UMass Extension
Vegetable Notes
For Vegetable Farmers in Massachusetts since 1975

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In this issue:

Crop conditions

Winter greens have come out of high tunnels, and tomatoes are going in the first week of May. The false start to spring sent many out to their fields, testing out new equipment, subsoiling, preparing beds, and even seeding. Already direct seeded around the state in a few locations are peas, beets, and even sweetcorn under plastic. Even braver souls transplanted out in the field: onions, leeks, cabbage, and beets. Most will need to be re-seeded after this week of winter like weather. The dangers of early planting include damping-off of seeds and seedlings, and compaction from bringing equipment into wet spring fields.

Looking for alternatives to plowing in the spring? Consider deep zone tillage. Jude Boucher (an Extension Educator in Connecticut) worked with farmers using deep zone tillage for over 10 years. A few years ago, Jude selected 10 fields from different farms that had used deep zone tillage for 2 to 7 years and compared them with 12 fields that were conventionally tilled. The fields from both types of tillage were chosen at random. 100% of the conventionally tilled farms had hard pans and 92% of the penetrometer readings maxed out at 300 psi, while only 60% of the deep zone tilled fields had plow pans and 50% of the penetrometer readings hit 300 psi. Soil organic matter (OM) levels were similar between the two tillage methods. Using deep zone tillage reduced compaction, but did not increase OM over the short term. It helps to remember that some of our New England fields have been tilled for over 350 years, and that it may take some time to improve soil conditions.

At the UMass Extension Vegetable Program, we have some new staff hires to announce. Annalisa Flynn will be our western MA field scout for the summer (funding made available by the National iPiPE program: http://ed.ipipe.org/home). Annalisa loves working with farmers and was a great help last year as our eastern MA field scout. Genevieve Higgins is our new fulltime Program Assistant. She is a wiz at excel and all things organizational, super efficient, and a great help with on-farm trials. Genevieve made the very handy "**Most Versatile Pesticides**" factsheets featured in this issue. If you're ever wondering what materials are labeled for your diverse range of crops, this is the place to look! We are also still looking for an eastern MA field scout (must be a UMass student) and a Field Assistant to help with research trials at the UMass Research Farm (open to all). Click here to apply: https://ag.umass.edu/vegetable/news/vegetable-team-is-hiring

Annalisa Flynn (left), western MA field scout and Genevieve Higgins (right), Vegetable Program Assistant.

Beautiful Salanova ready to be transplanted at Book and Plow Farm, Amherst, MA. photo: K. Campbell-Nelson

Most versatile pesticides

Growers have often asked us, "Do you have a list of materials that are labeled for both pumpkins and apples? Or, floriculture and vegetables? Or, just generally for fruit and vegetables?" Well, look no further. Genevieve Higgins, the new UMass Vegetable Program Assistant edited our Vegetable Guide Insecticide sections this year and was thus well prepared to tackle this organizational nightmare. She made the following series of factsheets this winter:

- Versitility of Conventional Fungicides and Bactericides for Vegetable Growers
- Versatility of Conventional Insecticides for Vegetable Growers
- Versatility of Organic Fungicides and Bactericides for Vegetable Growers
- Versatility of Organic Insecticides for Vegetable Growers

Please note the following:

- At the time of writing, all products listed were registered in at least one New England state. Check the registration status in your state before using any product.
- Pesticide labels are legal documents for product use. Disregard any information in this document if it is in conflict with the current label.
- No company or product endorsement is implied or intended in this document. Always read the label before using any pesticide.

Here is a sample from the "Versatility of Conventional Insecticides for Vegetable Growers" factsheet:

Key

Black = veg & fruit (not labeled for pumpkin, apple, or berries)
Red = veg & apple
Orange = pumpkin & fruit
Blue = veg & berries
Green = flor/orn/nurs & pumpkin
Purple = veg & flor/orn/nurs

Pink highlight = pumpkin & apple
Purple highlight = apple & berries
Yellow highlight = pumpkin & berries
Green highlight = pumpkin & berries & apple
* = also labeled on flor/orn/nurs crop(s)

IRAC Group 1

Group 1A

*Carbaryl 4L
Lannate LV
Lannate SP
Nudrin LV
Nudrin SP
Sevin 4F
Sevin XLR Plus
Vydate L

Group 1B

Acephate 90 Prill
Acephate 90 WDG
Acephate 90 WSP
Acephate 97 UP
Bolton (1B & 3A)
*Chlorpyrifos 4E AG
*Cobalt (1B & 3A)
*Cobalt Advanced (1B & 3A)
*Diazinon AG500
*Diazinon AG600 WBC
*Diazinon 50W
*Dimate 4E
*Dimethoate 4EC
*Dimethoate 400
Fyfanon ULV AG
*Hatchet
*Imidan 70W
*Lorsban Advanced
Lorsban 15G
Lorsban 4E
Lorsban 50W
*Lorsban 75WG
Malathion 5
*Malathion 5EC
Malathion 57EC
*Malathion 8
*Malathion 8 Aquamul
*Malathion 8F
Match-Up (1B & 3A)
Mocap EC
*Nufos 4E
Orthene 97
*Vulcan
*Warhawk
*Warhawk Clearform
*Whirlwind
*Yuma 4E

-- by G. Higgins, UMass Extension Vegetable Program

LEVEL OF SUSCEPTIBILITY TO THE BLACK ROT PATHOGEN OF COMMERCIALLY AVAILABLE CABBAGE VARIETIES

Caused by the bacterium *Xanthomonas campestris pv. campestris* (Xcc), black rot is a significant disease of cabbage, and other crucifer crops world-wide and is an annual problem here in NY. Currently the options for controlling the bacterial pathogen that causes black rot remain limited primarily to copper-based products. The goal of this project was to test cabbage varieties in a replicated and inoculated trial, for susceptibility to Xcc. These data will enable growers to evaluate the risk of using extremely susceptible varieties, and determine if there is a horticulturally similar variety available with some black rot tolerance.

Thirty five commercially available cabbage varieties were seeded in 72 cell flats in a greenhouse at Cornell's NY State Ag Experiment Station. At 6 weeks of age plants were moved to a cold frame and hardened off for a week. They were then be planted into a research plot with 5 plants per plot and 4 replicate plots per treatment, in a randomized complete block design. Plants were fertilized and maintained according to standard grower practices, and the entire field was inoculated with a NY isolate of Xcc 2 weeks after transplanting. Plots were rated weekly for both disease incidence and severity beginning July 6, 2017. Two cabbage heads were harvested per plot for early, mid and late season cabbage (a total of 8 heads per variety). Each head was cut at the stump and visually rated for blackening of the veins on the core, and then each head was cut in half to check for ingress of the pathogen into the cabbage head.

Results: All 35 cabbage varieties included in the study showed black rot symptoms following inoculation with the bacterial pathogen Xcc. Typical V-shaped lesions were seen on all plants, and no varieties were completely resistant to the pathogen. Following disease progress over time (shown on next page) varieties Thunderhead, Excalibur, Viceroy and Capture had the least disease at the end of the study, while Korsuma and Surprise were most susceptible. These results are similar to those observed in 2016.

Results from harvesting mature heads show that mid and late season varieties have a greater chance of black rot inside the head than early season varieties (Figure 1). This is not surprising as all plants were inoculated at the same time and varieties with a longer date to harvest would enable the pathogen more time to move into the head. Additional results from cabbage harvest (Figure 2.):

- Three cultivars showed black rot inside every head (all mid or late season varieties)
- Five cultivars had 50%-87.5% infected heads (all mid or late season)
- 15 cultivars had 12.5%-33% infected heads
- 12 cultivars had no black rot inside the head even though they all had black rot symptoms on the leaves

By identifying the most black rot tolerant cabbage varieties available growers will have a guide as to the level of susceptibility of commonly grown cabbage varieties. This could be an economic benefit by either reducing copper sprays if a variety is known to be less susceptible, or starting copper sprays earlier if a variety is known to be highly susceptible. Of course, we would recommend that growers not plant those varieties that are highly susceptible.

-- by Chris Smart and Holly Lange, Plant Pathology and Plant-Microbe Biology Section, Cornell University, Geneva

There was varying susceptibility to black rot among cabbage varieties (left to right) Capture, Korsuma, Super Red 115

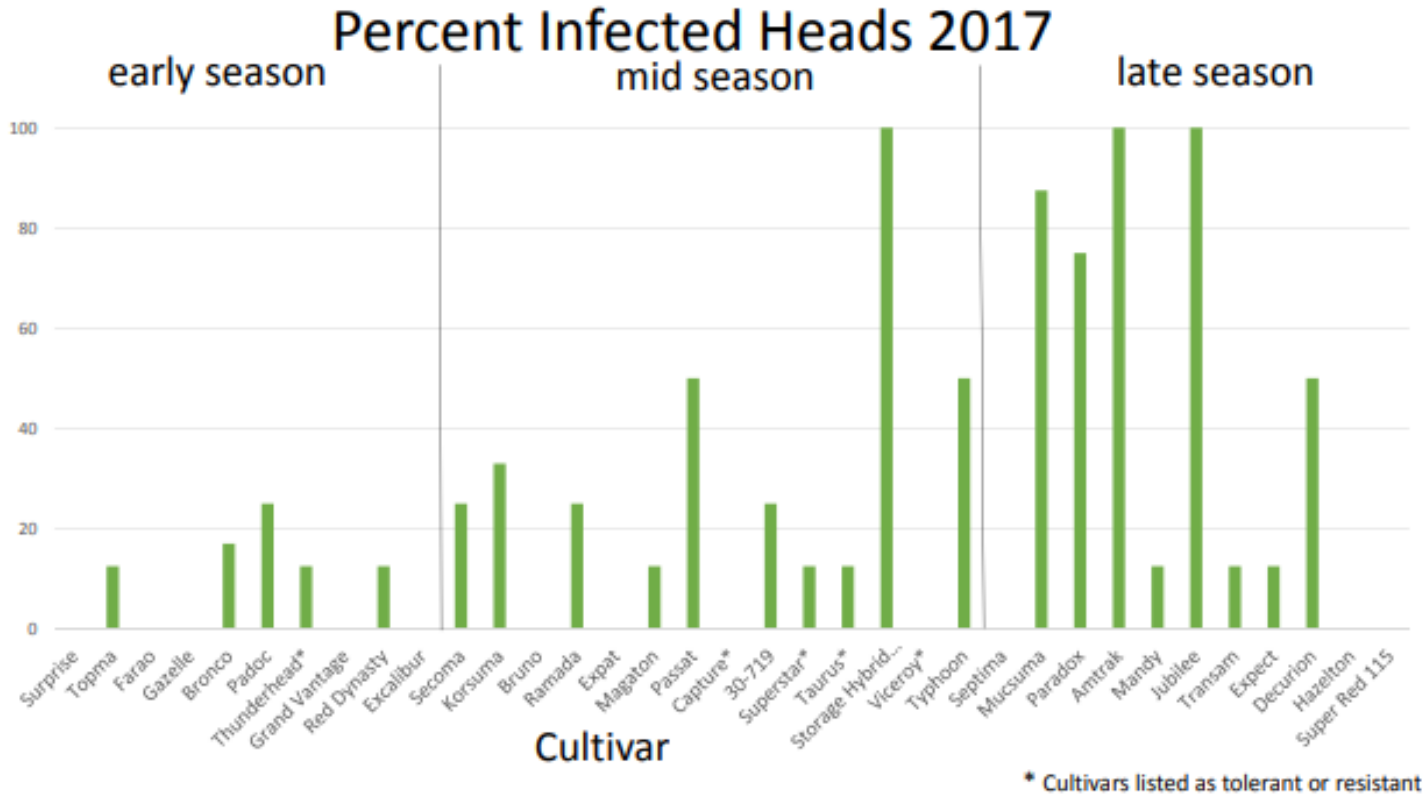

Figure 1. Infection inside cabbage heads at harvest. % infection on the 'x' axis

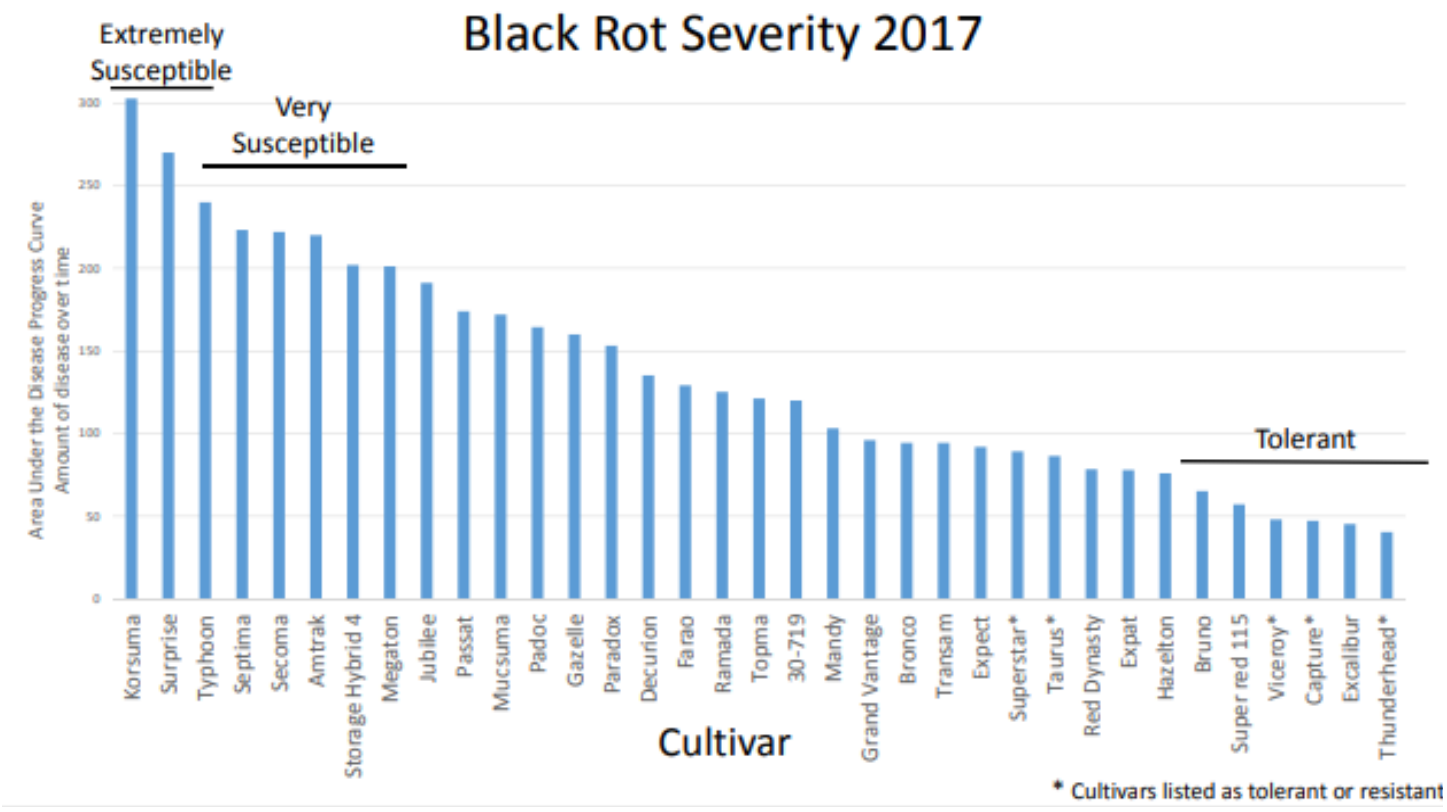

Figure 2. Black Rot severity on 35 cabbage varieties.

News

We're Hiring!

We are hiring one part-time field assistant and one part-time IPM scout for the 2018 field season. Please read the complete job descriptions below and submit application materials via email to the email provided.

Field Assistant: We are looking for a detail-oriented departmental assistant to help us conduct applied research on vegetable crop and pest management. Duties will include: setting up research plots at the UMass Research and Education Farm in South Deerfield; maintaining crop health by weeding, watering, and fertilizing as needed; assisting with pesticide applications; harvesting from experiment plots; collecting data such as disease severity and marketable yield; assisting with data analysis; and generating reports and outreach materials to distribute to MA vegetable growers. Other duties may include administrative and clerical duties or assistance with other UMass Extension projects relating to vegetable production and implementation of Integrated Pest Management on farms across MA. Some farm work and lab experience is preferred - students or recent graduates interested in applied research in vegetable production, plant biology, entomology or plant pathology are encouraged to apply. The position is approximately 20 hours per week from June through October, though specific hours and dates of employment are flexible. Must have a valid MA driver's license (experience driving manual transmission vehicles preferred) and EPA Pesticide Handler Certification must be acquired on the job. Must be willing to work outside for extended periods in adverse weather conditions and be able to lift 50 pounds. Please send an email cover letter along with a resume and two references to sscheufele@umext.umass.edu (link sends e-mail).

Contact: Sue Scheufele, Extension Educator, sscheufele@umext.umass.edu (link sends e-mail) 413-577-3976

Eastern MA IPM Scout: This position is for UMass undergraduate students only. Main responsibilities will be communicating with farmers and Extension Educators on a weekly basis to scout crops, check pheromone traps, and compile data from 3-5 farms in Eastern MA for publication in our weekly newsletter, Vegetable Notes, as well as on a national iPiPE platform for pest monitoring. The Vegetable Integrated Pest Management (IPM) Scout will also participate in a weekly Pest Alerts phone call on Wednesday mornings, consisting of scouts from multiple New England states reporting their findings, create pest occurance maps within the iPiPE program for publication in Vegetable Notes, and also contribute to the 'Pest Alerts' column in Vegetable Notes. The Vegetable IPM Scout will be trained in scouting techniques, pheromone trap procedures, and how to use the iPiPE platform and then will work independently with support from the UMass Vegetable Extension personnel as needed. The Vegetable IPM Scout will also receive EPA Worker Protection Standard training to prepare them for scouting on working farms. Please send an email cover letter along with a resume and 3 references to kcampbel@umass.edu (link sends e-mail).

Contact: Katie Campbell-Nelson, Extension Specialist, kcampbel@umass.edu (link sends e-mail) 413-545-1051

MDAR Produce Safety News – Program Update

The Department of Agricultural Resources' Produce Safety, Market Access and Certification Program is continuing its deployment of program objectives in support of the Food Safety Modernization Act's (FSMA) Produce Safety Rule's (PSR) implementation in Massachusetts.

To support these objectives the program has deployed five regional Produce Safety experts this year who will be serving fruit and vegetable farms across the Commonwealth. Regional personnel will be supporting growers through education, training, and on-farm technical assistance and will serve as first line responders to farm's requesting service in each region. Regional staff will also be responsible for the conduct of pre-audits/inspections, on-farm readiness reviews, as well as market access and certification support for Massachusetts Good Agricultural Practices (MGAPS), under the Commonwealth Quality Program (CQP). The MGAPS/CQP program will incorporate current PSR requirements into an integrated checklist this year supporting future uptake/compliance windows as well as anticipated market demands. The Program will also continue to support the USDA GAPs/Harmonized GAPs program for the 2018 production year.

Farm Registration

The Produce Safety Team is currently supporting the population of a farm inventory database of those farms growing

fruits and vegetables in the Commonwealth. All fruit and vegetable farms in Massachusetts are strongly encouraged to register through the submission of a farm registry form to facilitate program operations and sector support. Regionally deployed Program staff are currently conducting phone calls and site visits within their assigned regions to verify farm registry data, introduce themselves to farmers and their staffs, and to provide technical assistance and grant support to farms in anticipation of compliance dates and market access requests. Please feel free to share your concerns and challenges along with any questions you may have with your regional contact. Their job is to assist you with any concerns you may have. Registration Forms will be available during visits and will be made available on-line shortly.

Once again, if you've been a member of the Commonwealth Quality Program (CQP), please be reminded that the requirements of the audit program have been harmonized with the Food Safety Modernization Act's Produce Safety Rule. You'll learn more about this during your 2018 visit. Please call us to register and/or to schedule your audit for the upcoming season if you have not received an outbound contact from regional staff. The Department's focus is to establish a robust Produce Safety program that promotes public health protection in line with its core mission of working to ensure its farms are economically and environmentally sustainable now and in the future.

Thank you to all of the farmers, commodity groups, Massachusetts Farm Bureau, Buy-local organizations as well as the UMASS Agricultural Extension Service, for your continued support of our program and services.

Produce Safety Program Team

Meet the Produce Safety expert responsible for your region. Please feel free to contact her/him for any questions, concerns you might have or to schedule a visit or service request.

Michael Botelho
Produce Safety Program Director
Mobile: *508-985-8751*
Michael.Botelho@state.ma.us

Denise Pavao
Produce Safety Inspector
Mobile: *857-292-2043*
Denise.Pavao@state.ma.us
Region: SOUTHEAST

Kate Bailey
Produce Safety Inspector
Mobile: *857-315-7478*
Kate.Bailey@state.ma.us
Region: WEST

Steven Pilis
Operations Coordinator
Mobile: *857-507-6347*
Steven.Pilis@state.ma.us
Region: CENTRAL WEST

Alexandra Hachem
Education, Research and Outreach Coordinator
Mobile: *857-507-6346*
Alexandra.Hachem@state.ma.us
Region: CENTRAL EAST

Erik Stenfors
Produce Safety Inspector
Mobile: *857-292-1872*
Eric.Stenfors@state.ma.us
Region: NORTHEAST

Is your farm covered by the Produce Safety Rule under FSMA?

Do you know the status of your farm under the Produce Safety Rule? Click this chart to figure out where your operation lies in terms of coverage, and to get familiar with the documentation you should keep in case your operation is "qualified exempt".

For more information about the Produce Safety Rule:

The Produce Safety Rule, which sets food safety standards for farms in an effort to minimize the risks of microbiological contamination that may occur during the growing, harvesting, packing, and holding of fresh produce was finalized in November 2015. This rule is among seven major rules that were recently finalized by the Food and Drug Administration (FDA) and span across the supply chain.

APPLICATION PERIOD OPEN FOR MDAR ENERGY, ENVIRONMENTAL AND FOOD SAFETY GRANT PROGRAMS

MDAR announced last week that application periods are open for several grant programs available to farmers, in addition to the programs made available last month. **The application deadline for all three of these programs is Wednesday, April 25, 2018. All projects must be completed by June 30, 2019.**

Ag-Energy Grant (Ag-Energy) Programs

The purpose of the MDAR's Ag-Energy Grant Programs is to assist agricultural operations in an effort to improve energy efficiency and to facilitate adoption of alternative clean energy technologies in order that they can become more sustainable and the Commonwealth can maximize the environmental and economic benefits from these technologies.

This year's AgEnergy Grant Request for Responses (RFR) contains applications for two separate energy programs. Our Ag-Energy Traditional Grant, now in its 11th year, encompasses a wide variety of energy efficiency and renewable energy projects. Our Ag-Energy Special Projects, now in its 3rd year, has six specific project categories for agricultural energy projects that would typically require higher capital cost but potentially yield greater savings and/or positive agricultural impacts.

Reimbursement grants of up to $30,000 will be awarded on a competitive basis for the Ag-Energy Traditional Grant Program, while reimbursement grants up to varying amounts by category will be awarded on a competitive basis for the six specific categories under Ag-Energy Special Projects. Ag-Energy Grant applications are now available at www.mass.gov/service-details/agricultural-energy-grant-program-ener. The contact is Gerry Palano, 617-626-1706 or Gerald.Palano@state.ma.us.

Agricultural Environmental Enhancement Program (AEEP)

The purpose of AEEP is to support agricultural operations that are looking to install conservation practices that prevent direct impacts on water quality, ensure efficient use of water, as well as address impacts on air quality. By providing reimbursement directly to agricultural operations that implement eligible projects that prevent, reduce or eliminate environmental impacts, the program achieves its purpose and goals of minimizing environmental impacts from these operations for the benefit of the Commonwealth.

AEEP is a competitive, re-imbursement grant program that funds materials and labor up to $25,000 or 85% of project costs. AEEP grant applications are available at www.mass.gov/service-details/agricultural-environmental-enhancement-program-aeep. The contact is Laura Maul, 617-626-1739 or Laura.Maul@state.ma.us.

Agricultural Food Safety Improvement Program (AFSIP)

The purpose of AFSIP is to support produce operations that are looking to upgrade food safety practices within their operation. By enhancing food safety measures these operations are able to maintain or increase their market access while working towards minimizing the risk of microbial contamination and food-borne illnesses. This re-imbursement grant program is currently only open to produce operations.

AFSIP is a competitive, re-imbursement grant program that funds projects up to $25,000 or 75% of total project costs. AFSIP grant applications are available at www.mass.gov/service-details/agricultural-food-safety-improvement-program-afsip. The contact is Laura Maul, 617-626-1739 or Laura.Maul@state.ma.us.

Survey: Diseases of Winter Greens

Foliar diseases observed recently in winter greens are of special concern. They include downy mildews (spinach, brassicas and lettuce) and powdery mildews (brassicas and lettuce). All are capable of rendering a crop unmarketable. Plants are susceptible at all stages, including cotyledon stage. Their occurrence in field-grown plants in late fall and in winter tunnels is perplexing because most have not been observed recently in these crops grown during traditional production periods, with the exception of brassica downy mildew. Conditions during production of winter greens evidently are very favorable for these pathogens that tolerate cool temperatures. Prolonged periods of leaf wetness or high humidity likely is a factor. Low light levels and short days mean these pathogens have long periods to produce spores. Plastic covering high tunnels protects the pathogens from exposure to damaging UV radiation.

Occurrence of these foliar diseases appears to be sporadic, reflecting where the pathogen is present and conditions are favorable. This perception is based on reports received so far from growers. Knowledge about disease occurrence is important for developing appropriate, effective management programs. This information is needed to help determine initial sources of inoculum and potential for pathogen survival between crops and spread. If you grow winter greens, **regardless of whether or not you have seen any of these diseases, please help by clicking here to complete the survey**.

For photos and more on management of diseases of winter greens, see the article here: http://vegetablemdonline.ppath.cornell.edu/NewsArticles/winter-greens.html

Events

Respirator Train-the-Trainer Course for Farmers, Beekeepers, and other employees who need to use respirators

UMass Extension is offering a series of Respirator Train-the-Trainer workshops in 2018. Farmers, beekeepers and other who need to wear respirators, required by pesticide labels, can benefit from the workshop. Participants will learn how the fit test a respirator and select, use, clean, maintain and replace respirators. All handlers must be trained under the EPA Worker Protection Standard (WPS) Respirator Requirement if they apply any pesticide that requires a respirator. Several organic approved (OMRI) pesticides and some miticides used by beekeepers require respirators.

The respirator train-the-trainer workshops are 2 hours long and will be held in Marlboro, Taunton, Hadley, and Marlborough. The registration fee is $30.00 per person. Participants will received a Certificate of Attendance, a check list for respirator training, and a fit test protocol. This is an hands on workshop. Bring your respirator or use one of ours.

There is one workshop left in this series. To register via the mail please click here for the registration form. To register online with a credit card (extra $5.00/person) see below.

When: Tuesday, June 19, 2018 from 1:15 PM to 3:45 PM

Where: Best Western Royal Plaza Hotel, 181 Boston Post Road West, Marlborough, MA 01752

REGISTER HERE: https://www.regonline.com/registration/Checkin.aspx?EventID=2267202

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Vegetable Notes. Katie Campbell-Nelson, Lisa McKeag, Susan Scheufele, co-editors.

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