



**UMASS  
EXTENSION**



# Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 20, Number 2

April 16, 2009

## **IN THIS ISSUE:**

GAP Training  
Farmer Projects with UMass  
Shelled Corn for Greenhouse Heat Project  
Biological Control of ECB in Sweet Corn  
Results from Sweet Corn Biocontrol 2008  
Soil Testing  
IPM Travel Grants  
Farm Viability Enhancements Program  
Nutrient Density Workshops

## **GOOD AGRICULTURAL PRACTICES (GAP) FOOD SAFETY TRAINING**

**Wednesday May 6, 2009 1:00-5:30 PM**

**UMass South Deerfield Research Farm**

Foodborne outbreaks linked to fresh produce have increased in recent years. To address this issue, UMass Extension, the UMass Department of Nutrition and the MA Department of Agricultural Resources have teamed up to implement a USDA Good Agricultural Practices (GAP) Training Program for growers and other fresh produce handlers. This event will be held Wednesday, May 6 from 1-5:30 PM at the UMass South Deerfield Research Farm, River Road, South Deerfield. Attendees will learn about bacteria associated with fresh produce, strategies for controlling food safety hazards in all phases of production and USDA Third-Party GAP Audits.

Participants will receive a GAP manual, a certificate of participation, and one pesticide credit is offered. Presenters include: Rich Bonanno, Ph.D., UMass Extension Educator 978-361-5650, rbonanno@umext.umass.edu; David Nyachuba, Ph.D., Assistant Professor, UMass Department of Nutrition 413-545-0552 dgn@nutrition.umass.edu; Scott Soares, Commissioner, MA Department of Agricultural Resources and Mike Botelho, MA Department of Agricultural Resources.

Preregistration is required. Registration deadline: April 27, 2009 To register send \$50.00 payable to the University of Massachusetts to: Shirley A. Mietlicki-Floyd, UMass Department of Public Health, 205 Arnold House, 715 North Pleasant Street, Amherst MA 01003-9304

## **A CHANCE TO TRY SOMETHING NEW: FARMER PROJECTS WITH UMASS FOR SUMMER 2009**

Would you like to try using perimeter trap cropping in vine crops to keep out striped cucumber beetle?

Want to release a beneficial wasp to stop European corn borer eggs before they can hatch?

Do you have a contract with the NRCS EQIP program and wonder how to improve your integrated pest management system?

Does one of your fields seem less productive than you'd like, or have some other soil-related problem, and you are wondering why and how to fix it?

You are invited to work with the UMass Extension Vegetable Program to try one of these new ideas. We will help you try these out and see how they work on your farm. These are practices that could be used on any vegetable farm. Please note -- resources are limited and it's time to get started, so if you'd like to work with us, please get in touch right away!

If you are growing sweet corn, you have probably seen how European corn borer can infest both early and late season corn. UMass has been working for many years with the parasitic wasp, *Trichogramma ostrinae*, which lays eggs in the corn borer eggs and kills them before they hatch. We will work with you on scouting, timing, rates and methods for re-

leasing these wasps to get effective control in corn --or peppers. (See related articles).

The Natural Resources Conservation Service (NRCS) is reaching out to vegetable and fruit growers and to organic growers to offer funding for conservation practices through their EQIP program. If you have or are developing conservation plan with NRCS, and it includes Integrated Pest Management, the UMass Vegetable IPM team may be able to work with you this summer to offer training and assistance. This applies to both organic and conventional pest management

The Cornell Soil Health Test measures twelve physical, biological and chemical properties of soil. We will work with growers to use this test to assess the soil in a field decide on a plan for improvement. One aspect of this will be to use targeted cover crop(s) to help address the problem. The grower will test this in half the field, compared to the standard practice. The impact will be evaluated by planting a crop across the field and comparing performance. The soil testing will be paid for, and you'll have access to advice from UMass and Cornell.

Perimeter trap cropping is a simple strategy for stopping incoming insect pests at the border of your crop. This works very well in large blocks of winter squash and pumpkins with a trap crop of Blue Hubbard or buttercup squash. It is also a promising strategy to protect kale, collards, cabbage, or broccoli from flea beetle, because a preferred Asian green (*Brassica rapa*) can be used as the trap crop. We have done a lot of work with this system over the years, but only a little has been on organic farms. This season, we are particularly interested in helping organic farmers make this work

If any of these options interest you please feel free to call Ruth Hazzard or Amanda Brown (phone 413-545-3696, email rhazzard@umext.umass.edu or aduphily@ent.umass.edu) or Andy Cavanagh (413-577-3976, email acavanagh@psis.umass.edu).

Funding for these projects comes from many sources: UMass Extension, Mass Dept of Agricultural Resources (MDAR), Northeast SARE, and MA NRCS.

## **2009 LABEL CHANGES FOR VEGETABLE WEED MANAGEMENT IN NEW ENGLAND**

### **Asparagus: Before Spear Emergence and/or after Harvest Season**

Mesotrione-0.094 -0.24 lb/A. (REI 12 hr, Group 28) Apply 3 to 7.7 fluid ounces per acre Callisto 4SC prior to spear emergence in the spring, after final harvest, or both, to control many winter and summer annual broadleaf weeds. Till the field or tank-mix with Gramoxone Inteon to eliminate emerged spears when Callisto is applied after harvest or crop injury may be observed as white or white streaks in the stems and fern when treated spears grow. Callisto provides excellent control of horseweed (also called marestail or stickweed), including glyphosate tolerant strains, and common lambsquarter. Use the lower rate on coarse-textured (sandy) soils low in organic matter, and the higher rate on fine-textured (silt and clay) soils. Callisto does not control annual grasses. Tank-mix Callisto with a residual annual grass herbicide to control annual grasses. Add oil concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) or a nonionic surfactant to be 0.25 percent of the spray solution (1 quart per 100 gallons of spray solution) if target weeds are emerged at the time of application. Do NOT apply more than 7.7 fluid ounces of Callisto per acre per year, and do NOT make more than two Callisto application per year.

### **Pumpkin: Preemergence between rows of plastic or banded between rows on bare ground**

s-metolachlor—0.95-1.27 lb/A. (REI 12 hr, Group 15) Apply 1 to 1.33 pints of Dual Magnum 7.62E per acre as a directed and shielded spray between the rows of plastic mulch or between bare ground rows in pumpkins to suppress or control annual grasses, yellow nutsedge, and certain annual broadleaf weeds including nightshade species. Leave 1 foot (12 inches) of untreated area between the spray and any emerged pumpkin foliage. Do NOT apply Dual Magnum under the plastic or spray the plastic mulch. Tank-mix with other herbicides to improve the number of annual broadleaf weeds controlled. Dual Magnum will not control emerged weeds. In CT, ME, an NH, can be tank-mixed with Gamoxone Inteon and applied as a directed shielded spray if weeds have emerged. Use the lowest recommended rates on coarse-textured sandy soils low in organic matter. Higher rates should only be used on medium and fine textured soils. Dual magnum is labeled for use ONLY in pumpkins. Dual Magnum is NOT labeled on winter squash. Do NOT use Dual Magnum in winter squash.

### **Pumpkin and Winter Squash: Postemergence Shielded between rows of plastic mulch**

Carfentrazone--0.008-0.031 lb/A. (REI 12 hr, Group 14) Apply 0.5 to 2 fluid ounces of Aim 2EC or Aim 1.9EW as a banded directed shielded spray between the rows of plastic mulch to suppress or control broadleaf weeds including morning glory species, pigweed species, common lambsquarter, and nightshade species when the crop has 2 to 5 true leaves but has not yet begun to bloom or run. Aim applied postemergence will not control annual or perennial grasses. Add nonionic surfactant to be 0.25 percent of the spray solution (1 quart per 100 gallons of spray solution), or oil concentrate or methylated seed oil to be 1 -2% percent of the spray solution (1-2 gallons per 100 gallons of spray solution). The shielded (hooded) sprayer must be designed to prevent spray or drift from contacting the stems, leaves, flowers or fruit of the crop, or severe injury may occur.

#### **Sweet Corn: Early Postemergence**

Tembotrione--0.082 lb/A (REI 12 hr, Group 27) Apply 3 fluid ounces of Laudis per acre postemergence to control many annual broadleaf weeds, including common lambsquarter and triazine-resistant broadleaf weed biotypes, and many annual grasses. Add oil methylated seed oil (MSO) or concentrate (COC) to be 1% of the spray solution (1 gallon per 100 gallons of spray solution). In addition, the label requires the addition of nitrogen liquid fertilizer (1.5 quarts per acre) or AMS (1.5 pounds per acre). Tank mix with 0.25 to 1 lbs ai/A of atrazine for improved control and to broaden the spectrum of weeds control. Local university data supports the use of at least 0.5 lb ai/A of atrazine. Do not apply tank-mixes of Laudis and atrazine to corn greater than 12 inches tall. Do not use postemergence if Callisto, Lumax or Lexar was used preemergence. Do not tank-mix with Callisto. Laudis will control/suppress most annual grass species, but may not control certain grass species or grasses larger than the maximum recommended size when treated. Fall panicum is not controlled by Laudis. Most broadleaf weeds should be treated before they are 6 inches tall and grass weeds should be treated before 2 inches in height. Laudis has up to an 18 month replant restriction for many vegetables.

#### **Sweet Corn: Early Postemergence**

Topramezone--0.016 lb/A (REI 12 hr, Group 28) Apply .75 fluid ounces of Impact 2.8SC per acre postemergence to control many annual broadleaf weeds, including common lambsquarter and triazine-resistant broadleaf weed biotypes, and annual grasses. Add oil concentrate (COC) to be 1% of the spray solution (1 gallon per 100 gallons of spray solution). In addition, the label requires nitrogen fertilizer (liquid or AMS),. Tank mix with 0.25 to 1 lbs ai/A of atrazine for improved control and to broaden the spectrum of weeds control. Local university data supports the use of at least 0.5 lb ai/A of atrazine. Do not apply tank-mixes of Impact and atrazine to corn greater than 12 inches tall. Do not use postemergence if Callisto, Lumax or Lexar was used preemergence. Do not tankmix with Callisto. Impact will control/suppress crabgrass and most other annual grass species, but may not control certain grass species or grasses larger than the maximum recommended size when treated. Most broadleaf weeds should be treated before they are 6 inches tall and grass weeds should be treated before 2 inches in height. Impact has an 18 month replant restriction for most vegetables.

#### **Tomato: Pretransplant Incorporated or Pre transplant**

s-metolachlor--0.95-1.9 lb/A. (REI 12 hr, Group 15) Apply 1.0 to 2.0 pints per acre Dual Magnum 7.62E as a pretransplant incorporated or pretransplant surface applied spray to control annual grasses, yellow nutsedge, nightshade species, galinsoga, and certain other broadleaf weeds. May also be applied between rows of plastic mulch. Apply Dual Magnum before weeds germinate. Dual Magnum will not control emerged weeds. Use the lower rate on coarse-textured soils low in organic matter and higher rates on fine-textured soils and on soils with high organic matter. Rainfall or irrigation after application is necessary before weeds emerge to obtain good control. Make only one application during the growing season. DO NOT apply within 65 days of harvest. Other generic versions of metolachlor and s-metolachlor may be available, and may or may not be labeled for use in the crop.

#### **Beets, Cabbage, Cauliflower, Broccoli, Greens, Lettuce, Onions, Parsley, Pea: Postemergence Grass Control**

clethodim (Select): 6 to 8 oz/A (20 dh, REI 24h, Group 1). Apply to actively growing grasses. See label for grass height and herbicide rate. Always use a crop oil concentrate at a rate of 1 gal/100 gal spray mix. See both container label and any supplemental label available from dealer.

*A. Richard Bonanno, Ph.D. UMass Extension*

## **BUILDING MODEL NETWORKS TO USE SHELLED CORN FOR GREENHOUSE HEAT**

Last summer UMass Extension started a project focusing on using locally grown shelled corn as an alternative fuel to heat

greenhouses. Corn is a renewable heat source that can be grown and used in Massachusetts more cheaply than fossil fuels, using available and proven technology. The production of shelled grain corn was largely abandoned in New England because of cheap corn available from the Midwest. As the cost of corn from outside the region rises along with fossil fuels, the equation shifts. Several dairy and vegetable farmers who have returned to the production and use of shelled corn for feed or for heat are finding a positive net income from their investments. Vegetable farms that have started growing grain corn find benefits to their crop rotation systems, reduced costs of fuel for their greenhouses, as well as a new crop to sell. However, barriers in equipment, knowledge and marketing links need to be overcome to bring this fuel into more widespread use. Producers need to be assured of a market, users need to know there will be adequate supply, and both need to know that the system will be reliable, profitable and sustainable. The goal of this project is to help develop the necessary links between producers and users, and will evaluate the cost and benefits for both.

Specifically, we are working with vegetable, floriculture, and dairy farmers to build two model networks of producers and users that will work together to establish an economically viable, sustainable system for producing and/or using shelled corn as a crop for greenhouse heat.

The first growers in both our Eastern and Western local networks have purchased, installed, and are starting to use biomass furnaces to heat their greenhouses with corn. All growers are recording the labor and costs associated with using the corn furnaces so that cost and efficiency comparisons can be made. Remote temperature sensors have been deployed to track temperatures both inside and outside of the target greenhouses.

### **Western Network**

Ravenwold Greenhouses – Florence, MA: Ravenwold Greenhouses has purchased, installed, and is using an LMF Amaizeing heat furnace. They have also purchased a harvester/sheller for processing grain corn, and will be experimenting with ways to grow a portion of their own fuel. They are currently purchasing fuel from Five Point Farm in Northfield, MA.

Atlas Farm – South Deerfield, MA: Atlas Farm has purchased and installed an LDJ Amaizeing heat corn boiler. He's using this hydronic heating system to provide in-ground heat directly to the root zone of his greenhouse tomato crop. Any excess heat is circulated through a water-to-air heat exchanger and used to heat the greenhouse. They are purchasing fuel corn from Five Point Farm in Northfield, MA.

Warner Farm – Sunderland, MA: Warner farm has purchased a Maxim 250,000 BTU outdoor hydronic heater from Central Boiler. This unit meets all current and pending EPA standards for clean air emissions. There are some issues with new MDAR regulations on outdoor hydronic furnaces burning corn as fuel, but we are working with EPA and MDAR to resolve these issues before the unit is put into operation.

### **Eastern Network**

Brox Farm – Dracut, MA: Brox Farm has purchased and installed a 160,000 btu LDJ Amaizeing heat furnace, supplied by Yellow Green in Fitchburg, MA. They are purchasing corn from Yellow Green, who are retailing corn they purchase from Five Point Farm.

Indian Head Farm – Berlin, MA: Indian Head Farm has purchased and installed a 100,000 btu LDJ Amaizeing heat furnace. This furnace will be put into operation in the second week of April.

In addition to working directly with individual growers, we have been providing information to a wider community in a variety of ways. As part of this project we are holding two winter conferences on alternative heating systems for use in greenhouses. Our first greenhouse energy conference was held on December 4 2008 at the Sturbridge Host Hotel in Sturbridge, MA. Speakers included John Bartok (Uconn), John Howell (Umass Extension), Vern Grubinger (UVT), Mike Kosinski (Kosinski Farms), Gerry Palano (MDAR), Masoud Hashemi (Umass), Bill Llewellyn (Five Point Farm), Frank Matheson (Spring Brook Farm), Darlene Monds (Berkshire-Pioneer RC&D), Steve Herbert (Umass), and Glen Harrison (Cavicchio Greenhouses). A complete program and a copy of many of the presentations is available at <http://www.umassvegetable.org/EnergyConference.htm>. The conference was attended by 57 growers and other agricultural professionals. All of the attendees who returned a post-conference surveys rated the conference highly and felt that it had made them more prepared for a transition to renewable energy, and would recommend conferences in this series to friends and colleagues.

Information on this project, including the case studies we are developing with the participating growers, is available at [http://www.umass.edu/agland/green\\_energy/cornheat.html](http://www.umass.edu/agland/green_energy/cornheat.html). In addition to basic information about the project and links to other resources, we have recently added a page listing local dealers of biomass furnaces and another page with a list of local corn fuel suppliers. Now that growers have completed the initial phase of purchasing and beginning to use corn burners in their greenhouses we will begin posting the first parts of their case studies. The first case study in this series is available at [http://www.umass.edu/agland/green\\_energy/FarmerDaves.html](http://www.umass.edu/agland/green_energy/FarmerDaves.html).

## **BIOLOGICAL CONTROL OF ECB WITH TRICHOGRAMMA OSTRINIAE IN SWEET CORN: BE READY FOR EARLY RELEASES!**

A tiny wasp – smaller than the dot at the end of the sentence – that will search out and kill the egg masses of one of our major sweet corn pest – can this really work? A number of sweet corn growers around the state have been testing *Trichogramma ostriniae* (pronounced ah-STRIN-ee-ay) parasitic wasps over the past five years and have found that they do help to control European corn borer (ECB) in both corn and peppers. The use of these wasps in commercial sweet corn fields in Massachusetts has resulted in the reduction or elimination of foliar insecticide sprays, saving time, labor, pesticides, and fuel, reducing soil compaction, and maintaining or improving ear quality. This method is an ideal IPM practice because it prevents the emergence and feeding of caterpillars in the first place, as opposed to rescuing the corn with sprays after the caterpillars have become a problem. Using *Trichogramma* to control ECB in early corn (corn to be harvested in July) is especially useful because timing sprays in the early corn can be tricky. Also, most of the caterpillar damage in early sweet corn is from ECB - thus, wasp release control measures are not complicated by the need to control other major caterpillar pests. *Trichogramma* can also be used for second generation ECB, which attacks both peppers and corn.

**Biology.** *Trichogramma* species are tiny parasitic wasps, smaller than the period at the end of this sentence. Female wasps lay their eggs in the egg masses of host insects. *Trichogramma* larvae feed and pupate inside the egg, killing the egg and preventing hatch. *Trichogramma ostriniae* lays its eggs in ECB egg masses. As they mature, unparasitized ECB egg masses turn from a cream color to white, to white with a black head mass in the center of each egg. When parasitized by *Trichogramma*, the entire egg turns black. *T. ostriniae* have excellent dispersal and ability to search for egg masses in the field. They do not overwinter but they will reproduce and contribute to the control of ECB throughout the season.

**Release timing.** While some native species of *Trichogramma* persist in the wild, *T. ostriniae* need to be reared at an insectary, shipped to the farm and released each season. Since *Trichogramma* control ECB by parasitizing egg masses, knowing when to release the wasps requires knowing when the ECB moths are laying eggs. Thus, knowing when ECB flight begins, reaches a peak, and ends in a given field is key to the proper timing of *Trichogramma* releases. You can use regional information about flight activity; however, to get the best coordination of timing on your farm, we recommend that you monitor ECB flight in your own fields.

ECB moths have two generations per growing season in Massachusetts; the first one emerges in late May or early June, while the second generation begins to emerge in late July and early August. Time the first release of *T. ostriniae* to the beginning of ECB egg laying, which will begin within a week after the first ECB moths are caught in traps. If the corn is less than 6 inches high, you may want to wait a few days. For corn maturing in the middle of moth flight, target releases to corn that is in the 4-6 leaf stage (12-16 inches tall).

To help align the concentrated presence of *T. ostriniae* with ECB host egg laying we recommend two to three releases, each approximately 7 days apart. Our current recommended release rates in early corn are 60,000 wasps per acre per release.

Degree days (DD) can help with timing. Using a base temperature of 50 degrees F, the first spring moths will emerge at 375 DD50 (when *Spiraea x vanhouttei* in full bloom), and the first eggs are laid at 450 DD50 (Pagoda dogwood late bloom). Eggs require 100 degree days to hatch. Releases should be made when eggs are in the field, but before eggs hatch.

**Handling *Trichogramma*.** *Trichogramma* are shipped from the insectary as pupae inside protective cards. They are ready to emerge upon arrival, although there will be a range of pupal age so they will emerge gradually, over 1-7 days, depending on temperature. It's best to put the cards out in the field the same day as they arrive. If you cannot release them upon their arrival, keep the cards in their shipping box in a cool location at about 50°F – not in the refrigerator! The insects are alive: avoid exposing them to extreme temperatures (below 40°F or above 90°F) so they will still be alive and

in good shape when you put them in the field.

**Releasing Trichogramma.** Place the proper number of cards to provide the desired release rate in the center of the field, or at regular intervals through the field, away from the field edges. Trichogramma wasps will disperse well throughout the field- one to four release sites per acre is adequate. Tie cards securely to corn leaves or on a stake. Do not put them on the ground. Leave the packet stapled shut so that other insect predators do not consume them.

**Scouting release fields.** Where Trichogramma has been released, you can scout as usual. Eggs that were parasitized and did not hatch will never reach the larval stage, resulting in a lower rate of infestation with caterpillars. Use the standard ECB threshold (15% infestation in caterpillars or fresh damage) to decide whether to spray.

**Spraying release fields.** *T. ostrinae* will suppress ECB, but will not always provide complete control. In addition, an early corn earworm flight may arrive during silking. Thus, insecticide applications may still be needed to achieve high levels of clean corn. Use selective insecticides with low impact on natural enemies (aka beneficials). Trichogramma that are inside host eggs are somewhat protected from the spray and many will survive, but adult wasps may be killed by insecticides that are harsh on beneficial organisms.

### **Ordering Trichogramma PLACE YOUR ORDER NOW!**

Trichogramma *ostrinae* may be ordered from IPM Laboratories in Locke, New York - 315-497-2063 [www.ipmlabs.com](http://www.ipmlabs.com). To ensure that you will be able to receive Trichogramma this year you must call IPM labs as soon as possible. When placing your order, have the number of acres you wish to release in and the size and number of plantings you have for early corn.

*Ruth Hazzard, Amanda Brown and Pamela Westgate, Extension Vegetable Program, University of Massachusetts*

## **RESULTS FROM 2008 TRICHOGRAMMA SARE PROJECT**

In 2008 the Vegetable Program worked with 14 growers on improving or introducing trichogramma release programs in sweet corn and peppers. They released in forty four acres of early sweet corn and 19 acres of peppers and the efficacy of the wasps was observed. Efficacy was measured by egg parasitism, infestation levels in release fields and harvest data (summarized below). We released during the last week of May and continued to release weekly at a rate of 30K/acre through the month of June. Our timing in 2008 seemed to be perfect. Infestation levels were very low in release fields, of the 26 fields we released in only 11 (less than half) were over threshold and needed a spray. The rest never got above threshold and therefore never warranted a spray. The majority (75%) of growers involved with the project were able to reduce or eliminate the number of pesticide applications made in early corn compared to previous years for the same time period. This was a huge saving to growers who are accustomed to applying 3-5 insecticide applications for ECB in the early season.

After working closely with Extension staff for the first release, growers were confident enough to continue the releases on their own. Most (92%) of the growers involved in the project trained a farm worker on scouting, monitoring of ECB and releasing of trichogramma so that the task could be shared and possibly taken over in future seasons. At harvest, more data was collected on ear infestation. Damage and live worms were counted. The highest infestation level found from a release field that was never sprayed was around 12% however, most were in the 0-2% range.

Overall growers were very pleased with the program and have expressed interest in continuing to use the introduced or improved practices on their own in the future. Some of the growers involved in the project were veterans to using Trichogramma on their farm and were able to use the 2008 season to increase the amount of acreage they released in and fine tune release methods. The biggest success story that came from this years work with Trichogramma is the gained confidence among the growers and their staff that are using it. If implemented correctly, Trichogramma is extremely effective control for European corn borer in early sweet corn field as was demonstrated in all release field in 2008. The Vegetable Program has received an extension on this SARE project to conduct another year of Trichogramma release evaluation. For more information on attaining Trichogramma to use on your farm or if you would like to participate in releasing this year please call Amanda Brown as 413-545-3696 or email [umassvegetable@umext.umass.edu](mailto:umassvegetable@umext.umass.edu) as soon as possible.

## **SOIL TESTING**

Soil tests provide the best way to determine lime and fertilizer requirements. The shotgun approach to vegetable crop fertilization is not practical or economical. The vegetable grower must know the nutrient status of the soil and then match application rates of lime and fertilizer to crop needs. This is important for cost effectiveness and to achieve optimum yield and quality and to safeguard water quality. Following is a list of soil test laboratories in New England. It is best to use local labs because they are calibrated for local soils and recommendations are tailored to New England conditions.

In addition to standard soil tests, other services are available including: Pre-Sidedress Soil Nitrate Test (PSNT), soluble salts (conductivity), manure analysis, compost analysis, water testing and plant tissue analysis.

**Taking Soil Samples.** Although soil samples can be taken any time, many prefer to take samples in summer or fall because this allows time to apply any needed lime, plan a fertility program and order materials well in advance of spring planting. Avoid sampling when the soil is very wet or soon after a lime or fertilizer application. If a field is uniform, a single composite sample is sufficient. A composite sample consists of 10 to 20 sub-samples taken from around the field and mixed together. To obtain sub-samples, use a spade to take thin slices of soil representing the top 6" to 8" of soil. (A soil probe is faster and more convenient to use than a spade.) Put the slices into a clean container and thoroughly mix. Take about one cup of the mixture, dry it at room temperature, put it in a zip lock bag and tightly close it. Label each sample on the outside of the bag. For each sample, indicate the crop to be grown, recent field history and any concerns.

In many cases, fields are not uniform. There are many reasons for this including: uneven topography, wet and dry areas, different soil types and areas with varying previous crop and fertilizing practices. In such cases, the field should be subdivided and composite samples tested for each section.

Soils should be tested for organic matter content every two or three years. Be sure to request this as it is not part of the standard test.

### **Submit samples to:**

Soil & Plant Tissue Testing Laboratory

West Experiment Station, University of Massachusetts

Amherst, MA 01003-9302

telephone: 413-545-2311

email: bodine@pssci.umass.edu

## **VEGETABLE AND STRAWBERRY IPM TRAVEL GRANTS**

### **Apply now for travel before March 10, 2010**

Would you like to learn more about integrated pest management for vegetables or strawberries, but don't have funds for travel? Is there a meeting or conference with a focus on IPM that you would like to attend? Do you have a commitment to sharing what you learn with growers? The IPM Travel Grants Program will pay up to \$800 for qualified expenses to help agricultural professionals in the Northeast learn about and share IPM practices in vegetables and strawberries.

The application process is simple (application letter is 1-2 pages), and applications are accepted on a rolling basis. Funds are available to growers, vegetable and/or strawberry specialists, Cooperative Extension educators or county agents, crop consultants, government agency staff, agricultural professionals in nonprofit organizations, or anyone who will be in contact with many vegetable or strawberry growers. For complete information, visit [http://northeastipm.org/work\\_veg-travelgrants.cfm](http://northeastipm.org/work_veg-travelgrants.cfm), where you can download the Request for Applications and read about past projects funded through this program.

## **FARM VIABILITY ENHANCEMENT PROGRAM APPLICATIONS AVAILABLE**

This popular business planning and technical assistance program provides management advice and grants of up to \$75,000 to implement farm growth and sustainability strategies. Farm operators not only receive up front cash awards for signing

a 5 or 10 year Agricultural Covenant, but also receive valuable consultations and visits from a team of experts to discuss farm production and management, marketing, and business planning. Applications and program information are available by clicking on this link Request for Response #AGR-FVEP-10-17 [PDF], or you can request a copy of the application by calling the Farm Viability Program at 617-626-1723. The deadline for submitting applications is Thursday June 25, 2009.

### **Meetings to Provide Information on the Farm Viability Program and Agricultural Environmental Enhancement Program**

Please come join Director Gerard Kennedy and Craig Richov from the MA Department of Agricultural Resources as they provide information on these signature Department programs. Applications will be available.

Wednesday April 22, 2009, 6:00 PM Greenfield Community College, Downtown Campus 270 Main Street, Greenfield

Thursday April 30, 2009, 6:00 PM Bristol County Agricultural High School, Center Street, Dighton, Room 108 (main front entrance, first room on left).

For more information, see [www.mass.gov/agr](http://www.mass.gov/agr), or call the Farm Viability Program at 617-626-1723 to request an application, or 617-626-1773 for AEEP. The deadline to submit applications is June 25, 2009 for FVEP and AEEP. Farm Viability Program website: [www.mass.gov/agr/programs/farmviability/index.htm](http://www.mass.gov/agr/programs/farmviability/index.htm)

### **NOFA-MASS SPONSORS NUTRIENT DENSITY FIELD TRAININGS.**

During the 2009 growing season, the Northeast Nutrient Density Network, a collaboration between the Northeast Organic Farming Association/Massachusetts Chapter (NOFA/Mass) and the Real Food Campaign, is holding five field trainings on maximizing the nutrient density of crops. Nutrient density is achieved along with improved yield, flavor and shelf life through biological farming techniques that maximize the nutrition provided to plants. Each farm will host two workshops, one in May and one in September. Workshop participants will return to the same place and directly observe the effects of a controlled experiment comparing the difference between plots undergoing a biological program and plots not undergoing the program.

#### **Workshops with Mark Fulford of Lookfar Agricultural Services**

**Location: Simple Gifts Farm, 1089 N. Pleasant St, Amherst MA 01002**

- Wednesday, May 13, 9a.m.–5 p.m.
- Sunday, September 13, 9a.m.–5 p.m.

#### **More workshops with Mark Fulford**

**Location: Lindentree Farm, 10 Old Concord Road Lincoln, MA 01773**

- Thursday, May 14, 9a.m.–5p.m.
- Monday, September 14, 9a.m.–5p.m.

#### **Workshop with Dan Kittredge of the Real Food Campaign**

**Location: Many Hands Organic Farm, 411 Sheldon Rd., Barre, MA**

- Saturday, July 11, 9 a.m. – 5 p.m

Further details and information you need to sign up for these workshops is online:

<http://www.nofamass.org/programs/extensionevents/nutrientdensity.php>

*If you would like to become a Vegetable notes sponsor, please contact Jessica Dizek at [jdizek@outreach.umass.edu](mailto:jdizek@outreach.umass.edu) or 413 545 1445*

*Vegetable Notes. Ruth Hazzard, editor and 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; 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.*