



UMASS
EXTENSION



Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 26, Number 18

August 14, 2014

IN THIS ISSUE:

- Crop Conditions
- Pest Alerts
- Onions: Harvest and Curing Tips
- Identifying Potato Tuber Diseases
- Yellow Shoulder and Internal White Tissue in Tomatoes
- Harmonized GAP and Commonwealth Quality Program Certification at The UMass Farm
- Upcoming Events

CROP CONDITIONS

Apart from the dramatic rain storms Wednesday, dry conditions have prevailed across the state over the last few weeks. The lack of rain as fruiting crops were sizing up has hurt yields in those crops, and many sweet corn fields needed to be irrigated in order to prevent spindly growth and lower quality ears. In anticipation of the heavy rain on Wednesday this week, some growers harvested extra tomatoes to keep them from splitting. Some winter squash varieties are almost ready for harvest including tasty Kabocha and Delicata, while early acorn and butternut are just a few weeks to harvest and pumpkins are sizing up. Soil-borne pathogens like *Phytophthora capsici* thrive in moist conditions and new outbreaks may begin after the soaking rains. Fall root crops and brassicas are growing well, and potato harvest is progressing steadily. Temperatures in the first half of August have been running cooler than the 30 year average, while cumulative rainfall in the CT Valley has been 1-4 inches higher than average but 0.5-2 inches lower than average in eastern and south-eastern MA. Surprisingly, the total accumulated GDD is still 100 or more GDD above the 30-year average for most of the state and most of New England; Greenfield MA being a notable exception. We are into the hectic harvest season of late summer, but hope you will take an afternoon to come to one of our upcoming twilight meetings and field walks over the next three weeks in Athol, Grafton and Northbridge (see upcoming events).



Pumpkins and other winter squash are sizing up, getting closer to harvest.

PEST ALERTS

Cucurbits: [Powdery mildew](#) is well established in older MA and RI cucurbit fields and is starting to spread into new plantings. Conditions favoring infection include a dense plant canopy, low light intensity, high nitrogen fertilization, relative humidity >50%, and 68-80° F. Use systemic fungicides in order to protect the underside of leaves, and alternate among classes with FRAC codes 3, 7, U6 and 13 for resistance management. Do not use classes of fungicides with FRAC codes 1 or 11. Refer to [page 98 of the New England Vegetable Management Guide](#) to find materials in these resistance or “FRAC” groups. [Cucurbit downy mildew](#) has spread into northern NJ but continues to be at a low risk in New England according to [CDM-IPM-PIPE](#). In 2013, this disease was confirmed in both MA and RI the week of August 8th. [Phytophthora blight](#) can spread quickly after heavy rains or where there is standing water in fields. Scout low spots and be careful not to spread the disease from field to field via soil stuck on equipment, boots, or tires. Till under affected areas and clean tractor carefully.

Solanaceous crops: New reports of [Late blight have](#) been confirmed in Middlesex Co., MA, as well as in NY, MI and PA this week. In MI, the pathogen was confirmed on petunias, an ornamental solanaceous host. Weather conditions continue to be favorable for spread of this disease, even in high tunnels. For a map of late blight reports and photos of symptoms, see [usablight.org](#). Continue to apply protectant and targeted LB fungicides. Get spray recommendations tailored to your



Fulvia leaf mold.

local weather conditions and fungicide program using the MA DSS website [here](#). **Bacterial canker** has spread quickly on tomatoes in Worcester Co., MA. Cool nights, with high leaf wetness followed by sunny days, are prime conditions for spread of this disease through hydathodes, and cause the classic leaf scorch or “firing” symptom. **Tomato Pith Necrosis** was reported by a grower on field-grown ‘Celebrity’ tomatoes in Middletown, RI. Symptomatic adventitious roots and darkened pith can also be caused by bacterial canker so be sure to get diseases diagnosed by your Diagnostic Lab. **Fulvia leaf mold** is severe in greenhouse tomatoes in Chittenden Co., VT, where 36% of plants had leaf mold with 70-80% foliage affected. **White mold** was also found in another greenhouse this week. Remove affected plants by cutting at the base, as sclerotia can allow the pathogen to survive in the soil for years to come. **Verticillium wilt** that had been found on only a few plants in a MA eggplant field two weeks ago has now spread to 25% of the crop—often no symptoms are seen until the plant is bearing heavily or a dry period occurs. **Phytophthora blight** can spread quickly after heavy rains or where there is standing water in fields. Scout fields for crown rot of pepper or fruit rot of tomatoes and peppers. Check low or wet spots first, and be careful not to spread the disease from field to field via soil stuck on equipment, boots, or tires. Till under affected areas and clean tractor carefully.

Brassicas: **Flea beetle** pressure has been very high in a Hampshire Co., MA field where a fall cabbage planting went into the same field as a spring cabbage planting. Separate spring and fall brassica successions to reduce flea beetle damage if possible. Watch for the late summer flight of **cabbage root maggot**, which can be especially damaging to fall root crops such as turnips and rutabagas.

Spotted Wing Drosophila: Track trap captures across MA [here](#). On your own farm, conduct a SALT WATER TEST FOR SWD INFESTATION: It is a good idea to test ripe soft fruits for infestation by submerging them in salt water and looking for larvae. Dissolve 1/4 cup salt in 4 cups of water, place a sample of about 100 ripe, healthy fruit in a shallow dish or tray. Pour salt water over the fruit until fruit is completely covered. Mash fruit lightly with a potato masher. In 10 to 15 minutes, larvae will float to the surface. They are 1-4 mm long, white, and tapered at both ends. You will probably need a hand lens and good lighting to see them. Although they could be other species of drosophila larvae, not just SWD, the latter only attack sound marketable fruit so if you only sample ripe, not overripe fruit, any emerging larvae are probably SWD.

Other Crops:

Alternaria leaf blight was diagnosed in **carrot** in VT. Symptom include the yellow “flag” leaves that stand up in the field. *Alternaria* diseases are hard to target with fungicides once the crop canopy has closed. The first fungicide spray should be applied preventatively, no later than when 25% disease incidence is seen in the field.

Rhamularia and Phoma were diagnosed in **beet** in VT. Look for these leaf spots, in addition to *Cercospora* leaf spot, in fall beet plantings. *Cercospora* lesions tend to be small with tan centers within which are tiny black spots that can be seen with a 5-10X handlens. *Rhamularia* lesions tend to be larger and rougher than those caused by *Cercospora* but similarly have a brown margin and tan center. *Phoma* lesions are larger still and have concentric rings. *Alternaria* (*A. brassicae* and *A. betae*) can also affect beets, causing spots with dark-brown to black rings and tan, dead centers that can drop out causing a “shot-hole” appearance. Plow infested residues under quickly after harvest to reduce disease spread throughout the season, and to reduce the overwintering populations in fall.

Basil downy mildew was reported in Middletown, RI this week; it has already spread throughout MA where many plantings have been taken down by the disease.

ONIONS:

HARVEST AND CURING TIPS FOR BEST QUALITY

As onions mature, their dry matter content and pungency increase, with a resulting increase in storage potential. Onions are ready for harvest when at least half the leaves are dead. Tops are beginning to fall in early, direct-seeded onions and many transplanted fields. Pull the bulbs by hand, or use equipment such as a potato digger or under-cutter to cut the roots and lift the bulbs. If you wait until all the leaves are dead and dry, it’s likely that the outer skins will be loose rather than firm. This may not hurt the keeping quality, but the onions will not look as nice. However, pulling when the foliage is too green will make it difficult to cure them well. Harvest when the weather is dry; harvesting after a rainfall or when the hu-

midity is high increases susceptibility to post-harvest disease. There may be instances when leaves are declining in quality due to insect, disease or environmental conditions and the crop is not growing but necks are still green. In this case pay special attention to curing under optimum conditions until necks are dry and closed.

For optimum storage quality, onions must be cured soon after harvest. Curing decreases the incidence of neck rot, reduces water loss during storage, prevents microbial infection, and is desirable for development of good scale color. Optimum conditions are 68-86°F and 70% relative humidity for at least 12 to 24 hours. A greenhouse or hoop house provides a good environment for curing, where temperature, airflow and moisture can be controlled. Be sure to keep the temperature in the house below 85°F, which will probably require turning on fans and/or leaving sides and doors wide open—consider using a black shade curtain over the house to help moderate temperature. Curing can be done in the field, but it is harder to achieve good conditions for curing in an uncontrolled field setting. Avoid field curing onions if rain is forecast and, if it does rain, let the onions dry fully before handling—don't handle the bulbs when they are wet. If the field is weedy, it may be excessively moist and air circulation may be limited, conditions not suitable for curing. Temperature and sun are also factors to consider—sunshine and temperatures in the 80's will enhance the bronze color in the skins but extremely hot sun, with temperatures in the 90's, can cause sunscald. Onions curing on a sandy soil will get hot more quickly than those curing on a heavier soil. Curing is complete when the neck is completely dry and tight. If the neck remains open, it allows entry of pathogens such as Botrytis neck rot.



Wire mesh greenhouse table in vented, greenhouse with shade cloth provide a great environment for curing onions.

The next step is topping. Mechanical onion toppers are essential for larger plantings. For the needs of a small diversified farm, they are probably best obtained second-hand. Onions can also be topped by hand using clippers. Handle gently to avoid bruising. Avoid cutting tops too close to the bulb (leave 2-3 in. of stem), especially if there is any chance of disease entering bulbs from the leaves. Defective onions (i.e. sprouted, insect damaged, sunscalded, green, bruised, or soft) should be discarded. Grade for size according to your markets.

To ensure maximum storage life, onions must be promptly stored after curing. Get them out of the sun as exposure to light after curing will induce greening of the outer scales. The optimum temperature for long-term storage of onions is 32°F with 65-70% relative humidity, but it is important to bring them down to this temperature slowly. In fact, holding onions in a barn or garage so that they cool along with the average outdoor temperature in late-summer and fall works quite well. Avoid cooling bulbs to well-below the average daily temperature because they will draw moisture from the warmer air, which can lead to disease. If you are selling the onions within a couple of months, keeping them in an un-insulated barn is fine. An insulated storage room is needed for longer-term storage.

Harvest Tips for Best Quality

- 1) Be sure onions are well-dried and necks are tight (i.e. the tissue does not slide when you roll your neck between your fingers) before topping. Bacterial diseases and Botrytis Neck rot can move through green tissue into the bulbs. These diseases do not move in dry tissue.
- 2) Leave 2-3 inches of neck on the bulb. This increases the distance from the cut surface to the bulb for these pathogens to travel.
- 3) Minimize mechanical injury during harvest & topping. Reduce drops to 6" and pad sharp surfaces. Bruises provide direct entry points for diseases to get started.
- 4) Grade out damaged onions before putting them into storage. Damaged bulbs give off moisture, which is favorable for development of diseases in storage.

- John Howell, Andrew Cavanagh, & Ruth Hazzard. Resources: CSU Extension and the University of Saskatchewan Vegetable Program.

IDENTIFYING POTATO TUBER DISEASES

Potato harvest is beginning on some farms, especially those where late blight has come in and farmers have had to kill off foliage early. There are many diseases that affect potato tubers so as you begin to sort through your potato harvest this year, take a moment to check for disease symptoms. Proper identification will help you decide which tubers will store well or should be sold as tablestock, and will give you a better idea of which soil-borne diseases are present in your fields, improving future rotations.

Common Scab (*Streptomyces* spp.) produces tan to dark brown, circular or irregular lesions which are rough in texture. Scab may be superficial (russet scab), slightly raised (erumpent scab), or sunken (pitted scab). The type of lesion is dependent on potato cultivar, tuber maturity at infection, organic matter content of soil, strain of the pathogen, and the environment. Common scab can be greatly suppressed at soil pH levels of 5.2 or lower, though a closely related but less common *Streptomyces* sp. known as acid scab (*S. acidiscabies*) can survive down to 4.0.

Early blight (*Alternaria solani*) usually affects potato foliage but tuber infections can also occur. Tuber lesions are dark, sunken, and circular often bordered by purple to gray raised tissue. The underlying flesh is dry, leathery, and brown. Lesions can increase in size during storage and tubers become shriveled.

Fusarium Dry Rot (*Fusarium* spp.) causes internal light to dark brown or black dry rot of the potato tuber. The rot may develop at an injury site such as a bruise or cut. The pathogen penetrates the tuber, often rotting out the center. Extensive rotting causes the tissue to shrink and collapse, usually leaving a dark sunken area on the outside of the tuber and internal cavities.

Black Dot (*Colletotrichum coccodes*) On potato foliage symptoms are nearly indistinguishable from early blight and on tubers it produces tiny black sclerotia (fungus resting structures). Symptoms on tubers can be easily mistaken for silver scurf.

Silver Scurf (*Helminthosporium solani*) affects only tuber periderm. Lesions are initiated at the stolon end as small pale brown spots which may be difficult to detect at harvest but will continue to develop in storage. In storage, lesions may darken and the skin may slough off and many small circular lesions may coalesce to form large affected areas. Tubers may also become dried out and wrinkled due to excessive moisture loss in storage.

Black Scurf and Rhizoctonia Canker (*Rhizoctonia solani*) Black scurf is purely cosmetic and does not reduce yield, even in storage. Irregular, black hard masses on the tuber surface are overwintering structures (sclerotia) of the fungus. Presence of these sclerotia may be minimized by harvesting tubers soon after vine-kill and skin set. While the sclerotia themselves do not cause damage, they allow the pathogen to survive in the soil and serve as evidence of its presence. In cool, wet soils, *R. solani* can cause dark, sunken lesions on underground sprouts and stolons. These lesions can cut off the supply of nutrients, killing tubers, or can reduce the transfer of starches to the tubers, reducing their size. Cankers can also form on the tubers themselves, usually at the stolon or in lenticels. Cankers on tubers which can be small and superficial but may be large, sunken and necrotic.

Pink Rot (*Phytophthora erythroseptica*) and **Pythium Leak** (*Pythium* spp.) Pink rot infections start at the stolon end and cause the tuber to become rubbery. As disease progresses affected skin tissue (periderm) may become brown. When cut open, a distinct black line between healthy and diseased tissue can be seen and within 15-30



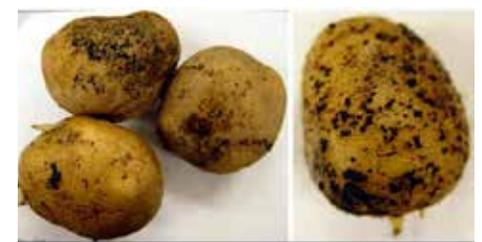
Common scab causes rough, circular spots that can be superficial, raised, or sunken. Photo by RW.Samson.



Early blight lesions can spread in storage. Photo by S.Jensen.



Dry rot causing dark sunken spots on the inside and outside of tubers. Photo by C.Averre



Black scurf symptoms are evidence that *R. solani* is present in soil. Photo by G.Holmes.



Rhizoctonia solani causes cankers on stems and stolons and sometime lenticels. Photo by Clemson University.

minutes the tissue turns pink, then brown-black. *Pythium* spp. that cause leak infections invade tubers through harvest wounds and continue to develop in transit and storage. Infections result in internal watery, gray or brown rot with well-defined red-brown lines delineating healthy and diseased tissue.

Late Blight (*Phytophthora infestans*) affects potato foliage and tubers. Foliar symptoms start with brown to black, water soaked lesions on leaves and stems which produce visible white sporulation at the lesion margins under humid conditions. Whole plants and fields may collapse rapidly. Tuber infection is initiated by sporangia from foliage being washed down into the soil and usually begins in wounds, eyes, or lenticels. Lesions are copper brown, red or purplish and white sporulation may occur on tuber surfaces in storage or cull piles. Infected tubers are susceptible to infection by soft rot bacteria which can turn entire bins of potatoes in storage into a smelly, rotten mass.

Black Heart is physiological disorder caused by lack of oxygen during storage which causes the tissue to die from the inside out and turn black. The condition is not reversible but if you notice it quickly and correct your storage conditions you can prevent the whole crop from being affected.

--Written by Susan B. Scheufele. Information for this article was collected from many sources including Cornell University (http://vegetablemdonline.ppath.cornell.edu/factsheets/Potato_List.htm) and Michigan State University (<http://www.potatodiseases.org/index.html>) Extension Programs.



Pink rot causes rubbery, discolored lesions. Internal tissue turns pink after exposure to air. Photo by UMN Extension.



Coppery brown late blight lesions. The disease can spread in storage and affected tubers are very susceptible to soft rot bacteria. Photo by RW.Samson.

YELLOW SHOULDER AND INTERNAL WHITE TISSUE IN TOMATOES

Yellow shoulder disorder describes well the yellow hard areas near the stem end of tomato fruit that fail to ripen properly (see Figure 3). Even on fruit that doesn't show the distinct yellow on the shoulder, cutting across the top of the fruit will reveal internal white tissue that is also associated with the disorder. A variety of factors make this problem more likely to occur.



Yellow shoulder on tomato. Photo by Joan Allen.

Genetics: Varieties that have green shoulders in immature fruit are more likely to show the disorder. If you aren't sure whether a variety has the gene for green shoulders, check with the seed supplier, or review the tomato cultivar descriptions available from the North Carolina State University site at <http://cuke.hort.ncsu.edu/cucurbit/wehner/vegcult/vgclintro.html>.

High Temperatures/Sun: Yellow shoulders are often found on tomato fruit exposed directly to the sun. On plants pruned to a single stem there may be many fruit in this situation. Loss of foliage due to disease can also expose fruit to the sun. If tomato fruit gets extremely hot it may exhibit sunscald, with the skin and flesh turning white and sunken on the exposed area of the fruit. Covering a high tunnel with shade cloth can reduce temperature in the tunnel.

Nutrition: Inadequate potassium is linked to this disorder. Research in processing tomatoes has shown that adequate potassium early in tomato plant development is necessary. Soil conditions that influence potassium availability, such as levels of magnesium and calcium are also a factor. The 'Hartz Ratio' calculator at Ohio State University <http://www.oardc.ohio-state.edu/tomato/HartzRatioCalculator.htm> provides a way to assess risk of the disorder in processing tomatoes based on soil properties.

With increased production in high tunnels I have been hearing more about this disorder from growers. Researchers in several states are studying the problem in high tunnel production systems. Watch for more specific production recommendations as we learn more.

--Written by Liz Maynard, Purdue Cooperative Extension. Contact emaynard@purdue.edu, 219-531-4200

USDA HARMONIZED GAP AND COMMONWEALTH QUALITY PROGRAM CERTIFICATION AT THE UMASS AGRONOMY AND VEGETABLE FARM

The UMass Agronomy and Vegetable Farm in S. Deerfield, MA received a grant from the Massachusetts Department of Agricultural Resources (MDAR) to address current and proposed requirements for Good Agricultural Practices (GAP). A component of this project is to work toward certifying the UMass Farm with both the [USDA Harmonized GAP Audit Program](#), as well as MDAR's [Commonwealth Quality Program \(CQP\)](#), which has a food safety component.

We wanted to go through the process of certifying the UMass Farm for two reasons:

1. To provide opportunities for commercial farmers interested in becoming certified in GAP or CQP to come to the UMass Farm and see how we are moving forward to become certified. Our farm was established over 50 years ago and therefore has much in common with many commercial farms in our region. For example, we have two facilities where we pack fresh produce: one is in a former tobacco barn and the other is in a building that was used to milk cows until 2001.
2. To provide hands-on experience for UMass staff and students working at the farm on how to become certified and maintain certification for both GAP and CQP.

We started this process with a “walk through” at the UMass farm with Mike Botelho (MDAR) and Rich Bonanno (UMass Extension) who both gave recommendations on issues that we should address, which we are in the process of addressing.

The second recommendation from Rich and Mike was to do a Farm Food Safety Plan, which we did. You can find a [link to our current plan](#) in the on-line UMass Good Agricultural Practices & Harmonized GAP Food Safety Manual. This plan describes all of the activities, practices, facilities and procedures as they relate to Good Agricultural Practices and the Commonwealth Quality Program. The file is available as an MS Word file so that you can use this file as a template for your own farm, if desired.

For more information and if you're interested in visiting the UMass Farm, contact Zoraia Barros: 413 658-4278, zbarros@umass.edu

-Written by Frank Mangan and Zoraia Barros, UMass Extension Vegetable Program

UPCOMING EVENTS & DEADLINES

UMass Extension IPM Field Walk

When: August 22nd, 2014, 3-5 pm

Where: [The Farm School](#), 488 Moore Hill Road, Athol, MA 01331

The Farm School has a day camp program for elementary students, a middle school, and an adult apprenticeship program. The apprentices grow food for a 175 member CSA, Farmers' Market, and manage 150 acres of forest land. The adult program's teacher/growers, Tyson Neukirch and Carlen Rigrod partnered with UMass Extension to train their students in IPM and scouting techniques. This field walk will feature IPM scouting and management practices in apples, raspberries, and multiple vegetable crops with UMass Extension staff: Ruth Hazzard (vegetable), Katie Campbell-Nelson (vegetable), Sonia Schloemann (small fruit), and Arthur Tuttle (tree fruit).

Enter Your Prize Winning Tomatoes in the 30th Annual Massachusetts Tomato Contest!

When: Monday, August 18th from 9:30 am – 1 pm

Where: The new location of the [Boston Public Market Farmers' Market](#), 136 Blackstone Street, Boston (on the Greenway).

Tomatoes will be judged by a panel of experts on flavor, firmness/slicing quality, exterior color and shape. Always a lively and fun event, the day is designed to increase awareness of locally grown produce. Farmers who want to submit their tomatoes can bring them to the Boston Public Market Farmers' Market between 9:30 am and 10:45 am on August 18th or drop their entries off with a corresponding registration form to one of the locations designated around the state. For the complete details, including contest criteria and a registration form, [click here](#) or at www.mass.gov/agr.

The contest is sponsored by the New England Vegetable and Berry Growers Association in cooperation with the Massachusetts Department of Agricultural Resources and [Mass Farmers Markets](#), and is hosted by the [Boston Public Market Association](#). This friendly contest is open to commercial tomato growers and is designed to increase consumer's awareness of local agriculture.

Apply Now for the Massachusetts Agricultural Food Safety Improvement Program (AFSIP): Applications Open till August 20.

The Agricultural Food Safety Improvement Program (AFSIP) supports agricultural operations that are looking to upgrade their food safety measures and thereby maintain or increase their competitive market access while reducing food safety risks. Participants selected to participate in the program will be reimbursed up to \$20,000 or 75% of their total project costs.

AFSIP will fund practices that help minimize the risk of microbial contamination and food-borne illnesses. In addition, eligible upgrades will increase competitive market access by meeting buyer demands for demonstrated practices that work towards protecting public health and food safety.

Projects will be broken into a produce category and an aquaculture category. Some examples of projects in the produce category include wildlife fencing, packing shed walls, ceilings and light fixtures, field harvest systems, hand washing sinks, restrooms, drainage systems, and water systems. Some examples of projects in the aquaculture category include ice machines, harvest gear, and testing/monitoring equipment.

For more information and to access application forms please visit the [MDAR website](#) or contact Laura Maul, laura.maul@state.ma.us, (617)-626-1739.

UMass Extension Vegetable Twilight Meeting: Building Farms and Food Networks for Hunger Relief Sponsored by: UMass Extension Vegetable Program

Where: [Community Harvest Project](#), Brigham Hill Community Farm, 37 Wheeler Rd, North Grafton, MA 01536.

When: Wednesday, August 27, 4-7 pm

Hosts: UMass Extension faculty and staff, and Ken Dion, Operations Director of Community Harvest Project

Massachusetts is seeing a rise in the number of farms managed by non-profit organizations with a strong social or educational mission. Community Harvest Project, Inc. is a 501(c)3 non-profit organization whose mission is "To build an engaged and healthier community by bringing volunteers together to grow fresh fruits and vegetables for hunger relief." At Community Harvest Project, thousands of volunteers come every year to help plant, tend and harvest fresh fruits and vegetables for their neighbors in need. Produce is distributed through partner agencies including Worcester County Food Bank's network of hunger relief organizations which serve over 100,000 people. In 2013, Community Harvest Project donated over 324,000 lbs. – or 1.1 million servings – of fresh fruits and vegetables. Come and learn about how this farm and organization is succeeding and making a difference in the food systems of the Worcester region!

The tour will include the following:

- An automated irrigation system
- The construction of a new greenhouse
- The use of a hay-blower for mulching
- Ethnic crop trials, including aji dulce, cassava leaves and ethnic hard squashes – Frank Mangan
- A presentation on how CHP operates, how food gets distributed, how the volunteer farming program works, and how nutrition education is integrated with food distribution.

Refreshments will be served including Sancocho, a traditional hearty soup popular in the Caribbean. Pesticide applicator recertification credits (up to 2 contact hours) will be offered. For more information and directions see: <http://www.community-harvest.org/>. Contact Frank Mangan, 508 254-3331, fmangan@umass.edu or Ken Dion, phone: 508-951-3466 or kdionfly@verizon.net

[UMass Extension Vegetable and Fruit Twilight Meeting: Food Safety, IPM and the Commonwealth Quality Program](#)

When: September 3, 2014 4-7 pm

Where: Foppema's Farm, Northbridge, MA, 1605 Hill St, Northbridge, MA 01534

Join UMass Extension faculty and staff and the Foppema family to learn about how the farm is using food safety and IPM strategies in their vegetable, tree fruit and berry crops.

Foppema's Farm is a 75 acre fruit and vegetable farm located in Northbridge, Massachusetts. The farm is family owned and operated by the Ken Foppema family. Ken and Lisa and their four sons (along with a wonderful staff of employees) grow and sell produce from the farm out of a beautiful post and beam farmstand built in 1998. They sell wholesale and at farmers markets, and through pick-your-own, especially at nearby Keown Orchards which is now part of their farm.

The farm participates in the **Commonwealth Quality Certification Program** and they are taking steps to increase their implementation of the **food safety standards** as well as the **sustainability and IPM standards** that are part of this program. We will tour their wash room and packing area, and discuss specific steps that help to ensure food safety when **field packing greens**. Mike Botelho from the Mass Dept. of Ag Resources will talk about the Commonwealth Quality Program (CQP), its food safety standards, and the market access that can be gained through CQP. You'll see some of the CQP promotional materials, that can be customized to highlight aspects of your farm.

On the IPM side:

- Rich Bonanno, UMass Extension weed specialist, will discuss **weeds**: types of weeds, how they grow, how to identify them, and how to manage them on a very diverse farm like Foppema's.
- UMass Extension Fruit Program will tour the apple orchard and discuss apple IPM strategies.
- Ruth Hazzard, UMass Extension Vegetable specialist with Lisa McKeag, Extension Assistant and Ken Foppema will discuss how the Foppema's are using **IPM in onions** to solve a key disease problem.

Vegetable Notes. Ruth Hazzard, Katie Campbell-Nelson, Lisa McKeag, Susan Scheufele, co-editors. Vegetable Notes is published weekly from May to September and monthly during the off-season, and includes contributions from the faculty and staff of the UMass Extension Vegetable Program, other universities and USDA agencies, growers, and private IPM consultants. Authors of articles are noted.

Where trade names or commercial products are used, no company or product endorsement is implied or intended. Always read the label before using any pesticide. The label is the legal document for product use. Disregard any information in this newsletter if it is in conflict with the label.