

Vegetable Notes

For Vegetable Farmers in Massachusetts

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IN THIS ISSUE:

- Crop Conditions
- Updated Vegetable Management Guide Available Now!!
- Crop Rotation Planning
- Farm Planning Resource Guide
- Clubroot of Brassicas
- Join NEV&BGA Today!!
- Upcoming Events

CROP CONDITIONS

November is the month that things finally slow down, for some growers at least. This is certainly not the case for those who peeled and shipped butternut squash or other Thanksgiving favorites. Generally by early November, most crops are harvested and field work is all about cleaning up and getting things put to rest for winter. However, expanding winter markets have drawn many growers into ramping up storage of roots, onions, squash, and sweet potatoes. Moving and storing large quantities of heavy roots continues late into the fall. In recent years, growers were able to leave some of the more cold-hardy root crops such as carrots and beets in the ground into the second or third week of November. This year, the first frost came very late (October 23-27) but hard freezes were quick to follow. Within two



Winter greens thrive under row cover and inside protective tunnels.

weeks, we went from the first frost (31°F) to hard freezes at 25°F, then 20°F within one to two weeks (see Table 1 with some sample temperature milestones from around MA). Then overnight lows plunged to 15°F, then 10°F over the course of another 7-10 days. Usually this happens in mid-December or even later. Farms scrambled to get crops harvested and stored before these hard freezes. For growers who still had root crops in the ground, the week of November 12-17 caused irreparable freeze damage to root crops. Carrots are moderately susceptible to freezing and can recover from light freezing. Beets, Brussels sprouts, kale, rutabagas and parsnips are classified as 'least susceptible' to freezing injury and can be frozen several times without serious damage. See USDA Handbook 66 on Chilling and Freezing Injury for more on this subject (<http://www.ba.ars.usda.gov/hb66/018chilling.pdf>).

Squash storages are also at risk when temperatures go down below 25°F if there is not enough heat or air circulation to maintain 50-55°F in all the nooks and crannies. Cold injury accumulates in squash at <50°F and outbreaks of black rot and other diseases can follow. Sweet potato with chilling injury (<55°F) develops sunken areas and internal discoloration. Meanwhile, in the high tunnels and 'caterpillar tunnels' where cold hardy greens such as spinach, bok choy, and kale are tucked under multiple layers of plastic and row cover, plants are growing more slowly as the

day-length shortens. The more tender crops such as lettuce likely succumbed to the November cold spells, but hardier crops are going strong. They are ready and waiting for the winter farmers markets that are proliferating across New England and this year total 39 in MA (see MA Dept of Ag Resources winter markets locator (<http://massnrc.org/farmlocator/map.aspx?Type=Winter%20Markets>)). More CSA farms have added some type of winter share to their lists of offer-

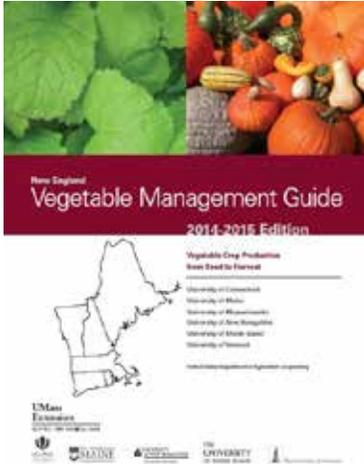
Table 1. Dates of Low Temperature Thresholds at 4 Locations in MA

Temp. Reached	Date Temp. First Reached			
	Amherst	Berlin	Ware	Pittsfield
31 or below	23-Oct	27-Oct	23-Oct	26-Oct
25 or below	27-Oct	4-Nov	26-Oct	4-Nov
20 or below	13-Nov	20-Nov	13-Nov	4-Nov
15 or below	21-Nov	25-Nov	21-Nov	21-Nov
10 or below	31-Nov	30-Nov	30-Nov	30-Nov

ings. Wholesale markets may also reflect these trends. Farmstands that stay open in winter are offering more of their own greens and roots. When is the farmer going to get a chance to rest? December! We hope many farmers will take a day or three off to come to the [New England Vegetable and Fruit Conference](#) from December 17-19 in Manchester, NH. See you there!

UPDATED NEW ENGLAND VEGETABLE MANAGEMENT GUIDE AVAILABLE NOW!

Planning for 2014 is underway, as many of you purchase inputs before the start of the new year. Make sure you have all the tools you need for next spring, including a copy of the **New England Vegetable Management Guide**, just updated for 2014-15. A collaborative project of the Cooperative Extension vegetable programs in the six New England States, this guide provides both conventional and organic commercial vegetable growers, on small and large farms, with up-to-date production and pest management information. Among its many features, this new edition includes:



- A completely revised section on Soil Health, Soil Testing, Fertility, & Nutrient Management
- Updated nutrient recommendations for each crop, based on your soil test results.
- Revised section on Vegetable Transplant Production, covering everything from media and nutrition to disease and insect management.
- More on high tunnels, season extension and greenhouse production
- Pesticide information was updated, and there are clear labels indicating which are organic (listed by OMRI) or federally restricted use, and their level of bee toxicity.
- The **Northeast Vegetable and Strawberry Pest ID Guide** was also revised and expanded to include 36 new, high quality images including invasive pests, high quality photos and improved organization. This guide can be purchased separately or comes free with your purchase of the Vegetable Guide.

*New England Vegetable Guide
updated for 2014-15!*

Where to get the Guide. The guide is available for sale at the University of Massachusetts Extension Bookstore (call them at 413-545-5537 or visit their website <http://www.umassexensionbookstore.com/store.php?crn=238>), or through any of the other New England states' Extension Offices. In

Massachusetts, the cost of the 2014-2015 Vegetable Guide is \$25 and comes complete with the Northeast Vegetable and Strawberry Pest ID Guide. The 2014 Pest ID Guide can be purchased on its own for \$12.

Get a **free copy** of either the New England Vegetable Management Guide or the New England Small Fruit Production Guide with membership in the **New England Vegetable & Berry Growers Association (NEV&BGA)**. You can also pick up a copy at the 2013 New England Vegetable and Fruit Conference, December 17-19 in Manchester, NH, sponsored by the NEV&BGA, regional Extension services, and the New England Berry growers Association. Read more about the NEV&BGA and this year's conference in this issue of Vegetable Notes.

Here's a timely excerpt from the 2014-15 Vegetable Guide...

CROP ROTATION PLANNING

Crop rotation is one of the most effective tools for managing pests and maintaining soil health, but there aren't many specific recommendations for how to go about it. Each farm needs to develop a plan that fits its unique combination of crops, soils, equipment and environmental conditions. A common approach on vegetable farms is to rotate crops by families. Another approach is to alternate vegetable crops with field or forage crops, such as small grains or alfalfa. Some growers try to rotate fields so they are in cash crops one year and cover crops the next year. On farms with limited land available for rotation, sweet corn is a good rotation crop since it hosts very few insects or diseases that affect other vegetables. At a minimum: 1) the same crop should never follow itself in the same field (or bed, in the case of small farms) and 2) a winter cover crop should be planted after annual vegetables every year if possible.

Too many growers rotate crops using a seat-of-the-pants technique, relying on memory and making decisions at the time of planting. To get the most benefit from crop rotation it's better to plan ahead using written records of where crops were

grown in the past. It also helps to have a written plan for how crops will be arranged in the future, even if it's subject to change. Start by making a map of the farm and any available fields including those that are rented. Label the fields or sub-fields with names and acreage. Make photocopies of the map and at the end of each season fill one in for each field and date it, noting what was grown where, and any serious pest or soil problems. Prior to the growing season, fill in a new map with your best guess as to where crops will go in the field.

As you plan, remember that rotation helps prevent some pests but not others. For insects that over-winter near the crop they infest, such as Colorado potato beetle, European corn borer, or flea beetle, it helps to plant host crops as far away as possible the next year. Having a barrier such as a road or river between last year's crop and this year's crop can enhance the rotation effect. Rotation will not help prevent insect damage from pests that migrate into the area on storm fronts, such as potato leafhopper or corn earworm.

For diseases that are soil-borne or over-winter in crop residues, rotating out of susceptible crops is a key to preventing infection, as in the case of Phytophthora blight, early blight, and many other diseases. However, host crops must be rotated far enough away to avoid infection through blowing or washing soil. The movement of soil on equipment from field to field can also introduce diseases and weeds into a field. A few minutes spent cleaning equipment before moving from one field to another can help avoid spreading pest problems. For some diseases, such as club root of crucifers, susceptible weeds, in this case the mustard family, must be controlled if rotation is to be effective. As with insects, rotation cannot prevent airborne diseases that move in from other areas, such as downy mildew or late blight, nor can it prevent seed-borne diseases.



Cows grazing in sweet corn stubble.

Rotating crops is good for soil health. It leads to changes in tillage intensity and crop nutrient removal but more important is the use of cover crops in the rotation. This practice is critical to sustaining production over the long-term. Even if growing cash crops in a field every year it is possible to build a rotation plan to maintain soil health by alternating the two main types of winter cover crops. Late-planted vegetables can be followed by winter-hardy cover crops that are used to build organic matter and add nitrogen to the soil; early-planted vegetables can be followed by winter-killed cover crops that add some organic matter and protect the soil over winter but make it easier to prepare an early-season seedbed. If possible, one should also include spring-planted and summer-planted cover crops when there is a space in the rotation.

Year-long fallowing with cover crops or forage crops gives fields a 'rest' from the intensive tillage and field traffic that vegetable production often requires. However, long-term cover crops are best suited to fields that are already low in weed pressure; the lack of tillage can promote extensive weed seed production or proliferation of perennial weeds. In fields with high weed pressure, shorter periods of cover crops are best to maintain soil health without losing ground to weed management.

FARM PLANNING RESOURCE GUIDE

Most Massachusetts farm fields have been put to rest for the winter. Now is the chance for growers to reflect on what worked over the course of last season, what didn't, and what they're going to do next year. Networks of fellow farmers are a great place to start when making farm planning decisions, or when just trying to make sense of it all. One of our favorite resources for getting a broader picture of the state of farms in the region over the course of a season is the University of Vermont Extension's VT Vegetable and Berry News, and its "Reports from the Field". Published year-round, and compiled by Vern Grubinger, these reports are submitted by growers from around Vermont and other areas in the Northeast. Growers are invited to share their "current crop conditions, production activities, recent pest observations, and/or comments on markets, labor or other items of interest to other growers". Always a good read. Find it here: <http://www.uvm.edu/vtvegandberry/newsletter/welcomemain.htm>.

Once you've had a chance to contemplate the successes and the "not-so-muches" of the season past, it'll be time to plan rotations, order seeds, and do it all over again. Here are a few resources we put together to help with crop planning and

management throughout the season. Share some of your favorite resources with us by emailing umassvegetable@umext.umass.edu, and we'll share them with others on our Facebook page.

Crop and Business Planning:

North Carolina State University Cooperative Extension, Farm Planning and Record Keeping Spreadsheets: <http://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-farmrecords/>

Brookfield Farm, MA Crop Planning Spreadsheets: <http://www.brookfieldfarm.org/CropPlanning.cfm>

Roxbury Farm, 100 Member CSA sample plan: <http://www.roxburyfarm.com/100-member-csa-plan>

AgSquared, farm planning, management and record keeping software: <http://www.agsquared.com>

The Organic Farmer's Business Handbook by Richard Wiswall: <http://www.chelseagreen.com/bookstore/>

Crop Rotation Planning:

Where Do I Put My Crops? Planning a Crop Rotation from the Start: <http://pubs.cas.psu.edu/freepubs/pdfs/ee0032.pdf>

Crop Rotation on Organic Farms: A Planning Manual: <http://www.sare.org/Learning-Center/>

Northeast Organic Network, Crop Rotation Manuals and Spreadsheets: <http://www.neon.cornell.edu/croprotation/>

Selection of Seeds and Varieties:

Vegetable Cultivar Descriptions for North America: <http://cuke.hort.ncsu.edu/cucurbit/wehner/vegcult/vgclintro.html>

Baystate Organic Certifiers Seed and Seedling Suppliers in the Northeast: <http://www.baystateorganic.org/>

Disease Diagnostics and Soil Testing:

UMass Soil Testing Lab: <http://soiltest.umass.edu/ordering-information>

UMass Disease Diagnostic Lab: <http://ag.umass.edu/plant-problem-diagnostics/vegetable-floriculture-diagnostics>

Pesticide Labels and Record Keeping Templates:

Crop Data Management Systems: <http://www.cdms.net/LabelsMsds/LMDefault.aspx?t=>

Record Keeping Manual: <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRD3342981>

Checking Market Price:

Boston Terminal Fruit and Vegetable Market News: http://www.ams.usda.gov/mnreports/bh_fv020.txt

UMass Extension Specialists. Contact us with your farming questions relating to:

Building Energy Conservation and Cold Storage (Ben Weil - bweil@eco.umass.edu)

Cover Crops and Crop Dairy Livestock (Masoud Hashemi, masoud@umass.edu)

Vegetable Team Leader and Entomology (Ruth Hazzard, umassvegetable@umext.umass.edu; 413.577.3976)

Ethnic Crops (Frank Mangan, fmangan@umext.umass.edu)

Greenhouse Production and Floriculture (Tina Smith, tsmith@umext.umass.edu)

Plant Diseases (Bess Dicklow, mbdicklo@umext.umass.edu)

Soil Fertility and Crop Nutrition (Katie Campbell-Nelson, kcampbel@umass.edu)

Fruit Team (Sonia Schloemann, sgs@umext.umass.edu)

Weed Management / Food Safety (Rich Bonnano, rbonanno@umext.umass.edu)

Winter Production (Amanda Brown, brown@umext.umass.edu)

CLUBROOT OF BRASSICAS

Clubroot caused by *Plasmodiophora brassicae* is a major disease of cruciferous crops worldwide and occurs on all cultivated brassica crops (*B. oleraceae*, *B. napus*, *B. juncea* and *Raphanus sativa*) including broccoli, Brussels sprouts, cabbage, cauliflower, turnip, rutabaga, and radish. While the disease is not widespread in MA, it has become established on a number of farms and, once present, it is difficult to eliminate. Recently, we have gotten a few reports of new, isolated

outbreaks across the state. The pathogen that causes clubroot is an obligate parasite, and therefore can only be introduced into new fields by living, infected plant material or by infested soil. Preventing introduction of the pathogen is critical and where soil has become infested, containment is key to minimizing effects of this disease.

Symptoms. The disease can be well established before above ground symptoms become evident. Infected roots enlarge to form galls that differ in size and shape depending on host plant. On crops with fleshy roots such as radish and turnip, galls form on the taproot or secondary roots. Crops with fibrous roots such as cabbage and broccoli produce club-like, spindle-shaped swellings on individual roots. Infected roots are unable to absorb water and nutrients, top growth is stunted, and lower leaves may yellow and plants may senesce prematurely. Affected plants may wilt during the day and recover at night. Root galls are often invaded by secondary organisms causing root decay and premature plant death.



Clubroot symptoms on broccoli.
Photo courtesy UC IPM

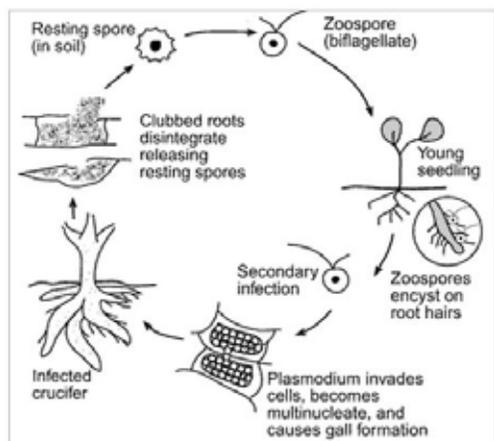


Figure 2. Life cycle of *Plasmodiophora brassicae*, the pathogen that causes clubroot (source: Ohio State University).

Life Cycle. *Plasmodiophora brassicae* is a protist, a type of organism somewhere between an oomycete like *Phytophthora* and an amoeba. The pathogen overwinters as hardy resting spores (zoosporangia) which are stimulated to germinate by root exudates from host plants and release zoospores that swim in free water and infect root hairs. In the root hairs *P. brassicae* develops into a plasmodium, a mass of protoplasm with many nuclei, that divides to form many secondary zoospores that are released into the soil. The second generation of zoospores re-infect the roots of the initial host or nearby plants and are also able to invade the root itself. Once inside the root, *P. brassicae* manipulates plant hormones causing infected root cells to swell and form the characteristic clubs or galls. Some amoeba-like cells move up and down roots in vascular tissue, inhibiting nutrient and water transportation and contributing to plant wilting and chlorosis. After secondary

plasmodia mature, they divide to produce many hardy resting spores which are released into the soil during decomposition of infected crop residues. Resting spores can remain viable in the soil for 18 years. Clubroot severity is favored by warm (68-75°F), moist soils with a pH less than 6.5. To see the zoospores in action watch this great video created by the Canola Council of Canada: <http://youtu.be/3dyQhsqIu0o>

Management. Prevention is key with clubroot, since the resting spores survive for so long in the soil. Use clean seed, disease-free transplants, and do not bring in soil or compost from infested sites. If you notice symptoms starting in one variety, do not use that seed elsewhere on your farm.

If the pathogen is present in your field, the focus of management should be on reducing its spread. Try to avoid working in infested fields when soil is wet so that less soil adheres to tractor tires and is potentially spread across your farm. After going into that field, be sure to wash tractor tires, implements and other tools and boots with a hose, a power-sprayer, or a 2% bleach solution. If the affected area is small, remove plants and destroy them (do not compost). Otherwise, mow and/or disk infected crop residue to speed up decomposition and prevent the pathogen from beginning to grow again in overwintered host plants next spring.

Keep brassicas out of the field for at least 4 years--this is the amount of time required for half of the resting spores to die (it could take up to 20 years for all the spores to die). The pathogen is fairly restricted to plants in the brassica family, but strawberry is also another carrier (root hair infections but no club symptoms). There are also several common weed hosts including: Sheperd's purse, wild mustard, field penny cress, wild radish, yellow rocket, dock species, red clover, and orchardgrass.

Try to improve drainage in infested fields, as water is necessary for movement of spores and for infection to occur. Don't use irrigation water that may have been contaminated with resting spores by runoff from infested fields.

If brassicas must be planted in infested fields, raise the pH of soil to 7.2 before planting, as germination of spores will be inhibited. This may require a few applications of lime over the course of 12 months before planting. Calcitic lime is

preferred over dolomitic, except where magnesium levels are low. Finely ground lime will raise pH more quickly than coarse granules.

Chemical Recommendations

cyazofamid (Ranman): 12.9-25.75 fl oz/A. (0 dh, REI 12 h, Group 21). Tank mix with an organosilicone surfactant. Transplant soil drench or soil incorporation. See labels for details.

fluazinam (Omega 500 F): 6.45 fl oz/100gal, transplant drench at 3.4 fl oz solution per plant. 2.6 pts/A soil incorporation. (REI 48 h, Group 29).

PCNB (Terraclor 15 G): 9.6 lb/1000 feet of row (12-15 in band) or 200 lb/acre (broadcast). (REI 12 h). It is very important to thoroughly mix Terraclor with the soil. May be used on direct seeded crops. Do not exceed 30 lbs PCNB active ingredient per acre in any one season. Check registration status of PCNB in your state before using.

--By Bess Dicklow & Susan B. Scheufele

THE NEW ENGLAND VEGETABLE AND BERRY GROWERS ASSOCIATION

The New England Vegetable & Berry Growers Association (NEV&BGA) is the oldest vegetable growers association in America. It was started in 1886 by a group of growers around Boston as the Boston Market Gardeners' Association. The growers found that by working together they could deal effectively with problems that affected them all. Over the years, many growers from New Hampshire and other New England States joined, and in 1964 the name was changed to the New England Vegetable Growers Association. Since many members also grow small fruit as well as vegetables, the name was changed again in 1994 to the New England Vegetable & Berry Growers Association. The NEVBGA works to support and promote the vegetable and berry industry throughout New England.

Membership in the NEV&BGA is open to all vegetable farmers in New England and you are invited to join! There are 3 categories of membership: regular (\$75) for farmers, commercial (\$100) for agricultural suppliers, and associate (\$20). Regular and commercial members will receive a new copy of the 2014-15 New England Management Guide or a copy of the New England Small Fruit Production Guide for FREE with their membership! You will also receive a FREE subscription to American Vegetable Grower or American Fruit Grower magazine! You can find the membership form here: <http://nevbga.org/Membership%20Form.html>. By joining, you'll be supporting the work that NEVBGA does.

A primary goal of the Association is to keep members engaged and informed on developments in the field. Prominent growers share their experiences, and Research and Extension personnel from Universities and industry report on culture, pest management, and marketing. This is achieved through two or three annual daylong programs that take place in NH and MA. The NEVBGA also co-sponsors and underwrites the bi-annual New England Vegetable and Berry Conference and Trade show. Without their financial support, the NEVFC conference would not be possible. All of these meetings also provide networking opportunities for growers to learn from each other and to benefit from the great pool of knowledge and experience among its members. The association also gives out two \$800 scholarships for undergraduate studies in agricultural fields and helps promote agriculture in the classroom.

Other initiatives focus on promoting the vegetable and small fruit industry to the public, working to pass industry-positive legislation at the state level, and supporting research. NEVBGA has provided financial support for the development of better adapted varieties and, through these efforts, over 25 varieties have been developed including Waltham Butternut Squash. The NEVBG Association was instrumental in developing the Commonwealth Quality program in MA, which is a practical alternative to GAP for small to medium sized growers. Current research projects include: vegetable and berry variety trials; plastic mulches and other means of extending the growing season; and evaluation of alternative crops, cover crops, and IPM studies.

The NEVBGA is run by an Executive Committee of farmers, who are elected by farmers at the annual daylong program that takes place in eastern MA on the first Saturday in February. This committee includes at least one representative from each of the New England States, and it meets 3-4 times each year.

New members are welcome! Look for the NEV&BGA booth at the New England Vegetable and Berry Conference in Manchester NH later this month.

UPCOMING EVENTS

[New England Vegetable and Fruit Conference](#)

Where: Radisson Hotel in Manchester, NH

When: Dec. 17-19, 2013

Will be held at the Radisson Hotel in Manchester, NH and will include more than 25 educational sessions over 3 days, covering major vegetable, berry and tree fruit crops as well as various special topics. Most educational sessions consist of 4 to 5 talks where you get the perspectives of farmers, Extension Educators, industry and re-searchers. There are five concurrent sessions each morning and afternoon with discussions groups between and after sessions, and before the social mixers in the evening. There will also be 8 Farmer to Farmer meetings after each morning and afternoon session which will bring speakers and farmers together for informal, in-depth discussion on certain issues, a trade show with over 100 Exhibits, and 2 social mixers to help you make new friends and contacts. For more information, session schedules, and to registration details go to: <http://www.newenglandvfc.org/index.html>



[New England Vegetable & Berry Growers Association January Meeting](#)

Where: Clarion Hotel, Northampton, MA

When: January 3, 2014

[27th Annual NOFA/Mass Winter Conference](#)

Where: Worcester State University, 486 Chandler Street, Worcester, Massachusetts

When: January 11, 2014

This year's Winter Conference will offer a diverse line-up of more than 60 workshops, exhibits by numerous regional vendors, an all-day seminar (see seminar details below) and keynote and all-day seminar by Mark Shepard, perennial agriculture and permaculture design expert and author of Restoration Agriculture. The children's conference (for ages 3-12) provides a lively, interactive way for your kids to get educated. Also in 2014, the NOFA/Mass Organic Land Care program will hold their annual Lawn and Turf Course at the Winter Conference. Veteran instructors Chip Osborne and Bernadette Giblin - along with a host of others - will offer practical, applicable information about organic lawn and turf management techniques.

[Growing Spring Crops in Greenhouses](#)

Where: Cranberry Experiment Station, 1 State Bog Rd., East Wareham, Massachusetts

When: Wednesday, January 15, 2014 - 10:00am to 3:00pm

University of Massachusetts Extension specialists will present information on managing plant height, plant nutrition and managing pests for spring crops being grown in commercial greenhouses.

[Empire State Producers Expo](#)

Where: Oncenter Convention Center in Syracuse, NY

When: Jan. 21-23, 2014

This show combines the major fruit, flower, vegetable, and direct marketing associations of New York State in order to provide a comprehensive trade show and educational conference for the fruit and vegetable growers of this state, as well as the surrounding states and Eastern Canada. At this time, the pre-registration process is closed. However, walk-in registrations are always welcome at the door!

[Harmonized Good Agricultural Practices \(GAP\) Training Program](#)

Where: Massachusetts Farm Bureau Federation Office, 249 Lakeside Drive (Rtes. 20 and 495), Marlboro, MA 01752

When: Wednesday January 22, 2014, 10am to 4pm

For growers and other fresh produce handlers to learn more about: the costs and impact of diseases and outbreaks caused by food-borne pathogens; strategies for controlling potential microbial food safety hazards before planting and throughout all phases of production - planting, production, harvesting and postharvest handling; changes to the USDA

GAP Program to reflect the Harmonized Audit; the Third Party Audit process; the MA Commonwealth Quality Program; and the status of FDA draft regulations to implement the Food Safety Modernization Act of 2010. Attendees will receive a manual filled with GAP resources, and a memory stick loaded with both the GAP Manual and customizable templates for maintaining records to verify USDA.

[NOFA-NY Winter Conference: Preserving the Past, Seeding the Future](#)

Where: Saratoga Hilton and City Center, Saratoga Springs, NY

When: Jan. 24-26, 2014

Three days of technical sessions and intensive workshops on organic production practices and issues as well as a trade-show. Keynote will be given by Gary Paul Nabhan, an internationally-celebrated nature writer and food and farming activist. NOFA-NY farmer-of-the-year Brian Bennett is a full-time farmer at Bittersweet Farm in Heuvelton, NY, and produces a diversity of vegetable crops and livestock. In addition, Brian works as a mentor to new farmers and teaches hands-on sustainability to area students and volunteers.

[Mid-Atlantic Fruit and Vegetable Convention](#)

Where: Hershey Lodge and Convention Center in Hershey, PA.

When: Jan 28-30, 2014

This conference combines three days of six or more concurrent educational sessions with a large industry trade show and numerous networking opportunities - all designed to enable fruit, vegetable and berry growers as well as direct marketers to stay on the cutting edge of their industries. About 2,200 persons from throughout the mid-Atlantic region and beyond gather each year at the Hershey Lodge and Convention Center for the Convention. Registration is open to all interested commercial fruit, vegetable and berry growers, direct marketers and allied industry personnel.

[Winter Flower Growers Program](#)

Where: Mahoney's Garden Center, 242 Cambridge St., Winchester, MA

When: January 29, 2014, 9:30 am - 3:45 pm

Full day education program hosted by Mass Flower Growers Association and UMass Extension, featuring Judy Shapton, Growing Places Marketing, Brian Krug, University of New Hampshire and Fred Hulme, Everris.

Save The Date...

New England Vegetable & Berry Growers February Meeting, Saturday, February 1, 2014; Eastern MA

Season Extension of Vegetables through Winter Storage, Thursday, February 13, 2014; Ag Experiment Station, Windsor, CT. Co-sponsored by UMass and UConn.

Ethnic Greens and Herbs Research Data Workshop, Monday, March 3, 2014; Valley Forge, PA. Co-hosted by Rutgers University, The Pennsylvania State University, University of Massachusetts, and University of Florida.

Greenhouse Plant Disease Diagnostic Workshop, March 19, 2014 (UMass Extension -Limited to 25 attendees)

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.

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