



Cornell University  
Cooperative Extension

# Eastern NY Commercial Horticulture Program

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## Vegetable News

### Plan Now for Overwintered Onions and Spinach

Amy Ivy, ENYCHP

Your tomatoes are at peak production but now it's already time to plan your fall crops. Here are the most recent updates from Becky Sideman of UNH Extension on research she and her team have done on winter spinach and overwintered onions over the past few years.. The excerpts below are from the August 3, 2016 edition of **UMass Vegetable Notes**:

#### **Winter Spinach Production in Unheated High Tunnels:**

over the two winters of 2014-15 and 2015-16, we conducted studies focused on fall-planted spinach in unheated high tunnels. This work was done in Durham, NH at the Agricultural Experiment Station's Woodman Farm. We looked at several different planting dates and varieties, to determine effects of planting date and variety on total season-long yield. Graduate student Kaitlyn Orde has just finished preparing a new research report that describes what we've learned.

In general, September transplant dates resulted in much higher yields than later transplant dates, and these planting started producing marketable yields by late fall. Transplanting from mid-October through early November resulted in good spring yields, but these plantings did not pro-

duce before spring. A few varieties stood out as particularly low and particularly high yielding, but more important were qualitative differences in leaf shape, ease of harvest, etc. You can read the full report here: [http://extension.unh.edu/resources/files/Resource006103\\_Rep8625.pdf](http://extension.unh.edu/resources/files/Resource006103_Rep8625.pdf)

-Becky Sideman, UNH Extension

**Overwintering Onions for Spring Harvest:** For those who are considering growing fall-planted onions for overwintering, it's time to begin planting soon! In our experiments, we looked at several different varieties of onions at several different planting dates, to narrow down the best time of planting and find new varieties (especially red ones) that will perform well in this system. We evaluated onions in high tunnels and low tunnels to determine whether onions might mature much earlier in high tunnels. Here's a brief synopsis of what we found: First of all, we did find a couple of promising red varieties. Also, we found that varieties varied greatly in terms of sensitivity to bolting. Planting early increased the chances of bolting in general, but for the most bolting-resistant varieties, planting early resulted in earlier maturity and bigger bulbs. To learn more check out the full report:

[http://extension.unh.edu/resources/files/Resource005477\\_Rep7652.pdf](http://extension.unh.edu/resources/files/Resource005477_Rep7652.pdf)

-Becky Sideman, UNH Extension

### Welcome to Our Newest ENYCHP Specialist!



This week we are welcoming Ethan Grundberg, the new vegetable crops specialist on the Eastern New York Commercial Horticulture Program team. Ethan grew up in eastern Iowa and studied history at the University of Iowa. After a year working in the northern coffee-growing region of Nicaragua, Ethan moved to New York City to provide support to a network of community gardens scattered about the five boroughs. He then moved across the country to pursue a master's degree in International Agricultural Development from the University of California, Davis specializing in agroecology and vegetable production. After two years managing some of the university's certified organic research land and providing instruction in safe equipment use to students working at the student farm, Ethan moved back east to work for the New Entry Sustainable Farming Project. While at New Entry, Ethan was responsible for training beginning farmers both in the field and in the classroom. Most recently, Ethan worked for five seasons as the farm manager at Allandale Farm, a 40 acre diversified vegetable farm in eastern Massachusetts growing for a 400 member CSA, a roadside stand, and restaurants in the Boston area. He, his wife, and their three-year-old son are excited to call the Hudson Valley their new home. Ethan will be based out of the CCE

Orange County office in Middletown. Don't hesitate to reach out to him at [eg572@cornell.edu](mailto:eg572@cornell.edu) or 845-344-1234 with any questions!

## Various Bacterial Infections are Showing Up

Teresa Rusnik, ENYCHP

Here are some really unfortunate bacterial diseases I've observed in the past few weeks during farm visits.

### Black Rot in Cauliflower

This disease is caused by a bacteria (*Xanthomonas campestris*) and all brassicas or crucifers including cruciferous weeds such as wild radish and wild mustard are susceptible. Kale and radish are less easily infected. Once this disease is in the field it will persist in the soil for some time and potentially infect future brassica crops. The bacteria can spread from infected crops to other brassica plantings on equipment, workers hands, splashing water etc. In the field, bacteria enter the leaf through pores in the leaf margins. Yellow, wedged shaped areas develop as the bacteria moves into the leaf tissue. Systemic infections can also occur if seed is infested with bacteria. Planting clean seed is very important to avoid this disease. Hot water treatments are effective in disinfecting untreated seed but may not eradicate the pathogen in heavily infested lots. Look for varieties that have some level of tolerance to black rot if this disease has been an issue on your farm and rotate fields out of brassica crops for at least 3 years. When rains are persistent copper sprays will not give good control.

### Soft Rot in Peppers

The bacterial disease (*Erwinia caratovora*) that has shown up in an otherwise beautiful planting of bell peppers. This disease often begins where the fruit is attached to the stem of the plant. This also happens to be a favorite spot for European Corn Borers (ECB) to enter fruit. Any injury or vulnerable tissue on the fruit is an entry way for this bacteria which causes a very watery decay. Keep an eye out on ECB trap counts in your area (we actually report those in this newsletter!) and avoid planting peppers near corn fields. In this case, I did not find any evidence of ECB feeding or injury other than a bit of sunscalding. My guess is that the fruit is so big that the tissue of the fruit around the stem is pulling away as it grows or as other mature fruit are being picked allowing water and bacteria that collect there to enter the fruit.

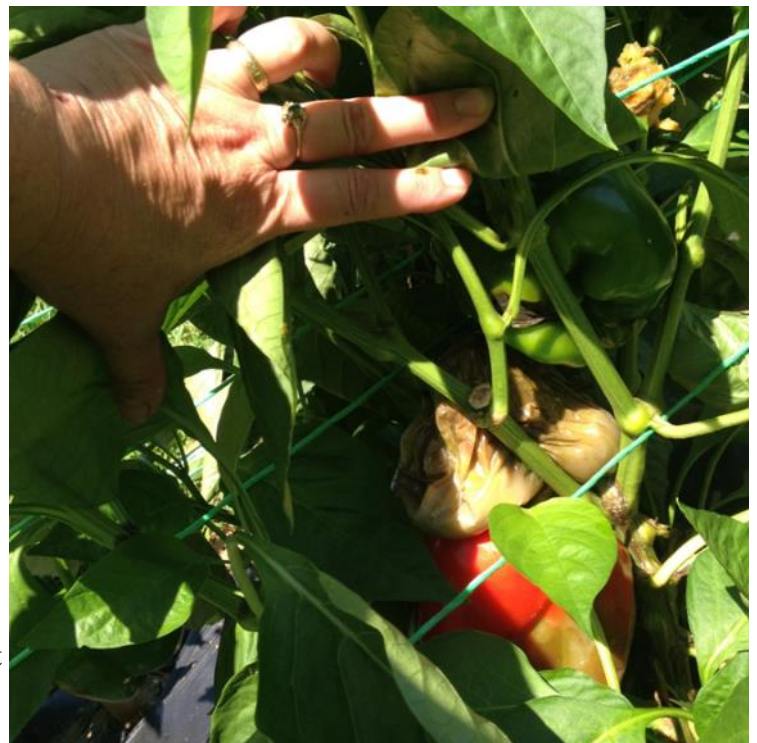
### Pith Necrosis in Tomato

Yes, yet another disease that attacked a beautiful crop of high tunnel tomatoes. This one is caused by soil dwelling bacteria *Pseudomonas* and *Pectobacterium caratovorum*. Cool nights, high humidity and high nitrogen fertility are conducive to the development of this disease. Initial symptoms began with just a couple of plants in late May that exhibited leaf yellowing and wilting on the upper part of the plant. When I cut through the stem there was a distinct brown discoloration of the vascular tissue. As symptoms developed in plants the stems became hol-

lowed out with the tell-tale ladder-like pith tissue. Brown lesions developed on stem surfaces. Adventitious roots (roots growing from the stem) were not observed until other symptoms were well developed. Symptoms developed on fruit (water-soaked blossom ends) after the grower topped the tomatoes. The topping may have spread the bacteria further or stressed the plants.



Wedge shaped Black Rot lesions on Cauliflower leaves



Bell peppers with soft rot.





*Pith Necrosis in High Tunnel  
Tomato*



*Brown Discoloration of Vascular Tissue  
and Ladder-like Pith*



*Tomato Fruit infected with Pith  
Necrosis Bacteria*

## **Alternaria on Peppers**

*Maire Ulrich, ENYCHP*

This past 2 weeks I have seen a few cases of Alternaria on bell peppers. First were cases on fruit and then, more uncommon, a case on the foliage crossed my desk. Although it is not a major disease of peppers, it is one of opportunity that usually signals another problem and both may need to be managed together.

On the fruit: Usually Alternaria appears on fruit after some other damage has occurred like sun scald or blossom end rot, insect injury, spray burn etc.. Since the disease is colonizing an injury, the lesion may already be tan and sunken from the prior problem. The target ring-spots that, on the fruit, can be quite large >1 in. in diameter develops a dark brown color and often develops a black, velvety appearance. After a while, the concentric rings may no longer be visible.

On the leaves, this is less commonly seen, in my experience. Albeit the disease is not super-aggressive it will still reduce plant productivity and provide a source of inoculum for the fruit as well as neighboring plants that have more of a problem with this disease such as tomato. The lesion is the same ring/target spot but on the leaves will be smaller, like 1/4 to 1/8 inch in diameter but there will also, usually, be many. The lesion is ringed with a yellow halo and will, also, eventually turn completely black with little sign of the concentric circles it has when it was younger.

Since this disease is minor on pepper, it is a tough call on whether you need to control it for the pepper or neighboring more-susceptible crops. Also, because it is minor, there



*Alternaria Fruit Rot. Source: UMass*



*Alternaria Lesion on leaf.  
Source : bigblogofgardening.com*

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are few chemicals that are labeled to control so do research first to properly identify and manage this disease.

Note: Viruses also show rings on fruit and foliage but are more often approximately the same color / yellow as the tissue. Those look more like this:



*Tomato Spotted Wilt Virus on Pepper*  
Source: New Mexico State University

## Downy Mildew Risk in Cucurbits

*Crystal Stewart ENYCHP*

According to the DM Forecasting tool (<http://cdm.ipmPIPE.org/current-forecast>) we are still in a low risk for infection despite an additional confirmation of downy mildew in Ontario County. However, the storms moving in Wednesday should increase the risk, particularly with storms that move from west to east. Storms moving from the south will also continue to move the disease closer from that direction. Epidemic spread is currently likely through the south, up to Virginia.

The recommendation from the DM website at this point remains to keep your crop protected, particularly before each rain event. However, with the storms currently moving from WNY there is a possibility of infection which might not yet be reflected in the forecasting tool. Dr. Chris Smart is recommending conventional growers in central and western NY currently lead with Ranman, and organic growers can continue to spray copper, though cucumbers will certainly be lost despite this. If you are feeling extra cautious, this would be the first step, though you can probably hold off until we know the disease is here. At a minimum keep regularly spraying a protectant. For the complete list of products to use once we confirm DM in the area, see the chart below:

**Table 2: Fungicides labeled for Downy Mildew Control in cucurbits.**

Fungicide	FRAC Code	Recommended Rate/Acre	REI	PHI	Seasonal Limits	Adjuvant Recommendations
Ranman <sup>1, 2</sup>	21	2.75 fluid ounces	12 hours	0 days	6 sprays	Organosilicone or non-ionic surfactant
Zampro <sup>1, 2</sup>	40 + 45	14 fluid ounces	12 hours	0 days	3 sprays	
Revus <sup>1, 3</sup>	40	8 fl ounces	12 hours	0 days	4 sprays	spreading/penetrating type adjuvant
Tanos <sup>1, 2</sup>	27 + 11	8 ounces	12 hours	3 days	4 sprays	
Zing!	22 + M	36 fluid ounces	12 hours	0 days	8 sprays	
Curzate <sup>1, 4</sup>	27	3.2 ounces	12 hours	3 days	9 sprays	
Phostrol, ProPhyt, Fosphite or other phosphorus acid containing products	33	2.5-5.0 pints (vary depending on product used)	4 hours	0 days	7 sprays	

<sup>1</sup> Should mix with a protectant partner such as chlorothalonil.

<sup>2</sup> Also labeled for Phytophthora blight.

<sup>3</sup> Not recommended for cucumber as it has demonstrated reduced efficacy – therefore recommended for pumpkins, squash and gourds.

<sup>4</sup> Has a short residual of 3 days so it needs to either be tank mixed with another systemic plus protectant or another application of a different material should be made 3 – 5 days later. Reports also indicate less effective under hot conditions (80°F). Does have some curative action so best used when CDM is first detected.

None of the above fungicides will control Powdery Mildew.

**Organic options for DM:** There are a number of organic materials labeled for Downy mildew, but for the most part many of them have not shown very good efficacy in most trials. If applied before the disease is started copper remains one of the better choices. Other options include Double Nickel 55 Biofungicide, Regalia Biofungicide, Actinovate AG and OxiDate 2.0.



## Vegetable Growers Twilight Meeting

Wednesday August 31, 2016

5:00– 7:00 pm.

Hudson Valley Farm Hub, 1875 Hurley Mountain Road, Hurley, NY 12443

This program includes: an update and recap of vegetable disease management (bring samples from your farm in tightly sealed, see through, plastic bags), discussion of the Cornell tomato disease resistance breeding program, tour of disease resistant tomato trial of 15 varieties that includes new Brandywine crosses as well as the newly released variety Stellar, followed by a tomato tasting. Guest speaker- Margaret McGrath from the Long Island Research and Extension Center, Cornell University. Also, Ken Greene from the Hudson Valley Seed Company will be joining us to showcase some breeding work he's conducting at the Farm Hub and will have a new local "Stone Ridge" tomato variety for tasting.

**Registration is not required and there is no fee for this program. This meeting will be held rain or shine. English-Spanish translation will be provided. 1.5 DEC pesticide applicator credits are available. For more information, contact Teresa Rusinek at 845 389-3562 or [tr28@cornell.edu](mailto:tr28@cornell.edu)**  
This meeting is brought to you by:



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Eastern New York Commercial Horticulture



Site	2016 Weekly Total 8/3-8/9	2016 Season Total 3/1-8/9	2015 Season Total 3/1-8/9	2016 Weekly Rainfall (inches) 8/3-8/9	2016 Total Rainfall (inches) 3/1-8/9	2015 Total Rainfall (inches) 3/1-8/9
Albany	163.5	1921.9	1829.5	0.6	15.17	15.05
Castleton	153.7	1854.7	1716.6	0.4	16.32	15.79
Glens Falls	153	1726.0	1562.0	0.1	20.96	15.22
Griffiss	153.6	1604.1	1457.5	0.18	21.75	23.29
Guilderland	150.0	1732.5	1646.5	0.5	17.75	21.03
Highland	164.2	2026.2	NA	0.05	16.73	NA
Hudson	166.5	2004.2	1838.3	0.18	22.63	18.49
Marlboro	156.5	1929.1	1768.6	0.00	16.79	14.11
Montgomery	156.5	1937.6	1815.5	0.00	16.22	15.79
Peru	152.5	1606.6	1477.2	0.1	9.35	18.26
Red Hook	154.1	1901.6	1743.2	0.14	13.81	15.33
Willsboro	152.3	1583.6	1434.1	0.11	12.69	22.38
N. Adams, MA	132.5	1540.5	1408.5	0.9	17.16	17.32

Product (NC = nonconventional)	Unit	Mid-Hudson	Capital	Saratoga - Lake George	Northern
Beefsteak Tomatoes	1 lbs.	\$2.67	\$4.00	\$2.50	
Beefsteak Tomatoes NC	1 lbs.	\$2.50	\$4.00	\$3.03	
Blueberries	pint	\$4.00	\$4.25	\$4.00	\$3.50
Blueberries NC	pint	\$5.00	\$4.60	\$6.67	
Carrots	bunch	\$2.00			\$3.00
Carrots NC	bunch	\$3.08	\$3.08	\$3.33	
Cherry Tomatoes	1 lbs.	\$2.94	\$3.44	\$2.94	\$3.00
Cherry Tomatoes NC	1 lbs.	\$3.63	\$3.84	\$3.29	
Heirloom Tomatoes	1 lbs.	\$3.75	\$3.00	\$2.33	\$1.99
Heirloom Tomatoes NC	1 lbs.	\$4.30	\$4.47	\$4.17	
Raspberries	1/2 pint	\$4.50			\$4.50
Raspberries NC	1/2 pint	\$4.00			
Red Potatoes	1 lbs.	\$3.17	\$2.93	\$3.00	
Red Potatoes NC	1 lbs.	\$3.47	\$3.56	\$3.30	
Russet Potatoes	1 lbs.		\$5.00	\$3.00	
Russet Potatoes NC	1 lbs.			\$3.50	
Salad Mix	1/2 lbs.				
Salad Mix NC	1/2 lbs.	\$5.50	\$5.38	\$5.63	
Shelled Peas	pint				
Shelled Peas NC	pint				
Strawberries	pint	\$4.00			\$5.50
Strawberries NC	pint		\$3.63	\$5.50	
Sugar Snap Peas	pint				\$2.50
Sugar Snap Peas NC	pint				
Sweet Corn	dozen	\$5.94	\$6.75	\$6.40	
Sweet Corn NC	dozen	\$6.80	\$5.79	\$6.67	
Yellow Potatoes	1 lbs.	\$2.81	\$3.13	\$3.00	\$3.00
Yellow Potatoes NC	1 lbs.	\$2.25	\$3.56	\$3.63	

### Sweet Corn Pest Chart (week ending 6/7)

Location	CEW	ECBZ	ECBE	FAW	WBC
N. Washington	NA	0	0	NA	NA
S. Washington	NA	0	2	NA	NA
Albany	NA	1	0	NA	NA
Fulton	NA	0	0	NA	NA
Orange	1	5	0	63	1

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