



UMASS  
EXTENSION



# Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 26, Number 14

July 17, 2014

## IN THIS ISSUE:

- Crop Conditions
- Pest Alerts
- Using Copper Fungicides
- Peppers: Watch for Pepper Maggot Fly & European Corn Borer
- Proposed Agricultural Worker Protection Standard Change
- Upcoming Events

## CROP CONDITIONS

Looking back at “Crop Conditions” from this same week for the last three years, we were reporting drought conditions around the state. We’re happy to report, that is not the case this year! With ample rain in most of the state, crops got a good drink, but with high temperatures and humidity, the potential for diseases to develop and impact the storage quality of some crops is a concern. After a week of thunderstorms, and clear weather ahead, growers are going out to assess cultivation needs, scout for insects and disease, and reapply pesticides as needed. As more farms are growing both fruit and vegetable crops, the major fruit harvesting season is beginning and may lead to labor shortages. Harvests at this time include: sweet corn, tomatoes, eggplant and peppers, cucumbers, melons, blueberries, raspberries and apricots. The first successions of summer squash and zucchini are about to end, so if you have healthy later plantings, the market for this crop may increase.



*Diversified fruit and vegetable farms are more and more common in New England*

## PEST ALERTS

**Sweet Corn:** [European Corn Borer](#) numbers continue to be zero or low. [Corn earworm](#) catches remains low in some areas but have climbed in others where sprays are recommended.

[Fall armyworm](#) traps are mostly not out yet in Massachusetts but 22 were trapped in Litchfield, New Hampshire. This is an early emergence for this pest and traps should go out now. One grower in Plymouth Co., MA reported feeding damage with frass in the whorl. FAW numbers can vary from site to site in the same region. Sprays are recommended where more than 15% of the plants are infested. The best time to clean up FAW is in the whorl and pre-

tassel stage. Recommended materials for both CEW and FAW include Avaunt at 2.5-3.5 oz/acre in whorl stage corn only (High bee toxicity); Radiant SC at 3-6 oz/acre (Medium bee toxicity) and Belt SC 2-3 oz/acre (Low bee and mammalian toxicity) can be used in silking corn where sprays are warranted.

**Pepper:** [Phytophthora blight](#) caused by *P. capsici* was confirmed on pepper in Rhode Island this week. Scout low-lying, wet fields or fields where the disease has previously occurred. Plow under any areas that are infected, along with a non-infected border area, to slow the spread of this disease.

**Cucurbits:** [Powdery mildew](#) has been spotted in a field in Franklin County, MA, and treatments began immediately. See the [May 15th issue of Vegetable Notes](#) for treatment options and tips on fungicide resistance management. New outbreaks of [cucurbit downy mildew](#) have been reported in MD and MI; low risk for New England. [Squash Vine Borer](#) moths continue to be captured above threshold (5 adults per trap per week; 1 adult per trap per week when

*P.capsici on pepper*



using organic products) in pheromone traps in Hampshire, Worcester, and Franklin Co., MA, Chittenden Co., VT, Hillsborough Co., NH and southern RI. Numbers continue to be very high in one field in Vermont (108 per week), but no damage has been seen yet. [Squash bug](#) adults and eggs were found in Middlesex county, MA, and nymphs were seen in Franklin county, MA. Treatments for the nymphal stage include azadirachtin (Neemix 7-16 oz/acre) for organic growers and acetamiprid (Assail 5.3 oz/A) for others.

**Solanaceous crops:** [Late blight](#) has been confirmed this week in Maine on potato and is in the nearby areas of New York, Pennsylvania and Long Island. Overnight conditions with heavy dew and frequent heavy rains can be conducive to disease development, and fungicide weathering, even though daytime temperatures are high. The Late Blight Decision Support System (DSS) for many MA locations is recommending a 5-7 day spray interval for susceptible varieties following a protectant fungicide such as chlorothalonil or copper hydroxide. Longer intervals are recommended for tolerant varieties and where targeted fungicides were last sprayed. Get recommendations tailored to your local weather conditions and fungicide program using the MA DSS website [here](#). [Leafhopper](#) adults were at threshold (1 adult per plant) in potatoes in RI and nymphal stages are likely present. Hopperburn not as much of a concern if potatoes are close to harvest.

**Alliums:** As onions are beginning to size up, consider the steps needed to protect your storage crops. [Botrytis](#) was seen in onions in RI and [thrips](#) continue to be widespread. Both of these can affect storability. See the [NE Veg Management Guide](#) for control options.

**Brassicas:** As fall crops go into the ground, the second peak of [flea beetle](#) damage may occur. See the [NE Veg Management Guide](#) for control options.

[Alternaria](#) is showing up in brassicas, and adequately fertilized crops are less susceptible. [Black Rot](#) is severe in kale in Chittenden Co, VT. ‘V’-shaped yellow lesions are the main symptom. These pathogens can be seed borne and hot water seed treatment is effective for both.

[Basil Downy Mildew](#) was confirmed in field-grown basil in Middlesex Co. and at a box store in Franklin Co., MA.

## USING COPPER FUNGICIDES

Copper products play an important role in disease management in both conventional and organic systems. They are one of the most effective controls for bacterial diseases. In organic production, copper products are the main protectant fungicide used in the control of oomycete diseases such as late blight and downy mildews. As more copper products become available, it is helpful to understand the differences and benefits of various active ingredients and formulations. Solubility, phytotoxicity, human health risks, impact on soil ecology, labeled crops and diseases, and efficacy are important considerations in using particular copper products.

### **How copper works**

When copper (Cu) is mixed with water, copper ions (Cu<sup>2+</sup>) are released into solution. Modern copper products typically use insoluble or “fixed” forms of copper, creating a suspension of copper molecules in the spray solution. These undissolved copper particles persist on plant surfaces after the spray dries and copper ions are released from these deposits

**Table 1. European corn borer (ECB), fall army worm (FAW), and corn earworm (CEW) trap captures for the week ending 7/17/14.**

Location	ECB	FAW	CEW	CEW Spray interval
<b>Western, MA</b>				
Sheffield	0	-	0	-
South Deerfield	0	-	1	-
Hadley	8	1	0	-
Feeding Hills	2	0	1	-
<b>Central &amp; Eastern MA</b>				
Spencer	0	0	0	-
Tyngsborough	0	0	0	-
Concord	0	0	1	-
Millis	0	-	6	5 days
Sharon	1	-	2	6 days
Lancaster	0	0	0	-
Seekonk	0	-	6	5 days
Rehoboth	2	-	15	4 days
<b>NH</b>				
Litchfield	0	22	2	6 days
Hollis	0	1	2	6 days
Mason	0	0	2	6 days
<b>Burlington, VT</b>	3	-	2	6 days

each time the plant surface becomes wet. The gradual release of copper ions from the copper deposits provides residual protection against plant pathogens present on the leaf surface. Copper ions kill pathogens primarily by destroying cell membranes and proteins and by disrupting protein synthesis. Since the mode of action of copper targets such fundamental components of living tissues, it affects a wide range of plant pathogens including bacteria, fungi, and oomycetes, but can also damage plant cells and be toxic to humans and other non-target organisms. Achieving the best control without injuring plant foliage and fruit depends on the concentration and rate of release of copper ions on the leaf surface, which is determined largely by the solubility of the copper formulation.

### **Solubility**

Less soluble (fixed) formulations release copper ions more slowly. This slow-release lowers the risk of phytotoxicity and provides longer residual activity. The following are low-solubility active ingredients: copper oxide (e.g., Nordox), copper hydroxide (e.g., Kocide, Champ), copper oxychloride (e.g., COCS and BadgeX2), and copper octanoate (copper ions linked to fatty acids to form a soap, e.g., TennCop, Cueva).

More soluble formulations act rapidly but have higher risk of phytotoxicity and shorter residual activity. Basic copper sulfate and copper sulfate pentahydrate are highly soluble.

### **Metallic Copper Equivalent**

Product labels list percent active ingredient (eg., 23.8% copper oxychloride or 98% basic copper sulfate), but this doesn't tell you the actual metallic copper by weight, as the formulation also impacts the total copper present. Look for the "metallic copper equivalent" listed below the active ingredients on the label to determine the amount of actual copper by weight. A product with 40% metallic copper has 0.4 lb metallic copper per lb of product. The range in MCE among products is vast, ranging from under 1.8% to over 50% copper by weight. It is important to consider the MCE because the effectiveness of a copper spray is highly correlated to the amount of copper applied.



*copper residue on melon*

### **Effects of pH, Spray Additives, and Weather**

- Under acidic conditions, copper solubility and the potential for phytotoxicity increases. Spray solutions should be kept above pH 6-7, depending on the formulation, to prevent excessive amounts of copper ions from being released and possibly damaging fruit and foliage. Lime can be added to spray water to raise the pH.
- Adding maneb or mancozeb to copper products as a tank mix increases the release of copper ions in solution. There are pre-mixed products (eg., ManKocide) available or growers can make their own mixture. This may be especially helpful for controlling bacterial diseases such as bacterial speck, spot and canker of tomato.
- Using an approved adjuvant or 'sticker' may help the product to be more rainfast, but when used with the highly soluble copper sulfate formulations, can cause phytotoxicity.
- Finely ground compounds will be more active than coarser ground materials because the smaller particles result in better coverage of the leaf and are less likely to be removed from the leaf by wind and rain.
- Copper can accumulate to high levels on plant tissue when sprayed repeatedly to cover new growth and when there is no rain. In this situation, after a rain event, a large amount of copper ions may be released leading to phytotoxicity.
- The risk of plant injury increases when drying conditions are slowed due to cool wet weather, as the duration of active release of copper ions on the leaf tissue is increased.
- For each product, application rates vary with crop and disease. The recommended rate for a given crop may have a 2-fold difference between the high and low rate. Higher rates are recommended when disease pressure is high or conditions are especially favorable. Most products are labeled for a wide range of vegetables, including brassicas, cucurbits, and solanaceous crops.
- Always read the label instructions. When mixing, follow the tank mix partner instructions.

## Safety

**Human Health Hazards.** Eye exposure is the most serious risk associated with using copper hydroxide. Eye damage can be irreversible. There is moderate risk from skin contact, ingestion and inhalation. Products vary in EPA hazard rating, most are “Warning” or “Danger” but Badge SC has a lower risk “Caution” label. The greatest health risk is to the person who mixes and sprays the material. Proper protective equipment should be worn when handling or applying copper products as with any pesticide or fertilizer. The required protective equipment is specified on the label and usually includes: long-sleeved shirt and long pants, chemical resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride, shoes plus socks, and protective eyewear. Though not usually required, you may also want to consider wearing a respirator or dust mask, especially for mixing. Dry product sometimes comes in a paper bag that has a tendency to leak out of the seams and needs additional containment such as a plastic bin. Always label secondary containers.

**Restricted Entry Interval (REI).** Most copper products have an REI ranging from 24-48 hours, which means that workers are not allowed to go into treated fields to pick fruit or do any other field work for that duration of time. Plan your spray and harvest schedule to accommodate your marketing needs as well as the REI. Fruit may need to be polished before marketing, to remove the blue residue left on fruit.

**Environmental Hazards.** Some farmers have expressed concern about copper toxicity in the soil or with respect to soil microbes and earthworms. In addition, copper is very toxic to fish and aquatic organisms, if drift and runoff occur. In New England, this should be a concern in sandy, acidic soils near surface water. Copper usually accumulates on the soil surface (top 3 cm) where it becomes chemically bound to organic matter and clay minerals. In acidic soils, the solubility of copper increases and toxicity or runoff may occur. Copper is actually an essential plant micronutrient and, in New England, it is more often deficient than excessive in soils. The amount found naturally in soils in MA ranges from 0.1 to 8 ppm while nationally soils range up to 200ppm Cu. Crops remove less than 0.1 lb/A copper per year. An application of 1 lb of active ingredient per acre is estimated to raise the copper levels about 0.5 ppm. A single application of Nu Cop at 2 lb per acre with 77% active ingredient adds about 1.5 lb copper per acre to the soil, or could raise the concentration in the soil by 0.5 to 0.75 ppm. Therefore, the level of copper in soil would increase slowly over time, except in perennial planting systems such as apple orchards. In annual rotational systems, where copper applications might only be made in the same location every few years, copper accumulation is less of a concern. Nonetheless, copper use is regulated and certified organic farmers in the US are required to restrict their use of copper products. Regular soil tests should be taken and copper levels in the soil should be monitored.

## Managing blights in organic tomato and potato using copper

Copper-based fungicides are labeled for use in organic systems which have demonstrated effectiveness in preventing late blight. Copper fungicides do not kill infections that are already present, they must be used preventatively in order to effectively protect plants from initial infections. Most pathogens have latent periods, when the plant is infected but does not show any symptoms. Thus, when symptoms appear, it is too late to protect the crop effectively – especially with late blight. Some strains of late blight are more aggressive than others and this will also influence the efficacy of copper spray programs. Regular applications of copper will also help protect tomatoes from early blight and Septoria leaf spot, which can progress rapidly and cause plantings to produce far less than their full yield potential.

Several copper products are OMRI-listed for use in certified organic production and are registered for use in Massachusetts including: NuCop 50DF, Badge X2, Basic Copper 53, and Cueva. Check the OMRI website for updates or consult your certifier. As with insecticides, dry formulations are more commonly approved for use in organic systems. Note that OMRI approval is for specific formulations, and there are often multiple formulations with the same trade name (eg. Badge X2 and Badge SC, of which only Badge X2 is OMRI approved) .

## High Tunnel and Greenhouse Considerations

- Read the label to be sure that a product is labeled for greenhouse use. Many copper products are.
- The same protective gear and restricted entry interval would apply.
- Apply with sides open for ventilation.
- Most labels require that in addition to the standard REI, an eyewash station and notice of eye risk should be available for 7 days after application.
- If you suspect late blight, have the disease identified. Gray mold (*Fulvia*) and botrytis are common diseases in high tunnel tomatoes that look very much like late blight.

- If tomatoes are grown in the same area year after year, and copper is used, build-up in the soil is more likely. Include copper levels in your annual soil testing. Rotate to other crops!

-- S.B. Scheufele, K. Campbell-Nelson and R. Hazzard. *Adapted from T. Zitter & D. Rosenberg, Cornell Plant Pathology, E. NY Commercial Horticulture Weekly Vegetable Update. June 26, 2013.*

## **PEPPERS: WATCH FOR PEPPER MAGGOT FLY & EUROPEAN CORN BORER**

Pepper maggot stings were observed in Connecticut the week of July 7 so is active in southern New England. The second flight of ECB is expected to begin in the next week in MA.

**Pepper maggot fly** (*Zonosemata electa*) adults emerge in mid to late July and are active for several weeks, so this is the time to watch for their activity. The fly is confined to solanaceous plants, including ground cherry, horse nettle, tomato, pepper and eggplant. Pepper is the preferred host, cherry pepper and green bells being most susceptible to pepper maggot fly damage.

The pepper maggot fly is found throughout eastern North America. In New England, the range of pepper maggot has been creeping northward into southern NH and throughout Massachusetts. Within their range, populations are spotty and rather unpredictable – that is, pest status is often a farm-by-farm or field-by-field phenomenon without any clear reason for high or low populations that occur in a particular place.

**Life cycle and damage.** Pepper maggot flies are smaller than a house fly, bright yellow with three yellow stripes on the thorax, green eyes, and clear wings with a distinct banding pattern. Flies aggregate in forested field edges and enter the field during the day to lay their eggs. Females insert eggs directly into immature pepper fruit and leave a small dimple – an ovipositor sting or scar. Eggs hatch after about 10 days and the white maggots then feed and tunnel inside the fruit, especially in the placenta, causing soft spots on the wall of fruit and brown mines within. Maggots reach about ½ inch in length over a period of about two weeks. Unlike European corn borer caterpillars, they have no legs, no markings, and no distinct head capsule. When they are ready to pupate, they exit at the blossom end, leaving tiny round exit holes. These holes allow for the entry of soft rot bacteria into the fruit. Sometimes the oval brown pupae can be found inside the fruit. Often damage is detected only because of premature ripening or decay of the fruit.

**Pepper maggot monitoring:** The best way to detect activity is to look for stings on the fruit. Cherry peppers are useful for monitoring the beginning of flight, as the adults prefer to lay eggs in the small (1-3 cm in diameter) round fruit. However, bell peppers also show the stings (see photo). Monitor weekly to detect flight.



*Pepper maggot damage*

**Pepper maggot threshold and control:** If stings are observed on fruit, take action for control within the next week. An effective treatment that can be used in both organic and conventional fields is the product Seduce, a granular bait formulation of spinosad produced by Certis. Spread the bait on the ground or plastic below the plants, and reapply every two weeks. Jude Boucher of UConn has worked with Crop Production Services to make this available in New England (currently in Windsor CT and eastern NY). Prior to this it was only offered in states south of the Mason-Dixon line. This product only lists earwigs and cutworms, but is labeled for most vegetable crops, so can be legally used for maggot flies. A farmer in CT tried it last year on pepper maggot and had near 100% control. Chemical control requires two insecticide applications, 10-14 days apart, with a material labeled for pepper maggot, which include Dimethoate, Mustang, and GF-120 Naturalyte (spinosad). See [NE Vegetable Management Guide](#) for more details on using these products.

**European Corn Borer** (ECB) is a resident pest that has 2 generations per year in southern and central New England and 1 generation in northern New England. Pepper is one of over 200 crop and weed host plants of this pest. The severity of ECB in peppers varies in MA and around New England. Some farms – typically in areas where farming is less dense and ECB populations have not built up – do not see much damage from this pest. In the Connecticut Valley and in Southeastern MA, an unsprayed pepper field is likely to have anywhere from 10 to 50% of the fruit infested. In some cases, it seems that sweet corn – which ECB prefer over peppers – helps to draw ECB away; in other cases, presence of sweet corn near peppers provides no benefit at all. Use flight counts and historical experience to help you decide which applies to you.

Getting good ECB control is especially critical when you want to sell ripe colored peppers.

In southern and central New England, ECB generally does not become a pest in peppers until the appearance of the second generation in late-July or early-August. Check state sweet corn IPM reports for flight activity, or use pheromone traps for monitoring adult flight activity. Make first application 1 week after moth count equals or exceeds 7 moths per week and > 1/2 inch fruit are present on the plants. Discontinue sprays 1 week after moth counts drop below 21 moths per week. The spray interval depends on the residual period of the insecticide used as well as weather conditions and pest pressure. Choose selective material such as Radiant, Intrepid, Entrust (OG), Coragen, Avaunt, or Bt aizawi or Bt Kurstaki. Bt products conserve natural enemies and reduce the chance of aphid outbreaks because they are selective. Pyrethroids may cause aphid outbreaks by eliminating their natural enemies.

**Using Trichogramma wasps for biological control of ECB in pepper.** *Trichogramma ostrinae* attacks only the egg stage, so timing is critical. We recommend that you begin releases the week that flight begins and continue weekly releases for a total of 4 weeks. Release 90,000 to 120,000 wasps per acre and spread the cards out throughout your pepper block. Higher rates are needed in peppers compared to sweet corn because the tolerance for damage is virtually zero and ECB larvae attack the fruit directly. Four releases are needed because the egg laying period for the second generation is longer than for the first generation of ECB. Fortunately, peppers are also a higher value crop and worth the extra cost. After four releases, Trichogramma will have reproduced in the field and biocontrol should continue. Wasps can be ordered from IPM Laboratories, at [www.ipmlabs.com](http://www.ipmlabs.com) or by phone, 315-497-2063. Wasps can also be used in combination with insecticide; if so, choose a selective material (see above) that will not kill wasps.

*-R. Hazzard, University of Massachusetts with source material from J. Boucher, University of Connecticut Extension*

## **PROPOSED AGRICULTURAL WORKER PROTECTION STANDARD CHANGE: COMMENT PERIOD CLOSES AUGUST 18, 2014!**

The EPA is proposing changes to the Worker protection Standards. Please take a look at the following which is provided by EPA through their web site (<http://www.epa.gov/oppfead1/safety/workers/proposed/>). Overall, the rule will take more time to comply with including requiring annual training of all employees.

**\*DISCLAIMER:** This is a reformatted version of the above website. Please check the website for any updates.

**\*\*FYI:** Este Web page está disponible en español

*-Rich Bonanno, UMass Extension*

On February 20, 2014, the Environmental Protection Agency announced proposed changes to the agricultural Worker Protection Standard (WPS) to increase protections from pesticide exposure for the nation's 2 million agricultural workers and their families. This is an important milestone for the farm workers who plant, tend, and harvest the food that we put on our tables each day. EPA is seeking input on the proposed changes and rationale in the [Notice of Proposed Rulemaking, which published in the Federal Register on March 19, 2014](#). Comments must be received on or before August 18, 2014. Comments must be submitted to <http://www.regulations.gov> identified by docket number EPA-HQ-OPP-2011-0184. Your comments will help EPA determine the final version of this regulation.

### **Proposed changes to the Agricultural Worker Protection Standard (WPS) include:**

- Increased frequency of mandatory trainings (from once every five years to annually) to inform farm workers about the protections they are afforded under the law, including restrictions on entering pesticide-treated fields and surrounding areas, decontamination supplies, access to information and use of personal protective equipment. Expanded trainings will include instructions to reduce take-home exposure from pesticides on work clothing and other safety topics.
- Expanded mandatory posting of no-entry signs for the most hazardous pesticides; the signs prohibit entry into pesticide-treated fields until residues decline to a safe level.
- First time-ever minimum age requirement: Children under 16 will be prohibited from handling pesticides, with an exemption for family farms.
- No-entry buffer areas surrounding pesticide-treated fields will protect workers and others from exposure from pesticide overspray and fumes.
- Measures to improve the states' ability to enforce compliance including requiring employers to keep records of

application-specific pesticide information as well as farmworker training and early-entry notification for 2 years.

- Personal Protection Equipment (respirator use) must be consistent with the Occupational Safety & Health Administration standards for ensuring respirators are providing protection, including fit test, medical evaluation, and training.
- Make available to farm workers or their advocates (including medical personnel) information specific to the pesticide application, including the pesticide label and Safety Data Sheets.
- Continues the exemptions for family farms.

### **Questions for Your Consideration on Major Areas of Change**

Given the length of the proposal we want to make it easier for you to locate specific sections that you are interested in and comment on them. The major sections of the proposal are identified below and follow the format in the Federal Register notice. Under each section, we have posed specific questions that we are seeking your input on:

[Training for Workers and Handlers](#) (p.15459)

[Notifications to Workers and Handlers](#) (p.15472)

[Hazard Communication](#) (p.15476)

[Information Exchange between Handler Employers and Agricultural Employers](#) (p.15482)

[Handler Restrictions \(Minimum Age for Handlers\)](#) (p.15483)

[Restrictions for Worker Entry into Treated Areas](#) (p.15484)

[Display of Basic Pesticide Safety Information](#) (p.15490)

[Decontamination and Emergency Assistance](#)(p.15492 and p.15494)

[Personal Protective Equipment](#) (p.15496)

[Monitoring Handler Exposure to Cholinesterase Inhibiting Pesticides](#) (p.15500)

[Exemptions and Exceptions](#) (p.15502)

[General Revisions to the WPS and Implementation of this Proposal](#) (p.15507)

### **Tips for preparing comments**

We invite you to share your views with us on the proposed changes. Your thoughts on these proposed changes are very important! Your comments will help guide our final decision-making. First, read about the major areas of change under “Questions for Your Consideration on Major Areas of Change”. Then open the Notice of Proposed Rulemaking for full explanations of the changes, our rationale for the proposals, and discussions of alternative considered. Finally, using the tips below, submit your comments.

### **When submitting comments, remember to:**

- Identify the document you’re discussing (ex. NPRM or Economic Analysis) by the docket number (EPA-HQ-OPP-2011-0184) and other identifying information like the subject heading (ex. Handler Restrictions), Federal Register date (March 19, 2014) and page number.
- In some places in the proposal we ask you to respond to specific questions and to organize comments by referencing the Code of Federal Regulations (CFR) part and section number (ex. 40 CFR part 170.111)
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
- Present any data or information that should be considered by EPA during the development of the final rule.
- Provide specific examples to illustrate your concerns and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Commenters are reminded that the submission of data derived from human research should include information concerning the ethical conduct of such research, in compliance with the requirements at 40 CFR 26.1303.
- Make sure to submit your comments by the date specified in the Federal Register notice expected to publish within 10 days.

**Overall, please provide input on the:**

- need for a change, value of any changes, and any alternatives to the proposed changes.
- studies and scientific articles used as the basis of this proposed rule.
- clarity of the proposed revisions.
- ability to effectively enforce the proposed regulation.
- economic analysis of the proposed rule, including its underlying assumptions, economic data, high- and low-cost options and alternatives, and benefits.

**Comments may be submitted by one of the following methods:**

Submit your comments, identified by docket identification (ID) number EPA-HQ-OPP-2011-0184, by one of the following methods:

- Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the online instructions for submitting comments. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute.
- Mail: OPP Docket, Environmental Protection Agency Docket Center (EPA/DC), Mail code: 28221T, 1200 Pennsylvania Ave., NW, Washington, DC 20460. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget, Attn: Desk Officer for EPA, 725 17th St., NW, Washington, DC 20503.
- Hand Delivery: To make special arrangements for hand delivery or delivery of boxed information, please follow the instructions at <http://www.epa.gov/dockets/contacts.html>.

## **UPCOMING EVENTS**

### **Vegetable Program Twilight Meetings**

**August 13th, 2014 4-7 pm**

[Foppema's Farm](#), Northbridge, MA

**August 27th, 2014**

[Brigham Hill Community Farm](#), Grafton, MA

### **IPM Field Walks**

**August 14th, 2014 3:30-6:00 pm**

[High Meadows Farm](#), 742 Westminster West Rd., Putney, VT

**August 22nd, 2014, 3-5 pm**

[The Farm School](#), 488 Moore Hill Road, Athol, MA 01331

### **UMass Agricultural Field Day**

**When:** Tuesday, July 29, 2014, 10:00am to 4:00pm

**Where:** UMass Animal and Crop Research Center, 89-91 North River Road, South Deerfield, MA 01373

Come tour the research farm and learn about all of the exciting projects currently underway on a broad range of agricultural topics. Contact Madeline Madin, [cdle@umext.umass.edu](mailto:cdle@umext.umass.edu), 413-545-5221 for more information on this event.

*Vegetable Notes. Ruth Hazzard, Katie Campbell-Nelson, Lisa McKeag, Susan Scheufele, co-editors. Vegetable Notes is published weekly from May to September and monthly 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.*

*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.*