UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 20, Number 5 June 4, 2009

In this issue

Crop conditions

After last week's rains we've had cool sunny days that have stimulated lots of vegetative growth. Newly planted material should be well watered if you were missed by any significant rainfall. Most of Massachusetts was spared frost on Sunday night, though frost protection was widely used on cranberries and strawberries. The strawberry harvest has begun this week and a few pick your own operations are beginning to open here and there. Farm stands are selling early root crops such as beets, turnips, carrots, and fresh garlic. Kale, lettuce and other spring greens are being harvested and selling well as the asparagus harvest nears its end. Early summer squash is flowering. Side dressing is occurring on sweet corn and in early potato fields. A Pre Sidedress Nitrogen Test (PSNT) taken now may save you fertilizer costs if you find that 25-30 ppm nitrate-N is present. Samples can be sent to the UMass Soil Testing Lab. An order form and more information on soil testing are available online at: http://www.umass.edu /soiltest. Caterpillars (imported cabbageworm and diamondback moth) are showing up in cole crops such as early Broccoli and cabbage; be sure to scout and control before heads form. Flea beetles are active in eggplant and brassicas. Watch for thrips and spider mites in greenhouse tomatoes.

Cover crops for early summer

The time is approaching to plant summer cover crops in fallow fields or after an early harvest. For planting in June, sudangrass or sorghum-sudangrass, and buckwheat are options. They can be planted from June until early August and both grow rapidly in the summer. Sudangrass is often chosen for improving soil organic matter. It produces a strong root system and lots of biomass. The deep root system is helpful for reducing subsurface hardness. It is also a good choice for reducing root-knot nematode pressure. It does best with an available nitrogen supply of 40 lb/acre.

If weed suppression is the main purpose, buckwheat is preferred. It covers the ground earlier than sudangrass, especially in early June, and outcompetes weeds that may establish in a sudangrass planting. It does well where phosphorus and nitrogen are low, but does not like wet, compacted soil. Buckwheat is in the ground for 35 to 40 days when used as a cover crop. It can be sown as early as May 20th at a rate of 40-100 lbs per acre. To avoid volunteer buckwheat seed, kill the crop before there are filled green seeds on the plant. Some growers allow the seed to mature, then disk and allow the crop to reseed itself.

Mowing sorghum-sudangrass in the first week of August

Sudangrass needs 60 to 70 days to be effective, and is best planted once June has become thoroughly warm, at a rate of 30-50 lbs per acre. Both of these cover crops should be mowed after about 40 days. That is the end of the season for buckwheat, but the beginning of major root growth for sudangrass. Mowing sudangrass

at about waist height prevents it from becoming so tall and tough that it is difficult to manage. Sudangrass needs a final flail mowing and immediate incorporation to suppress nematodes. If left in place, sudangrass will winter-kill. The mowed residue can provide good soil coverage through the winter if nematode supression is not a goal.

For cover cropping use forage varieties (not grain types). Sorghum-sudangrass hybrids are more vigorous, and will produce more biomass than sudangrass, but the seed is also more expensive. Suggested varieties that contain dhurrin, which is the biofumigant in sudangrass, include Piper sudangrass, or Trudan 8, which is the classic sudangrass for biofumigation. Other appropriate varieties that are available in the region include Sordan 79, Green Grazer and Special Effort.

In 2008, at the UMass Research Farm, we tried seeding winter rye into sudangrass by spinning it on just before a second flail mowing in September. With some rain plus the moisture from the fresh residue, the rye stand that emerged was very good. The success of this approach most likely depends on moisture and timing. It provided both surface residue and a green cover crop in spring.

(from Thomas Björkman, Cornell -- adapted and edited by Sandra Menasha (Long Island Fruit and Vegetable Update, No. 13, JUNE 3, 2009) and Ruth Hazzard)

Resources: Cover Crop Guide (http://www.nysaes.cornell.edu/hort/faculty/bjorkman/covercrops/earlysummer.html)

Managing Cover Crops Profitably (http://www.sare.org/publications/covercrops.htm) Available in print and as online pdf file.

Managing Cover Crops Profitably explores how and why cover crops work and provides all the information needed to build cover crops into any farming operation. Revised and updated in 2007, the 3rd edition includes new chapters on Brassicas and mustards, six new farm profiles, as well as a comprehensive chapter on the use of cover crops in conservation tillage systems. Appendices include seed sources and a listing of cover crop experts.

FLEA BEETLE ON EGGPLANT AND POTATO

From the perspective of a farmer surveying the crops, different types of flea beetles do not look much different – they all look small and black, they all hop away when you approach the plant, and they all make small round holes in the leaves. Eggplant and tomato transplants and young potatoes can be hit hard by flea beetles, which appear as soon as plants are set out or emerge from the ground. In New England, this damage is usually caused by the **potato flea beetle,** *Epitrix cucumeris*. Another species, the **eggplant flea beetle**, looks very similar but it is found in more southern areas.

Chunky and hairy. In contrast to crucifer flea beetle, the potato flea beetle is shorter and broader (more 'chunky'), has a more pitted and hairy body surface, and is less shiny, though both are all black. They also have a distinctly different diet, as crucifer flea beetle feeds only on Brassica crops and weeds. Their life cycle is very similar: adult beetles spend the winter protected under leaf litter in field edges near the crop where they were feeding in late summer, and search out new food plants in the spring. Eggs are laid in the soil, larvae feed on roots, and after a pupal stage a new flush of adult beetles will emerge. These feed and then move to a protected spot for the winter. Thus there two major flushes of damaging adults.

Potato flea beetle and damage in eggplant. 'Surround' paints a white coat on beetles and leaves

Host plants and damage. Potato flea beetle has also been reported to feed on cucurbit crops as well as bean, lettuce, radish, turnip and sunflower. It feeds on solanaceous weeds (jimsonweed, ground cherry, black nightshade) as well as redroot pigweed and lambsquarters.

Leaves that are heavily fed may be riddled with holes. Growth may be stunted, delayed, or plants may succumb altogether. Potatoes, once well established, can withstand considerable feeding damage. Eggplants are more vulnerable even at later stages. Damage is probably the best measure of flea beetle populations, since they often feed on the underside of leaves and hop away when disturbed. The point where sprays are needed to reduce yield depends on the crop, crop stage, and other stresses on the plant.

Controls. Spun-bonded row covers, well sealed, effectively protect eggplant seedlings. Covers should be placed over hoops or other supports to prevent crop injury. Covers can be left on till eggplants are well established. Ensure adequate soil moisture so that plants can tolerate higher temperatures on sunny days. Crop rotation, clean cultivation, and removing or avoiding spring weed hosts are also helpful practices. Spot treatments may be used to target eggplants along the field edges.

Most insecticides registered to control Colorado potato beetle will control flea beetle. Several synthetic pyrethroid and carbamate insecticides can be used. There are nicotinoid insecticides that can be used as a soil drench or transplant drench to give early season control, or as a foliar spray. To avoid development of resistance, do not use nicotinoids for both soil and foliar applications, and rotate chemistries after one or two sprays. See the 2008-2009 New England Vegetable Management Guide (http://www.nevegetable.org/index.php/crops/eggplant?start=3) for specific products.

For organic growers, pyrethrin, spinosad and kaolin are options that are OMRI listed. In Massachusetts, Entrust has a special supplemental label for control of flea beetle in fruiting crops, cole crops and okra. Kaolin (Surround WP) protects seedlings by acting as a feeding deterrent. We have observed effective control from applications of a mixture of kaolin and spinosad.

At the UMass Crops Research Farm, we are currently conducting organic spray trials to compare the efficacy of Surround, Pyganic and Entrust alone and in combination for control of flea beetle and Colorado potato beetle in eggplant and striped cucumber beetle in cucumber. These experiments are funded by the Massachusetts Department of Agricultural Resources IPM program. Join us for the **South Deerfield Field Day on Thursday July 16** to see the plots and to see preliminary results.

PROWL H2O ON PEPPERS

Prowl H2O (pendimethalin) is now registered for use in transplant peppers and tomatoes for pre-emergent control of a number of annual grasses and some annual broadleaf weeds. Prowl H2O is effective in controlling crabgrass, barnyardgrass and fall panicum. Broadleaf weeds that are well controlled include common lambsquarters, purslane, pigweeds, carpetweed and velvetleaf. Smartweeds, nightshade, mustards and galinsoga are only partially or poorly controlled. Prowl H2O can be used as a preplant incorporated application or as a pre plant surface application on bare soil or between strips of plastic mulch. Postemergence application should avoid contact with pepper foliage because stunting may occur. Directed postemergence applications are labeled for this crop though. If the application is not incorporated into the soil, then irrigation or rain will be needed to activate and move it into the soil region where the weed seeds are beginning to germinate. If there is a delay in this activation, then the first flush weeds will not be well controlled. (AS)

Prowl is basically a “not necessary to incorporate” Treflan. A surface application between plastic would be useful and there is velvetleaf activity which Treflan does not supply. On bare ground PPI Treflan vs. Pretransplant Prowl is almost identical in activity with the exception of the velvetleaf activity. (RB)

EARLY SEASON BACTERIAL DISEASE MANAGEMENT FOR TOMATO AND PEPPER

One of the most important management practices for bacterial diseases is regular inspection of plants for symptoms. In peppers, using varieties resistant to bacterial leaf spot is a key practice to reduce losses from this disease. However, even when resistant varieties are used, leaves still need be examined because of the potential for a new race of the pathogen to appear that is able to overcome resistance in the variety. Many varieties have resistance to races 1, 2, and 3 which cover the races expected to be present on Long Island. There are at least 11 known races in the world. Spot can be particularly destructive in pepper because severely infected leaves drop off the plant leaving the fruit exposed to sun, thereby increasing the potential for sunscald, as well as reducing the plant’s photosynthetic ability. Detecting symptoms very early is critical because bactericides are not very effective when applications are started after the disease is well established.

Preventive applications of copper are recommended before rain, especially when heavy rain and wind is predicted as these provide favorable conditions for movement of bacteria and can create wounds that provide an entrance place for bacteria. Additional products to consider using with copper are Tanos and EBDC fungicides (e.g. maneb). Tanos is labeled for suppression of bacterial diseases.

There are 3 bacterial diseases that can affect tomato foliage: speck, spot, and canker. Speck and spot can be effectively managed with Actigard. Note that Actigard is not registered for use on pepper because of phytotoxicity. Applications of this material need to be started before bacterial diseases begin to develop to be successful. This is because it has a unique mode of action: it induces host plant resistance to speck and spot. Unfortunately it is not effective for canker. The label directions state to begin applying within one week of transplanting. A 14-day interval is recommended for a maximum of six applications. There is a 14-day preharvest interval. Since Actigard does not have bactericidal activity, disease-causing bacteria can continue to survive and multiply on tomato plants sprayed with Actigard. Therefore copper plus EBDC fungicides should also be used and could be combined with Tanos.

For bacterial canker, cultural practices are key. Start with disease free seed or transplants and/or treat seed with hot water. Use low water pressure in irrigation equipment to avoid wounding. Avoid the practice of mowing transplants to regulate height. Reduce carryover of infection in the field through crop rotation, incorporating plant debris after harvest, and eliminating volunteer tomatoes and solanaceous weeds.

Organic spray options for bacterial diseases include Agri-mycin, Agri-Strep and allowed copper products.

--from Long Island Fruit and Vegetable Update, June 3 2009, by Margaret Tuttle McGrath, Long Island Hort Research Station, Cornell University; edited by Bess Dicklow and Ruth Hazzard, UMass.

MANAGING STRIPED CUCUMBER BEETLE IN VINE CROPS

Striped cucumber beetle is our most serious early-season pest in vine crops. These beetles spend the winter in plant debris in field edges, and with the onset of warm days and emergence of cucurbit crops, move rapidly into the field. Densities can be very high, especial¬ly in non-rotated fields or close to last year's cucurbit crops. Adult feeding on cotyledons and young leaves can cause stand reduction and delayed plant growth. The striped cucumber beetle vectors Erwinia tracheiphila, the causal agent of bacterial wilt, and this can be more damaging than direct feeding injury.

Avoid early season infection with wilt. Cucurbit plants at the cotyledon and first 1-2 leaf stage are more suscep¬tible to infection with bacterial wilt than older plants, and disease transmission is lower after about the 4-leaf stage. The higher beetle density during early plant growth, the more severe the incidence of wilt. Male beetles that discover a host plant will release an aggregation pheromone that calls others to their spot. Groups of beetles feeding, wounding and defecating on a single plant are more likely to transmit disease, and to acquire the pathogen and transmit it to other plants.

Cultural Controls: Crop rotation. Because beetles spend the winter in field borders close to last year's crop, planting into the same field encourages rapid invasion by high numbers of beetles. Rotating to a field at a distance from last year's cucurbits reduces beetle numbers signifi¬cantly. Of course, crop rotation has many other benefits as well – in vine crops, it is critical for disease management. Any barriers between the fields – woods, buildings, fallow fields or other crops, roadways and waterways – help delay the arrival of beetles.

Cultural Controls: Using Transplants. Several studies in the Northeast have shown that three-week-old transplants, set out in the field at the same time as a direct-seeded crop, will produce not only earlier but higher yields. These studies were done with both summer and winter squashes. Transplants have multiple benefits. Germination of untreated seeds in cool soils can be spotty, while trans¬planting ensures a good stand. Transplants provide a jump on the weeds. Plants are bigger when cucumber beetles ar¬rive so that they are less vulnerable to both feeding damage and to wilt. An insecticide or repellent can be applied to flats before plants are set out, making it less costly. Planting dates are more flexible – for some crops, it may be possible to delay planting until late June and avoid the worst of the beetles. Plants can be held inside to avoid late frost or wait until fields are dry (or wet) enough to plant. Of course, it is not advisable to hold transplants too long. If they are al¬ready flowering or have been stressed when they are set out, they tend to develop into small plants with early but small fruit. Standard seedling production methods work well for vine crops, but large cell sizes (72, 36 or 24) or peat pots are recommended as roots should not be disturbed when transplanting.

Cultural Controls: Floating, or spun-bonded, row covers are very effective barriers that keep beetles off the crop during the critical early growth stage. They have the added benefit of enhancing growth and reducing wind damage in the early season, for an earlier yield. Studies have also shown an increase in yield with row covers. Covers must be removed at flowering to allow for pollination. Wire hoops are very helpful, to prevent damage from abrasion; these are usually used on single rows, but can also be used under wide sheets of 15 or 25 or 50 feet. Black plastic adds warmth and solves the problem of weed management under the covers.

Thresholds and foliar controls. Beetle numbers should be kept low, especially before the 5-leaf stage. Scout frequently (at least twice per week for two weeks after crop emergence) and treat after beetles colonize the field. The threshold depends on the crop. To prevent bacterial wilt in highly susceptible crops, we recommend that beetles should not be allowed to exceed one beetle for every 2 plants. Less wilt-susceptible crops (butternut, most pumpkins) will tolerate 1 or two beetles per plant without yield losses. Spray within 24 hours after the threshold is reached. Proper timing is key. There are a number of broad spectrum insecticides which can be used for foliar control (including Capture 2EC, Decis 1.5EC, Thoinex 50W, Asana, and Sevin). See 2008-2009 New England Vegetable Management Guide for more details.

Organic insecticides. OMRI-list insecticides available for use in organic cucurbits include kaolin clay (Surround WP), pyrethrin (Py¬ganic Crop Spray 5.0 EC), and spinosad (Entrust). Pyre¬thrin is a short-lived contact toxin that has shown poor results on SCB in trials. Spinosad acts both as a contact and a stomach poison and has shown reasonably good results in recent trials. See last week's issue for more details. Surround WP should be applied before beetles arrive because it acts as a repellent and protectant -- beetles do not "recognize" the plant and so do not feed -- not a contact poison. With direct-seeded crops, apply as soon as seedlings emerge if beetles are active. Transplants can be sprayed before setting out in the field. Surround can also be used on the main crop of a PTC system, creating a "push-pull" dynamic.

Perimeter trap cropping. This strategy saves time and money – and it works! See http://www.umassvegetable.org/soil_crop_pest_mgt/insect_mgt/PerimeterTrapCropping.htm

Systemic controls. Two systemic neo-nicotinoid products, imidacloprid (Admire) and thiamethoxam (Platinum), are registered for use in cucurbits. In New England, Platinum is labeled for use specifically for striped cucumber beetle only in MA and CT. These are systemic insecticides that may be 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. Note that imidacloprid is being sold in different formulations that differ in concentration. Admire 2F (21.4% active in¬gredient) is half as concentrated as Admire Pro (42.8% active ingredient) and generic products are also available. Label rates change according to concentration.

Because of the systemic activity when applied to soil or seed, these products are taken up through the roots and transported into new leaf tissue where they persist through the critical early plant stages. They can be applied in the furrow or as a surface band at planting, which simplifies control efforts especially in fields where a sizable invasion of cucumber beetles is likely. They may also be applied through drip irrigation, which allows application to be timed shortly in advance of the expected arrival of the pest, and is suited to crops grown on plastic. They can be applied as a transplant drench prior to setting out in the field. Also, they are very well suited to a perimeter trap crop system – which dramatically reduces the cost per acre for pest control.

Using systemics in direct seeded crops. It is important to get the insecticide into the soil to avoid photochemical breakdown; placing it in the furrow or irrigating it in can accomplish this. One of the most efficient systems for an in-furrow treatment is to attach an injector to the planter for placement at the seed level after the furrow is opened and before the seed drops. This has the advantage of one trip through the field and very precise targeting of material. Where it is applied to the soil surface, it should be watered in with irrigation (or rainfall) to move it to root depth for seedlings. For growers who plant by hand on a two-way grid for cross-cultivation, apply in a twelve-inch band at the time that fertilizer is incorporated.

Platinum rates are recommended at 5 to 8 oz per acre. The label provides a chart of recommended rates per 1000 feet of row at various row spacings. For example, at 3 foot spacing, the recommended range is 0.34 to 0.55 oz/1000 liner feet, while at 7 foot spacing, the rates range from 0.8 to 1.29 oz/1000 feet. It may be possible to use a similar ap¬proach as for Admire by calculating rates per row feet. In a trial conducted at the UMass research farm in 2005, both high and low rates gave comparable levels of control compared to imidacloprid.

The Admire Pro label gives a range of 7.0 to 10.5 fl. oz per acre. Replicated studies and field experience has shown that a rate equivalent to 0.5 oz Admire Pro per 1,000 feet of row is sufficient for con¬trolling cucumber beetle in the critical early weeks. Given the wide range in row spacing with these crops and the fact that this is a banded application, we have suggested that growers calculate rates based on the number of row feet to be treated per acre or per block. For example, at 6 ft spacing, one acre has 7,260 linear row ft (43,560 sq feet divided by 5 ft between rows).

Using systemics on transplants: This method of applica¬tion is less expensive than a furrow drench. Note that rates are based not on application to the furrow (including where the plant is PLUS the area between plants) but only to the plant itself. The best time to treat is about 1 day prior to planting in the field. We see effective results with a rate of 0.02 ml/Admire 2F (equivalent to 0.01 ml Admire Pro) per plant. Slightly higher rates may not be phytotoxic, but caution should be used because phytoxicity can occur at higher rates. For example, don't concentrate the full amount that would be used in furrow applications on the plant. Note: there are 29.6 milliliters (ml) in one fluid oz.

Another way to apply imidacloprid to transplants is through a water wheel planter. Use the same rate per plant as you would for a transplant drench and the rate of water per plant that fits your planter (e.g. 8 oz). Multiply by the number of plants and mix the total insecticide needed with the total water needed in the tank. Make sure your workers wear protec¬tive gloves and allow time for uptake (1+ days) into leaves Note that the highest rate of uptake will be into new growth.

Seed treatments with neonicotinoids are likely to be available in 2010.

Drip application: A drip system can be used for Ad¬mire or Platinum applications to either direct seeded or transplanted crops. Know your system well enough to know how long it will take to inject a given amount of concentrated solution (eg one bucketful) and to soak the area between emitters. Apply early enough to allow the plant roots and leaves to take up the material before beetles arrive. The system should be primed with water first, and the insecticide injected slowly for even distribution. Make sure to use enough water to soak the area between emitters. More emitters provide more even distribution of product.

Calculate the total needed based on the rate per 100 or 1000 ft of row and the number of row feet of line that will be treated. Place the total amount in the bucket with enough water for 20-30 minutes of injection. Charge the system with water first to get the soil wet. Turn on the Venturi or other injec¬tor, to inject slowly for even distribution (20 or 30 minutes). Then flush lines with clear water and to move product out and down.

Non-target effects: Bees are very susceptible to imida¬cloprid and thiamethoxam and could be affected by its pres¬ence in pollen if it is still at high levels in the plants at the time of flowering. Bees intoxicated by Admire or Platinum, like beetles, show unusual behaviors such as tremors, stag¬gering, and falling over before dying. This could happen with bees at excessively high rates of these insecticides. We have not observed it at the rates suggested in this article. The foliar formulation of imidacloprid (Provado)is not labeled for cucurbits, and the foliar formulation of thia¬methoxam (Actara) has a label for cucurbits but may not be sprayed during bloom. Carbamates such as Sevin and synthetic pyrethroids should not be used during bloom to avoid killing bees. Given the high losses of hives over the past several years – which seems to be from multiple causes, only one of which is the pesticides used on crops that bees visit – taking precautions to protect both native and domestic bees is an especially important concern.

Resistance from overuse. The down side of systemic products might be that they are 'too easy'. That's not neces¬sarily a bad thing for growers who are always too busy! However if these are overused on a routine basis, these products may well be lost to resistance in a fairly short time. Furthermore, they are not cheap. For a truly IPM ap¬proach, combine or alternate these materials with crop rota¬tion, perimeter trap cropping, and field scouting followed by foliar sprays with other classes of insecticides to reduce the likelihood of resistance and keep use rates low. Perim¬eter trap cropping provides a large, untreated refuge which can delay resistance.

-Ruth Hazzard, University of Massachusetts

CORN REPORT

European corn borer trap captures climbed this week into the double digits in many locations. We are on the rising curve

When the tassel pokes up from the whorl, it's time to scout for ECB.

of emerging adults and egg laying. Where row cover was just removed, corn that was well protected from ECB will now be very attractive for egg laying. We can assume that as long as flight is occurring, eggs are being laid. Eggs hatch in four to nine days depending on temperature. The most accurate way to know if flight or hatch has begun is track accumulated growing degree days (GDD) on your farm. Accumulated GDDs represent the heating units above a 50° F baseline temperature that occur each day from the beginning of the current calendar year. GDD are calculated by taking the average of the daily maximum and minimum temperatures compared to a baseline temperature50° F. For example if the maximum temperature for the day is 70° F and the minimum was 52° F giving you an average daily temperature of 61° F, your GDD accumulation for that day would be 11 (61° F-the baseline of 50° F). GDD area specific information is gathered by the UMass Extension Agriculture and Landscape program and can be found by linking to the weekly Landscape message at www.umassgreeninfo.org.

European corn borer flight begins after 375 GDD have accumulated and egg hatch occurs after 450 GDD have accumulated. According to the web site listed above for the week of June 5, all areas Massachusetts are very close to or above 450 with the exception of the Cape Cod region which is at 383 for this week. What this tells us is that hatch will occur soon followed by caterpillar feeding. Within the week it may be good to start scouting your fields for ECB damage. Field scouting for ECB usually begins when the tassels first appear in the whorl. Some fields we have seen here in the Connecticut valley are nearing this stage. Check your fields this week to see if scouting is in your near future!

Location	Z1	EII	Total
CT Valley			
South Deerfield	5	21	26
Deerfield	0	6	6
Sunderland	3	6	9
Hadley (1)	1	21	22
Hadley (2)	0	1	1
Granby	0	3	3
Hatfield	1	17	18
Easthampton	0	3	3
Central & Eastern MA			
Rehobeth	5	2	7
NH			
Litchfield, NH	0	2	2
Hollis, NH	1	3	4

The ideal time to control ECB is as the green tassel pokes up out of the whorl. Borers will leave the tassel as it opens up, and move down the plant looking for protected feeding sites. At that time, they are exposed and are more easily reached by pesticides. Before that time, borers are protected inside the whorl and after, may be protected inside the stalk

For information on scouting procedures and implementing a sweet corn IPM program on your farm, visit www.umassvegetable.org to download a copy of the UMass Extension publication Using IPM in the Field Sweet Corn Insect Management Field Scouting Guide or email umassvegetable@umext.umass.edu to request a free copy. --Amanda Brown and Courtney Huffman

VEGETABLE TWILIGHT MEETING AT PLEASANT VALLEY FARM

Tuesday June 23, 5 -8 pm, rain or shine

***2 Pesticide Applicator Training contact hours available**

Highlights:

•Phytophthora capsici management. The disease was first noticed in 2004 and has infested pumpkins, squash and peppers in this field. Coping with it has led to changes to non-susceptible crops, leaving low areas unplanted.

•Cucurbit disease management- identification, cultural practices, spray schedules for leaf and fruit diseases.

•Growing and marketing new crops for expanding ethnic markets in New England. Focus on three crops okra (many cultures), chipilin ('edible alfalfa') (Central America) and mixixe (spiny cucumber) (Brazil)

•Mums (31,000) on drip irrigation.

•Drip irrigation systems: double sand filter (175 gpm for each filter) pulling water out of river to replace overhead system.

Will water 10 acres at one time. how to ensure cleanliness efficiently (self-cleaning) using surface water:

•All-season lettuce production harvested from mid-June to mid October; planting weekly (25,000 transplants per week) for baby lettuce, full sized heads and bagged Romaine hearts. Varieties, production techniques including transplants, weeds, insect and disease management, harvesting, handling and packing.

•Beehives: An experienced amateur beekeeper keeps hives year-round along the river, boost bee populations enough to pollinate summer squash and zucchini. Overcoming bee declines, lack of native pollinators, and weather.

•New controls for European corn borer in peppers: releasing wasps that attack ECB eggs to prevent ECB fruit damage, using newer insecticides.

•GAP: getting the pack shed ready for Good Agricultural Practices audit; sanitation, chlorination, post-harvest diseases.

•Starting a CSA on the farm

**Light supper will be provided.

Pleasant Valley Farm 255 Merrimack St, Methuen, MA 01844 Tuesday June 23, 5 -8 pm, rain or shine.

Driving Directions: I 495 from N or S take exit 46 for Pleasant Valley, make a left off the ramp, drive 0.7 mile, look for farm sign on right. Park next to greenhouse.

For advance information, call UMass Extension Vegetable program, 413-545-3696; for last minute info call Rich Bonanno 978-361-5650

UPCOMING MEETINGS

Twilight Meeting - Garden Mums

J.P. Bartlett Co. Greenhouse, Rte. 20, Sudbury, MA Thursday, June 18, 4:00 - 7:00 pm (2 pesticide credits toward recertification have been requested)

Program details and registration is available at: http://www.umass.edu/umext/floriculture/upcoming_events/index.html

Aquaculture Workshop: Water Quality and Re-circulating Aquaculture Systems

Location: 302 Agric. Engineering Bldg., UMass Amherst Saturday, June 27, 9 am - 3 pm

UMass Extension Western Mass. Center for Sustainable Aquaculture 413-545-1055; chollingsworth@umext.umass.edu; www.umass.edu/aquaculture

Vegetable Research Field Day

Location: Crops Research and Education Center, South Deerfield Thursday, July 16, 4-8 pm

UMass Extension Vegetable Program 413-545-3696; www.umassvegetable.org

See also http://www.umassvegetable.org/ed_programs/meetings/twilight_meetings.html

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.