



Cornell University  
Cornell Cooperative Extension  
Eastern New York Commercial Horticulture

VOLUME 5, ISSUE 1  
APRIL 27, 2017

# Vegetable News

## Allium Leafminer Now Active in Hudson Valley

By Teresa Rusinek—ENYCHP



**Distribution:** Over the past week, allium leafminer (ALM) damage has been seen in more locations in the Hudson Valley including in Saugerties, Ulster County (in cultivated chives), Montgomery, Orange County (in overwintered leeks) and in Beacon and Dutchess County (in garlic). We first found ALM in New York this past fall, in Accord, Ulster and Dutchess County.

In these three locations large numbers of ALM larvae and pupae were found in organically grown leeks.

**Current status and monitoring** - Pennsylvania and NJ have been reporting ALM activity over the past three weeks. Based on damage we are finding now in multiple locations, it appears that ALM overwintering pupae have started to emerge as adults in the Hudson Valley. More adults will emerge in the next few weeks and we expect to see more damage. The adult flies will begin to lay eggs as populations increase and will remain active through May. We recommend that growers carefully monitor their allium crops particularly cultivated chives, garlic, overwintered leeks and onion transplants. If you have wild alliums growing in field borders check them as well. NJ Cooperative Extension reported last week that "allium leafminer adults appear to be favoring chives for feeding and egg laying. As one of the earliest and most succulent allium leaf types, chives may be a good indicator of the onset of adult activity, and could be useful as we decide when to begin protecting our other allium crops, including overwintered leeks, garlic and onion plants now being transplanted."



Adult Allium Leafminer. Photo: Sven Spichiger, Pennsylvania Department of Agriculture

overwintered leeks, garlic and onion plants now being transplanted."

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Feeding punctures from adult flies in cultivated chives, an early indicator of ALM activity. Photo Teresa Rusinek

**Damage-** Adult females make repeated punctures in the leaf to feed on plant sap and to lay eggs within the leaf tissue. Leaf punctures arranged in a linear pattern toward the top of the leaf blade may be the first sign of damage. Leaves can be wavy, curled and distorted. Larvae mine leaves, and move towards and into bulbs and leaf sheaths where they pupate. Leaf mines are most evident in species with thin leaves (chives). In species with larger leaves (such as leeks), it is often necessary to peel back the leaves to find the insect. Both the leaf punctures and mines serve as entry routes for bacterial and fungal pathogens. High rates of infestation have been reported: from 20 to 100 pupae per plant, and 100% of plants in fields.

**Management-** Consider protecting susceptible crops with either row covers or with insecticides if you believe ALM is a threat. Direct seeded onions may not be at risk because they are so small or not even emerged during much of the first generation adult flight in May. Also seed treatments directed for onion maggot control may also be control ALM. Ethan Grundberg was monitoring seeded onions in the black dirt region for ALM last year and did not catch any flies on traps, nor did he observe any damage to onions. If you think ALM is active in your fields or are concerned, please call Teresa Rusinek at 845 389-3562 or Ethan Grundberg at 617-455-1893 for confirmation of ALM damage and/or management options.

**Looking Ahead-** Because ALM is a new pest, there is still much we do not know about it and studies from ALM's native Europe are sparse and may not hold true in a new environment. We are working closely with colleagues at Penn State to study and understand ALM biology and management options. We will keep you posted as information develops.

**Sources:** <http://ento.psu.edu/extension/vegetables/pest-alert-allium-leafminer>

**Dana Roberts, Research Technologist, Department of Entomology, Penn State University**

## Weed Control in Asparagus

By Charles Bornt-ENYCHP



If you haven't' already done your pre-emergent herbicide treatments in your asparagus, it's getting to be that time! Rutgers University in New Jersey recommends 2.5 lb Solicam DF plus 1-2 lbs Karmex DF (do not apply more than 3 pounds per season), 14 days prior to spear emergence (that's the pre-harvest interval) which means applications need to be going out very soon if not immediately (for beds that are at least 1 year old)! This tank mix works on a wide range of pre-emergent broadleaves and grass weeds. It is relatively safe for asparagus. Both these materials will not work on already growing weeds and also work better if moisture is received soon after application. If weeds are present, the addition of Gramoxone or other paraquat containing material will help control those weeds already established. The addition of Calisto at 3.0 ozs per acre can also improve residual and Common Lambsquarter and horseweed (marestail or stickweed) control.

The products mentioned above are not the only materials labeled for asparagus weed control. The table on the next page gives you more of the pre-emergent materials labeled in NYS, but targeted towards the more commonly used and effective materials. The materials vary according to application timing (pre vs. post) and targeted weeds. You will need to consult the labels as most of the rates are soil type dependent. Tank mixes will generally provide a broader spectrum of weed control but again consult the label to determine if the materials you want to mix are compatible and safe on the asparagus. As always, please consult the labels for rates and additional precautions or call your local ENYCHP team member.

See Herbicide  
Table on Next  
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Herbicide name	Timing	DTH	Rate per Acre	Comments
Callisto	pre spear and post harvest		6.0-7.7 fl. oz. for pre-emergence 3.0 fl. oz. post	May be applied twice per season but may not exceed a total of 7.7 fl. oz, so be sure to take into account any pre-emergence applications. See the label for adjuvant instructions.
Karmex DF For use on established beds only!	Pre spear and post harvest		2 lbs	Two applications may be used. The first application should be made before weeds become established but no earlier than 4 weeks before spear emergence and no later than the early cutting period. A second application may be made immediately following completion of harvest provided rainfall is expected. When two applications are used in one season, do not exceed 3 lbs. per acre in one season.
Solicam DF For use on established beds only!	pre spear emergence	14	See label as rates depends on soil types—2.5—5.0 lbs per acre	As mentioned above, Solicam at 2.5 lbs per acre tank mixed with 1-2 lbs per acre of Karmex is the preferred treatment in New Jersey. Apply in a minimum of 20 gallons of water per acre as a broadcast pre-emergence treatment.
Lorox 50DF newly planted crowns or established beds.	pre and post		Three applications of 1-4 lbs	Apply pre-emergence in a minimum of 15 gallons/acre and post emergence in a minimum of 25 gallons/acre. Do not tank mix Lorox with other herbicides or adjuvants. See label for recommended use of activated carbon with applications to new crowns. Maximum rate per year is 4 lbs.
Dual Magnum	pre spear emergence	16	1.33—2 pints depending on soil type—see label	A single application may be made to dormant, established beds in the spring prior to crop emergence but may fit best as an application right after your last cutting to control Yellow Nutsedge and Eastern Black Nightshade (pre-emergent). This is a New York State's multi-crop 24 (c) Special Local Need (SLN) supplemental label so you must acquire an indemnification from Syngenta in order to use this product.
Clarity 2.5 EC	pre and post spear emergence	1	8 ounces	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 emerged spears, twisting may result. Label recommends 40 – 60 gallons of water/acre be used.
Prowl H2O	pre-spear emergence	14	2.4—8.2 pints (see label for rate information)	Application must be made prior to spear emergence. Do not apply post emergent or injury will likely occur. Do not apply more than 2.4 pints if grown on sandy soils.
Sandea For use on established beds (For first year transplants, apply no sooner than six weeks after fern emergence.)	pre and post	1	0.5—1.0 ounces	Apply to asparagus before or during the harvesting season, but may cause a temporary stunting or twisting of fern on certain asparagus varieties when applied during spear emergence. For end of the harvest applications, label recommends the use of a nonionic surfactant or COC with drop nozzles to maximize coverage of weeds while minimizing fern contact . Do not exceed 2 oz/A/season.
Chateau SW	pre spear and post harvest		3-6 ounces	Chateau SW should be applied at least 2 weeks prior to spear emergence or to dormant asparagus after harvest. There is a possibility of injury if it is applied less than two weeks before spear emergence. Chateau may be used for residual weed control as well as to assist in postemergence burndown of some annual and perennial weeds in dormant asparagus. To control weeds postemergence use 0.25% v/v non-ionic surfactant and a spray grade nitrogen source.
Metribuzin products (Dimetric, Sencor etc.) For use on established beds only	Pre spear or post harvest	14	See label as products vary. See maximum season rate restrictions as well.	Make a single surface application in early spring before asparagus spears or ferns emerge. Post harvest application should be applied after last harvest of the season but prior to spear/fern emergence.
Spur	Post weed emergence—see label.	2	1/2 to 2/3 pint	Applications may be made before or during asparagus cutting or after harvest is complete, but prior to fern growth. Postharvest (layby) applications should be made as soon as possible after cutting provided weeds are in proper stage of growth for treatment. Malformed ferns may result from application when spears are longer than 3 inches or with open seed heads. Do not apply more than 2/3 pint per season.



## Infested Onion Plants Update: Fusarium Detected

By Ethan Grundberg



Though we are still waiting on an official report from the Cornell Plant Disease Diagnostic Clinic, we have an informal update that the two bundles of onion plants that were submitted for pink root evaluation from Orange County “appear to be very heavily colonized with Fusarium.” If this fungal pathogen enters damaged roots or bulbs, Fusarium can cause basal rot of onions. The plants are likely also infested with the pink root pathogen *Phoma terrestris*, but we are still waiting on confirmation. Here are further considerations to how to handle your onion plants from Arizona given this new information.

### 1. Send a sample to the Cornell Plant Disease Diagnostic Clinic:

It is still advisable to send a bundle of 25-50 plants that are showing symptoms to the Diagnostic Clinic in Ithaca if you have any that have not been planted or treated. If you need assistance filling out the paperwork included on the last page of this alert, please contact me at [eg572@cornell.edu](mailto:eg572@cornell.edu). Samples should be wrapped in dry paper towels, placed in an UNSEALED Ziploc or plastic bag, then mailed in a rigid box container to the clinic along with the completed paperwork, including the check for \$30.

### 2. Understand the risk:

In the long-term: Like the pathogen that causes pink root, Fusarium is a fungus that can survive in the soil for many years. Planting onions that are known to be infested with Fusarium puts you at risk of infecting that field for years to come. If the fungus becomes well established, it is recommended to rotate out of host crops for at least four years.

In the short-term: There are two variables that will impact the severity of Fusarium impact on your onion crop this year. First, you need to make sure to limit the amount of root and bulb damage as much as possible in season. In order for Fusarium to cause basal rot, it has to have a way to enter the plant through root and bulb lesions. These injuries are most often caused by onion maggots, root-knot or lesion nematodes, bulb mites, or mechanical injury caused by cultivation equipment or harvest equipment. Second, the weather will largely influence how much the Fusarium will spread during the growing season. Fusarium fungal spores germinate when soil temperatures reach 77-82 degrees and prefer moist soil conditions. So, even though the plants are heavily colonized by the fungus, we do not expect to see symptoms develop or the pathogen to spread until those environmental conditions are met.

**3. Dip, drench, spray:** Very little research has been done on the efficacy of different fungicides and disinfectants on Fusarium in onions and few products are labeled for its management. Again, since the fungus has to enter the onion through damaged roots or bulbs, it is almost more important to fine-tune your onion maggot, bulb mite, and nematode management plans to limit physical damage to plants.

#### A. Pre-plant dips:

**i. Disinfectants:** OxiDate 2.0 (peroxyacetic acid + hydrogen peroxide) is labeled for pre-plant dip at a 1:100 dilution against Fusarium as part of the damping-off suite of pathogens.

**ii. Fungicides:** Researchers in India (Yadav 2014) found that Thiram (tetramethylthiuram disulfide) provided intermediate control of Fusarium basal rot on onions. Thiram is not labeled as a dip, but could be used as a seed treatment for onions planted from seed for added protection. Other researchers in Ethiopia (Sintayehu 2011) studied basal rot



Advanced Fusarium basal rot symptoms on onion



Onions infected with *Fusarium* basal rot (<http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2016/14hrt16a1.htm>)

management in shallots with several fungicide dips. Ridomil Gold (mefenoxam) showed a minor reduction in damage over the untreated control and a product marketed as Seed Plus 30 WS (carbendazim + metalaxyl + imidacloprid) reduced disease incidence over 40%. Ridomil Gold is labeled for a pre-plant soil application in onions for control of damping off and one of the seed treatment fungicide Proceed MD contains one of the same active ingredients (metalaxyl) as Seed Plus 30. However, it is possible that some of the disease reduction with Seed Plus 30 was

the result of improved insect management from the imidacloprid in the mix.

**iii. Biopesticides:** The most promising studies of *Fusarium* management in onions come from work done in India (Malathi 2015) using *Trichoderma* species. *Fusarium* basal rot of onion was reduced by 83% using straight *Trichoderma harzianum*, which is nearly the same level of control achieved by the fungicide carbendazim (88%) in the same study. Products that include *Trichoderma* species and are labeled for pre-plant dip on onions for managing *Fusarium* and *Rhizoctonia* include RootShield Plus WP and Bio-Tam. TerraGrow from BioSafe Systems includes both *Trichoderma* species and *Bacillus subtilis* strains and is labeled for pre-plant dip of onions.

**B. Soil furrow drenches:** Research from Purdue University in 2007 (Egel 2007) showed that Topsin (thiophanate methyl) was very effective at controlling a closely related species of *Fusarium* on watermelons when applied as a soil drench (Topsin is only labeled for management of white rot on onion). Studies on the muck soils in Quebec (Ouimet 1999) showed that furrow drenches of Ridomil, Rovral, and Dithane provided no significant difference in basal rot control over the untreated block. As mentioned above, Ridomil Gold (mefenoxam) showed some ability to decrease *Fusarium* severity in shallot production.

**4. Scouting for Symptoms in Season:** Onions affected by basal rot often show signs of “dying standing up” at the peak of the summer. Leaf tips can turn yellow and plants can begin to wilt during hot and dry weather. If pulled, the roots may detach from bulbs. If the infection is severe, *Fusarium* can cause a reddish-brown discoloration of the outer wrapper. Unfortunately, affected bulbs may not show easily identifiable symptoms in the field and will often rot in storage.

**5. Plan for next year:** As with pink root, the only truly effective strategy for reducing the level of *Fusarium* pressure is to rotate out of the production of host crops for 3-5 years. It is worth considering that basal rot is typically more severe on transplanted onions than direct seeded crops. Insecticidal seed treatments for managing onion maggot are also more effective than soil applied chemicals, which can also help reduced the degree of *Fusarium* entering bulbs through damaged roots. Finally, the Cornell Guidelines list the following onion varieties as being resistant to *Fusarium*: Eskimo, Frontier, Benchmark, Millennium, Condor, Prince, Copra, Duration, and Celtic. The full list of resistant varieties can be found at the VegMD website: <http://vegetablemdonline.ppath.cornell.edu/Tables/TableList.htm> (separated by early yellows and reds).

Egel, D., & Hoke, S. (2007). *Managing Fusarium wilt of watermelon with fungicide drenches and seed treatments*. Department of Botany and Plant Pathology, Purdue University, IN, USA.

Malathi, S. (2015). *Biological control of onion basal rot caused by Fusarium oxysporum f. sp. cepae*. *Asian Journal of Bio Science*, 10(1), 21-26.

Ouimet, A., Pillion, V. (1999). *Evaluation of the Efficacy of Different Fungicides Against Onion Basal Rot*. *Fungicide and Nematicide Tests*, 55, 185.

Sintayehu, A., Sakhuja, P. K., Fininsa, C., & Ahmed, S. (2011). *Management of fusarium basal rot (Fusarium oxysporum f. sp. cepae) on shallot through fungicidal bulb treatment*. *Crop Protection*, 30(5), 560-565.

Yadav, S. L., Ahir, R. R., Rathore, B. S., & Yadav, S. M. (2014). *Efficacy of Different Fungicides and Organic Amendments against Basal Rot of Onion Caused by Fusarium oxysporum in vitro*. *Plant Pathology Journal*, 13(1), 56.

# Plant Disease Diagnostic Clinic Sample Submission Form



Cornell University

**Please mail samples and payment to:** Plant Disease Diagnostic Clinic, 334 Plant Science Building, Ithaca, NY 14853

*In-state (out of state): basic \$30 (\$50); turf or nematode \$50 (\$70); or see full list of fees at: [plantclinic.cornell.edu](http://plantclinic.cornell.edu)*

Location Where Sample Was Taken	Referring Agent (i.e. CCE Agent, Consultant, Arborist...)
Home Owner <input type="checkbox"/> Commercial Grower <input type="checkbox"/> Business name (if any): _____ Person to contact: _____ Address: _____ Phone: _____ Fax: _____ Email: _____ County: _____	Business: _____ Agent: _____ Address: _____ Phone: _____ Fax: _____ Email: _____

**Describe the nature and extent of the problem:**

**Collection date:** \_\_\_\_\_

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**Scientific Name:** \_\_\_\_\_ **Common Name:** \_\_\_\_\_

Disease Symptoms:	Affected Parts:	Distribution on Site:	Planting:	Additional Information:
wilting <input type="checkbox"/>	stems <input type="checkbox"/>	entire field <input type="checkbox"/> sunny <input type="checkbox"/>	garden <input type="checkbox"/>	Number of acres or plants affected?
yellowing <input type="checkbox"/>	leaves/needles <input type="checkbox"/>	field edge <input type="checkbox"/> shaded <input type="checkbox"/>	nursery <input type="checkbox"/>	Approx. date problem appeared?
galls <input type="checkbox"/>	branches/twigs <input type="checkbox"/>	random <input type="checkbox"/> wet areas <input type="checkbox"/>	orchard <input type="checkbox"/>	Did problem occur gradually?
dieback <input type="checkbox"/>	flowers <input type="checkbox"/>	high areas <input type="checkbox"/> dry areas <input type="checkbox"/>	green <input type="checkbox"/>	Getting worse or staying the same?
rot <input type="checkbox"/>	fruit/seeds <input type="checkbox"/>	low areas <input type="checkbox"/> windy <input type="checkbox"/>	fairway <input type="checkbox"/>	Approx. age of plants?
marginal burns <input type="checkbox"/>	roots/bulb/rhizome <input type="checkbox"/>	by road/drive/building/pool <input type="checkbox"/>	yard <input type="checkbox"/>	Date last transplanted?
shedding/thinning <input type="checkbox"/>	crown <input type="checkbox"/> feet away:		field <input type="checkbox"/>	How often watered?
leaf spots <input type="checkbox"/>	<b>Distribution on Plant:</b>	<b>Media Type:</b>	forest <input type="checkbox"/>	
streak <input type="checkbox"/>	top of plant <input type="checkbox"/>	sandy <input type="checkbox"/> hydroponic <input type="checkbox"/>	greenhouse <input type="checkbox"/>	
mosaic <input type="checkbox"/>	bottom of plant <input type="checkbox"/>	loamy <input type="checkbox"/> artificial mix <input type="checkbox"/>	interior <input type="checkbox"/>	
blight <input type="checkbox"/>	current-season growth <input type="checkbox"/>	clay <input type="checkbox"/>	<b>Drainage:</b>	
other: _____	previous-season growth <input type="checkbox"/>	<b>Aspect:</b>	good <input type="checkbox"/>	
	one side of plant <input type="checkbox"/>	north <input type="checkbox"/> east <input type="checkbox"/>	fair <input type="checkbox"/>	
	scattered <input type="checkbox"/>	south <input type="checkbox"/> west <input type="checkbox"/>	poor <input type="checkbox"/>	
<b>Chemicals/Fertilizers:</b> <i>give rate and date/s of application</i>				<b>Cropping History:</b>

Date Received at the Diagnostic Clinic: \_\_\_\_\_ By Whom: \_\_\_\_\_  
 CU-PDDC-Form-012-001 Approved by: Karen L. Snover-Clift Effective Date 01/06/15 version 1.1

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## Colorado Potato Beetle Management New OMRI-approved Option

By Ethan Grundberg- ENYCHP

Organic growers battling Colorado Potato Beetles (CPB) on eggplant and potatoes should consider adding Trident (*Bacillus thuringiensis* var. *tenebrionis*) by Certis to their IPM plans. Trident was just registered for use by the DEC in March 2017, but the active ingredient B.t. *tenebrionis* has been around since the 1980s. Early formulations containing B.t. *tenebrionis* were outcompeted by the development of other conventional insecticides, like imidacloprid, in the 1990s that had greater efficacy on all developmental stages of CPB, so B.t. *tenebrionis* products were taken off the market. However, as the number of acres under organic potato production continue to climb in the region and growers lean more heavily on using Entrust (spinosad) for CPB control, the re-emergence of a B.t. *tenebrionis* product holds great promise for more effective resistance management. Trident is most effective on the first two CPB instars (like spinosad and azadiractin), so scouting your fields early to time applications right after egg hatch is crucial for successful management. Trident must be ingested by the larvae and may take 2-3 days to see results, so be sure to wait a few days after application before rotating to spinosad for a successive spray.



## Tracking and Trapping Leek Moths in 2017

By Amy Ivy -ENYCHP



Garlic Scape Damage  
Photo by Amy Ivy



Leek moths (yellow) and onion maggots (green) caught on a sticky card. Photo by Amy Ivy



Every spring I'm surprised by how early leek moths emerge. This relatively new pest of onions, garlic, leeks and chives overwinters as adult moths which begin to fly in search of a mate in early April. Even when it's cold enough to have snow cover lingering up here into April, I still catch the first adults by mid-month and this year was no exception. On April 14th I had my first catch in Essex County. These adults mate and lay eggs at the base of emerging garlic which hatch into larvae that will feed on garlic scapes, and to a lesser degree on the youngest garlic foliage.. This feeding injury doesn't harm the plant except for making the scapes unmarketable. But because some fresh market growers report selling their scapes for about the same price as individual heads of garlic, this can be a considerable economic loss.

We find there are about 3 generations a year in northern NY, although in a warmer season they could produce a 4th generation. The first larvae feed on garlic scapes, the second generation larvae feed on onion leaves and the third feeds on fall leeks, tunneling into the centers of the leeks where the young leaves emerge.

We have a good supply of leek moth traps left from a project we worked on with Dr. Tony Shelton and Dr. Masanori Seto in recent years. Any grower interested in setting up traps on their farm can contact Amy Ivy to get set up.

## Cutworms causing early problems in High Tunnels

By Crystal Stewart -ENYCHP



Some of the earliest tomato plantings this year are facing moderate cutworm pressure. Early field assessments also seem to be showing moderate numbers of larvae in the soil. The keys to dealing with cutworm pressure now are determining if you have a population present pre-planting; managing the population in a timely and appropriate fashion if present; and using either organic or conventional sprays as a last control measure.

**Determine if you have cutworms:** Cutworms will generally be in the soil during the day. Therefore, the best way to find them is to dig. I haven't seen much data on thresholds for horticultural crops pre-planting. Field crops resources, which only discuss management after corn planting, use 5% plant damage as a threshold. Personally, I would base my threshold on the value of the plants that will be planted. For example, finding any larvae in a high tunnel destined for transplanted tomatoes might be enough to consider controls.

**Managing cutworm populations pre-planting:** Two keys to reducing cutworm populations prior to planting are tillage, which physically destroys larvae, and debris and living plant incorporation (more tillage), which eliminates the habitat cutworms prefer prior to planting. If you can complete ground work 2 weeks prior to planting, this can go a long way towards reducing populations.

Part of why we see cutworm populations increase in high tunnels is likely because tillage can be minimal in this system. If populations are increasing from year to year in the tunnel, it might be time to increase the use of tillage (offset by introduction of additional organic matter).

A final management consideration is that cutworm populations tend to be higher in sod, so proper sod killing and incorporation time are essential to allowing this population to dissipate, if present.

**Managing cutworm after planting:** Cutworm controls should be directed to the base of plants and the ground. If you are using a contact insecticide like Pyganic (og) or Baythroid, you want it to remain active while the cutworms are moving. For Pyganic, this will mean spraying in the evening so that it remains wet as long as possible. Here is a partial list of organic and conventional options labeled for the greenhouse.

Organic Controls	Conventional Controls
Pyganic (active ingredient (AI) Pyrethrum)	Baythroid (AI Beta-Cyfluthrin)
Dipel (AI BT)	Warrior (AI Lambda-cyhalothrin)
Entrust (AI Spinosad)	-
Kaolin clay as a physical barrier	-

**Please note:** that listing of the brand name does not imply endorsement and any products not labeled for greenhouse use should not be used in a high tunnel, either. For example, Sevin is labeled for cutworm control in the field, but NOT in the high tunnel.



Black cutworm at the base of a spring sweet corn plant



## Compensation for Farm Managers: How do you keep them on the farm?

Liz Higgins -ENYCHP



One question that we get frequently is, how much should I pay a farm manager? As you can see in adjacent the tables, there can be a great deal of

variance in pay depending on the complexity of the operation and the experience of the manager. Farm managers can make anywhere from \$30,000 per year to \$125,000 depending on the specific job and local labor market.

At the median and higher levels of pay, you would expect to see first line supervisors and managers who are experienced, have more training/skills, and have higher levels of autonomy and responsibility. Lower rates would be appropriate for less complex positions and for entry-level, less experienced supervisors and managers. In general, when setting your pay scales for your farm, a good wage structure is: (a) fair across the organization - people on the farm are paid similar levels for similar levels of work/seniority; (b) on-par with industry norms – for example, offering a \$25,000 annual salary for a management position would be low and make it difficult to retain staff; and (c) provides enough income (maybe combined with other benefits like housing) for the recipient to be able to have a reasonable standard of living in the area.

Interestingly, paying significantly above industry norms for a position was found, in some studies, to have an unexpected negative effect on employees as it caused stress. Employees couldn't internally justify the additional salary so they felt vulnerable to being replaced or their position eliminated. Employees were happiest when the position paid just above the "going rate" for their level of responsibility and experience. Another factor to consider is that wages are only a part of the compensation "package" to attract and retain good employees. Although wages are important, studies indicate that working conditions, opportunities for advancement, and other benefits also are very important to employees. When "selling" your farm management opportunity to potential candidates, what other fringe benefits does your farm offer? Do you offer housing, meals, the opportunity to gain equity in the farm business, health insurance, paid leave, educational opportunities, retirement savings, or opportunities for advancement? The dollar value of fringe benefits can add 30-80% to the overall level of compensation. Any of these non-wage benefits can increase the attractiveness of your position relative to other jobs. Because different workers have different needs, consider offering employees options for benefits. An example could be a payment that could go towards retirement savings, childcare, or an education benefit, depending on the preference of the employee. Finally, you need to make sure that you are offering a package of wages and benefits than you can afford to maintain. Employees will be happier if you increase their compensation but will be disproportionately unhappy if you reduce a benefit. Even if at the end you are still offering a generous salary and benefits, employees will tend to focus on what was taken away.

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	\$12.78	\$16.05	\$21.79	\$28.73	\$36.67
Annual Wage	\$26,570	\$33,380	\$45,320	\$59,770	\$76,270

**US Bureau of Labor Statistics, Occupational Employment Statistics for BLS Code 45-1011, First Line Supervisors, Agricultural Labor, Salaries May 2016. (Does not include fringe benefits)**

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	\$16.84	\$22.67	\$31.91	\$43.68	\$60.61
Annual Wage	\$35,020	\$47,160	\$66,360	\$90,860	\$126,070

**US Bureau of Labor Statistics, Occupational Employment Statistics for BLS Code 11-9013, Agricultural Managers, Salaries May 2016. (Does not include fringe benefits)**



# UPCOMING EVENTS



## Vegetable Specialists

### 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

### Crystal Stewart

Cell: 518-775-0018

Email: cls263@cornell.edu

### Maire Ullrich

Phone: 845-344-1234

Email: mru2@cornell.edu

### Ethan Grundberg

Phone: 617-455-1893

Email: eg572@cornell.edu

## Farm Business Technical Assistance

The Cornell Cooperative Extension Eastern NY Commercial Hort Team, in collaboration with CCE County offices, is offering free farm business technical assistance appointments this summer on Tuesdays at various locations in our service region. The first session will be on

Tuesday, May 16 from 9:00am-5:00pm at CCE Dutchess County. If you can't physically come to the office, we can also schedule an appointment by phone or a video conference.

Topics for consultations can include: labor regulations and management, risk management (insurance and best practices), land use regulations and zoning, other food-regulations (labels, processing), personal finance and farm transition planning, tax and other grant and incentive programs, bookkeeping and recordkeeping, pricing products and market channel assessment, contract terms and negotiation, and loan programs and financing decisions. At your appointment we can either help to answer your questions or help direct you to the right resources. *Appointments are in 1.5-hour increments starting at 9:00 am. In some cases, early morning or early evening appointments may be available. Pre-registration in advance is required - we cannot accommodate walk-ins. To register go to: <http://bit.ly/2oyaGpM> or call (518) 949-3722 and leave your name, preferred date and preferred time and the best way to reach you. Liz will also be doing farm visits in the counties on the following Wednesday. If you would like a farm visit, contact her directly at [emh56@cornell.edu](mailto:emh56@cornell.edu).*

### Planned locations for May, June, & July 2017

May 16 CCE Dutchess County, Millbrook NY  
May 30 CCE Schoharie County, Cobleskill NY  
June 20 CCE Orange County, Middletown NY  
June 27 CCE Essex County, Westport NY  
July 11 CCE Clinton County, Plattsburg NY  
July 25 CCE Warren County, Warrensburg NY



WE CAN HELP YOUR FARM BUSINESS GROW!

Cornell University  
Cornell Cooperative Extension  
Eastern New York Commercial Horticulture

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## Hands-on Tomato Pruning Workshop

SIGN UP TODAY!

## Come get your prune on!

Sign ups on our website, or call Marcie at 518-272-4210



Join ENY High Tunnel Specialist Amy Ivy and Crystal Stewart for a hands-on tomato pruning demonstration in the high tunnel. We'll talk about when to prune, how to prune for earliness and yield, and how to prune both determinate and indeterminate varieties.