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Eastern NY Commercial Horticulture Program

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Weekly Vegetable Update

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North Country—Clinton, Essex, northern Warren and Washington counties

The cold weather has continued with only very short breaks of sunshine and temperatures in the 70's. Every grower is complaining about a slow start this year. Even cool weather plants have succumbed where drainage wasn't excellent. Raised beds, tile drainage, gentle slopes and low to high hoops have all been helpful this spring.

The forecast for the coming week is for more moderate weather but with a chance of rain and cool temperatures so basically the unsettled weather will continue a while longer. Squash has rebounded in some locations while cucumbers have had to be started again. Carrots are slowly getting established and many later plantings of greens have caught up with and even out-grown earlier plantings. Crops grown with any kind of protected culture continue to out-perform uncovered plants so far this year.

Capital District—Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, southern Warren and Washington counties

Field work continues at a slow pace with folks working knolls and high spots in fields just to get sweet corn plantings and plastic laid for transplants. It looks like the rains have ended for a time, but they left their mark. There were also scattered reports of hail in the area and flooding in parts of Schoharie, Washington, Montgomery and Rensselaer Counties. Flea beetles, European corn borer (moth flight, no damage reported yet) and Imported cabbage worms seem to be the pests of the week. Fertility issues may also become more evident this week as plant growth resumes but all the heavy rains the last several weeks may have leached nutrients (nitrogen in particular) below the plant root zone.

Mid-Hudson Valley—Columbia, Dutchess, Greene, Orange, Sullivan and Ulster counties

The very wet field conditions creating standing water in low spots on Thursday and Friday and machine tracks has been improving with the cessation of the rain and the nice sunny/breezy/cool dry air conditions. We could not ask for better post-rain conditions to dry soil and keep diseases at bay. Some pumpkin acreage has planted while the majority of farms have been delayed by wet weather. Harvesting of greens and other early-season crops last week has taken its toll on field conditions creating ruts and in some areas risking compaction.

Growers across the region are struggling with erosion, even in fields with good conservation practices.

Late Pumpkin Planting

By Sarah Hulick and Steve Reiners, Horticulture, Cornell University

With heavy rains saturating soils, pumpkin growers are becoming very anxious that their window for planting is closing. Is there a way that growers can still get a profitable crop in a shortened season? Recent research at Cornell's New York State Agricultural Experiment Station demonstrated that pumpkin growers might be able to plant later if they direct seed into plastic mulch rather than bare soil. In plantings made June 29 last year, about three weeks later than the normal planting date, we saw a 40% increase in number of marketable fruit per acre when using plastic mulch. There was also a 20% increase in tons per acre. Yields in the later planted mulched plots were similar to those planted at the normal time. Why the benefit? It's likely due to the quick germination and establishment under the plastic compared to bare ground, which shortens the growing season resulting in more marketable, orange fruit at harvest time.

Of course creating plastic mulched beds requires that the soils be dry enough to be workable. But if you can get the plastic down you should be able to produce a profitable yield even with the late planting date.

Buttoning of Broccoli

By Christy Hoepting, CCE Cornell Vegetable Program, VegEdge Weekly, June 12, 2013, Vol. 9, Issue 11, edited by CDB

Last week I received several calls in regards to broccoli plants that were starting to "bolt" or "button". At the same time I saw this article by Christy Hoepting of the Cornell Vegetable Program on what might cause early broccoli to "bolt or button".

Every so often in some fields of early planted broccoli, there is a plant that prematurely has a loose head formed (Fig. 1). According to Thomas Bjorkman, Plant Physiologist, NYSAES, this is a form of "buttoning".

Usually it happens when transplants are old enough to be triggered into flowering, and they go from growing quickly in the greenhouse to slowly after transplanting. That abrupt slowing of growth is the cue to flower early. This year, the cold may have both slowed growth and been an additional cue to flower through residual vernalization. Vernalization is the acquisition of a plant's ability to flower in the spring by exposure to the prolonged cold of winter. This ensures that reproductive development and seed production occurs in spring and summer, rather than in autumn. Vernalization usually plays a minor role with broccoli, both because of the growing season and because the vernalization response is fairly weak compared to other Cole crops. Thomas says that we don't have good data on which varieties are more vernalization responsive, but that would be useful for spring plantings.

Fig. 1. "Buttoning" of broccoli in an early planting, likely caused by exposure of young plants to frost or prolonged cold periods following transplanting. *Photo credit: R. Hadad*

Buttoning can also be caused by other stresses than cold including too rapid hardening-off before transplanting, excessive wet or dry soil conditions, low soil nutrient levels or high pressure from weeds, insects or disease. Early season varieties are usually more susceptible buttoning or bolting.

Bacterial Diseases Showing Up After Last Week's Rain

The plethora of rain last week combined with warm temperatures appear to have been conducive to the development and spread of bacterial disease.

Angular leaf spot on Summer Squash leaf. *Photo by TR*

Angular Leaf Spot is showing up in summer squash (though all cucurbits may be affected) this week just as first fruit are starting to size up. This disease is caused by the bacteria *Pseudomonas syringae.* The infection can spread rapidly during wet conditions and is spread through splashing rain/irrigation water and machinery/human traffic.

Angular leaf spot appears as small, olive green lesions on the leaf surface. They expand in size until they become confined by the leaf veins, giving the disease is angular appearance. Affected areas turn brown, and the centers often fall out, giving the leaves a ragged, shot-hole appearance. Bacterial leaf spot, caused by *Xanthomonas campestris* is similar in color and size to angular leaf spot, but circular. Management is the same for both.

Angular leaf spot on cucumber fruit.
Image from http://vegetablemdonline.ppath.cornell.edu/DiagnosticKeys/CucurFrt/Angular/Ang_cuc.htm

If not controlled, fruit may develop sunken craters with white crust. This bacterial disease will not be controlled with standard fungicides. Where angular or bacterial leaf spot is present in the field, include a copper-based product in the fungicide rotation. While it can be seed borne, the angular leaf spot bacteria also survive in infected crop residue. Crop debris should be destroyed as soon as possible to remove the source of disease for later plantings and to initiate decomposition. Resistant cucumber varieties are available.

Another troubling bacterial disease, **Bacterial Speck**, is appearing on some field tomato plantings. The weather has been perfect for its development. Along with bacterial spot and canker, speck can be seed-borne. These bacterial diseases also persist in the field as well as on flats, stakes, etc. Good sanitation and crop rotation for 2 or 3 years with a non-susceptible host is key to managing bacterial diseases. Once they are in the field, they can be easily spread by workers so they should not enter the field when foliage is wet. Clippers and pruning tools should be disinfested between plantings and rows. Overhead irrigation and rain showers, especially hard driving rains, spread bacterial diseases.

Bacterial Speck on Tomato.
Photo by TR

In order to prevent defoliation and fruit spotting, bacterial diseases need to be managed. For conventional growers, a combination of copper plus mancozeb or ManKocide is a good mixture for bacterial diseases. The mancozeb helps to release more active copper ion. Mancozeb is not approved in Organic production however several other copper products are. Check with your certifier. *–TR*

Early Season Fungicide Spray Program in Onions

By Christy Hoepting, Cornell Vegetable Program, published in Veg Edge Vol. 9 Issue 11. Edited by MRU.

Botrytis leaf blight: Generally, the first leaf disease threat of onions in the season is Botrytis Leaf Blight (BLB), which is favored by cool temperatures an d long periods of leaf wetness. BLB tends to infect onions that have at least 3-4 leaves, although last week BLB occurred in onions as young as 2 leaves. The threshold to start spraying for BLB is one lesion per leaf (see May 29 and June 5 issue for info on scouting for BLB), which in a typical year is reached sometime in June. Once the onion plants get big with 9-10 or more leaves and start to bulb, and the weather in July becomes very hot, BLB often is much less aggressive. However, in cool rainy summers like 2009, BLB can remain an aggressive disease all season long. In small-scale onion production in mineral soil, PB tends to be the more important of these two diseases. Although BLB can be found in upland onions at this time, it has not occurred at such high levels and is not progressing as quickly as it is in the muck lands.

Several fungicides are labeled to control BLB in onions. In Cornell trials, Bravo (a.i. chlorothalonil) consistently

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Foliar Feeding Vegetable Crops—Is There a Time and Place for It?

Those of you that have worked with me long enough know that I have some pretty strong opinions when it comes to certain things and foliar feeding vegetable crops is one of those topics on which I have some opinions. The bottom line is, I can't really find good research information on what to use or what rates etc., but over the years I have learned a couple of things that I would like to share with you.

Let's define the nutrients I'm talking about. Micronutrients are needed by plants in low amounts, from just a few ounces per acre for molybdenum to a few pounds per acre for zinc, manganese, boron, copper and iron. Compare that to macronutrients like nitrogen, phosphorus and potassium that are needed in amounts ranging from 40 to 150 pounds per acre. Also considered macronutrients are sulfur, calcium and magnesium which may be needed in the 20 to 40 pound range. First, I believe foliar feeding micros is only part of the solution and is meant as a temporary corrective measure! Foliar forms of these micros may be more readily available to plants compared to soil applied forms. However, foliar feeding should be considered only part of the nutrient management plan. Continue to soil sample and address micronutrient deficiencies through liming/pH corrections when possible. In many cases, these materials can be added to many of the dry or liquid starter fertilizers we use.

Table 1. Nutrient sufficiency ranges for vegetables, potatoes and corn*

ELEMENT	VEGETABLES Most recently mature leaf	POTATOES Petioles most recently mature leaf sampled at midseason	CORN Ear leaf sample at initial silk
Percent (%)			
NITROGEN	2.5 - 4	2.5-4	2.76-3.5
PHOSPHORUS	0.25 - 0.8	0.18-0.22	0.25-0.5
POTASSIUM	2 - 9	6-9	1.7-2.5
CALCIUM	0.35 -2	.36-.5	0.2-1
MAGNESIUM	0.25 - 1	0.17-0.22	0.15-0.6
SULFUR	0.16 - 0.5	0.21-0.5	0.15-0.5
Parts per million (ppm)			
MANGANESE	30 - 200	30-200	20-150
IRON	50 - 250	30-300	20-250
BORON	30 - 60	15+40	4-25
COPPER	8 - 20	7-30	6-20
ZINC	30 - 100	30-100	20-70
MOLYDENUM	0.5 - 5	0.5-4	0.1-2

*Vitosh, M.L., D.D. Warncke, and R.E Lucas. 1994. Secondary and Micronutrients for Vegetables and Field Crops. https://www.msu.edu/~warncke//E0486.pdf

Foliar feeding works well for micronutrients because they are needed in relatively small amounts. We may be able to apply an entire season's worth of micros in a few foliar sprays. For a macro like nitrogen or potassium, we might be lucky to apply a couple of day's worth for the plant. If we see a deficiency it might be due to a pH imbalance in the soil or environmental conditions such as saturated soils, which many of us are experiencing now. There is an excellent publication available on the web from my colleagues at Michigan State University. "Secondary and Micronutrients for Vegetables and Field Crops" by Vitosh, Warncke and Lucas can be found on the web at https://www.msu.edu/~warncke//E0486.pdf . It does a great job discussing secondary and micro nutrient deficiencies and toxicities in vegetables and field crops and has great pictures. It also has several tables that are important in understanding nutrients in our vegetables. I've summarized one of their tables on nutrient sufficiency ranges for corn, potatoes and vegetables (Table 1). This gives an idea of nutrient levels needed for optimum crop production. Another useful take home message is that not all crops respond the same to micro nutrient applications as seen in Table 2.

Determining if you have a micronutrient deficiency is sometimes very difficult as often the symptoms look the same as some environmental issues. The best way to tell if you have a micronutrient issue is to collect a foliar sample and send it to a lab that can run an analysis for you. I have had good luck with Waters Agricultural Labs in Kentucky: www.watersag.com (also a location in Georgia). Their turnaround time is usually quick and they supply you with recommendations including foliar feeding recommendations. You can also submit a soil sample from the same field to determine if your soil levels are also low. When looking to take a foliar sample, the recommendation for most crops is the youngest fully expanded leaf. Collect at least 15—20 leaves from across the planting (composite sample like you do with soil sampling) and put them in a paper bag (do not use plastic bags) and get them in the mail as soon as possible. I would recommend that you not pull samples on a Thursday or Friday since they could sit in the post office for a day or two before being delivered. You can find more information at their website on nutrients they analyze for, contact information and fees.

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I also thought this information from the Michigan State Bulletin was important when treating a micronutrient deficiency: "For a preventive spray program, spray the crop about four weeks after emergence or transplanting. Because many micronutrients are not readily translocated within the plant, a second spray will be needed two weeks later to cover the new foliage. When a known nutrient deficiency develops, spray the crop with the appropriate nutrient at the recommended rate every 10 days until the deficiency is corrected. Complete coverage of the foliage is important, especially for iron. Adding a wetting agent to the spray solution will improve the coverage and may increase absorption, especially in crops with waxy surfaces, such as cauliflower and onions.

Micronutrients may be mixed with most fungicides and insecticides. However, some combinations are incompatible and may injure crops. When in doubt, spray only a limited acreage until compatibility is established. Any injury will usually appear within 48 hours." I should also add that a minimum of 30 gallons of water per acre should be used.

I am not a believer in delivering the necessary macronutrients such as nitrogen, phosphorous and potassium by foliar means—but with that said, I do think that there are times when plants may respond to these nutrients being applied as a foliar. Most vegetables require these three nutrients in large quantities (40—150 lbs per acre). Soil biological processes make these nutrients available, and plants have been evolved to take these nutrients up most efficiently through their roots, not their leaves and stems. Here comes the "however" - over the last couple of years I have seen where adding a couple of pounds of these nutrients, especially nitrogen during stressful times does seem to help the plant "weather" the stress and help it recover quicker when the environment turns more favorable. In particular I have seen where a foliar feeding nitrogen on sweet corn damaged by hail did help the plant recover quicker. However, the key is making sure you have some foliage left there for the nutrients to be taken in. Calcium and magnesium sprays can also help feed plants when soil application is not practical. See Table 3 for rate recommendations. This foliar application followed by either a sidedress application or injection via a drip system for crops on plastic would be a way to promote nutrient uptake and keep that plant moving along.

I think and hope that most crop advisors and salesman would think along these same lines and tell you that you need to make sure you're doing your best to provide the crop with the nutrient needs through amending your soils and not through relying on foliar applications. With that said, if you have questions about foliar nutrients, sampling or other fertilizer questions, feel free to call Chuck Bornt at 518-859-6213. *By CDB and Steve Reiners, Cornell University*

Table 2. Relative response of selected crops to micronutrient fertilizers*

Crop	Mn	B	Cu	Zn	Mo	Fe
Asparagus	L	L	L	L	L	M
Broccoli	M	H	M	--	H	H
Cabbage	M	M	M	L	M	M
Carrot	M	M	M	L	L	--
Cauliflower	M	H	M	--	H	H
Celery	M	H	M	--	L	--
Cucumber	H	L	M	--	--	--
Lettuce	H	M	H	M	H	--
Onion	H	L	H	H	H	--
Parsnip	M	M	M	--	L	--
Pea	H	L	L	L	M	--
Pepper	M	L	L	--	M	--
Potato	H	L	L	M	L	--
Radish	H	M	M	M	M	--
Snap beans	H	L	L	H	M	H
Spinach	H	M	H	H	H	H
Sweet corn	H	M	M	H	L	M
Table beet	H	H	H	M	H	H
Tomato	M	M	H	M	M	H
Turnip	M	H	M	--	M	--

Highly (H) responsive crops will often respond to micronutrient fertilizer additions if the micronutrient concentration in the soil is low. Medium (M) responsive crops are less likely to respond and the low (L) responsive crops do not usually respond.

Table 3. Suggested rates and sources of secondary and micronutrients for foliar application*

Element	Pounds of element/ acre	Suggested Source
Calcium (Ca)	1-2	Calcium chloride or calcium nitrate
Magnesium (Mg)	1-2	Magnesium sulfate (Epsom salts)
Manganese (Mn)	1-2	Manganese sulfate or finely ground manganese oxide
Copper (Cu)	0.5-1	Copper sulfate or copper oxide
Zinc (Zn)	0.3-0.7	Zinc sulfate
Boron (B)	0.1-0.3	Soluble borate
Molybdenum (Mo)	0.06	Sodium molybdate
Iron (Fe)[1]	1-2	Ferrous sulfate

[1]Iron is not usually deficient in New York vegetable soils

*Vitosh, M.L., D.D. Warncke, and R.E Lucas. 1994. Secondary and Micronutrients for Vegetables and Field Crops. https://www.msu.edu/~warncke//E0486.pdf

Sweet Corn

We are catching European corn borer moths throughout the region, but the weather also has them slow to develop. The thing to remember is for those of you using plastic or floating rowcovers, this corn will be at the highest risk for infestation. The thresholds that are normally used for making a spray decision on bare ground sweet corn plantings do not work with rowcover or plastic sweet corn. **The following recommendations come from Abby Seaman, Vegetable IPM Coordinator, NYS IPM Program:**

"This week we scouted a field of sweet corn that was started under row cover. The usual scouting and threshold recommendations do not apply for row cover, plastic, or transplanted sweet corn that is close to tassel emergence during the first generation flight of European corn borer (ECB). In these early plantings, larvae don't feed in the whorl and emerge in the tassel as they do in bare ground corn. For this reason, tassel emergence scouting and thresholds have not been successful in plastic and row cover corn. Growers have had good results when pheromone trap catches were used to time sprays for the first generation ECB in row cover or plastic corn. Growers waited until there was a significant increase in the ECB trap catches in their area and then timed sprays to coincide with egg hatch. ECB eggs require 100 degree days (base 50) from oviposition to hatch. Two to three applications bracketing the peak moth flight are generally effective."

The following information comes from Cornell Entomologist Peter Jentsch's June 18th Sweet Corn Report: Trap catch data for this week indicates that the first brood adult flight of the European corn borer has peaked in the Mid-Hudson Valley (New Paltz). Trap numbers for European Corn Borer were high relative to populations of historical means, and should be taken to represent high field populations in parts of the region. Of the two ECB strains we have in eastern NY, the *Iowa* (Z) and *New York* (E) *strain*, the E strain captures were highest. The eastern E strain accounts for most of the wide host range, while the western Z strain feeds primarily on corn. As the Z strain tends to be the dominate species in corn, scouting should be conducted for increasing levels of infestations in sweet corn of all stages of development.

Early planted corn is moving into tassel with insecticide applications most affective during tassel emergence. Waiting until the tassels have opened up fully may be too late to kill the exposed ECB larvae, especially when populations are high. At full tassel, ECB larvae will have bored into other parts of the plant where they are protected from insecticide applications. It may be necessary to apply two insecticide applications in fields with uneven tassel emergence. Two to three applications bracketing the peak moth flight are generally effective. After the first application, scout the field for fresh ECB feeding before applying the second application. The threshold for insecticide application at the tassel emergence stage is 15% infested plants.

In the western part of the state trap captures for ECB have been low, however, CEW numbers are on the rise (Wayne Co.). No CEW have been captured in New Paltz yet this season yet CEW reports from central Pennsylvania on the 10th June and Eastern Long Island on 13th June indicate their presence in the region (Pestwatch). *Edited by CDB*

(Onion fungicides, continued from page 3)

provides best control of BLB, either the high rate by it self (3 pts) or the half rate (1.5 pts) tank mixed with the half rate of Scala (9 fl oz). Rovral (a.i. iprodione) and the high rate of Scala (18 fl oz) by itself were the next best in line. Quadris, Cabrio, mancozeb and Inspire Super ranked poorly for BLB control in Cornell trials. Using Bravo season-long for control for BLB is not recommended for a few reasons, but it is a very good fit for these first early sprays in both direct seeded and transplanted onions.

Editor's Note: *Downey Mildew is RARELY seen in the lower Hudson onion growing areas, especially as spontaneous infection, due to our higher daily temperatures. I have seen it brought in on transplants, which in cool, wet seasons, persisted. Due to the rarity of its occurrence, spray programs for the Lower Hudson Valley do not have to take this disease into consideration.*

Downy mildew: DM can defoliate onions like late blight can defoliate potatoes when cool and wet conditions persist. Typically, DM does not occur until the nights become cool in August and there are long periods of dew. The exception is cool rainy seasons like 2009 when it came in in July and wreaked havoc all the way to the end of the season. Still, it tends to show up first on bigger plants (e.g. 7-8 leaves vs. 3-4 leaves). Getting DM in my fungicide trial last year, even though it came in late, reminded me of the value that mancozeb has as a protectant against this disease. When conditions are favorable for DM, it will come in through mancozeb, but having mancozeb on as a protectant is far better than nothing. A lot of growers use mancozeb as a protectant for DM season-long. Given the current cool and wet conditions, mancozeb should at least be included in the tank mix for onion transplants at this time. If conditions change and July becomes hot and dry, it can be dropped.

Bacterial diseases: The growing seasons of 2008 and 2009 saw especially high incidences of bacterial bulb

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Spotlight on Hairy galinsoga *(Galinsoga ciliata)*

By Justin O'Dea, Vegetable and Field Crop Educator, CCE Ulster

Choosing a particular weed for this week's was difficult- while winter annuals such as **chickweed, shepherd's purse,** and **other various brassica weeds** and continue to flower and set seed in early planted beds/fields over the past few weeks, a multitude of warm season summer annual weeds have emerged and begun establishing. If any of these weeds were under row covers they are probably getting quite large and may even be flowering. **Pigweeds,** which are prolific seed-producers, have emerged and always deserve attention to future prevent seeding. **Purslane** seedlings were widespread in recent crop plantings; if you grow peppers, tomatoes, or cucurbits you may want to consider control efforts because it can host *Phytophthora capsici*. **Warm season annual grasses** such as **wild proso millet, barnyardgrass, crabgrass, and foxtails** are beginning to establish and can be particularly problematic in sweet corn fields that have no other crops in rotation. **Yellow nutsedge** was also common most sites; this tuberous perennial can be sensitive to cultivation this time of year, and in tandem with increasing shade from crops, nutsedge shoots can be outcompeted and help reduce future tuber production. This week's featured weed, **hairy galinsoga** (see below section), has also emerged, and in plantings that had row covers, is already flowering**.** Galinsoga is becoming increasingly problematic in NY vegetable operations and can be remarkably difficult to control once it is introduced into a field.

Seedling
Credits: UMass Extension

Starting to flower
Photo by Justin O'Dea

Flowers, seeds *Credits: Eric Gallandt, U-Maine Weed Ecology Lab*

Hairy galinsoga is a member of the Aster ("sunflower") family. Galinsoga is not only resistant to many herbicides, but also to cultivation because seedlings have an extraordinary ability to re-root. Additionally, galinsoga can have 3 to 5 generations in a single northeastern growing season. Limited information is available on effective galinsoga control, but may be related to cultural practices limiting seed production and germination from existing galinsoga seedbanks.

- Galinsoga **seeds** have no dormancy; this helps galinsoga establish several generations in a single growing season. Seeds normally germinate in late spring throughout summer until frost. Because there is no dormancy, seedbanks are more quickly exhausted than many weed species; seeds often remain viable for ~1 to 4 years, but may rarely last up to ten years. Most seeds germinate very close to the soil surface; emergence from below 0.5" of soil is highly unlikely.
- Galinsoga **seedlings** grow very rapidly into mature plants, and can begin to **flower/produce seed** within by the time it has 5-6 pairs of leaves (~30-40 d). Left uncontrolled, galinsoga will produce seed until it is frost-killed; a single medium- sized plant may produce up to ~40,000 seeds. Seed may travel short distances via wind dispersal. Galinsoga may host several diseases including some viruses vectored by aphids, and nematodes.
- Current **control** measures are subjects of current research and consist of cultural practices that 1) prevent seed production and/or 2) exhaust weed seed banks. Because galinsoga rebounds extraordinarily well after cultivation, it is helpful to cultivate before several days of predicted dry weather. Rotating into a crop that can be 1) mulched instead of cultivated, or 2) into highly competitive crops- especially in summer (including cover crops, and perennial sods or forages)- may help exhaust galinsoga weed seed banks through competition and inhibiting seed germination. If there has been only one year of galinsoga seed production, refraining from tilling until the following early summer (after the first flush of galinsoga flowers) can help exhaust the majority of the seedbank from that single year since most seeds dropped will germinate at the soil surface. Also, since galinsoga seeds have a very short lifespan and only germinate near the soil surface, burying seeds once with deep tillage can be an effective component of galinsoga management. Many herbicides registered for vegetable production are only marginally effective in controlling galinsoga; limited information on galinsoga and some herbicides considerations can be found at: **http://www.nysaes.cals.cornell.edu/recommends/4frameset.html.**

Seed bank management and galinsoga information can also be found at:

http://www.extension.org/pages/21535/keeping-new-weedy-invaders-out-of-the-field

http://www.extension.org/pages/18530/keep-the-weeds-guessing-with-crop-rotations

Galinsoga identification pictures/links to pictures & some info. can be found at: **http://www.maine.gov/agriculture/pesticides/gotpests/weeds/hairy-galinsoga.htm**

Other source: Mohler, C.L., and DiTommaso, A. (unpublished, 2011) Manage Weeds on your Farm: A guide to ecological strategies. Version 6.0. Cornell University's Department of Crop and Soil Sciences.

(Onion fungicides, continued from page 6)

decay in onions. In 2008, hail events were mostly to blame and in 2009, it was a cool and wet season with several fields maturing late. Bacterial diseases appear to be moisture driven. A contributing factor to there being overall less bacterial bulb decay in 2011 and 2012 was the hot and dry conditions in July and early August.

We do not have any proven sprays to prevent bacterial bulb decay in onions, but we have generated a few data points that have suggested that Actigard may help to take the edge off bacterial bulb decay. In New York in 2011, Hoepting and Beer showed that a single application of Actigard applied 15 days prior to inoculating onions with Pantoea ananatis reduced bulb decay at harvest by 46%. Applying Actigard less than 15 days prior to inoculation did not have any effect on bacterial bulb decay, and Actigard also had no effect on Burkholderia cepacia in this study. It seems that the plant needs its defense system boosted prior to bacterial infection. Although more conclusive and consistent results are needed before we can recommend using Actigard for managing bacterial diseases in onion, they are enough to encourage experimentation. Additionally, I found that Actigard reduced downy mildew by 58% and Botrytis leaf blight by 41% in my 2011 fungicide trials. Thus, it appears that Actigard may provide some benefit towards reducing leaf diseases in onions as well, which may help to justify experimenting with it for suppression of bacterial diseases. In 2013, at least 10 onion growers across the state are planning to trial Actigard to test its efficacy against bacterial bulb decay. If you are interested in using Actigard, the current recommendation is to make 5 applications of 0.75 lb per acre of Actigard every 7-10 days starting at least 2 weeks prior to bulbing. This means that the first application of Actigard should go on transplants within the next couple of weeks.

Purple blotch: Optimum conditions for PB are 77 ◦F and high humidity. Once the onion plants get big with 9-10 or more leaves and start to bulb, and the weather in July becomes very hot, Purple Blotch (PB) becomes the most important leaf disease to manage. PB typically does not show up until early July in transplants and towards the end of July in direct seeded onions. PB is not a concern currently.

Weekly and Seasonal Weather Information

	Growing Degree Information Base 50^{O} F			Rainfall Accumulations		
Site	**2013 Weekly Total** 6/12—6/18	**2013 Season Total** 3/1 - 6/18	**2012 Total** 3/1—6/18	**2013 Weekly Rainfall** 6/12—6/18 (inches)	**2013 Season Rainfall** 3/1—6/18 (inches)	**2012 Total Rainfall** 3/1—6/18 (inches)
Albany	**92.1**	**629.5**	**821.5**	**1.56**	**16.27**	**12.67**
Castleton	**93.2**	**615.9**	**833.1**	**1.92**	**12.91**	**12.51**
Chazy	**88.5**	**564.6**	**887.0**	**0.55**	**12.99**	**9.28**
Clifton Park	**80.5**	**577.4**	**776.3**	**0.59**	**17.11**	**14.81**
Clintondale	**109.2**	**708.3**	**551.0**	**NA**	**NA**	**10.60**
Glens Falls	**77.1**	**534.4**	**665.0**	**0.61**	**13.83**	**11.18**
Granville	**NA**	**NA**	**623.5**	**NA**	**NA**	**13.89**
Guilderland	**87.5**	**568.5**	**736.5**	**0.79**	**4.00**	**5.10**
Highland	**104.7**	**712.6**	**884.7**	**1.89**	**10.83**	**11.68**
Lake Placid	**41.7**	**312.0**	**NA**	**0.82**	**15.33**	**NA**
Montgomery	**109.6**	**651.7**	**759.5**	**2.18**	**12.71**	**NA**
Monticello	**81.9**	**483.7**	**587.0**	**0.03**	**0.17**	**0.73**
Redhook	**90.5**	**626.1**	**809.0**	**2.04**	**10.74**	**10.41**