UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 15, Number 11 July 8, 2004

CROP CONDITIONS

More farms are picking or about to start picking sweet corn. Harvest is still limited to corn started under plastic or row cover, or set out as transplants. Transplanting corn seems to have worked well for those who used it—usually better than expected. Cucumbers (pickles), beets, green onions, cabbage, broccoli, lettuce, summer squash, zucchini, and high tunnel tomatoes are also being harvested. Beans are soon to start. Hot sunny days with relatively cool nights have been common; last week's temperatures were several degrees below normal throughout New England. However, crops are on schedule or ahead of schedule – especially compared to last year. Fall vine crops are filling in and starting to flower. Rainfall has been widespread in some parts of the state – 1/2 to 1 inch rainstorms, which allowed a break in irrigation – but eastern and southeastern Mass continued to get their rain in more spotty thunderstorms with light accumulations. Hailstorms hit parts of the state including central Mass and spots in the Connecticut Valley. Weeds are growing fast and growers are pushing to get caught up with hoeing and cultivating before crops (and weeds) get too big. Plantings of succession crops continue; lettuce, broccoli, greens – and the last corn plantings are going in next week, for the 'might make it' fall harvest.

Where heavy rains occur, pay attention to clearing out any pooled water within 24 hours, to prevent Phytophthora from starting. Water management is key in acheiving this. Do not allow standing water in your field! Higher humidity and warmer nights favor foliar disease such as late and early blight in tomato and potato; bacterial leaf spot of pepper and tomato; plectosporium in vine crops. It's time for careful scouting and initiating fungicide schedules in vulnerable crops. Insect pests include caterpillars in cabbage, leafhoppers in beans and potato. We are mostly in-between generations for ECB, crucifer flea beetle, striped cucumber beetle.

Markets are strong and good weather on weekends has been helpful for direct sales.

-R Hazzard

DISEASES IN SQUASH AND PUMPKIN: NEW AND OLD DISEASES MAKE A COMPLEX MIX

Plectosporium blight caused by the fungus *Plectosporium tabacinum* was confirmed at several farms in both MA and CT in summer of 2003 and caused significant crop losses in some fields. This new disease is now one among the many diseases that pumpkin and squash growers need to consider when deciding on spray selection and schedules. Based on grower descriptions of cucurbit crop problems last year, it is believed that P. tabacinum was far more wide spread than indicated by the few confirmed cases. The 2003 season was one of the wettest years on record in southern New England and many growers may have dismissed crop loses as normal fruit rot problems associated with wet weather. This has not been a wet year, but growers need to be aware of what to look for and how to manage it.

Powdery mildew and black rot (gummy stem blight) are also important diseases in vine crops – ones that are common. We also know that downy mildew, which normally does not appear in New England till late August, has already made its way northward as far as New Jersey. Thus we have a longer list of diseases than usual to watch for.

Symptoms of Plectosporium

Growers should be alert to watching for symptoms of Pectosporium. The strain of Plectosporium resent in the U.S. seems to primarily damage pumpkins, summer squash and zucchini. Plectosporium blight is favored by cool, humid or rainy weather. The fungus can overwinter on crop residue and can persist in the soil for several years. The fungus has not been reported to be seed-borne and no pumpkin or summer squash varieties are known to be resistant to the disease. Tiny spores are formed in lesions on vines, stems, fruit, leaf veins and petioles. Spores are spread by rain-splash and wind.

Initial lesions are small (<1/4 inch) and white. On vines, the lesions tend to be diamond to lens shaped (see photos); on fruit they are round to irregular. The lesions increase in number and coalesce until most of the vines and leaf petioles turn white and the foliage dies. Severely infected pumpkin vines become brittle and will shatter if stepped on. Early in the infection cycle, foliage tends to collapse in a circular pattern before damage becomes more universal

Plectosporium damage on pumpkin stem- notice the diamond shape of the lesions

throughout the field. These circular patterns can be easily detected when viewing an infected field from a distance. Fruit lesions produce a white russeting on the surface and stems that render the fruit unmarketable. The fruit lesions also allow for entry of soft rot pathogens that hasten the destruction of the crop.

If you detect Plectosporium blight in your fields, please send or bring a sample in to the diagnostic laboratory for conformation. Call 413-545-1045 for more information.

Fungicide Selection for Summer Squash:
Disease management recommendations include a three-year crop rotation, planting in sites with good air circulation to encourage rapid drying of the foliage, switching to trickle irrigation, scouting fields to confirm the presence of Plectosporium, applying fungicides if necessary, and plowing under crop residue after harvest. Chlorothalonil (e.g. Bravo) and trifloxystrobin (i.e. Flint) are effective fungicides for controlling Plectosporium blight. Selection of fungicides for summer squash is straightforward since this crop has a relatively short season. In most cases, two or three applications of a fungicide such as chlorothalonil, beginning at fruit set, will control Plectosporium blight as well as most other important diseases of summer squash, including powdery mildew.

Winter squash and pumpkin:
Fungicide selection is more challenging and expensive when it comes to choosing the most effective materials for chemical control on a long-season crop such as pumpkins.

Classes, trade names and common names of fungicides registered for use in cucurbits

Fungicide Group	Trade Name	Common Name
Strobilurin	Quadris	azoxystrobin
	Amistar	azoxystrobin
	Cabrio	pyraclostrobin
	Flint	trifloxystrobin
Demethylation inhibitor	Nova	myclobutanil
	Procure	triflumizole
Dithiocarbamate	Maneb	maneb
Chloronitrile	Bravo	chlorothalonil
Inorganics	Microthiol Dispress	sulfur
	Kocide	copper hydroxide

One problem limiting the effectiveness of using chlorothalonil (i.e. Bravo) for control of Plectosporium blight on pumpkins is that it does not work as well as many systemic fungicides on powdery mildew. Although trifloxystrobin (Flint) works well to control Plectosporium blight and powdery mildew, it is not the best selection for some other important cucurbit diseases such as black rot (gummy stem blight). Other systemic strobilurin fungicides such as azoxystrobin and pyraclostrobin (e.g. Quadris, Amistar and Cabrio) work pretty well on most of the important cucurbit diseases, but repeated use of systemics from the same fungicide group can hasten pesticide resistance and can lead to control failure. Powdery mildew and black rot have already developed resistance to stobilurins in some states.

Plectosporium lesions allow soft rot pathogens in

The best resistance management strategy to help preserve the useful life of the systemics is to make a single application from each of the stobilurin and demethylation inhibitors (DMI) fungicide groups in a given season.
Other systemics, such as the DMI=s myclobutanil and

triflumizole (Nova or Procure) or protectants like sulfur (i.e. Microthiol Dispress), work well on powdery mildew but do not control Plectosporium blight or other important cucurbit diseases. Protectants such as copper hydroxide and maneb may aid in the control of Plectosporium blight and possibly other diseases, but they don't have the efficacy to provide sufficient protection when used alone. So, fungicides must be mixed or alternated to produce a combination that will provide a full range of disease protection. Systemics must be alternated with fungicides outside of their group to prevent the build up of resistance or, better yet, used only once per season.

Recommended Pumpkin Spray Schedules for 2004

If your farm did not have Plectosporium blight in the past, it is suggested that you scout pumpkin and summer squash plantings weekly for symptoms of both Plectosporium and powdery mildew. If powdery mildew is detected first, follow the first spray schedule (example 1). Strobilurin (e.g. Flint, Cabrio, Amistar or Quadris) and demethylation inhibitor (e.g. Nova or Procure) applications should be applied 7 to 10 days apart, and should be limited to a single application per season for each fungicide group. Use the shorter 7-day interval during periods of wet weather. All systemic sprays should be applied with a protectant fungicide (e.g. chlorothalonil, copper or maneb). Sulfur (i.e. Microthiol Dispress) and chlorothalonil (i.e. Bravo) can be used for late-season sprays to rest the systemic materials and still provide effective control of Plectosporium blight, powdery mildew and other important cucurbit diseases. If Plectosporium blight is detected before powdery mildew, apply chlorothalonil (i.e. Bravo) on a weekly basis until powdery mildew is found (see spray schedule example 2). *Caution: do not apply sulfur if temperatures exceed 900˚F or after oil applications due to phytotoxicity problems.*

Spray schedule example 1:

Spray #	1 (PM Detected)	2	3	4
Fungicides	Cabrio + copper	Nova + Bravo	sulfur + Bravo	repeat if necessary (sulfur + Bravo)

If your farm had Plectosporium blight last year, it is suggested that you start your spray program as soon as the disease is detected or at fruit set (especially, if it is a wet season). Scout your fields weekly for symptoms of Plectosporium blight and powdery mildew. Apply chlorothalonil (i.e. Bravo) every seven days until powdery mildew is found during weekly scouting trips. Then, add a systemic material or sulfur to the spray mix for mildew control, taking care to alternate between fungicide groups to help prevent resistance. Copper or Maneb can be used with the strobilurin application to rest Bravo. Use a 10-day interval after a systemic and 7-day interval after Bravo. If the weather is wet, stay with a 7-day interval. Crop rotation is an essential component of this management program.

Spray schedule example 2:

Spray #	*1 (fruit set)	2(PM detected)	3	4	5
Fungicide	Bravo	Cabrio + Copper	Nova + Bravo	Sulfur + Bravo	repeat if necessary (sulfur + Bravo)

* If powdery mildew does not show up, continue to use Bravo alone

And what about Downy mildew? If downy mildew does reach this region, protectant fungicides will be important in preventing infection. The fungicide schedules listed above are a good preventative strategy; however, note that the systemics are not strong against downy mildew. Chlorothalonil (Bravo) will control this disease, as will fosetyl AL (Alliette WDG), mefanoxam plus chlorothaloni (Ridomil/Bravo), mefanoxam plus manzate (Ridomil/MZ) and maneb/mancozeb. Spray at first sign of this disease. Symptoms include yellow spots on the upper side of the leaf with angular spots containing a downy growth of grayish or purplish growth on the underside.

-- Adapted, by T. Jude Boucher, University of Connecticut Cooperative Extension System andRobert Wick, University of Massachusetts Department of Microbiology

PHYTOPHTHORA: VIGILANCE CHECKLIST

Many growers are using fields that have some history of Phytophthora blight. Its possible to produce a healthy crop in these without a disease outbreak -- IF YOU MANAGE WATER so that there is NEVER STANDING WATER FOR LONGER THAN 24 HOURS. Last week's twilight meeting at Pincecroft Farm in Connecticut gave an excellent example of a field with a history of phytophtora – where no disease occurred last year, even under extremely wet condition. Here are things that this grower is doing to prevent phytophthora:

1. Breaks in raised beds—where beds run across the slope, cut breaks to allow water to drain. Don't allow raised beds to become dams that hold water.
2. Clear away soil at the ends of rows – where raised beds reach the field edge, open up the end of the row to create drainage ditches.
3. Make sure the flow of water from within the field leaves the field – dig ditches if necessary!
4. Don't plant low areas – where there is a low section that puddles, don't plant a crop – plant a cover crop or leave it bare.
5. Use a V-ripper or other sub-soiling tool between

rows to break up hardpan and encourage drainage. Use this as needed, especially after a hard rain to speed drainage of water out of the field.

6. Check your irrigation system for leaks and fix them – don't allow puddles of water to sit near your irrigation pumps or lines.

Remember that the pathogen is very dependent on water to initiate disease and to move it from plant to plant. It produces spores that can swim to susceptible hosts (very short distances) and splashing rain and irrigation water can easily move spores from plant to plant. Its dependence on soil moisture is obvious in fields that have low spots or areas that do not drain readily. The disease will always begin in these areas first. Anything that can be done to improve drainage in the field will help prevent the disease from getting started.

Remember that you need three things to start an infection: 1) standing water 2) host crop and 3) warm temperatures. Once an infection starts in one area of the field, it can spread rapidly. The best control is never to let it get started in the first place.

If you suspect Phytophthora is present, get a positive identification. There are other diseases with similar symptoms but that would be managed very differently. Use the UMass Disease Diagnostic Lab (413-545-1045) to be sure what disease you have.

-R. Hazzard

BRASSICAS: CATERPILLARS AND FLEA BEETLES

Its not news that **diamondback moths** (DBM) and **imported cabbage worms** (ICW) are active in brassica fields. Growers should be scouting for these pests. **Cabbage loopers** (CL) have not been reported yet but could also be present. When scouting for 'worms', be sure to look beneath the leaves and on the inner most portions of the plants. Look for feeding damage as well as for caterpillars. Tiny feeding holes are often easier to spot than small green caterpillars. Apply controls when thresholds are reached, and direct materials at the undersides of leaves as much as possible. Use at least 50 gal/A of water to achieve better spray coverage, and use a spreader-sticker.

A **threshold of 15%-infested plants** (an 'infested' plant has at least one caterpillar of any species) is recommended for any heading cabbage, broccoli, and all leafy greens. Before the cupping stage, in cabbage and broccoli, use a threshold of 35% plants infested. These thresholds provide a clean crop at harvest. Cauliflower use a 10% threshold.

An excellent comparison of "worm" insects at various life stages can be found at the following website (click on images to enlarge) http://www.ces.ncsu.edu/depts/ent/notes/Vegetables/veg012e/cwcompho.htm.

Imported Cabbageworm: The larva is a slow-moving, velvety-green caterpillar, which grows through a series of five stages, or instars, to a length of 1 1/4 inches. Larger caterpillars have a delicate yellow line that runs lengthwise down the center of their bodies. Small larvae feed on the undersides of outer leaves after hatching. Larger larvae are more mobile and are often found in the florets of broccoli or feeding on the heads of cabbage. Larvae may also move to neighboring plants.

Diamondback Moth larvae grow through four instars to a length of 1/3-inch. They are light green; tapering to points on both ends and appearing scalloped or segmented along the edges of their bodies. During the first two instars, the larvae have black heads, which later lighten to match their green bodies. They can be distinguished from other caterpillar pests by their habit of wiggling frantically when touched or disturbed. They may also drop from the plant and suspend themselves on a silken thread until the disturbance passes. The larval stage lasts from two to four weeks, depending upon temperatures. Pupae are found attached to the undersides of crop foliage and appear to be thinly veiled under a fine, net-like silken cocoon.

Diamondback moth larva feeding on a leaf

The **cabbage looper** caterpillar is light green, with wavy white or light yellow lines down the back and sides. Full-grown larvae reach 1 ½ to 2 inches. At rest or when disturbed, cabbage loopers of any size will raise the middle of their body in a characteristic "loop" shape. Eggs are round, light green or yellow, and laid underneath the foliage. Feeding tends to create ragged, large holes in foliage, on both frame leaves and heads. Moths arrive in New England on migratory flights from the south, like corn earworm.

Insecticides for Caterpillars: In the area of caterpillar control there are many products available. Spinosad (SpinTor 2SC, Entrust), Avaunt (indoxycarb), Confirm 2F

Cabbage looper larva
Photo: Jude Boucher

(Tebufenozide) and Proclaim (Emamectin benzoate) are relatively new. Both Bt aizawi (eg Xentari, Agree) and Bt kurstaki (eg Dipel, Krymax, Biobit) products work well; Bt aizawi is recommended when diamondback moth is the dominant species. Several Bt's are registered for organic production, including Dipel and Xentari; Entrust is also approved for organic. It is possible to get excellent control of the three major caterpillar pests using low-risk products that are safe to handle and conserve beneficial insects (which do have an impact in suppressing aphids and caterpillars). It is also easier now to rotate among different types of products, to prevent selecting for resistance to any single product. There are also a number of synthetic pyrethroids and carbamates (see 2004-2005 New England Vegetable Management Guide for details, p 72) which are effective.

Flea beetle numbers have gone down – it is likely that we are between adult generations – pupae and larvae are in the soil, near the roots of early brassicas. We are starting to see an increase in numbers of striped flea beetles, which emerge a bit earlier. Planting fall broccoli or greens? Think twice before you put them close to your spring plantings – especially if you had a significant number of flea beetles. Those new adult beetles that will be emerging in late July and early August will be very hungry. If your fall brassicas are close by, feeding damage will be heavy. Try to rotate fall brassicas to a field that did not have spring brassicas.

-R. Hazzard

PREVENTING BIRD DAMAGE

Bird damage is a problem for many sweet corn growers and has been reported in Hadley corn fields recently. It is better to take action in advance of the problem, because once birds get in the habit of feeding on your corn, it will be harder to stop them! Below are a number of devices and tactics that growers can use.

Some general tips on repelling birds:

--Birds invade sweet corn fields about three days before picking. Time any control techniques so they are in place BEFORE harvest, and stay until harvest is complete.

--Use multiple tactics that reach more than one sensory mode. For example, combine scare-eye balloons with auditory repellents like shellcrackers or distress calls. This is likely to be more effective than using one tactic alone.

--Move devices frequently. Birds can learn and become habituated to any device that is used for a long time in one place.

--Good insect control will reduce the corn's attraction to birds. Birds eat insects, which is good, but they also like succulent grains of sweet corn and apparently can't tell the difference.

--After harvest, scare devices can be removed from one block and concentrated in the next block. Some growers then allow birds to scavenge in the old block. A method that some growers say works is to rotary mow or disc the interior blocks of the previously harvested fields. Birds like to feed on the ground because it is easier than clinging to an ear, but they prefer perching nearby for protection and rest.

Visual scare devices:

Eye-spot balloons and reflective mylar ribbons are effective and fairly economical for small fields. Many growers are now using these silent deterrents and the general feeling is that with variety and timing of use these methods are fairly effective. Growers report that the following methods make balloons more effective: use at least 8 balloons per acre, place them in the field several days before harvest, and leave the previous block standing, without balloons, to allow birds to feed in older corn.

Auditory Scare Devices:

Exploders are gas fired cannons placed in the field and fire with automated discharge timings. These can be quite affective. Cannons are available from some agriculture supply sources. Do check with your farm neighbors and the local police to let them know what you are going to do. Cannons are very loud.

Shellcrackers are 12 gauge shotgun shells in which the lead shot has been replaced with a bulldog firecracker. When fired from a shotgun, this firecracker travels 75 to 150 yards and explodes in the air with a loud report. Use a single shot, inexpensive 12 gauge shotgun as the loads are very corrosive. Firing a few rounds early and late in the day will unsettle birds. Federal permits are not required. Again, notify local police and neighbors to let them know what you are doing. Check on local town ordinances. This method can be satisfying on a short term basis. The disadvantage is that it requires a person to take time in the field

to discharge the shellcrackers. For a more detailed fact sheet on shellcrackers and other prevention devices, contact USDA Wildlife Services (413-253-2403).

Here are three sources for shellcrackers:

-*Reed-Joseph International Co.* P.O. Box 894 Greenville, MS 38702 (800) 647-5554

-*Margo Supplies Ltd.* Site 20, Box 11, RR#6 Calgary, Alberta, Canada T2M 4l5 (403) 285-9731

-*Sutton Ag Ent.* 1081 Harkins Rd. Salinas, CA 93901 (408) 422-9636

Distress Calls

Recordings of distress calls or the calls of predatory birds, which repeat at regular or random intervals and operate on battery or solar-power, can be quite effective. Because flocking birds are very responsive to the signals from others in their flock, a distress call from one bird is a sign to all the others that an area is unsafe. These have become quite sophisticated; with programmable or random call intervals that help to overcome birds' ability to get used to regular sound intervals. Here are some sources:

-*OESCO*, www.oescoinc.com/, 800-634-5557 or 413-369-4355. Box 540, Rte 116, Conway, MA 01341

-*Birdbusters*, 300 Calvert Ave, Alexandria, VA 22301, phone (703) 299 8855

-*Bird-X, Inc*, 300 Elizatbeth Ave., Chicago, Ill 60607 (800) 662-5021

-*Gemplers'* 100 Countryside Dr., PO box 270, Belleville, WI 53508 (800) 382-8473

Note: not all sources have been checked this year to be sure they are still providing these these devices.

R. Hazzard

TOMATO: EARLY BLIGHT AND LATE BLIGHT

Field tomato plants are growing well and setting fruit. Scout your plants for signs of early blight, which shows up as target-shaped brown lesions on lower leaves. With foliage getting thicker, fruit load putting more nutrient demands on the plants, and, possibly, the beginning of senescence on older leaves, we are likely to see symptoms of early blight. Early blight has been observed in tomatoes in CT and MA. Connecticut IPM program recommends starting sprays when the first symptoms are found on the lower leaves, and maintaining a 7-10 day schedule depending on how favorable weather conditions are for disease. We will not be providing TOM-CAST disease forecasts this season. TOM-CAST generally reaches the threshold for first sprays by the first week in July, and even if it does not, we recommend that applications of protectant or systemic fungicides begin in the first week of July.

Late blight has been observed in PA and NY. Given the last decade of experience, we expect a few incidences from MA.

SWEET CORN

European corn borer flights are at low ebb. No locations are above 10 moths per week. Where no corn earworm is present, silking corn does not need to be sprayed. However, corn with newly emerging tassels should be scouted and sprayed if >15%infested. There are still some borers 'left' from the first generation.

Corn earworm is zero in most locations. However, CEW moths were picked up at levels above threshold (> 2 moths per week) in three locations – one field in Hadley (but not in other fields in Hadley), Feeding Hills (4 moths, CT Valley west of Springfield) and in Sharon (3 moths). It is difficult to know how far these local patches of activity extend – good reason to have your own trap! Obviously there is no broad influx of CEW moths yet. Growers catching 2-6 moths per week should be spraying silk at a 5-6 day intervals.

Watch for aphids and sap beetles. Note that the twilight meeting on July 14 will include a discussion on sap beetles.

Town	Date	ECB Z1	ECB E2	Total ECB	CEW 1	CEW 2	%PT
Berkshires/ Champlain Valley							
Westminster, VT	7/7	0	0	0			38%
CT River Valley							
S. Deerfield	7/6	1	2	3			
N. Hadley	7/6	0	3	3			14%
Hatfield	7/7	4	3	7			53%
Hadley	7/6	0	10	10		6	1%
Feeding Hills	7/7	0	0	0	4		8%
C.&E. MA							
Dighton	7/6	0	0	0	1		
Still River	7/6	1	0	1			
N. Andover	7/2	0	2	2			22%
Concord	7/6	0	0	0			4%
Ipswich	7/3	0	1	1			12%
Leicester/ Spencer	7/7	0	0	0			14%
Northbridge	7/7	0	0	0			12%
Tyngsboro	7/5	0	8	8			18%
Seekonk	7/6	5	3	8			
Sharon	7/6	7	1	8		3	

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Twilight meeting at Czajkowski Farms

Wednesday, July 14, 4:00-8:30 pm

Come and see a well-managed, forward-looking, successful farm in the heart of the Connecticut Valley. Joe and Wally Czajkowski will host this tour of their 170-acre farm in Hadley where they are the third generation to grow vegetables, berries and tobacco.

(Note earlier start time for disease diagnostics and equipment review!)

4:00 - 5:30 pm – Onsite disease diagnostic lab. Bring your samples! Dr. Rob Wick will have compound and dissecting microscopes and will be available for consultations.

-**Check Out This Equipment**– don't just look at it – try it!

The following equipment will be set up and ready for you to use…..

-Monoseem planter set up for corn, winter squash or pumpkin adapted for no-till planting and trench application of Admire

-Regi weeder

-Shrink wrapper for packing line

-Mini-haybale maker for sales for farmstands and supermarkets

and more!

4:30 -- 5:30 –

Food served: light supper courtesy of Mass Assoc of Roadside Stands (MARS) and Czajkowski Farms

5:30--Introductions and Brief Talks

-**Czajkowski Farm overview** – Walt and Joe Czajkowski

-Buternut storage, peeling and packing. – New storage facility specially designed for butternut. Carrot peeling year round.

-**Town Agricultural Commissions** – a project to strengthen the voice for agriculture in every town in Massachusetts

-**CISA** (Communities Involved in Sustaining Agriculture) and Dept of Ag Resources.

-Farm to School Project – direct sales to schools. New national legislation was passed into law on June 30th that will give grants to schools who wish to buy locally grown food. Anne Carter and Joe Czajkowski will discuss a pilot project in four western Mass school districts.

-**PTC project:** walk to butternut field with Blue Hubbard perimeter trap crop treated with Admire. Main field never needed a spray for cucumber beetle. (Ruth Hazzard). Trickle irrigation set up for butternut.

6:30 Board the bus for tour of Hadley fields:

Organic butternut Joe is now growing 18 acres of certified organic crops including sweet corn, butternut, and other crops.

Strawberry Sonia Schloemann will talk about managing sap beetle, a pest of strawberry and sweet corn. Joe will talk about how they manage this PYO strawberry operation.

Brambles and Blueberries New plantings of PYO berries. Pest Management and production (Joe Czajkowski and Sonia Schloemann)

No-till Butternut Squash Planting directly into rye cover crop.

Pesticide recertification contact hours: 1 hour's credit will be given for attending this meeting.

Directions:
From the west or south (or east, if you come up I-91 from the Mass Pike): Turn off I-91 at Rte 9/Northampton exit, turn right (east) across the bridge. Follow Rte 9 east to North Maple St (across from the malls and Walmart). Turn left. At the stoplight go straight. Opposite the UMass Horse farm, turn left on Mt. Warner Rd Go ½ mile, turn left into driveway, storage barn is at the end of the driveway. Look for signs.

From the north: Take Rte 116 over the CT river and go straight through the lights in the center of Sunderland. Continue to the next traffic light. Turn right onto Meadow St. After about 1 to 1.5 miles, turn right opposite the UMass Horse Farm onto Mt. Warner Rd, then follow directions above. (Note: North Maple St. and Meadow St. are two sections of the same road)

Co-sponsored by CISA, MARS, and Mass. Dept of Agricultural Resources.