UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 23, Number 6 May 31, 2012

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CROP CONDITIONS

Growing degree days have cranked up rapidly in the past week – which is good for plants that are well established and have enough water, but hard on young plants and those in dry soils. The heat and dry winds are especially tough on new transplants whose root systems are not ready for the demands placed by field condition, especially when seedlings are surrounded by hot black plastic. If the plastic is not laid tight, the hot air from under the mulch can flow up over the plant. Wilting or girdling can result, even if the plant is not directly in contact with plastic. Try to create a fine, smooth raised bed, lay plastic tight and when soil is moist, make clean cuts for transplant holes, transplant on cloudy days, and keep watering after transplanting.

Harvests of early greens (arugula, lettuce, kale, bok choy, chard), roots (radishes, carrots), greenhouse cukes and tomatoes, rhubarb, asparagus green onions and green garlic are filling local markets. CSA farms are preparing for first distribution to summer shareholders and more summer farmers markets open each week. Potatoes are ready for hilling, and early sweet corn is reaching pretassel. Transplanting of succession and fruiting crops, seeding of winter squash, corn, and beans continues.

Join us June 11 for a season extension workshop at Flats Mentor Farm, and June 26 for a tree fruit-small fruit-vegetable twilight at Ward's Berry Farm. Finally, a twilight meeting that is as diverse as your farm is!

DATE: 5/30/2012 **GDD**

Location	Base 50F	LB Severity Values - season*	LB Severity Values - 7 day	Tomcast Severity Values - season**
Belchertown	577.3	17	9	20
S. Deerfield	546.1	18	10	12
Stow	585.5	19	9	12
Bolton	533.0	21	10	11
Dracut	485.0	18	7	8
Tyngsboro	504.5	20	9	8
E. Bridgewater	470.0	25	13	8
Boston	527.0	14	9	17
Pittsfield	439.5	32	17	23

*Assumes potato emergence date of 5/14. For early emergence (4/30), add 14 for Boston, 16 for Belchertown, Dracut, East Bridgewater, or South Deerfield, add 18 for Bolton or Tyngsboro, 19 for Pittsfield, 20 for Stow.

**Values accumulated since 5/14. For total values accumulated since start of season (4/30), add 3 for Pittsfield, 4 for East Bridgewater, 5 for Belchertown, Bolton, Boston, or Tyngsboro, 6 for Dracut, South Deerfield, or Stow.

***Assumes potato emergence date of 5/14. For early emergence (4/30), add 72 for Tyngsboro or Dracut, 74 for Bolton, Boston, East Bridgewater or Pittsfield, 78 for Stow, 81 for South Deerfield, 82 for Belchertown.

Pest Updates

Cucurbit Downy Mildew Detected In NJ: Cucumber in Gloucester County, NJ, was confirmed to have downy mildew. This is unusually early. It the first report of the season in the mid Atlantic region. Previously downy mildew was reported in NC, GA and FL. Scout routinely, and monitor occurrences, sign up for alerts, and obtain forecasts at http://cdm.ipmpipe.org/. Presently there is no risk for MA. The likely source for downy mildew in New England is wind dispersed spores, so weather related alerts are key.

Cucurbit Powdery Mildew Developing In NJ: The season is proving to be early for diseases as well as crops.

Powdery mildew could start to develop in cucurbit crops soon after fruit start to develop.

Potato leafhoppers have been observed this week in beans and potato in the Connecticut Valley and in central/south-eastern MA – so it is likely they their arrival in these crops is widespread. As with most insect activity this season, this is earlier than usual. See http://extension.umass.edu/vegetable/insects/leafhopper-potato for photos and more information on life cycles and management.

Late Blight has been confirmed on potato in NY (Long Island) and NJ. See the article in this issue for details.

Watch for Thrips in Onion: Onion thrips (OT) thrive in the tender, moist center of young onions, and they are wasting no time in getting established this season. Scout by parting the leaf blades and looking for tiny yellow-white nymphs and brown adults hiding between. Count the number of OT and divide by the # of leaves to get # per leaf. The threshold for spray is 3 per leaf. See http://extension.umass.edu/vegetable/insects/onion-thrips for more information and management options.

European corn borer moth captures are very high and early this spring. See Sweet corn report. If ordering Trichogramma ostriniae for peppers, expect second flight to begin at least a week early.

Aphids are moving into and through many crops at this time. Generally, beneficials in the field keep them under control. Watch for buildup in greenhouses, high tunnels, and under row covers.

Fungus gnats and shore flies can be a problem in greenhouses where transplants are still growing. See UMass Floriculture website http://extension.umass.edu/floriculture/ for updates.

Common Army Worm has been reported in corn in Western Connecticut. Damage is similar to fall army worm but is usually sporadic, though damage can sometimes be significant so scouting is recommended. See the corn section of the N.E. Vegetable Management Guide for details.

Submitting disease samples

Getting an accurate identification is the first and one of the most critical steps in managing crop diseases. The UMass vegetable & floriculture diagnostic lab offers an excellent service with quick, accurate identification and provides up to date recommendations on management of the disease. For more information contact M. Bess Dicklow, (413) 545-3209, mbdicklo@umext.umass.edu or visit the webpage at http://extension.umass.edu/agriculture/index.php/services/plant-problem-diagnostics/vegetable-floriculture-diagnostics.

Managing Colorado potato beetle

With over 3,000 acres of potatoes concentrated in a relatively small area, the Connecticut Valley is something of a hotbed for Colorado potato beetles (CPB). Resistance management is especially critical in this region. This insect is renowned for developing resistance to every new insecticide chemistry that has been thrown its way. Rotating insecticide chemistries is key. Crop rotation and other cultural practices are also critical. If your farm is isolated from other farms where potatoes are grown, it's up to you to mange resistance in the population of beetles on your farm. You are in charge of the level of selection in that population for the resistant genes to a particular chemistry.

Resistance management must be part of every potato grower's plan.

Colorado potato beetle has a remarkable capacity to develop resistance to insecticides. Based on a fifty-year track record, we can expect that any insecticide that is used repeatedly on the same population of Colorado potato beetles (that is, those in the same field or a farm with nearby fields) will lose its efficacy within 2-4 years. Wherever possible, growers should rotate classes of insecticides and avoid using the same chemistry more than once per year or even better, once every other year. Do not use the same chemical class on successive generations in the same year. There are enough different classes to allow this! Note that in the New England Vegetable Management Guide, as well as on all pesticide labels, each insecticide has a Group Number, which identifies chemistries with the same mode of action. Avoid using insecticides from the same group.

Groups and products registered for Colorado potato beetle include:

Group 1A: (organophosphate) oxamyl (Vydate* L) (note- CPB is resistant in many areas of Massachusetts)

Group 1B: (organophosphate) phorate (Thimet* 20G)

Group 3A: (synthetic pyrethroids and pyrethrin) (note- CPB has developed resistance in Massachusetts) beta-cyfluthrin (Baythroid* 2), deltamethrin (Decis* 1.5EC), esfenvalerate (Asana* XL), lambda-cyhalothrin (Warrior*), permethrin (Pounce*) and pyrethrin (PyGanic EC5.0), pyrethrin + piperonyl butoxide (Pyrenone).

Group 4: (Nicotinoids) thiomethoxam (Platinum, Actara, Cruiser), imidacloprid (many product names, for foliar, soil and seed applications), dinotefuran (Venom 70SG), acetamiprid (Assail 30SG), imidacloprid + mancozeb (Gaucho MZ). Note: CPB has developed resistance to nicotinoids.

Group 5: (nerve poison) spinosad (Entrust); spinetoram (Radiant)

Group 6: (nerve poison) abamectin (AgriMek * 0.15EC, Abba* 0.15EC)

Group 9B: (gut disruptor) cylolite (Kryocide)

Group 16B: (Insect growth regulator) novaluron (Rimon 0.83EC). For larvae

Group17: (Insect growth regulator) cyromazine (Trigard). For larvae

Group 18B: (molting disrupter) azadiractin (Neemix, Aza-Direct)

Group 22: (sodium channel blocker) indoxycarb (Avaunt).

Group 28: (calcium balance disruptor) chlorantraniliprole (Coragen)

Be sure to read all labels to select the correct rate, maximum number of applications and observe resistance management statements on the labels. Materials marked with an * indicate restricted use pesticides.

Organic controls (OMRI listed products). Organic farmers face a particular challenge at this time because there is one very effective product, spinosad, and other options (azadiactin, pyrethrin, and *Beauvaria bassiana*) are less effective. Consider trying these options anyway, to delay resistance to spinosad. Beauvaria bassiana (Mycotrol O) has been shown to suppress CPB populations over time, though it does not provide immediate control. Bt tenebrionis is no longer available. Cultural practices and natural biocontrols become even more important in this situation.

Timing for Entrust. To get the most mileage out of the fewest applications of Entrust, time the first spray for when the earliest larvae are reaching the forth instar, or about half to 2/3 grown (see photo). This timing will catch the largest possible number of larvae while preventing significant feeding damage.

To prevent resistance, alternate among classes of insecticides in each generation, and throughout the season. The following insecticides each have a different mode of action and provide good options for alternate insecticides that provide effective control:

(Note, not all are labeled for both eggplant and potato; check www.nevegetable.org and read the label.)

Abamectin (AgriMek 0.15EC, Abba, Abamectin) is mainly a contact material which controls larvae. It may be best used early in the season, when good coverage is easier to obtain. Rates of 5-6 fl oz per acre gave effective control in commercial fields in trials on Long Island. The lowest labeled rate is 8 fl oz.

Azadiractin (Neemix, Aza-Direct). Insect growth regulator for immature stages of insects including CPB. OMRI listed. Neem products have shown efficacy against CPB in trials and is rated as 'good' efficacy in the Ohio Vegetable Production Guide. This may provide an alternative to spinosad for organic growers.

Chlorantraniliprole (Coragen), labeled since 2008, is a new class of chemistry (group 28) that disrupts the calcium balance of muscles. It can be applied as a foliar (translaminar) or systemic (soil uptake) at planting or transplanting or through drip irrigation. Long residual period. Research in mid-Atlantic states shown excellent efficacy against both adult CPB and larvae. Active ingredient also known as Rynaxypyr.

Novaluron (Rimon) belongs to the class of insecticides called insect growth regulators (IGR). IGRs slowly kill the insects over a period of a few days by disrupting the normal growth and development of immature insects. Novaluron acts

as an insecticide mainly by ingestion, but has some contact activity. IGR insecticides are comparatively safer to beneficial insects and the environment. Target applications to the beginning of egg hatch when larvae are small. Use higher rates for larger larvae. Does not control adults.

Cyromazine (Trigard): Insect growth regulator for small larvae just after egg hatch. Does not control adult beetles. Use higher rate on heavy populations.

Spinetoram (Radiant 2SC) has the same type of active ingredient and mode of action as spinosad. Has efficacy on both adults and larvae. May be applied with chemigation.

Spinosad (Entrust, OMRI listed) gives control of all stages of CPB at a 3.5 to 4.5 fl oz rate. Will also control European corn borer. 2009 trials at UMass research farm showed excellent efficacy vs larvae. Will also control adults.

Nicotinoid insecticides may be soil or trickle applied (Admire, Belay, Platinum, Venom), foliar applied (Actara, Assail, Belay, Leverage, Provado, or Venom), or applied to seed pieces (Cruiser, Gaucho MZ). In the Connecticut Valley, the documented level of resistance to imidacloprid (Admire) was 300 times that of susceptible populations. There is cross-resistance among products in the nicotinoid group. For resistance management, do not use a product in this group on more than one generation per year, or better yet, skip a year. A single foliar application is less likely to cause resistance than a soil applied systemic, because it only affects part of the population and only one generation.

In summary: Control adults only if damage is severe; otherwise target hatching larvae. The following neonicotinoids are labeled for both adults and larvae, but should not be used if an at-planting neonicotinoid was applied: Actara, Assail, Leverage, Provado (imidacloprid), or Venom. These materials should provide control as long as beetles are not resistant to this class of chemistry. Once eggs hatch and larvae are present, use Avaunt + PBO, Agri-mek (abamectin), Coragen, Radiant, Rimon, Kryolite,or Entrust or a foliar nicotinoid.

- R Hazzard; (sources include: D Ferro (UMass Amherst), J. Mishanec (NYS), J Boucher (CT), J. Whalen (DE), T. Kuhar (VA), G. Ghidhu (NJ), New England Vegetable Management Guide, Ohio Vegetable Production Guide)

LATE BLIGHT UPDATE

Most areas of the state have reached the threshold for first fungicide applications to protect potato from late blight. This is based on onsite weather station data that forecasts the first possible initiation of spore release IF there were infected foliage present (such as overwintered, infected potato tubers that regrow in spring). There are no reports of late-blight infected field tomato or potato in New England to date this season, but it has been reported on potato in New York (Long Island) and New Jersey, where it likely came in on seed potato.

The first appearance of late blight (caused by *Phytophthora infestans*), and periods of late blight favorable weather can be "predicted" using relative humidity, rainfall and temperature. The weather data is converted into units called "severity values" (SV) for the purpose of predicting late blight outbreaks.

Late blight is first expected to appear within 1-2 weeks after 18 SV have accumulated since the emergence of green tissue from the source of late blight inoculum. The source of inoculum could be plants growing from infected tubers in a cull pile, volunteers growing from infected tubers that survived the winter, or infected seed tubers. Fungicide applications to protect potatoes and tomatoes should be initiated as soon as possible after 18 SV have accumulated. Most locations in MA exceed 18 SV, and also have an accumulated 7-day SV of 8 or more. To date, no infections have been reported in field crops in New England. If you suspect you have late blight, please contact the Disease Lab or the Extension Vegetable Program. Submissions are anonymous, only the county will be reported. If late blight is reported in the area, fungicide applications should be begin immediately.

Begin a spray program using protectant fungicides such as chlorothalonil or mancozeb. Reserve products with special efficacy against late blight until late blight has been reported in the region, if or when that occurs.

Once 18 SV have accumulated and the first fungicide has been applied, SV accumulations over a 7 day period, combined with the amount of rainfall during that period, can be used to estimate how favorable weather conditions have been for late blight spore production and infection. The recommended spray interval depends upon both of these factors; a 5-day

spray interval is recommended when conditions are highly favorable, and a 10-14 day interval is recommended when the risk of late blight is low.

Table 1 indicates the recommended spray intervals (from University of Maine Cooperative Extension Potato Program).

Total rain/irrigation for past 10 days	Total severity values during last 7 days					
	<3	3	4	5	6	>6
	Spray Interval for late blight control (in number of days)					
>1.2 inches	10-14	10	7	5	5	5
<1.2 inches	10-14	10-14	10	7	5	5

Because weather conditions can vary depending on topography and altitude, the forecast information will be most accurate very close to the weather monitor. For locations that are not close to a weather monitor, forecast information should only be used as a *general indication* of how favorable weather has been for late blight. If the location of the station is more open or higher than your farm, periods of RH>90% are likely to be shorter and SV lower than would be appropriate for your farm.

UMass Extension is part of the NEWA weather monitoring and forecasting system, with numerous on-farm weather stations set up and linked to the NEWA website. You can look for weather a weather station close to your farm online at http://newa.cornell.edu/index.php?page=station-pages. We are currently collecting data from airports and from 14 UMass Extension weather stations. To see the accumulation of late blight severity values in your area, click on the station closest to your farm. You will be directed to a page where you can choose to see the late blight forecast, as well as a number of other pest forecasts for that area.

If rain is forecast, be sure that all foliage has received a fungicide application within the last 7 days, especially if late blight has been found in the area. Late blight spores can be carried on storm fronts, and if large numbers of spores are deposited on unprotected tissue a lot of infections can get started.

Irrigation can create late blight favorable conditions in a field that a weather monitor will not be taking into account. Irrigation that starts when the leaves are still wet from dew in the morning, or continues after dew has fallen at night will extend the wetting period for that day and must be taken into consideration when weekly severity value accumulations are calculated.

Identifying Late Blight

Getting an accurate identification of the disease is critical. The best materials for controlling late blight are often not as effective against other diseases, such as early blight. In addition, late blight is a highly destructive disease that spreads quickly and can have a huge impact on other growers if not managed properly. Recognizing potential symptoms of late blight and sending samples in to the UMass diagnostic lab is a critical step in managing this disease. Sending samples in to the lab not only gets you a fast, definitive identification but it also allows us to track the spread of the disease, alert other growers, and type the genetics so that we can see which crops (tomatoes, potatoes, or both) are the most risk.

The most common symptoms on tomatoes are sunken, dark green or brown to black lesions on leaves and brown to black lesions on stems, with white fungal growth developing under moist conditions. Classic symptoms are large (at least nickel-sized) olive-green to brown spots on leaves with slightly fuzzy white fungal growth on the underside when conditions have been humid (early morning or after rain). Sometimes the lesion border is yellow or has a water-soaked appearance. Brown to blackish lesions also develop on upper stems. Firm, brown spots develop on tomato fruit. For more information and some pictures to help with ID, see http://extension.umass.edu/vegetable/diseases/tomato-late-blight and https://extension.umass.edu/vegetable/articles/recognizing-tomato-blights.

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, especially 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. Crop rotation, transplants, and floating row cover are cultural controls that help reduce the impact of cucumber beetles. Perimeter trap cropping can provide excellent control with dramatic reduction in pesticide use.

Avoid early season infection with wilt. Cucurbit plants at the cotyledon and first 1-2 leaf stage are more susceptible to infection with bacterial wilt than older plants, and disease transmission is lower after about the 4-leaf stage.

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, Asana, and Sevin). See 2012-2013 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 (Pyganic Crop Spray 5.0 EC), and spinosad (Entrust). In 2009 spray trials comparing these three products at the UMass Research Farm, Surround was the most effective in reducing beetle numbers and feeding damage. There was a trend toward Surround being more effective when Pyganic or Entrust was mixed with it, but those treatments were never significantly better than Surround alone. Surround 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. It is not a contact poison and will not kill beetles or other insects. 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 will need to be re-applied regularly to cover emerging foliage and provide adequate coverage.

Systemic controls. Two systemic neo-nicotinoid products, imidacloprid (Admire Pro) and thiamethoxam (Platinum), are registered for use in cucurbits. 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.

Systemic seed treatments. Seed treatment, which may combine a systemic insecticide with fungicides also may provide 2-3 weeks of SCB control. This option is available on an increasing number of cucurbit varieties.

-Ruth Hazzard & Andrew Cavanagh, University of Massachusetts, updated for 2012.

ASPARAGUS WEED MANAGEMENT DURING AND AFTER HARVEST

Growers have several options to maintain good weed control in asparagus fields both during and after the cutting season. During the cutting season, it is possible to apply either Sandea or Sinbar but only after a clean cut, meaning that small spears, not yet ready for harvest, must also be removed. Neither of these herbicides will provide a quick burn down of weeds but they will stop weeds from growing and will minimize the impact of weeds during the cutting season. If weeds are tall, consider mowing the field a few hours after the application to help facilitate harvest. If emerged weeds are small, flaming may also be an option. By far, the better option is to start with a clean field and to apply an herbicide prior to spear emergence so that the cutting season is not impacted.

After the last harvest there are several options to maintain a weed free bed through the summer and fall. If weeds are emerged, either Gramoxone or Roundup can be applied to kill these weeds. Neither of these will provide residual control and a clean cut is required before application. Flaming can also be used at this time but is impractical if weeds are very large. When flaming, avoid early morning because extra BTU's will be needed to evaporate the dew before the weeds will be impacted. For residual control after harvest, options include Karmex, Solicam, Sandea, Callisto, and Sinbar. Rotation of herbicides is important to avoid resistance. After ferns emerge, 2,4-D may also be an option although it must be directed to the base of the ferns as over-the-top applications will injure the ferns.

Be sure to read the label before any application. Further information can be found by checking the New England Vegetable Management Guide. If you do not have a hard copy, the entire guide is available on line at www.nevegetable.org

- A. Richard Bonanno

Sweet corn report

Early plantings that were started under row cover or plastic are now reaching pre-tassel or even tassel stage. Bare ground corn is growing well through the whorl stage. Row cover and plastic have been removed and later succession plantings continue to go in. Parts of the state received 2-3 inches of rain this week, while others are irrigating and hoping for rain soon. Farms that are using the biological control for European corn borer, Trichogramma ostrinea, have made releases this week, in time to find egg masses before hatch. There will be at least two more releases during the first flight while eggs are being laid. In addition to being earlier, European corn borer moth trap counts are higher than they have been in several years. The mild winter seems to have had an impact on insect populations across the board.

Location	Z1	EII	Total ECB	CEW
CT Valley				
South Deerfield	3	11	14	1
Whately	9	41	50	0
Central & Eastern MA				
Millis	4	23	27	-
Sharon	39	79	118	-
NH				
Litchfield	0	40	40	-
Hollis	1	5	6	-
Mason	0	7	7	-

European corn borer flight begins after 375 GDD (base 50F) have accumulated and egg hatch occurs after 450 GDD have accumulated. Eggs hatch in four to nine days depending on temperature. This week's NEWA weather data indicate a range from 440 to 585 GDD at various locations. What this tells us is that hatch will occur soon if it hasn't already, followed by caterpillar feeding. This week is a good time to start scouting your fields for ECB damage if they are reaching pretassel. Higher flight will mean higher levels of infestation. Note: growers who have planted sweet corn that produces Bt should still scout their fields to be sure it is working and to note any non-caterpillar pests.

Field scouting for ECB usually begins when the tassels first appear in the whorl. Check your fields this week to see if scouting is in your near future! Look for feeding injury in the whorl or in the green tassels, and spray if fresh damage or larvae are found in >15% plants. 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 that time they may be protected inside the stalk or ear.

In addition to the usual corn pests, Common Army Worm has been reported in corn in Western Connecticut. Damage is similar to fall army worm but is usually sporadic, though it can sometimes be significant so scouting is recommended. See the corn section of the N.E. Vegetable Management Guide for details

For information on how to get the most out of your time spent scouting, 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. If you are scouting on your farm this season and would like to contribute trap captures to this publication email Ruth Hazzard at rhazzard@umext.umass.edu. Our scouting network relies on Extension, farmers, crop consultants, and volunteers who report weekly from across the state.

Upcoming meetings

High-Tunnel Season Extension Training

Mon, June 11, 2012, 3pm – 7pm

Flats Mentor Farm, Seven Bridge Road, Lancaster, MA 01523

Whether you have been using high tunnels for a while or are just starting out, this workshop will offer something useful for you. We will cover construction, early season crops, and production through the cold months in unheated high and low

tunnels.

3:00 PM – 4:00 PM High Tunnel Construction with Ledgewood Farm.

4:00 PM – 5:00 PM Growing in High Tunnels: Flats farmers will share their experiences and how they are using high tunnels to be ready for early farmers markets.

5:00 PM – 6:00 PM Thinking Ahead to Fall and Winter: Crop Planning and Crop Health for extended-season crops presented by Ruth Hazzard, Danya Teitelbaum, and Amanda Brown, UMass Extension Vegetable Program. Danya has grown winter greens for farmers markets for the past 3 years. As fall and winter approach, growth rates and crop health are affected by temperature, daylength, and light levels. Learn about choosing crops and varieties that tolerate cold and short days and have good regrowth capacity, and planting them at the right time for your harvest window.

6:00 PM – 7:00 PM Farm Tour – see tunnels in action and some world crops that you might not have seen before – being grown for the world-wide cultures of Massachusetts!

Refreshments will be provided! For more information, please contact: Peter Jakubowicz, Farm Manager Phone: 978-479-0661. Visit us at www.flatsmentorfarm.org.

Vegetable Program Twilight Meeting

Tuesday June 26, 4 pm to 7:30. Ward's Berry Farm, 614 South Main Street, Sharon, MA 02067

This farm tops the charts on diversity of both crops and markets, with tree fruit, small fruit and vegetables grown for wholesale, farmstand, CSA, and restaurant deliveries. Come for new ideas on crops, equipment, scouting, management and marketing. Topics will include

--Deep Zone Tillage and No-Till strategies & equipment in sweet corn and winter squash. Jim Ward has used no-till for over five years, and is experimenting with deep zone tillage.

--Using biocontrols for European Corn Borer in corn and peppers. Build on your IPM program and increase your yield of ripe red peppers with this effective parasitic wasp, *Trichogramma ostriniae*.

--fungicide scheduling and using weather stations for disease forecasting in tomato, potato, cucurbits, and fruit. How to put together what's effective and when to use it with a resistance management strategy for an ever-changing kaleidoscope of diseases. How the MA network of ag weather stations can help with scheduling and timing.

-- Monitoring and managing a new and serious pest of small fruit, Spotted Wing Drosophila. Traps are up and Sonia Schloemann will see what we have caught, and cover when to expect this pest, what to look for and how to respond to protect your crops.

--Borers in peaches. Jon Clements will show how to use pheromone traps and mating disruption.

Pesticide credits have been requested.

MA Fruit Growers Association Summer Meeting

UMass Cold Spring Orchard 391 Sabin Street, Belchertown MA

July 12, 10am-3pm

Contact Jon Clements- clements@umext.umass.edu or 413-478-7219

Vegetable Notes. Ruth Hazzard, Amanda Brown and Andrew Cavanagh, co-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.