UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 23, Number 19 September 13, 2012

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CROP CONDITIONS

After Labor Day, the market for summer vegetables undergoes a major shift as families send kids back to school and people's schedules get busier. Those who depend on direct markets especially hope for good weather on weekends to foster a high turnout, and to encourage the public to turn their attention to the exciting fall crops. Farmers are as busy as ever getting everything picked, washed, stored or sold, planting cover crops, marketing, and for those pushing the growing season, continuing to plant and manage late fall and winter crops. Conditions have been very good for maturing and curing fall crops such as onions and winter squash. Harvest of winter squash is in full swing, with early pumpkins also leaving the field for direct and wholesale markets. Even if they are ready, it is too soon to harvest carrots and potatoes for long-term storage unless the storage unit is actively cooled. Eggplant, pepper and tomato are still producing, nearing the end of what has been very productive season overall. With cooler temperatures, more fruit diseases, and some 'just plain tired out' plantings, the pace and quality of summer fruiting crops will be dropping. Brassicas and greens are out from under flea beetle pressure and thriving in the cooler temperatures. That said, in fact the daily average temperatures have been running 4-10 degrees F above 'normal' over the past week throughout New England. Farmers don't usually quibble with the concept of climate change as we witness the shifts in what to expect or prepare for in all matters of temperature, moisture, sunshine, insects, diseases, and weeds – that is, just about everything that affects how and when crops grow. Fortunately, daylength is still predictable.

PEST ALERTS

Phytophthora capsici showed up in some fields after the rains returned, but there have also been some fruit rots that look frighteningly like P capsici but are NOT --- we recommend that you get a confirmation even when you (think you) KNOW what they are! See article on cucurbit fruit rots.

Invasives on the move. Leek moth and swede midge are present in northern Vermont. Leek moth larvae feed in leaves of alium plants. http://web.entomology.cornell.edu/shelton/leek-moth/index.html.

Swede midge has moved from Ontario into New York and from Quebec into northern Vermont. These tiny flies lay eggs in the growing tips of Brassica crops, especially cabbage, broccoli and cauliflower, where larval feeding can be very destructive. The first North American report was in Ontario in 2000; they reached western New York in 2004. http://web.entomology.cornell.edu/shelton/swede-midge/index.html

Late blight in tomato. This has been present in tomatoes on some farms, and is most likely present in home gardens across New England. The critical concern now is to prevent overwintering of live, infected tomato plant tissue. Given the ever-wider use of high tunnels and greenhouses for tomato production, especially to extend the season into the fall, growers and gardeners must pay special attention to cleaning out all residue and disposing of it where it will freeze hard or decompose completely. Late blight is generally less severe in greenhouses, but there definitely are some infected GH / HT crops -- so the risk of overwintering is present. Be sure to clean out greenhouse tomatoes so there is no overwintering residue in a house that won't freeze hard. Incorporating infected tomato stems then seeding greens for the winter poses some risk. As we learned this season, even in a dry year late blight can gain a foothold and spread widely.

FRUIT ROTS OF PUMPKINS AND WINTER SQUASH

Overall , the dry and sunny conditions of this season have resulted in fewer fruit rots for pumpkin and winter squash --especially compared to the 2011 season. Nonetheless, some fruit rots may show up, and it is useful to identify what's there. Fusarium and Pythium Fruit Rot can pose as look-alikes for Phytophthora Fruit Rot, but don't have the same serious implications for future cucurbit crops on the farm. Symptoms differ on various winter squash and pumpkins.

Many pathogens- fungi, bacteria, and viruses- cause fruit rot, fruit spotting, and other fruit abnormalities in pumpkins that render them unmarketable. The vast majority of fruit rotting organisms are fungal, although several bacteria can also cause soft rots. The list of fungi that can cause fruit rots is long and includes Alternaria Rot (*Alternaria alternata*), Anthracnose (*Colletotrichum orbiculare*), Blue Mold (*Penicillium species*), Crater Rot (*Myrothecium roridum*), and Rhizopus Soft Rot (*Rhizopus stolonifera*) as well as the pathogens discussed below. Viruses lead to fruit deformities and wild discolorations.

Successful management of pumpkin fruit rots depends on accurate identification of the causal organism so that the appropriate control measures can be employed. Many of these diseases show up in storage, and it is important to know which disease is present and dispose of the infected fruit properly. Dumping rotting fruit in your fields or compost pile may result in higher inoculum and more disease the following year, and in the case of *Phytophthora capsici* it could be devastating for years to come. Find out more about identification & management of cucurbit diseases with the UMass Cucurbit Disease IPM Field Guide; contact us for a hard copy or find an electronic copy at www.umassvegetable.org/publications/cucurbit-disease-scouting-management-guide.

Phytophthora Fruit Rot (*Phytophthora capsici*)

Perhaps the most serious fruit rot in wet years, Phytophthora fruit rot begins as a water-soaked or depressed spot, most often on fruit undersides which are in contact with the soil. The pathogen produces a white, yeast-like growth that contains many fruiting bodies (sporangia) and affected fruit may be completely covered. The disease can develop and spread rapidly with the correct environmental conditions and entire fields may be lost. Phytophthora persists in the soil for many years; no effective crop rotation interval has been determined. Saturated soil conditions are conducive to disease initiation and development. Manage soil moisture by sub-soiling, avoiding over irrigating, selecting well-drained fields, and avoiding areas of fields that do not drain well. Destroying diseased areas at the start of disease development can be effective. Planting pumpkins into cover crop mulch or deep zone tilled field has shown promise in research trials. It should be noted that chemical treatments alone can not be relied on to give adequate control of this disease, especially in wet years.

Late Stage Phytophthora Rot

Early Stage Phytophthora Rot

Fusarium Fruit Rot (*Fusarium solani f.sp. cucurbitae*)

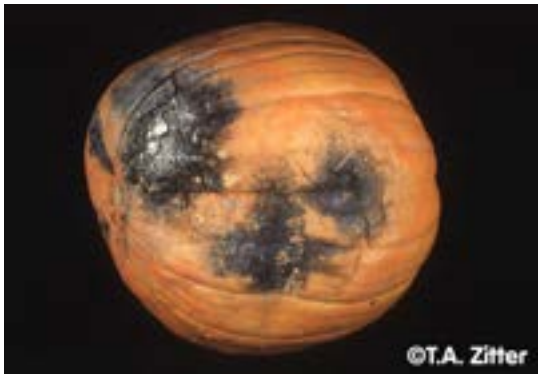
Pumpkin fruits are attacked by Fusarium at the soil line and the severity of infection varies with soil moisture and the age of the rind when infection occurs. The pathogen can be seed-borne. It does not survive for more than 1-2 years in seed and does not affect the germination or viability of the seed. Fusarium produces abundant resting spores (chlamydospores) in the soil, but only persists there for 2-3 years. Cultivars vary in their resistance with larger pumpkins being generally more susceptible. Wounding is not necessary for infection to occur. A four year rotation out of pumpkins will eliminate soil propagules and fungicide treated seed will reduce initial inoculum. Culling of unmarketable fruit can reduce the risk of spread during the post harvest period.

Fusarium Fruit Rot

Black Rot (*Didymella bryoniae*)

Also called Gummy stem blight when it occurs on other plant parts, Black Rot produces a distinctive black decay. Initially, a brown to pink, water-soaked area develops in which numerous, conspicuous black fruiting bodies are embedded. The pathogen is soil and seed borne and can overwinter in infected crop debris as dormant mycelium or chlamydospores. Both temperature and moisture influence disease development, but high relative humidity, rainfall and wetness duration are most critical. Wounding is not required for disease initiation, but wounding by striped cucumber beetles, aphid feeding, and powdery mildew infection enhance susceptibility. Control of Black fruit rot starts with control of gummy stem blight. Start with certified, disease-free seed. A two year rotation out of cucurbits can reduce field inoculum. Crop debris should be plowed under promptly after harvest. Control of Powdery mildew can significantly reduce black rot infection of pumpkins. Fungicides registered for Powdery mildew on pumpkins include myclobutanil, triflumizole, and pyraclostrobin plus boscalid (Pristine). Powdery mildew populations rapidly develop resistance to fungicides; be sure to alternate fungicide treatments among chemical class and to include a broad spectrum protectant (chlorothalonil, copper) in your program. Nova and Procure have a narrow spectrum of activity; control of Black Rot requires different fungicides such as azoxystrobin (Quadris, Armistar), thiram, or Pristine.

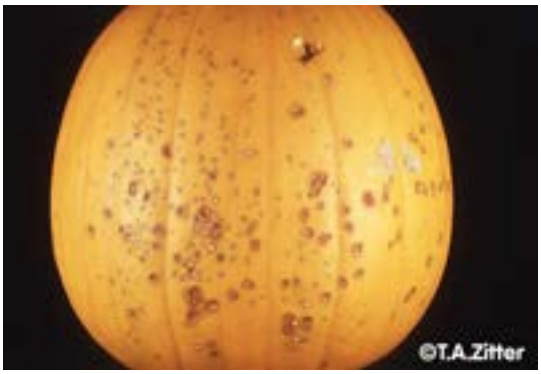
Black Rot



Later Stage Black Rot

Scab (*Cladosporium cucumerinum*)

This pathogen attacks all parts of the plants, but is most serious because of the disfiguring scab lesions that develop on fruit. The disease is widespread in North America and can occur annually if rainfall is abundant and temperatures cool. The spores (conidia) are borne in long chains, are easily dislodged, and spread long distances on wind. On foliage, the first sign of the disease is pale-green, water-soaked lesions which turn gray and become angular. On fruit, spots first appear as small sunken areas which can be mistaken for insect injury. The spots may ooze a sticky liquid and become crater-like as they darken with age. Dark green, velvety layers of spores may appear in the cavities and secondary soft-rotting bacteria can invade. Severity of symptoms varies with the age of fruit when it becomes infected. *C. cucumerinum* overwinters in infected squash and pumpkins vines, soil, and may also be seedborne. Spores produced in the spring can infect in as little as 9 hours, produce spots by 3 days, and produces a new crop of spores by 4 days. The disease is favored by heavy fog, heavy dews, light rains, and temperatures at or below 70˚ F. Start with disease-free seed or treat with a seed fungicide. Do not save your own seed if the disease is present. Select well-drained fields with good air circulation to promote rapid drying of foliage and fruit. Rotate out of cucurbits for 2 or more years as the pathogen overseasons very well. During cool, wet weather fungicide sprays may not be entirely effective because of the rapid disease cycle. Spray intervals may need to be shortened to 5 days under these conditions. Fungicides registered on pumpkins for scab control include maneb and chlorothalonil (Bravo).



Scab

Plectosporium Blight (*Plectosporium tabacinum*)

Like Scab, Plectosporium Blight is most damaging when it appears on the fruit. Pumpkins, yellow squash, and zucchini are the most susceptible of the cucurbits. Lens to diamond shaped, white to tan, lesions occur on stems, leaf veins, petioles, peduncles, and fruit. Severe stem and petiole infections can result in death of leaves and defoliation. Infected stems are dry and brittle. On fruit, the pathogen causes white, tan, to silvery russeting; individual lesions can coalesce to form a continuous scabby layer. Plectosporium survives in crop debris and is favored by warm, wet weather. No resistant cultivar of pumpkins has been reported. Rotation with non cucurbit crops can reduce disease. The fungus is readily controlled with protectant fungicides such as chlorothalonil (Bravo), maneb, and trifloxys-

trobin (Flint).

Pythium fruit rot (Cottony Leak) is caused by several different species of Pythium and can affect all parts of cucurbit plants at any stage of plant development. Pythium is a natural inhabitant of the soil, survives there indefinitely, and is present all cucurbit production areas. Cucumber is the most susceptible species; watermelon, pumpkin, melon, and squash may also be affected.

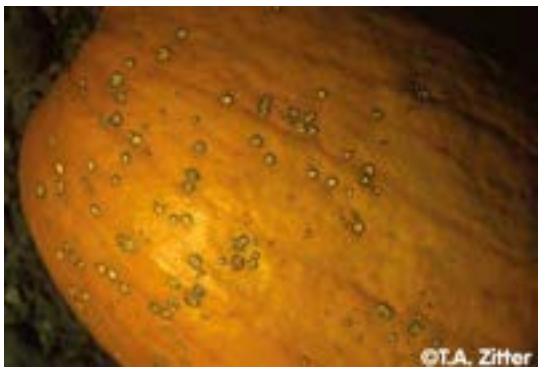
Plectosporium Blight

Symptoms of Pythium fruit rot start as brown, water- soaked lesions generally where the fruit is in contact with the soil. Lesions rapidly develop into a watery, soft rot with copious white, cottony mycelium. Pythium is considered to be a weak parasite, but can cause disease where conditions are extremely favorable, through wounds, or in fruit in contact with wet soil. Pythium is favored by high fertility and high moisture; avoid over-watering and over-fertilizing.

The best strategy for preventing Pythium fruit rot is planting in well-drained sandy soil and providing adequate drainage to allow rapid soil drying after a heavy rainfall. Barriers between fruit and soil such as mulch or cover crop residue can help. The most successful chemical control is a systemic fungicide (Ridomil, Aliette, ProPhyt, Forum, Presidio, Revus, and Previcur Flex) applied in enough water to soak the top quarter inch of soil. The first application should be made when plants start to vine. OMRI approved options include Actinovate, Kodiak, Mycostop, Plant Shield, and SoilGard.

Bacterial Fruit Rot (*Xanthomonas campestris pv. cucurbitae*)

Disease outbreaks of Bacterial leaf spot have been sporadic and occur mainly in warm, humid seasons. Symptoms appear similar to those caused by Angular Leaf Spot, (*Pseudomonas syringae pv. lachrymans*), although this bacterium fails to produce the milky exudates that characterize Angular Leaf Spot. Initial lesions on fruit are small, slightly sunken, circular spots with a tan center and dark brown border. The appearance of fruit symptoms varies with the age of the rind and amount of moisture present. The epidermis may split; the spots enlarge, and become sunken. The bacteria can penetrate into the flesh causing fruit rot and other secondary bacteria may invade. The pathogen is seedborne, but there is no evidence of survival in soil. The disease is common in the summer when temperatures are high and occurs frequently after heavy rainfall. Seed treatments with hot water (50˚ C for twenty minutes) or 10 % Chlorox reduces the number of bacteria, but does not completely eliminate them. Avoid overhead irrigation and working the fields when they are wet. Rotate out of cucurbits for two years. Repeated applications of copper as a protectant may be helpful; however, it is generally ineffective once an epidemic has begun.



Bacterial Fruit Rot

Viruses

Viruses affecting cucurbits include cucumber mosaic (CMV), squash mosaic (SqMV), watermelon mosaic 1 (WMV-1), watermelon mosaic 2 (WMV-2), and zucchini yellow mosaic (ZYMV). All these viruses, except SqMV are transmitted by aphids in a non-persistent manner. SqMV is seedborne and is spread primarily by spotted and striped cucumber beetles. The virus within the seed can not be eliminated with hot water or chemical treatments. Control consists of pathogen-free seed and controlling cucumber beetles. Virus diseases cause reductions in plant growth and yield and mottling, distortion, and fruit abnormalities that make the pumpkins unmarketable. There are no chemical treatments and control of aphids will not reduce, but may actually increase, transmission of the other cucurbit viruses. Rogue infected plants and destroy them away from cucurbit fields. Eliminate weed hosts.

- Prepared by M. Bess Dicklow, UMass Plant Diagnostic Lab, University of Massachusetts, mbdicklo@umext.umass.edu.
Special thanks to Dr. Thomas Zitter and Dr. Meg McGrath for photos. Updated 9/29/2011

Cucurbit update

Downy mildew of cucurbits has extended its reach in Massachusetts (and most likely throughout New England). The initial infestations were concentrated in cucumbers and cantaloupe, first confirmed on August 20. On August 30, DM was confirmed on pumpkins in Franklin County. Thus it is no longer limited just to cucumber and melon, but extends to pumpkin and sqaush as well. The foliage declines rapidly on susceptible crops, and the strain, or strains, of DM that have reached this region have a wide host range among the cucurbits. If crops are mature, then the decline of the foliage is not major concern except that they expose the fruit to sunscald. If crops are not mature, extending the life of the foliage with fungicide for CDM is recommended.

Powdery mildew continues to spread and in pumpkins, PM poses a risk to handles as well as to foliage. Where pumpkins are still a couple weeks from harvest or where they will be used for pick-your-own, a late-season fungicide application may delay the collapse of the pumpkin handles. Remember that those handles are nothing more than modified leaves and when the vine starts to really collapse, the plant continues to try and grow and will pull moisture back out of that stem leaving you with a poor handle. With the cooler temperatures, now might be a good time to try some sulfur (make sure it is a soluble product designed for sprays, such as Microthiol).

And with the heavy dews and cooler temperatures, this will really favor Cucurbit Downy Mildew to continue to spread, especially as the number of cucumbers alive continues to decline and the pathogen asserts itself on other cucurbits. Presidio, Previcur Flex, Ranman, Tanos and Curzate are all good materials on CDM and should be added to your Powdery Mildew sprays along with a protectant like Bravo or copper. Although CDM does not directly affect the fruit, like powdery mildew it will take down the plant and leave you with poor handles.

Adapted from Chuck Borndt, Capital District Fruit and Vegetable Weekly Update, Vol. 4 Issue 25, September 12 2012

Spotted wing drosophila infests cracked tomato fruit

Spotted wing drosophila is a major threat to small fruit throughout New England, On some farms, regular sprays combined with vigorous sanitation efforts and intensive picking of all ripe or nearly-ripe seems to be holding the damage down in late berries and grapes. Where no insecticides have been applied, growers are finding heavy infestations and unmarketable fruit. More on the life cycle and management of SWD including insecticides labeled in a range of crops can be found at:

https://extension.umass.edu/vegetable/insects/spotted-wing-drosophila and at Michigan's SWD website: http://www.ipm.msu.edu/swd.htm

Male Spotted Wing Drosophila

This week we observed SWD activity in greenhouse tomatoes, where its damage was consistent with the findings of Richard Cowles, a researcher at the Connecticut Ag Experiment Station who has been actively studying this insect's biology and control. He has observed that flies were not able to oviposit through tomato skin when confined with cherry tomatoes in a container. They were, however, able to oviposit through cracks in the fruit, and the larvae developed successfully in the fruit.

This week in a greenhouse full of grafted tomato varieties, we observed that there was one variety (Cherokee Purple) that had deep cracks on every fruit; all the others were sound and without cracks. The Cherokee fruit was full of SWD maggots, and their presence created the same soupy mess that is found in raspberries, blueberries and other fruit. In the end, nothing was left but the tomato skin hanging on the petiole (see photo). Fruit flies were hanging out on the sound fruit of other varieties but even the ripe fruit was not infested and could safely be harvested and marketed. Beware of marketing any cracked fruit from the greenhouse or the field, as SWD is very likely building up in overripe or cracked fruit.

--Ruth Hazzard, UMass Extension

Greenhouse tomato, variety Cherokee Purple, with deep radial cracks that allowed Spotted Wing Drosophila to lay eggs. Tiny fly larvae then feed insde the fruit, causing it to liquify. Tomatoes of other varieties,i n the same greenhouse without cracks, were clean. Photo by R. Hazzard.

ANTHRACNOSE & ECB BIOCONTROL IN RIPE PEPPERS

In New England, European corn borer and pepper maggot are the most common insect pests of pepper fruit. In many locations, peppers picked at the green stage are only marginally affected by ECB, but those left in the field long enough to ripen fall prey to ECB, then to soft rots. This season, the UMass IPM team worked with several growers to see if releases of Trichogramma could increase their yield of red and yellow fruit.

Trichogramma ostriniae are tiny parasitic wasps that seek out and kill the egg masses of the European corn borer (ECB). The use of these wasps in commercial sweet corn fields in Massachusetts has resulted in the reduction or elimination of foliar insecticide sprays while maintaining and improving ear quality. The good news is that Trichogramma wasps can also be used to control ECB in peppers. Since Trichogramma reduces fruit infestation, it should resulting in greater success with high value, ripe red peppers.

We tested Trichogramma releases at two farms in the eastern part of the state, and one farm in the Connecticut River Valley. We released Trichogramma weekly from mid July to mid August, targeting the second generation ECB flight period and egg laying.. The release rate was 90,000/acre on the first week (when flight begins) and 120,000/acre for 3 subsequent releases.

We came back at the end of the season to evaluate the success of control efforts. At each farm, we choose two varieties of colored sweet peppers and sampled 100-200 ripe peppers of each variety. ECB trap monitoring was inconsistent through the growing period and when recorded, trap counts were variable. Because of this, it is difficult to estimate how high damage would have been without Trichogramma. However, Trichogramma appeared to offer good control of what ECB were present. ECB damage was 0% in peppers in the CT Valley farm, and at 0-1.2% and 2-4% at farms in eastern MA -- lower than growers had observed in past years. We did find damage due to other causes, such as sunscald, anthracnose, cracking and pepper maggot. We were surprised by the amount of fruit rot that was present even when there was no evidence of ECB entry holes under the calyx, and no sign of internal insect feeding -- rates were 8%, 22%, and 23% of total sample in the 3 fields.

Anthracnose. Some of the fruit rot we found in ripe peppers was diagnosed as anthracnose caused by *Colletotrichum coccodes.* This is primarily a pathogen of ripe fruit that has been left on the plant for a long period of time. It is common in tomatoes and eggplant, but in peppers is mostly found on red or yellow peppers after a long ripening period (see photo). Latent infections can occur on immature fruit. The pathogen can be seed-borne and survives in the soil through the production of sclerotia.

Anthracnose caused by *Colletotrichum acutatum* is relatively new to the pepper industry in the U.S. It is fairly widespread in the south and has occurred for two consecutive years in MA Unlike C. coccodes, this species attacks fruit of all ages and is very aggressive. During favorable weather conditions, significant losses to peppers can occur.

Control strategies for anthracnose: Save seed from healthy fruit exclusively. Rotate away from solanaceous crops for at least two years. Start with certified, disease free seed and transplants. Plant in well drained fields. Control solanaceous weeds. Remove all diseased plant material from the field. Most peppers are susceptible but 'North Star' and 'Paladin' were the least susceptible in one report. Apply fungicides preventively where anthracnose has been a problem. Cabrio has performed better than Quadris for this disease. Azoxystrobin (Quadris), famoxadone plus cymoxanil

(Tanos), mancozeb (Dithane), and pyraclostrobin (Cabrio) are registered for anthracnose on peppers.

--Zara Dowling, Bess Dicklow, Ruth Hazzard, UMass Extension

HOW TO GET HELP FROM NRCS CONSERVATION PROGRAMS

If you're a farmer, you can get help from the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) to protect natural resources on the land that you own or manage. NRCS provides free conservation planning assistance and administers several programs, authorized under the federal Farm Bill, that provide financial assistance to help implement conservation measures identified in your conservation plan.

A conservation plan provides a roadmap to sustaining or improving production while managing the natural resource base that supports your operation. Conservation planning identifies objectives, resource limitations and opportunities, and evaluates alternatives to help you make decisions in managing your operation. Since 1935 when the agency was established during the Dust Bowl, NRCS has focused on soil erosion reduction. Over time, the NRCS has expanded its conservation focus to protect water quality, soil quality, water conservation, air quality, rare wildlife, and the sustainable production of crops and livestock.

Developing a conservation plan is the first step in working with NRCS and applying for most USDA conservation programs. This begins with a friendly phone call to your local NRCS office to set up an appointment with a conservation planner. This may require you to visit the NRCS office and an NRCS representative may visit with you to walk your land and discuss your concerns. You may also need to register your farm with the USDA Farm Service Agency for your area as part of initiating the conservation plan.

At times, there is a backlog of farms waiting for conservation planning assistance, so it is best to start the process well before the deadlines for conservation programs. If a conservation program can help you address the resource needs identified in your conservation plan, a NRCS representative will be happy to explain the application process.

The Conservation Planning/ Program Application Process:

1. Establish a customer record with the USDA Farm Service Agency (FSA). This may require an appointment with the local FSA office, typically located in your local USDA Service Center. Often it helps to bring a copy of your latest tax return to aid with registration. You want to register the farm with FSA under the same name and tax ID that you file your taxes with.
2. Work with FSA and NRCS to develop a map of your farm and other fields you manage. This will help the planner locate fields to visit during the site visit, as well as make sure the manager of fields is up to date in the FSA records.
3. NRCS determines if your land is eligible for conservation planning and/or programs. FSA determines additional eligibility (such as income limits) for conservation program participation.
4. A NRCS planner will conduct an initial site visit. During that site visit you and the planner will work to identify all the fields/areas that you would like to include in your conservation plan and determine what conservation practices may be eligible. It is good to include leased fields that you plan to continue farming in your conservation plan.
5. After the site visit, your NRCS planner will work to develop some initial recommendations and a conservation plan.
6. Review your conservation plan and, if desired, work with an NRCS planner to identify which practices are to be included in a conservation program application.
7. Work with your NRCS representative to determine the program and funding pool for which you wish to apply and fill out a Conservation Program Application.
9. Complete eligibility forms each year to keep your USDA conservation program eligibility up to date. Your application can not be considered unless you keep these forms up to date.For more information, contact your local NRCS office (http://offices.sc.egov.usda.gov/locator/) or visit the NRCS Massachusetts website at www.ma.nrcs.usda.gov.

UPCOMING MEETINGS

Irrigation & Energy Efficiency Workshop in Troy New Hampshire

September 18, 1-5pm, Troy NH. We receive many questions about the basics of irrigation, particularly in high tunnels. This workshop will feature a farm tour of Monadnock Berries; and will include presentations about the basics of irrigation, and rainwater cachement systems for high tunnel irrigation. For more info, see http://extension.unh.edu/agric/Docs/Irrigation_Flyer.pdf

Renewable Heating Workshop at Red Fire Farm in Montague MA

September 19, 6-8:30pm, Red Fire Farm, 184 Meadow Road in Montague.

Looking for ways to cut fossil fuel use and heat your farm buildings or greenhouses with renewable energy (solar, wood or geothermal)? Considering a new heating system for a packing shed, crop storage, or greenhouse? Representatives from the MA Dept. of Ag., MA Farm Energy Program, and MA Clean Energy Center will discuss technology and equipment options, drawing from farmer experiences across the state. We'll also announce new funding programs to help you convert to renewable heating systems – and have a guided tour of Red Fire Farm's heat pump set-up for renewable heating and cooling. Suggested donation is $5 and light refreshments will be provided. Please RSVP by Monday, September 17th to Devon at 413-665-7100. Sponsored by CISA and the MA Farm Energy Program

Tour Brent Loy's Breeding Trials at University of New Hampshire

September 26, 3-6pm, UNH Kingman Farm, Rte 155, Madbury, NH

Many of you grow some of the numerous varieties of pumpkins, squash, gourds, melons and tomatoes that Brent Loy has released over the years. Fall is a wonderful time to see Brent's field plantings, and there is a lot to see – according to Brent, he has "made some tremendous strides in pumpkin, squash, gourd and melon genetics and breeding over the past few years which could have a huge impact on the horticulture industry in the near future." I hope that some of you will consider joining us on Sep 26 to walk through these trials and chat with Brent. For info, see: http://extension.unh.edu/agric/Docs/PumpkinFlier.pdf

Attracting and Conserving Natural Enemies in Plant Production Yards and Greenhouses

October 24, 9:30am - 3:30pm, Publick House, Sturbridge, MA

Featuring John Sanderson, Cornell University and Brett Blaauw, Michigan State University. Free biological control agents to manage pests are as close as your own production yards. Learn about natural enemies native to the northeast, which flowers enhance natural enemies and how to attract and conserve the biological control agents that are already in your area. 4 Pesticide credits. Registration by mail or on-line. $40 includes lunch, breaks and handouts

Sponsored by UMass Extension and UConn Extension with support from NE Floriculture Inc. sponsors of the Northeast Greenhouse Conference. Details: http://extension.umass.edu/floriculture/

Northeast Greenhouse Conference and Expo

November 7 & 8, DCU Center, Worcester, MA For greenhouse growers, garden retailers, landscapers, nurseries, educators, students and allied trade. Two days of educational programs and 150 Trade show exhibitors. Registration and program information is at: http://extension.umass.edu/floriculture/

Vegetable Notes. Ruth Hazzard, editor and Amanda Brown and Andrew Cavanagh, assistant editors. Vegetable Notes is published weekly from May to September and at intervals 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; author and photographer is R. Hazzard if none is cited.