



UMASS
EXTENSION



Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 20, Number 19

September 10, 2009

IN THIS ISSUE:

Crop Conditions
Pumpkin & Winter Squash Update
Brassicas: Fall Insects & Non-Pathogenic Disorders
Potato Storage Diseases
Sweet Corn Report
Atlas Farm Twilight Meeting
Upcoming Meetings

CROP CONDITIONS

Dry, sunny weather has continued which is welcome for harvesting and ripening but has required irrigation, since we've had no rain for about two weeks. Rain is expected within the next two days. Nights have been consistently and unusually cool which raises concern that late-ripening crops won't reach maturity or an early frost could cut off some crops. Many growers were counting on a mild fall to try to make up for some of the summer's losses. Harvest of summer vegetables such as peppers, eggplants, summer squash, zucchini is going strong but is likely to slow down if cold nights continue. Sweet corn continues but more and more growers will be wrapping up the season in the next couple of weeks. The onion crop is excellent. The pumpkin crop overall is in relatively short supply – between late planting, poor fruit set, poor growing conditions, and losses to disease the yields are down. Downy mildew has affected pumpkin, squash, cucumber (see cucurbit update).

The 2010-2011 edition of the New England Vegetable Management Guide will be printed this fall. If you want a preview of all of the updated content, check www.nevegetable.org.

Mark your calendars for the NEW ENGLAND VEGETABLE & FRUIT CONFERENCE, December 15-17. The 16th New England Vegetable & Fruit Conference (NEVFC) and Trade Show takes place every other year, and includes 30 educational sessions over 3 days. Located in Manchester NH this is a must-go event for commercial growers of every persuasion. Topics include major vegetable, berry and tree fruit crops, and much more, from irrigation to greenhouse and tunnel systems. Farmer-to-Farmer meetings throughout the conference allow you to discuss specific issues in more detail. There is also an extensive Trade Show with over 100 exhibitors. For program and registration details visit: <http://www.newenglandvfc.org/>.

This is the last weekly issue of 2009 Vegetable Notes. We will publish again in two weeks, then monthly through the winter. Since we started weekly publication of this newsletter in summer 1989, we have published over 365 issues. That's a year's worth of newsletter editing days we've put in, over the past twenty years! We are glad to wind down another year's weekly output, and hope that the information we've provided has helped your farming business survive and thrive in a difficult growing year.

--the editors, Ruth Hazzard, Andy Cavanagh, and Amanda Brown.

PUMPKINS AND WINTER SQUASH UPDATE

Some growers have lost their pumpkins to disease, others are busy harvesting a pretty decent crop, and others are waiting for late-setting fruit to size up and mature. The cold nights of the past week slow ripening and could cause chilling injury especially to butternut squash that is in the field or in exposed bins. Chilling injury is cumulative, and occurs when temperatures drop below 50 degrees F. Safely in the barn or in a greenhouse is a great place for winter squash to be – assuming it's reached maturity!



Butternut Bins Covered for Frost Protection

Pumpkins and winter squash are suffering from a number of foliar diseases, including powdery mildew and downy mildew. Downy is affecting these crops more severely than in past years. Fog that develops before dawn and lasts well into the morning has created longer leaf wetness periods. Black rot and bacterial leaf spot are potential fruit rots that show up at this time. Spray schedules to manage these pathogens should be ongoing, at least until within 7-10 days of harvest. For crops destined for longer storage, a final protectant spray on fruit may be warranted.

In addition to these problems, this is the time of the season that melon aphid tends to appear in fields. This green to yellow-green aphid can build to extremely high numbers on the underside of leaves. When numerous, aphids can deposit enough sticky droppings on the surface of fruit to cause unsightly sooty mold to grow there. This makes the fruit less desirable, especially for U-pick sites. When scouting for other pests, look at the undersides of 5-10 leaves per site in 10 random locations. If leaves with 25 or more aphids are found in more than half of the sites, consider treating. As foliage declines later in the season, aphid control becomes less important because the leaves are not carried above the fruit. Consider treating for cucumber beetle if evidence

of fruit scarring (feeding on the skin) or handle scarring is appearing and cucumber beetles are found in more than two samples. Insecticides for aphids and cucumber beetle can be found online at the updated New England Vegetable Management Guide website, www.nevegetable.org (search for crops/pumpkin and squash/aphids)

—adapted from Rutgers University Plant and Pest Advisory September 9, 2009, 'IPM Update' by Kristian Holmstrom, Vegetable IPM Program.

INSECTS AND NON-PATHOGENIC DISORDERS OF FALL BRASSICAS.

In last week's issue we addressed some of the diseases of Brassicas that show up in the fall. In this issue we will address insects and non-pathogenic disorders.

Non-pathogenic disorders of broccoli: Brown bead, heat injury, and hollow stem of Broccoli. Each of these disorders can be caused by a combination of factors – heat stress during head initiation, excessive water especially after a dry period, excessive nitrogen, rapid growth during head formation, deficiency of boron, and cultivar susceptibility. Heat injury is most often manifest as unevenness of the crown and uneven bud size on the head, as well as small head size. Brown bead appears as heads approach maturity and is usually associated with rapid growth during periods of high temperature followed by abundant rainfall. Floral buds turn tan or brown and become easily detached. These may then become infected with soft rot bacteria. Boron deficiency, which shows up as hollow stem of broccoli or cauliflower, brown discoloration of turnip or rutabaga roots, or internal discoloration of cauliflower, can be more severe if plants are water stressed or pH is greater than seven. Adequate supplies of soil organic matter, consistent and adequate water levels in the soil, and supplemental boron applied before planting if boron levels are low can all help in avoiding these problems.

Cabbage root maggot can cause root injury in fall turnips and rutabagas as well as daikon and radishes. Occasionally maggots cause injury to fall broccoli or cabbage, but that is less common. Timing of controls is more difficult than in spring crops, and root crops are more sensitive to injury since the root is marketed. Feeding injury also allows entry of soft rot and other pathogens. The adult flies are active in early September, but the precise flight period is not well known and not easy to detect. The only labeled chemical control is Lorsban, which may be directed to the base of the plant and has a 30 days to harvest interval. Non-chemical control options are in



Root Maggot Damage on Daikon Radish

short supply. In 2005, growers in the UMass Brassica Project evaluated row cover to exclude maggot flies from fall root crops and found the cover reduced yield (and enhanced aphids). To detect maggot fly activity, use yellow sticky cards to capture adults, or search for eggs at the base of the stem. Maggot feeding occurs underground and requires checking roots to detect if injury is present.

Cabbage aphid. Cabbage aphids tend to build up in fall Brassicas. These are gray-green aphids with a waxy coating that makes them appear whitish gray. Winged aphids arrive, and produce colonies of wingless nymphs that also mature and reproduce. Colonies tend to form in younger, upper leaves, in cabbage heads, between cauliflower curds, or in long-season Brassicas such as Brussels sprouts. Large colonies can stunt plants or cause curled leaves, and will contaminate harvested parts.



Cabbage Aphids

Aphid biocontrols. Aphid predators and parasites are widespread in the environment and often keep colonies under control. However, if numbers are building, insecticides may be needed. University of Connecticut recommends a threshold of 10% infested plants in cabbage, broccoli, cauliflower and Brussels sprouts after heads or sprouts begin to form. Mycotrol O (*Beauveria bassiana*) is a fungus that infects insects. Treat when populations are low, use repeated applications. It is OMRI listed.

Chemical control (conventional and organic): There is a range of chemistries available among insecticides labeled for this pest, some of which have been around a long time, while others are newly registered. These include pyrethroids (Capture, Warrior), organophosphates (Orthene, Lorsban, Dimethoate), carbamates (Thionex), neonicotinoids (Assail, Admire, Provado, Platinum), pymetrozine (Fulfill), pyrethrin (Pyganic, OMRI listed) and insecticidal soap (MPede, OMRI listed). Beleaf is registered only in Massachusetts. Note plant back limitations, limits on which Brassicas are allowed, and days to harvest. Spirotetramat (Movento) is a newer product with a unique mode of action. A spreader sticker is recommended with many products, but check the label recommendations. Among the 'softer' chemistries and those allowed for organic, insecticidal soaps have been shown to be capable of reducing cabbage aphid, and are relatively easy on natural enemies. Soaps are quite effective as long as the material contacts the pest at the time of application, but they have no residual activity once they have dried. Ensure good coverage of the undersides of leaves. Several applications may be needed. Pyganic may be hard on some natural enemies.

Below is the list of products for cabbage aphid in the updated New England Management Guide. Some of these are relatively new. For more information on newer insecticides see www.nevegetable.org and look under pest management/insect management/Table 20 as well as the alphabetical listing of insecticides by trade name. URL: <http://www.nevegetable.org/index.php/pestmanagement/insects?start=2>

Or, go to the specific crop and pest. The website has updated information, which will be printed in the 2010 Guide.

acephate (Orthene 97): 1/2 to 1 lb/A (14 dh, REI 24h, Group 1B). For green peach aphid. For Brussels sprouts and cauliflower only.

acetamiprid (Assail 30SG): 2 to 4 dry oz/A (7 dh, REI 12h, Group 4).

azadirachtin (Neemix 4.5): 5 to 7 oz/A (0 dh, REI 12h, Group 18). Suppression and adult feeding deterrent. OMRI listed.

Beauveria bassiana (Mycotrol O): 8 to 32 oz/A (0 dh, REI 4h, Group 22). Treat when populations are low and thoroughly cover foliage. Takes 7 to 10 days after the first spray to see control. Repeat applications may be needed. OMRI listed.

bifenthrin (Capture* 2EC): 2.1 to 6.4 oz/A (7 dh, REI 12h, Group 3A).

chlorpyrifos (Lorsban 75WG): 0.67 to 1.33 lb/A (21 dh, REI 24h, Group 1B). For broccoli, Brussels sprouts, cabbage, cauliflower, kale, and kohlrabi only.

dimethoate (Dimethoate 4EC): 8 to 16 oz/A (7 dh, REI 48h, Group 1B) for broccoli and cauliflower, 8 oz/A (14 dh) for kale and mustard. DO NOT use on other Brassica crops (except Turnip).

dinotefuran (Venom 20SG): 7 to 14 dry oz/A foliar or 18 to 21 dry oz/A soil (1 dh foliar, 21 dh soil, REI 12h, Group 4A). For resistance management purposes, do not use foliar spray after soil application or following another nicotinoid (Group

4A) insecticide application on the same crop. For head and stem Brassicas only.

endosulfan (Thionex* 50W): 1.5 to 2 lbs/A (7dh broccoli and cabbage, 14dh Brussels sprouts and cabbage, 21dh for collards and mustard greens, REI 24h, Group 2A). For broccoli, Brussels sprouts, cauliflower, cabbage, collards and mustard greens.

flonicamid (Beleaf 50SG): 2 to 2.8 dry oz/A (0 dh, REI 12, Group 9C). Only registered in MA.

imidacloprid (Admire Pro): 4.4 to 10.5 oz/A (21 dh, REI 12h, Group 4A). May be applied as banded spray over seed line during planting (incorporated with irrigation), in-furrow spray, transplant water drench during transplanting or through trickle irrigation. See plant-back restrictions. To avoid resistance, do not use another nicotinoid (Group 4A) insecticide if Admire Pro was used at planting.

imidacloprid (Provado 1.6F): 3.8 oz/A (7 dh, REI 12h, Group 4A). See plant-back restrictions. For resistance management purposes, do not use a Provado foliar application following another nicotinoid (Group 4) insecticide application on the same crop.

insecticidal soap (M-Pede): 1.25 to 2.5 oz/gal water (0 dh, REI 12h). Spray to wet all infested plant surfaces. Repeated applications may be necessary. Apply with another aphicide. OMRI listed.

lambda-cyhalothrin (Warrior*): 2.5 to 3.8 oz/A (1 dh, REI 24h, Group 3A). For head and stem Brassicas (broccoli, Brussels sprouts, cauliflower, cabbage, chinese broccoli, chinese cabbage and kohlrabi). Suppression only.

malathion (Malathion 57 EC): 1 to 2 pt/A (7 dh, 3 dh broccoli, REI 12h, Group 1B). For broccoli, Brussels sprouts, cabbage, cauliflower, kale, kohlrabi, mustard greens and collards.

pymetrozine (Fulfill): 2.75 oz/A (7 dh, REI 12h, Group 9A). Selective control of aphids including cabbage aphid. Translaminar. Apply at threshold before populations build up.

pyrethrin (PyGanic EC5.0): 4.5 to 18 oz/A (0 dh, REI 12h, Group 3A). OMRI listed.

pyrethrins + piperonyl butoxide (Pyrenone): 1 tsp/gal, or 1 to 12 oz/A gal (0 dh, REI 12h, Group 3A).

sodium tetraborohydrate decahydrate (Prev-AM): 100 oz/100 gal (0.5 dh, REI 12h, Group 25). Do not apply in midday sun or mix with copper, sulfur or oils. CT only.

spirotetramat (Movento): 4-5 oz/A (1dh, REI 24 h, Group 23). Immature stages; may also reduce adult fertility.

thiamethoxam (Actara): 1.5 to 3 oz/A (7 dh leafy Brassica greens, 0 dh head and stem Brassicas, REI 12h, Group 4).

thiamethoxam (Platinum): 5 to 11 oz/A (30 dh, REI 12h, Group 4). Systemic insecticide used as an in-furrow, banded, drench, or drip irrigation application to the seed/seedling root zone during or after planting/transplanting operations. DO NOT apply as a foliar spray.

Imported cabbageworm (ICW) and other caterpillars. Imported cabbageworm seems to be the most cold-tolerant of the three key caterpillar pests, and can continue to cause damage to heading and leafy brassicas, mainly the waxy cole crops. While their growth slows down, they can hang on through some frosts. You may still see the familiar white butterfly in daytime fluttering around, laying eggs. The ICW caterpillars are gray-green, slightly fuzzy, and sluggish. Feeding and resting occur on the underside of leaves, and larvae feed more heavily in the head of cabbage or broccoli as they grow. The overwintering stage is the chrysalis (pupa), which is green or brown, smooth with three pointed ridges on its back. Keep an eye out by checking undersides of leaves for all stages, and look for tiny feeding holes of new young caterpillars as well as larger larvae. Diamondback moth and cabbage looper may also be active. One spray prior to heading is likely to be sufficient at this point in the season.

Flea beetles. In September, flea beetle activity drops off because adult beetles leave the field to spend the winter in leaf litter on field borders. They lose interest in feeding and focus on finding a safe spot for the winter. This is a relief for Asian greens, Nappa cabbage, arugula and all the other favorite greens that are often severely damaged earlier in the season. It is a relief for the farmer also, because this is the time when high quality greens can usually be produced without

row cover. Take note of where you last saw heavy flea beetle feeding during August. Since flea beetles will most likely overwinter near that field, that is the field to avoid next year when you decide where to plant your early spring Brassicas!

POTATO DISEASES IN STORAGE: QUICK CHECKLIST ON WHAT TO LOOK FOR AND WHAT TO DO.

The conditions of the 2009 season provided a suitable environment for many diseases that could become a problem in storage. Even if fungicides were used to protect plants during the growing season, without careful management during harvest and storage these pathogens can infect and spread rapidly. Late blight has been addressed at length in previous issues. Bacterial soft rot, Fusarium dry rot, pink rot, and Pythium leak are four serious tuber rotting pathogens that cause the most significant losses in storage. These diseases can be brought in on infected tubers or survive on storage debris. Many of them take only a few weeks to destroy a tuber and then spread through the storage pile. Due to excessive moisture periodically throughout the growing season, we expect higher than normal levels of soft rot and pink rot. Two of the main management practices that will reduce losses to these diseases after harvest are allowing tuber skins to mature in the field before harvesting and eliminating free moisture in storage areas. However, Rhizoctonia black scurf and silver scurf may be at high levels on the tubers and will increase in severity the longer the tubers remain in the soil. Therefore to avoid these diseases, as soon as skins are set, harvest should begin. If the weather remains wet during the harvest, soil may adhere to the tubers during harvest. This soil will promote conditions for soft rot.

Below is a list of guidelines that can be used during harvesting and storage to help prevent the spread of the diseases mentioned above and to maintain high quality potatoes:

Vine killing

- * Vine kill stops tuber growth at the desired maturity, stabilizes the tuber solids, and promotes skin set.
- * Mechanical or chemical methods or a combination of the two can be used to kill potato vines.
- * More than one application of a chemical desiccant may be required.

Disease management

- * Foliar diseases, especially late blight, are still a threat as vines begin to die or vine killing methods are implemented.
- * These pathogens can spread to tubers and cause problems in storage if they are not controlled prior to harvest.
- * Application of a desiccant followed by a fungicide application a few days later is recommended instead of applying the desiccant and fungicide at the same time. This way thorough coverage of the remaining plant material can be achieved.

Skin set

- * Most tuber diseases require a wound to get into the potato. Good skin set greatly reduces the amount of wounding at harvest and increases the storage ability of the tuber.
- * Allow for skin set on the tubers in the field for at least 10-14 days before harvesting.

Wounding and bruising prevention

- * Check harvesting and transporting equipment to make sure it is working properly and that it causes minimal damage to tubers
- * Harvest when the soil is moist but not too wet and when tuber pulp temperatures are around 60-65°F will make the potatoes less susceptible to bruising and wounds.

Grading

- * Grade out diseased tubers as quickly as possible. The longer they are mixed with healthy tubers, the higher the chance of disease spread.

Healing period

- * Store tubers at about 50-55°F for 10-14 days to allow wounds to heal before placing potatoes into colder storage.

Storage

* Before storing potatoes, facilities should be cleaned thoroughly and inspected. Make sure to check the insulation, fans, humidifiers, and ventilation system. If any of these are in poor condition it could result in losses due to disease.

Diagnostics

* Don't just guess, and don't assume that every tuber rot that you see is late blight. Send samples to the Plant Disease Diagnostic lab to get an accurate diagnosis. Different tuber blights need different management, and even knowing what you need to do next year to prevent the problem is vitally important. Phone for UMass Diagnostics Lab: 413-545-3209. A good online resource on tuber diseases can be found at http://vegetablemdonline.ppath.cornell.edu/factsheets/Potato_Detection.htm#Click2. However, finding a photo online that looks like your problem is not the same as having a plant pathologist confirm what is on YOUR tubers!

SWEET CORN

Sweet corn harvest is about 80% completed in New England. Insect pressure is down for the most part with a few areas still catching significant amounts of corn earworm. For sweet corn that you expect to pick in late September or October, spray schedules can be extended due to the cool nights and low daytime temperatures. Continue on a five to seven day spray schedule where trap captures are over seven moths per week.

Fall armyworm trap counts are still low, as they have been all season. Despite the low trap counts we still saw lots of damage in the field this year from FAW caterpillars. Keep traps up where needed and remain checking pre-silk and silking corn for FAW damage.

European corn borer flight has dropped dramatically and has ended most places. Traps for ECB can be removed for the season. Wash traps with a mild bleach solution and store in a dry, rodent protected space for the winter. Replace traps with holes, worn out Velcro or missing ties. New traps, lures and other scouting supplies are available through Great Lakes IPM, visit www.greatlakesipm.com or call 989-268-5693 to order or obtain a catalog. Store extra lures from this season in the freezer for use next season. Pepper growers should be able to stop any further ECB sprays now, if they have not already done so. ECB trap counts are down and harvest samples have shown little or no ECB damage to fruit.

This will be the final corn report for the season. We would like to offer a special thanks to the farmers, Extension specialists and consultants who sent in trap counts all season. Without their generosity in time and effort we would not be able to maintain a trapping network that covers the whole state and extends northward into VT and NH. Many thanks to Jim Mussoni, Courtney Huffman, David Rose, Jim Golonka, Skip Pepin, George Hamilton, Allison and Dean Landale, Gideon

Sweet Corn Trap Counts

Location	Z1	EII	Total ECB	AVG CEW	FAW AVG
CT Valley					
South Deerfield	0	4	4	0	0
Deerfield	0	0	2	2	0
Sunderland	0	0	0	8	0
Whately	0	0	0	20	-
Central & Eastern MA					
Lancaster	0	0	0	2	0
Tyngsboro	0	0	0	2	0
Concord	0	0	0	2	2
Northbridge	0	0	0	5	0
Spencer	0	0	0	8	0
Dracut	0	0	0	1	0
Rehobeth	0	2	2	38	2
VT					
Brandon	0	0	0	0	0
NH					
Litchfield	1	0	0.5	11	22
Mason	0	0	0	21.5	5
Hollis	0	0	0	2	1

Porth, Ryan Voiland, Mark Reeves, Bruce Howden, Jim Ward, Ilan, Andy Spolette, John Bartlett, Ben Perrault, Joe Czajkowski, Allan Zuchowski, Rob Lynch and Meghan Arquin, for their contributions to the scouting network!

As the 2009 season comes to an end you may want to consider how your own on farm scouting program could benefit you in 2010. Throughout the season, trap captures and field infestation levels can be very different from one location to the next. By monitoring flight patterns and caterpillar activity on your own farm you may be able to save yourself some time, money and stress! For information and resources on how to do this, visit the University of Massachusetts Vegetable Program website at: <http://www.umassvegetable.org/SweetCornIPMScoutingGuide.htm>

- Amanda Brown

UMASS TWILIGHT MEETING: ATLAS FARM, SOUTH DEEFIELD MA

Wednesday October 7, 4:00-7:00 pm

Highlights:

- Using corn heat for greenhouse tomatoes
- Vegetable equipment
- Growing systems for lettuce and greens
- Dealing with late blight on an organic farm
- New irrigation system for trickle and overhead

Atlas Farm is a small family farm in South Deerfield, MA that has grown from 5 to over 35 acres over the course of just six years. They grow a wide diversity of certified organic vegetables, herbs, and flowers, with many gourmet, heirloom and specialty varieties in addition to all the standard varieties. Owners Sara and Gideon Porth have been working in agriculture since 1996 and share a deep commitment to sustainable farming. This commitment to environmental stewardship is part of what led Gideon to take part in the UMass Extension project, 'Building Model Networks to Use Shelled Corn for Greenhouse Heat Corn'. Insulating himself from the recent volatility in fossil fuel prices was another motivating factor.

As part of this project, Gideon purchased an LDJ corn fired 165,000 btu Amaizeing Heat boiler, a 165,000 btu water to air heat exchanger, and a 250 gallon storage tank for the heated water. The project provided cost share for a significant portion of the total cost.

The corn boiler serves two purposes. One is to run a root zone radiant heating system in his tomato troughs. The boiler also runs a heating loop to a water to air heat exchanger which helps to keep the greenhouse air temperatures up. The system worked well in greenhouse tomatoes. Gideon plans to use the bottom heat for winter greens.

This meeting will showcase this innovative heating system and provide interested growers an opportunity to see the unit in use and ask questions of a grower who has been using this system successfully. UMass extension will also be accepting new applications from growers who are interested in receiving cost share through this program.

In addition to the corn heat system, we will also be discussing the equipment systems used on Atlas Farm – particularly in lettuce and squash – and their experience in managing late blight in their potatoes and tomatoes. Gideon has been building up the efficiency and effectiveness of tillage, cultivation, planting, and harvesting equipment systems so everything fits together. He will discuss his equipment choices and how they work. We will look at fall lettuce and greens and a recently installed underground irrigation system that includes 5000 feet of underground water lines and numerous hydrants. Atlas farm managed to largely preserve their tomato crop this season until the end of August through the use of copper fungicides. A custom-designed sprayer with a drop nozzle system for staked tomatoes was key in making this happen. We will use their first hand experience as the basis to discuss efficacy, application methods and equipment, and health and environmental impacts.

Pesticide applicator recertification credits have been requested for this meeting.

Directions: Address: 635 River Rd., Deerfield, MA 01342.

From I-91, take the exit for South Deerfield and go east on Rte 116. Before the bridge, turn north (left) on River road and

go approximately 5.5 miles. The farm is on the left. Look for signs on where to park.

For more information contact Andrew Cavanagh, 413-577-3976 or acavanagh@psis.umass.edu

UPCOMING MEETINGS

Thurs Sep 17. Biological Control for Ornamentals in Greenhouses – Putting it all together. Tolland County Extension Center, Vernon, CT. 9:30am-3:30pm. For info, see http://www.umass.edu/umext/floriculture/upcoming_events/index.html.

Wed October 7. Twilight Meeting at Atlas Farm – Corn Heat, Equipment Systems, and Dealing With Late Blight on an Organic Farm. 4:00pm-7:00pm. Atlas Farm, 8 Pine St., South Deerfield, MA 01373. For more information contact Andy Cavanagh at 413-577-3976 or acavanagh@psis.umass.edu.

Tues October 20, 2009. Nutrition for Greenhouse Crops. Time: 9:30 AM – 3:30 PM. Publick House, Rte. 131, Sturbridge, MA. Nutrition for Greenhouse Crops will feature practical information on using water soluble fertilizers, options for organic growers, using controlled release fertilizers, identifying nutritional disorders and correcting them and interpreting water tests for fertilizer selection. (\$40 includes lunch and handouts) Program details and registration is available at: www.umass.edu/umext/floriculture/upcoming_events/index.html

Sponsored by University of Massachusetts Extension, University of Connecticut and Northeast SARE.

For more information, contact: Tina Smith 413-545-5306 – tsmith@umext.umass.edu <<mailto:tsmith@umext.umass.edu>> or Paul Lopes 508-295-2212 ext. 24 lopes@umext.umass.edu <<mailto:lopes@umext.umass.edu>>

Mon Dec 14. GAP Training for Vegetable Growers. Center of New Hampshire Radisson, Manchester NH. 1:00 pm-5:30 pm. This meeting will introduce the basics of USDA/FDA's GAP (Good Agricultural Practices) Certification Program for wholesale fruit and vegetable growers. For info, contact Shirley Mietlicki-Floyd at 413-545-4420 or mietlicki@umext.umass.edu or Becky Grube at 603-862-3203 or becky.grube@unh.edu.

Tues-Thurs Dec 15-17. New England Vegetable and Fruit Conference. Center of New Hampshire Radisson, Manchester, NH. Three days of informative sessions and farmer-to-farmer networking! More details to come. Mark your calendars now! Get the latest info at <http://www.newenglandvfc.org/>.

If you would like to become a Vegetable notes sponsor, please contact Jessica Dizek at jdizek@outreach.umass.edu or 413 545 1445

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.

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.