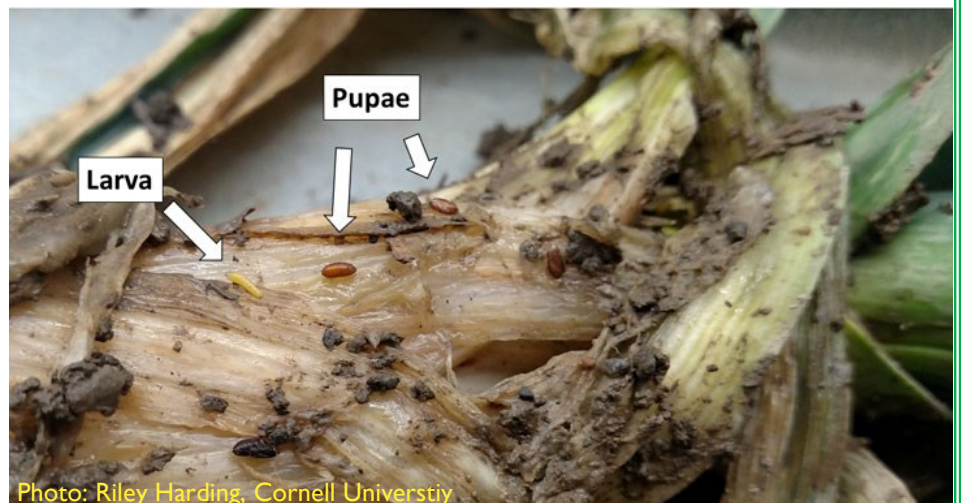
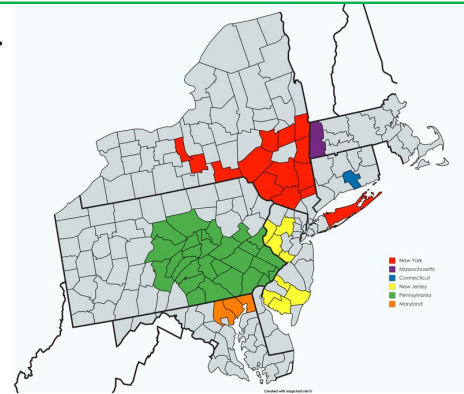


Photo: Riley Harding, Cornell University





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range for tillage. If it won't form a ball that holds together at all, it's too dry. [Note: beach sand won't form a ball no matter what. But you shouldn't be trying to grow on beach sand, anyway.] Wait for a rain. When soil moisture is right, plows flip the plow layer better, disks and tillers sink deeper, and mixing is more thorough.

The only excuse for bare soil is when you are in the middle of your crop production cycle, and even then, there are ways to cover soil. This could be organic mulching materials, like leaves, straw, or wood chips, or landscape fabric (a.k.a. "geo-textiles".) Such mulch coverings lend themselves to longer-season, transplanted fruiting vegetables, but not so good with row-seeded crops like beets, carrots, spinach, and salad crops. Even so, on smaller scales, some do make an effort to attempt mulching on these crops.

There has been a lot of interest in growing living mulches between beds or even right under existing crops. In principle, these are excellent concepts. In



practice, neither is easy, though in some cases, having the right equipment can help. While this is a subject for an entire article, any such schemes you might be cooking up are certainly worth a try, and laudable. One method is to grow a good legume-grass sod and then till strips into it, which is what John Eidson at SODCO has been experimenting with for a few years. This was covered in TWIV 7-7-18.

Use of no-till methods have been increasing in popularity in small scale vegetable operations. There are plusses and minuses but each grower who delves into this seems to develop their own idiosyncratic system, and there are many excellent versions of it out there. It is certainly a superior way to minimize soil erosion, though it requires a full system approach.

Winter through early spring is an important period when erosion occurs, so it's imperative to have thick vegetative cover over the winter. In order to achieve that, planting has to be done at the earliest possible date. (This is an important benefit of using biodegradable plastic mulch: field cleanup is easy.) This may

not be compatible with every single crop on a mixed vegetable farm, since many growers are still field harvesting certain crops through November. If that must be in order to meet customer needs, this late section should be rotated to new locations every year so the majority of the land in use gets the benefit of a luxurious, soil-building and soil-protecting winter cover.

YOUR Partners in Rhode Island Agriculture

Consisting of six primary program areas, the Rhode Island Division of Agriculture works to sustain, promote and enhance Rhode Island's agricultural viability today and for generations to come.



Farm Service Agency (FSA) is an agency of the U.S. Department of Agriculture (USDA) that serves all farmers, ranchers and agricultural partners through the delivery of effective, efficient agricultural programs for all Americans. There are 48 programs that they administer, including microlending, direct farm ownership loans, farm storage facility loans, non-insured crop disaster assistance, and much more.



A complete list of programs can be [found at this link](#). They are located at: 60 Quaker Ln, Suite 62, Warwick, RI (401) 828-3120 Option 1

NRCS, a federal agency, helps landowners develop conservation plans, create and restore wetlands, restore and manage other natural ecosystems as well as advise on storm water remediation, nutrient and animal waste management and watershed planning.



United States Department of Agriculture
Natural Resources Conservation Service

NRCS is located at 60 Quaker Lane, Suite 40, Warwick, RI 02886
0111 Phone: 401-828-1300, Option 1 fax: 855-924-4748 <https://www.nrcs.usda.gov/wps/portal/nrcs/main/ri/contact/state/>

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The Rhode Island Agricultural Energy Program is a competitive grant program for the implementation of agricultural projects that improve energy efficiency and facilitate renewable energy. It is a collaborative project of RI RC&D, the RIDEM, Division of Agriculture, and Office of Air Resources and the Office of Energy Resources.



Rhode Island
farm energy program

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