



Vol. 4, Issue 2
May 5, 2016

Vegetable News

In this issue of Vegetable News: Winter Annuals...1 ; Service Containers...1; Starter Solution Fertilizers...2; Transplant Shock...3; Salad Mix Solutions...3; Weed Control in Asparagus...4; Flea Beetles in Brassicas...5; Thinking ahead about Leafminers...6

Service Containers

Chuck Bornt, ENYCHP



NYSDEC requires spray tanks with material that travel on the road, or have mixed product being stored in a tank (not actively being used), to have a copy of the pesticide label(s) affixed to the tank with maximum weight/volume the tank can hold. If a label(s) cannot be located, then include the following information: name & address of the manufacturer or registrant as appears on the pesticide label; registered product name & EPA number; and maximum weight or volume of material that container can hold. It is recommended that the label(s) be placed in a clear plastic covering mounted on the sprayer. If the service container holds pesticides in quantities highly toxic to humans' (DANGER is on the pesticide label), the container must also have a skull and crossbones and the word POISON prominently, in red, on a back-

ground of contrasting color plus a statement of the antidote for the pesticide. For additional information contact your regional NYSDEC office. If you're not sure which region you are in and you have a valid NYS DEC Pesticide Applicators license, the first number that appears after the "P" or "C" of your id number indicates your region. For example, if your pesticide id is P4123456, your region is "4". I've listed the most common regions in the ENYCHP territory and given you the phone numbers below: Region 3 serving Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester counties: (845) 256-3097 Region 4 serving Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie counties: (518) 357-2045 Region 5 serving Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington counties: (518) 623-1212

Winter Annuals

Maire Ulrich, ENYCHP



Winter annual weeds are in flower now, make seeds in the upcoming weeks and the next generation can germinate any time between late summer and early spring. Typically, they will have started growth by this upcoming fall and over-winter as a small seedling. Warm days in the winter help them grow and are dormant in cold cycles. Then, they finish their life cycles in the spring. After seedset, and temperatures increase in the summer, these plants die but have prepared for the next generation. The most successful management is practiced in the spring, before seedset. Mowing to remove flowers and seeds is fairly successful at maintaining the population. Herbicide use is most effective at reducing populations.

Often their populations are quite dense during planting time and can significantly interfere with planting. One way they do that is slowing soil drying time in the spring and delaying planting. Or they increase the amount of time, labor and fuel that it takes to prepare a field for seeding in con-

ventional systems. Winter annuals have also been tied to several disease and insect pests that increase damage to the crop after planting.

In recent years, there has been an increase in winter annual populations in the northeast for a variety of reasons that include reduced tillage, increased use of herbicides with lower residual activity, and increased winter temperatures. Locally, one might find Chickweed, Henbit or Horseweed, and the ever-present, but mostly lawn weed, Dandelion. The most common seen in production fields are in the mustard/brassica family such as Shephard's Purse, Pepperweed, Pennycress, Yellow Rocket. The mustards all have similar young growth but differentiate when they flower (yellow or white cruciferous flowers) and seed. All create a seed pod but pods vary by shape based on which species it is.



Yellow Rocket in flower. *Maire Ulrich*

Starter Solution Fertilizers at Transplanting

Teresa Rusinek ENYCHP



Cool spring temperatures as we have been experiencing can set back growth in newly transplanted fields. One way to give transplants a boost through sub optimal temperatures is by using starter fertilizer solution. Starter solutions are mixtures of

soluble fertilizer and water used to stimulate growth of young transplants such as tomato, eggplant, pepper, melons, cucumbers and cabbage. Soluble fertilizer easily dissolves in water and the nutrients are readily available for plant uptake. (Regular field grade fertilizers will not completely dissolve.) Starter solutions minimize transplant shock when plants are moved from a protected environment to an open field and help the recovery of disturbed root systems. Response to starter solutions is most likely when soils are cool and tests indicate low phosphorous and potassium. There is little risk of plant injury (burning) when using starter solutions. Dry fertilizer in close contact with plant roots can result in serious injury, while starters can be added directly to plant roots.

Phosphorus is essential for root growth. Even though this element is distributed throughout the soil, it is not readily available to plants when the soil temperature is 60oF. and lower. Since soil temperatures are low in the early spring, the addition of a starter solution at transplanting gives plants a boost by making phosphorus readily available. Additional phosphorus can compensate for low soil temperatures; however, there is a limit. For example, tomato growth will not be improved with additional phosphorus if the soil temperature is below about 56 F. But if the phosphorus is already near the plant, it will be available when the soil temperature rises to 58 - 60 F.

Many grades of water soluble fertilizer are available

(e.g. 10-52-17, 14-28-14, 23-21-17, 20-20-20, 6-24-6, and 10 -34-0). They are generally used at a concentration of about three pounds per 50 gallons of water and about one-third this strength on squash, melon and cucumber plants. For vegetable production, it is generally recommend that starters contain 2 to 3 times as much phosphorus as nitrogen or potassium. Application of high nitrogen starters could result in excessive vegetative growth. Always carefully read the fertilizer label for recommended rates. Values here are only given as general guidance whereas the label is based on product testing.

Starter solutions can be applied several ways. Some growers soak the root system with starter solution either by dipping trays or watering in overhead before transplants are set in the field. If starter solution gets on leaves be sure to rinse the leaves with water to avoid burn. Another method of application is at the time of transplanting by using starter solution in the water wheel transplanter tank. The primary concern is that roots have immediate access to a readily-available source of phosphorus. However you do it, the goal is to soak the entire root system uniformly with starter solution (about ½ pint per plant).

Note: Do not apply starter solutions when soils are excessively dry since such conditions could result in root damage. If plants are set into dry soil, water should be added first, followed by starter solution.

Sources: University of New Hampshire Cooperative Extension http://extension.unh.edu/resources/representation/Resource000618_Rep640.pdf

2016 Cornell Integrated Crop and Pest Management Guidelines for Commercial Vegetable Production

Transplant Shock

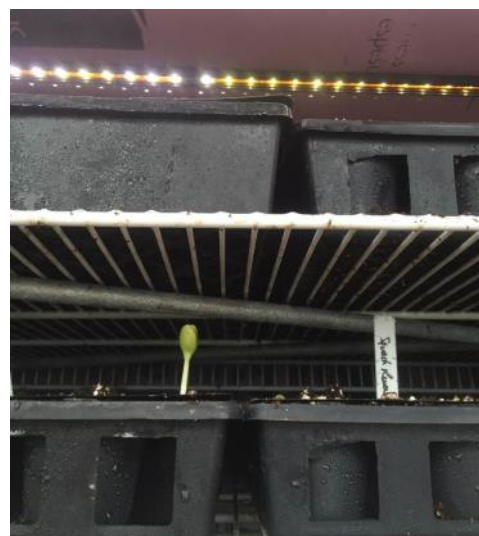
Any Ivy & Crystal Stewart, ENYCHP



There are multiple points in a transplant's life when stress can reduce the potential of the plant. Starting with germination, we want to create the best environment possible to foster vigor and resilience. For germination, we want to create an optimal environment for quick

growth and emergence. The focus here is on temperature and humidity, both of which are ideally kept in a narrow range. This range (found [here](#)), and the very high relative humidity ideal for germination, are not ideal for plant growth. Therefore, movement from the germination area to the growing area is a first point to avoid stress. Timely removal from germination chambers into lower humidity, higher light environments is key.

It can be quite a shock for young plants to go from the steady, moderate light of growlights to the full sunlight in a tunnel or greenhouse. Whenever possible wait for a cloudy day to make this move, or set up some kind of shade to give



transplants, continued from previous page

the tender plants a chance to get used to this new intensity. The tomato seedlings in the photo were moved during a long stretch of clear sunny weather and suffered a sunburn because of this. But within a week the plants produced new dark green growth in their centers, a sign that they were going to grow out of the shock. The older, sunburnt leaves are still visible but will drop off by the time the plant is ready to be transplanted.



readily available nutrients immediately. Finally, make sure to set transplants deep enough that the root ball is fully submerged in native soil. This will prevent the root ball from drying before the soil around it.

Avoiding desiccation and sunburn stress:

When plants are growing in the protected environment of a greenhouse, they do not experience wind and sun stress to the extent that they will when they are outside. Therefore, the waxy

Another primary point of stress is of course movement from the greenhouse to the field. Stressors at this moment include root disturbance, desiccation, and sunburn.

Avoiding root disturbance stress:

Planting when roots have filled the cell but are not yet circling is ideal for most crops. Cucurbits should be planted earlier, when the first true leaf is expanding. At point the root system is quite delicate but planting later leads to reduced yields. Another key to reducing root stress at transplanting is to supply adequate water and nutrients. Watering prior to transplanting and watering in the transplants at planting reduces air contact with tender root hairs. Using transplant solutions also helps reduce stress by providing

layer called a cuticle which forms on the leaf surface is often thinner than it will be in the field, and the pigments which protect leaves from UV radiation may not be present in levels that are needed. By gradually exposing plants to wind and full spectrum sun, you give them time to respond to the changes and protect themselves. This transition reduces stress, which in turn preserves future yield. There are times when plants will be going into particularly sunny or windy conditions, and stress is almost unavoidable. If possible, you can prevent stress by allowing plants to establish under row cover. If taking this step in windy conditions, be sure to use hoops and tight covers to prevent the row cover from beating on the plants.

Salad Mix Solutions

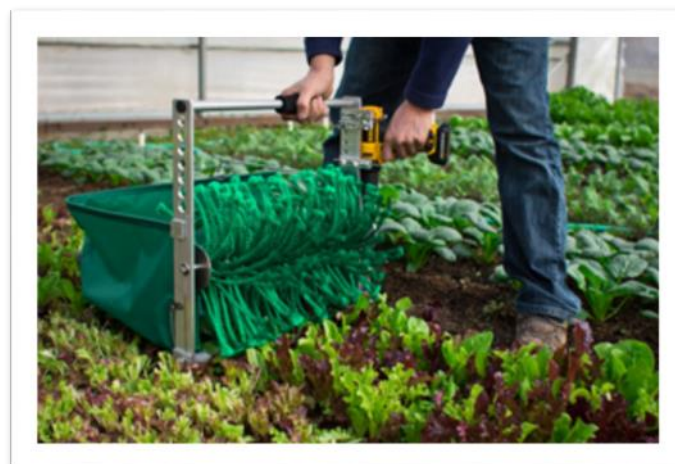
Erik Shellenberg, ENYCHP



Whether they are cut by hand or on a tractor with a band saw, salad greens are an economically key crop for many vegetable farms. This article will include tips on increasing production efficiency and assuring food safety.

Harvesting salad greens can be labor intensive. If you're growing at scale, the solution is a bow or band saw harvester that cuts the dense sward of greens, which fall onto a conveyor that moves them up into a container. These harvesters are expensive, and require the bed to be perfectly level and free of stones and debris. If you don't grow enough salad mix to justify that type of harvester, up until recently there haven't been many good options other than scissors and hand cutting. However, a new salad mix harvester is changing this. It has been on the market for a couple years, but not everyone has heard about it yet. Farmer's Friend LLC has designed a quick cut greens harvester for the small to mid-scale farm. The harvester makes use of your cordless drill to semi-mechanize the process. The drill powers a reciprocating blade that cuts

the greens cleanly, lubricated with a food grade lubricant, and a serpentine belt that drives a shaft with the harvester



tassels on it. The soft tassels throw the greens back into the basket.

Farmers who have been using the harvester estimate that it cuts harvest time by around 75-80%. It also cuts at a

precise level, which can be controlled to optimize re-growth. However, the feet that regulate cut height seem to be ineffective, and most users find it easier to just hold the basket at the desired height. The tool can be used on salad mixes, spinach, and any other low growing leafy green. Another benefit of the tool is that if a bed of mix has grown too high, the harvester can be dragged through at half height and then at ground level to save the crop (as long as it still tastes good!).

<http://www.farmersfriendllc.com/products/quick-cut-greens-harvester>

Once your salad mix is harvested, you have another important decision to make: to wash or not to wash? From a food safety perspective, if you have the option to not wash, take it! This all depends on your markets. If your buyers require perfectly clean product then you have no choice but to wash it, but if you have any influence on your buyers you can tell them that the safest scenario from a food safety perspective is that produce is washed a single time – by the consumer, just before use.

If you must wash, you can either wash with single pass water or with a dunk tank system. For greens, the dunk tank is the preferred method of most growers. Any time that multiple batches of greens are being rinsed in the same water, the use of a sanitizer in the water is required. If one piece of lettuce was contaminated via soil borne bacteria, or deer poop, or a harvester's hands, it will contaminate the water tank. Any greens that are rinsed in that same water will then be contaminated as well, so this type of washing multiplies risk by many times unless a sanitizer is used.

Many operations use sodium hypochlorite (bleach) as the

sanitizer. If you are using bleach, 50-200 ppm will suffice. This will seem like a very low dose, but it is effective.

For example, 4 gallons of 5.25% bleach solution mixed in 1,000 gallons of water will yield roughly 200 ppm. Using metric, .2 milliliter per liter will give you 200 ppm. If you are using a scale, 1 mg/L = 1 ppm.

The problem with using bleach is that the active ingredient is bound up by organic matter, so the dirt that comes off your lettuce uses up the bleach. It also becomes largely inactive when your pH goes up above 7. To use bleach effectively you need to keep the pH down below 7, and you need to measure the free chlorine periodically to make sure it's still sanitizing, and add bleach if your free chlorine is low. Keep in mind that your monitoring strips need to be for "free chlorine", and need to be high range. Many max out at 10 ppm, so make sure you get something that can measure high concentrations. There are good quality highest strips that go up to 750 ppm available at sanitation-tools.com.

Remember that when using bleach, it must be labeled "for use in washing fresh fruit and vegetables". If it doesn't have this label on it, you can't use it for that purpose. Other options include sanidate, oxidate, and peracetic acid. What about multiple washes? Triple washing lettuce does reduce bacterial loads effectively, but it is a lot more work than washing a single time with a sanitizer for ~100% efficacy. A study by UVM extension found that the triple wash without sanitizer achieved 99.9% reduction in E. coli, and a single wash with full rate of sanidate removed 100%.

http://www.uvm.edu/vtvegandberry/Pubs/WashWaterStudyReport_11-28-12.pdf

Weed Control in Asparagus During the Cutting Season

Charles Bornt ENYCHP



With the dry spring (that is prior to this week!), some of our pre-emergent asparagus herbicide applications may not have performed as well as usual due to the lack of moisture to activate them unless you were irrigating. As harvest continues and

starts to wind down in the next few weeks, paying particular attention to post emergent applications may be necessary.

Herbicides that can be used during the cutting season on established beds include: **Lorox 50DF** (linuron) will control many annual broadleaves and grasses. Use post emergence, right after cutting, in a minimum of 25 gallons/acre and do not tank mix with other herbicides or adjuvants. Three applications of 1-2 lbs can be made annually with a maximum use of 4 lbs/year. Note there is a 1 day PHI and a 24 hour re-entry interval for linuron containing herbicides. **Sandea** (halosulfuron) will control several annual broadleaves including pigweed, velvetleaf, galinso-ga, ragweed and several species of mustards, especially

when weeds are small and is effective on Yellow nutsedge post emergent as well. Use 0.5 to 1.0 ounces per acre with a 1 day PHI and 24 hour REI. Be aware that you may see some twisting of spears after Sandea has been applied. Can also be applied at the end of the harvest season but it is recommended to use a nonionic surfactant or COC with drop nozzles to maximize coverage of weeds while minimizing fern contact and injury to the asparagus. Do not exceed 2 oz/A/season. **Clarity Herbicide** (dicamba) will help control several perennial weeds including sowthistle, Russian thistle and field bindweed. It will also control annuals such as mustard spp., redroot pigweed and common chickweed. Apply Clarity to emerged and actively growing weeds immediately after cutting the field but 24 hr before the next cutting. Multiple applications may be made per season but may not exceed a maximum of 16 fl oz per acre per year. If spray contacts emerge spears, twisting may result. Label recommends 40 – 60 gallons of water/acre be used. Again there is a 1 day PHI and a 24 hour REI for this product. Be sure to triple rinse and use a

continued on next page

good tank cleaner after using Clarity before spraying other crops. **Spur** (clopyralid) can be used post emergent for selective control of several perennial broadleaf weeds including Canada thistle and Sow thistle as well as several biennial and annual broadleaf weeds. Applications may be made before or during the asparagus cutting season, or after harvest is complete, but prior to ferns emerging. Because Spur can cause some crooking (twisting) of asparagus spears when used post emergent, clear-cutting of spears just before application may reduce the occurrence of crooking. Spur can be used at a rate of 1/2 to 2/3 pint per acre in a total spray volume of 10 to 40 gallons per acre. Use the higher rate for more effective control of perennial weeds. A second application may be made as long as the total amount applied does not exceed 2/3 pint per acre during the growing season. The PHI for Spur is 48 hours after application. **Fusilade DX** (fluazifop-p-butyl) can be used for post emergent annual and perennial grass control at 6 -12 fl. Oz per acre (12 fl ounce rate for perennial grasses). Use a 0.5-1.0% v/v crop oil concentrate for improved control.

Be sure to triple rinse and use a good tank cleaner before using sprayer on other crops, especially sweet corn. **Poast** (sethoxydim) is effective on annual grasses at 0.5 – 1.0 pints per acre with 2.0 pints of crop oil per acre. Both Fusilade and Poast have a 1 day PHI and 12 hour REI. **Select Max** (clethodim) can also be used for post emergent annual and perennial grass control in asparagus at 9 -12 ounces per acre for annual grass control or 12 – 16 ounces (do not apply more than 16 ounces in one application) for perennial control with a non-ionic surfactant (NIS) at 0.25% v/v. Do not tank mix this material with any broadleaf materials or apply within a day of a broadleaf herbicide such as Lorox, Sandea, Clarity etc.

Please review the label on the container that you are using as formulas and rates can vary. The above information is only to give you an idea of what is labeled and observations of how these materials might work. When in doubt, please contact the company representative or your local CCE Regional Specialist.

Flea Beetles Attacking Brassica Crops

Teresa Rusinek ENYCHP

Flea beetles have been out for the past two weeks or so and a number of growers have been transplanting brassicas into the field where they will be vulnerable to attack. Brassicas in high tunnels are also susceptible and I already heard from a grower who has had to treat for flea beetles. Remember that young plants (cotyledons or young transplants) are very susceptible to flea beetle feeding and are at the highest risk for being stunted or even killed if flea beetle populations are not controlled. Be sure to regularly scout established plantings; the treatment threshold is 1 beetle per plant at cotyledon stage or for recently transplanted crops.

Most flea beetles overwinter as adults, sheltering under plant debris in the field, in field margins, and in adjacent areas. The adults emerge in spring and may feed on weeds and less-desirable vegetation until crop plants become available. As soon as suitable crop plants are set out, the beetles will enter the field, often in large numbers. Flea beetles do best in stable warm spring weather and seedlings of crops are most vulnerable to flea beetle feeding when stressed, particularly by inadequate moisture.

Organic control: Small-scale and organic growers can exclude flea beetles by immediately covering transplants with light-weight row cover. This will only work if the crop is following a non-susceptible crop like onions for example. Otherwise, there's a good chance that flea beetles have overwintered in the soil and will emerge under the row cover. It is important to cover the edges with soil to prevent gaps that flea beetles will find. Larger growers and those not able to immediately cover transplants may need to rely on sprays to protect small transplants. There are several organic insecticides labeled for the suppression of flea beetles including, Entrust, (4-8 fl.oz/acre. Do not apply

more than 29fl.oz./A/crop. Do not apply more than 6 times per calendar year) azadirachtin products such as Aza-Direct, AzaGaurd, Neemix, Molt-X and Pyganic which is a pyrethrin insecticide. See label for rates and directions. Frequent scouting (at least twice a week) and retreatment will be required under heavy flea beetle pressure. You may only get some suppression with these materials. Some growers have also gone to tank mixing the above mentioned materials with Surround (kaolin clay) for added control. Surround WP (at 25 –50 pounds per 100 gallons of water) helps to deter flea beetle feeding and moving around on the plant. There are also several plant oils that are labeled for repulsion. Some growers get adequate control using trap crops, this is discussed in more detail at the following website: <http://cru.cahe.wsu.edu/CEPublications/PNW640/PNW640.pdf>

Conventional insecticides options for flea beetle include: carbaryl (Sevin XLR Plus, 0.5 quarts per acre), pyrethroids (Baythroid XL at 2.4—3.2 fluid ounces per acre, Brigade 2EC or OLF at 2.1 - 6.4 fluid ounces per acre, Mustang MAXX at 2.24—4.0 fluid ounces per acre) or Warrior II (lambda-cyhalothrin at 1.28-1.92 fluid ounces per acre). For quick knockdown and some residual you could try some of the pre-mix materials such as Voliam Xpress (chlorantraniliprole + lambda-cyhalothrin at 6.0-9.0 fluid ounces per acre) or Endigo ZC (lambda-cyhalothrin + thiamethoxam at 4.0-4.5 fluid ounces) or Leverage (imidacloprid + cyfluthrin at 3.8 ounces per acre). However, please note that if you used Coragen (chlorantraniliprole) at planting the label states you cannot use more than 15.4 fluid ounces of chlorotrtraniliprole containing products per acre per crop.

Basil Downy Mildew *Amy Ivy, ENYCHP*

Sooner or later most growers are hit by basil downy mildew, an aggressive, fast spreading disease that is specific to basil. It is related to but different from cucurbit downy mildew. Both do not overwinter in the north but are spread by spores that blow in or are brought in on infected seedlings. According to



Left: healthy sweet basil seedlings ready to transplant once temperatures are warm enough. Right: High tunnel grown basil 90% infested with basil downy mildew in early August. Note the first early symptoms of yellow patches on the upper leaf surfaces. Turn those leaves over to reveal large mats of dark spores. This planting went from a 10% infection rate when first diagnosed to 90% in just 8 days.

an article by Meg McGrath on Cornell's veg-md-online website (<http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html>) all varieties of sweet basil, *Ocimum basilicum* are susceptible to basil downy mildew, although some resistance has been seen in the variety 'Eleonora'. Rutgers is working on developing more resistant varieties but none as yet are commercially available. Other types of basil with very different flavors from sweet basil are showing some resistance include red types ('Red Leaf' and 'Red Rubin'), Thai basil ('Queenette'), lemon basil ('Lemon', 'Lemon Mrs. Burns', 'Sweet Dani Lemon Basil'), lime basil ('Lime'), and spice types ('Spice', 'Blue Spice', 'Blue Spice Fil', 'Cinnamon').

Minimizing leaf wetness and increasing air circulation may discourage but not prevent the disease. It is commonly found in high tunnels in spite of the protection from rain. Fungicides may help prevent or delay the establishment of the disease but must be applied preventatively.

McGrath's article continues with this information about **Fungicides**. To control downy mildew effectively with fungicides, it is considered necessary to start before first symptoms and to make applications frequently. Many of the fungicides currently labeled for this new disease, plus others not registered yet, have provided limited suppression in fungicide evaluations, demonstrating the difficulty in controlling this disease, especially in a research setting with applications made with a backpack sprayer, and thus the importance of starting before disease onset. Part of the challenge of controlling downy mildew is the need for blemish-free herbs when marketed as fresh sprigs.

Organic. Procidic (3.5% citric acid) is specifically labeled for basil downy mildew. It was reviewed and determined to be NOP compliant by Washington State Dept of Ag. Actinovate AG (active ingredient is *Streptomyces lydicus*), Double Nickel 55 (*Bacillus amyloliquefaciens*), MilStop (potassium bicarbonate), Regalia (extract of *Reynoutria sachalinensis*), Trilogy (neem oil), and OxiDate (hydrogen dioxide) are OMRI-listed fungicides labeled for use on herbs and for suppressing foliar diseases including

downy mildew. MilStop, Regalia, and OxiDate are labeled for use outdoors and in greenhouses. The Actinovate, Double Nickel and Trilogy labels do not have a statement prohibiting use in greenhouses. Double Nickel label has directions for greenhouse use for soil-borne pathogens. OxiDate has limited residual activity and thus if used should be combined with or followed by another product.

Results from research conducted at Cornell are available [on-line](#).

Conventional. Ranman (cyazofamid; FRAC code 21), Revus and Micora (mandipropamid; FRAC 40), Quadris (azoxystrobin; FRAC 11), Armicarb (potassium bicarbonate), and phosphorous acid fungicides (FRAC 33) can be used in conventional production of basil, in addition to the fungicides listed above. Quadris is the only one of these that is not permitted to be used in a greenhouse. Micora is the mandipropamid formulation for use in greenhouses; it is restricted to use on basil transplants for re-sale to consumers in greenhouses with permanent flooring. Ranman is the first product labeled with targeted activity for oomycetes, the group of pathogens that includes those causing downy mildews. There are several phosphorous acid (phosphanate) fungicides labeled for this disease, including ProPhyt, Fosphite, Fungi-Phite, Rampart, pHorsepHite, and K-Phite. This chemistry as well as Ranman was documented to be among the most effective in some university fungicide evaluations. Quadris is labeled for use on basil but not specifically for downy mildew; it also has been shown to be effective for this downy mildew. In states like NY where the target disease is required to be specified on the label, Quadris cannot be used without an approved FIFRA 2(ee) recommendation, which the applicator must possess when using (the one for NY can be downloaded at <http://magritte.psur.cornell.edu/pims/current/>). These fungicides with targeted activity are prone to resistance development due to their single site mode of action and thus need to be used within a fungicide resistance management program. Resistance to mefenoxam (Ridomil) developed quickly in Israel demonstrating the capacity of this pathogen to develop resistance. Other fungicides are expected to be labeled for basil downy mildew in the future as a result of work by the IR-4 program, which identified this as a top priority and supported fungicide evaluations. Ranman and Revus are the first fungicides registered as a result of IR-4 work. Results from research conducted at Cornell are available [on-line](#).

Thinking Ahead to Leafminers in Alliums

Marie Ulrich, ENYCHP



Leafminers in onions were a serious concern in 2015 in several locations in the Northeast. In preparation that they may be a problem in 2016, below is a list of controls from Dan Gilrein the Cornell Entomologist at the LI Research Center. Although, I have rarely seen them be “bad” in back to back years, 2015 was the worst seen ever so who knows what this season will bring. It is too early for infestations but better to be prepared now with options should you sight damage.

Insecticides for leafminers in onions and related crops that may be effective against Allium leafminer (*Pytomiza gymnostoma*);

Labeled crops noted with days to harvest (DTH). Crop subgroups with listed crops taken from labels and also found at <http://ir4.rutgers.edu/other/CropGroup.htm>

Trigard (cyromazine): leafminers *Not for use in Nassau and Suffolk Counties*-Bulb Vegetables crop group (7 DTH). Some of the crops in this group are: garlic, great-headed (elephant) garlic, leek, dry bulb onion, green onion, potato onion, tree onion, Welsh onion, rakkyo, and shallot.

Scorpion (dinotefuran): for leafminers and others *Not for use in NY State* Onion, bulb and green (subgroups 3-07A and 3-07B) (1 DTH). Bulb onion, includes: Daylily, bulb; Fritillaria, bulb; Garlic, bulb; Garlic, Great-headed, bulb; Garlic, serpent, bulb; Lily, bulb; Onion, bulb; Onion, Chinese, bulb; Onion; pearl Onion; potato, bulb; Shallot, bulb; Cultivars, varieties and/or, hybrids of these Green onion, includes: Chive, fresh leaves; Chive, Chinese, fresh leaves; Elegans hosta; Fritillaria leaves; Kurrat; Lady's leek; Leek; Leek, wild; Onion, Beltsville bunching; Onion, fresh; Onion, green; Onion, macrostem; Onion, tree, tops; Onion, Welsh tops; Shallot, fresh leaves; Cultivars, varieties and/or hybrids of these

Radiant SC (spinetoram): dipteran leafminers and others

Bulb Vegetables (Crop Group 3) (1 DTH). Bulb vegetables: bulb onion, garlic, great-headed (elephant) garlic, green onion, leek, shallot, Welsh onion. Herbs (Subgroup 19A) (1 DTH) Includes: chive, chive (Chinese)

Mustang, Mustang Maxx (and OLF) (zeta-cypermethrin): leafminers (adults)

Bulb Vegetables (*Allium* spp.) (7 day PHI). Including: Garlic; Garlic, Great-Headed (elephant); Green Eschalots; Japanese Bunching Onions; Leeks; Onion, Dry Bulb and Green; Onion, Welch; Shallots, Dry Bulb and Green; Spring Onion or Scallions

Warrior II (and OLF) (lambda-cyhalothrin): Leafminer species (adults) Onion (bulb) and Garlic (14 DTH)

For Organic Growers

Aza-Direct (and OLF) (azadirachtin): Leafminers

verify label crops and uses – some variation among products and some may not be organiccompatible Bulb Vegetables (0 DTH) Such as: Garlic, Leek, Onion (dry bulb, green and Welch), Shallot

Entrust SC (spinosad): organic-compatible, for dipteran leafminers and others

Bulb Vegetables (Crop Group 3) (1 DTH). Bulb vegetables: dry bulb onion, garlic, great-headed (elephant) garlic, green onion, leek, shallot, welch onion. Herbs (Subgroup 19A) (Insect Suppression) (1 DTH) Includes: chive, chive (Chinese)

*Products not specifically labeled for *Phytomyza gymnostoma* but may be effective*

Agri-Mek SC (or OLF) (abamectin): for *Liriomyza* leafminers and thrips. Include adjuvant per label

Herb Crop Subgroup (Crop Subgroup 19A) (7 DTH). Including Chives, Chives (Chinese) Onion, Bulb (Crop Subgroup 3-07A) (30 DTH). Crops in this group are: onion, bulb including daylily, bulb; fritillaria, bulb; garlic, bulb; garlic, great-headed, bulb; garlic, serpent, bulb; lily, bulb; onion, Chinese, bulb; onion, pearl; onion, potato, bulb; shallot, bulb; cultivars, varieties, and/or hybrids of these.

Exirel (cyantranilprole): Leafminer (*Liriomyza* spp.) and thrips. Include adjuvant per label *Not for use in Nassau and Suffolk Counties, NY*

Bulb Vegetables, (EPA Crop Group 3-07) (1 DTH). Chive, fresh leaves; Chive, Chinese, fresh leaves; Daylily, bulb (edible); Elegans hosta (edible); Fritillaria, leaves (edible); Garlic, bulb; Garlic, great headed, bulb; Garlic, serpent, bulb; Kurrat; Lady's leek; Leek; Leek, wild; Lily, bulb; Onion, Beltsville bunching; Onion, bulb; Onion, Chinese, bulb; Onion, fresh; Onion, green; Onion, macrostem; Onion, pearl; Onion, potato, bulb; Onion, tree, tops; Onion, Welsh, tops; Shallot, bulb; Shallot, fresh leaves

Compiled by Dan Gilrein, Cornell Cooperative Extension of Suffolk County, Riverhead, NY 4/8/2016



Beware of Counterfeit N95 Respirators

NIOSH has issued an alert to respirator users, purchasers, and manufacturers about a counterfeit N95 respirator on the market. While the unapproved unit carries a valid testing and certification (TC) number and private label holder (KOSTO), it can be identified by the misspelling of “NIOSH” on the front of the respirator.



Individuals in their areas should check the respirators to verify that respirators are NIOSH-approved. Respirator models and brands currently used at Cornell are: 3M (8210,8210v, 9211+,9210+,8511), North, and Moldex

If you have any questions about the N95 respirators in your area please call 607-255-8200 or e-mail ehs_respirator@cornell.edu

ENYCH Program Educators:

Fruit

Dan Donahue
Phone: 845-691-7117
Email: djd13@cornell.edu
Tree Fruit

Anna Wallis
Phone: 443-421-7970
Email: aew232@cornell.edu
Tree Fruit & Grapes

Laura McDermott
Cell: 518-791-5038
Email: lgm4@cornell.edu
Berries

James O'Connell
Phone: 845-691-7117
Email: jmo98@cornell.edu
Berries & Grapes

Vegetables

Chuck Bornt
Cell: 518-859-6213
Email: cdb13@cornell.edu

Amy Ivy
Phone: 518-561-7450
Email: adi2@cornell.edu

Teresa Rusinek
Phone: 845-340-3990 x315
Email: tr28@cornell.edu

Erik Schellenberg
Phone: 845-344-1234
Email: js3234@cornell.edu

Crystal Stewart
Cell: 518-775-0018
Email: cls263@cornell.edu

Maire Ullrich
Phone: 845-344-1234
Email: mru2@cornell.edu

Business and Economics

Jesse Strzok
Phone: 518.429.1464
Email: js3234@cornell.edu

Content Editor: Erik Kocho-Schellenberg
Layout: Abby Henderson

2016 Weekly and Seasonal Weather Information

Site	Growing Degree Information Base 50° F			Rainfall Accumulations		
	2016 Weekly Total 4/18-5/3	2016 Season Total 4/18-5/3	2015 Season Total 4/18-5/3	2016 Weekly Rainfall (inches) 4/18-5/3	2016 Total Rainfall (inches) 4/18-5/3	2015 Total Rainfall (inches) 3/1-5/3
Albany	39.5	105.4	93.5	1.05	3.51	3.55
Castleton	44.0	94.7	97.7	1.15	4.41	3.13
Glens Falls	25.4	60.0	43.0	1.08	3.74	2.49
Griffiss	140.1	175.8	35.0	1.52	6.87	2.74
Guilderland	36.5	86.0	77.5	1.01	8.12	3.4
Highland	61.6	158.0	125.1	2.84	6.32	6.6
Hudson	44.5	120.9	105.7	2.64	6.12	4.81
Marlboro	55.2	134.6	105.9	1.92	4.26	4.85
Montgomery	60.4	132.4	115.5	1.98	4.45	5.2
Peru	14.4	33.1	55.2	1.22	4.16	2.62
Red Hook	45.8	115.2	96.2	1.39	3.31	3.91
Willsboro	12.4	31.6	43.4	1.41	3.76	2.24
N. Adams, MA	22.7	63.3	23.5	0.89	5.24	2.95

Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide. .