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Berry Notes

Prepared by the University of Massachusetts Fruit Team

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www.umass.edu/fruitadvisor/berrynotes/index.html

Massachusetts Berry Notes Underwriters:



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UPCOMING MEETINGS

ODDS AND ENDS

SHORTS:

UMASS SOIL LAB HAS MOVED - After 23 years, the UMass Soil and Plant Tissue Testing Lab has new digs! Orders sent to the old address will automatically be forwarded to the new lab for a while but the new address is: **UMass Soil and Plant Tissue Testing Lab 203 Paige Laboratory 161 Holdsworth Way Amherst, MA 01003-9286**. Please be aware that turnaround time on samples may be delayed by this transition at first but should return to normal soon. We thank you in advance for your patience and understanding. As always, if you need to contact the lab, we can be reached by phone at 413-545-2311, or by email at soiltest@umass.edu - Tracy Allen, UMass Soil & Plant Tissue Testing Lab.

FSMA PRODUCE SAFETY RULE REVISIONS - FDA has revised several parts of the draft rule to address concerns voiced by farmers and others. Here is a summary of the revisions with link to site to more info and comment submission. Comments on the revisions are due to FDA by Dec. 15, 2014. Click [here](#) to see a summary compiled by UVM Extension.

GARDEN CALENDAR - University of Massachusetts Extension's popular Garden Calendar is now on sale. **COST: \$12**, bulk pricing is available on orders of 10 copies or more. **Shipping is FREE on orders of 9 or fewer calendars - FREE SHIPPING ENDS NOV 1!** FOR IMAGES IN THE CALENDAR, details, and ordering info, go to <http://umassgardencalendar.org/>

FROM THE NORTHEAST SARE VIDEO VAULT – WINTER HARDY BEES – University of Maine project video; see -

<http://www.nesare.org/Dig-Deeper/Pictures-Stories-and-Video/Video-vault/Winter-hardy-bees> You can read more about MacGregor-Forbes's work by searching the [SARE reports database](#) for FNE10-694.

Spotted Wing Drosophila UPDATE: SWD numbers have escalated significantly late in the season both in cropped and uncropped (wild) areas. Warm humid weather has contributed to this delayed build up that we had expected somewhat earlier in the season. As a result of this late build-up many of our susceptible crops are through harvest, but some late season varieties of raspberries and dayneutral strawberries are still at risk. Some varieties of wine grapes are still on the vine and may be at risk depending on variety; thinner skinned varieties may be more susceptible than those with thicker skins. Some late season leaf pulling might still be helpful in opening up the canopy for air circulation, light penetration and spray coverage. Cleaning up and burying cull piles in any fruit crop and general sanitation can be helpful at this time of year. But, post harvest spraying has not proven effective in lowering overwintering populations of SWD or having any noticeable benefit for the following season. See <https://extension.umass.edu/fruitadvisor/spotted-wing-drosophila> for current information.

ENVIRONMENTAL DATA

The following growing-degree-day (GDD) and precipitation data was collected for an approximately 2 week period, September 4 through September 17. Soil temperature and phenological indicators were observed on or about September 17. Total accumulated GDDs represent the heating units above a 50° F baseline temperature collected via our instruments for the 2014 calendar year. This information is intended for use as a guide for monitoring the developmental stages of pests in your location and planning management strategies accordingly.

Region/Location	GDD (2-Week Gain)	GDD (Total 2014 Accumulation)	Soil Temp (°F at 4" depth)	Precipitation (2-Week Gain in inches)
Cape Cod	83	2,230	64	0.15
Southeast (Wareham)	245	2,181	59	0.45
Southeast (Hanson)	198	2,337	70	0.55
East	227	2,468	69	0.22
Metro West	114	2,091	60	0.40
Central (Boylston)	n/a	2,054	62	0.56
Pioneer Valley	198	2,444	66	0.83
Berkshires	142	1,937	55	0.51
AVERAGE	202	2,218	63	0.46

n/a = information not available

(Source: *UMass Landscape Message #21, September 18, 2014*)

STRAWBERRY

Strawberry Fall Check-List
Sonia Schloemann, UMass Extension

√ **General:** Flower bud initiation deep in the crown of the plants is happening now, determining next years' yield. So, maintaining good plant health into the fall is important. In addition to keeping up with the fertilizer program, suppressing leaf diseases improves the ability of the plant to carry on photosynthesis and store starch in the crowns. Don't let leaf spot or powdery mildew get ahead of you. Narrow the rows to about 12" and cultivate the alleys in fruiting fields and new plantings for the last time before mulching. Plant winter rye in plowed down fields as soon as possible in order to get good establishment and growth before winter.

√ **Nutrition:** Nitrogen fertilizer should be applied to bearing beds in early September to bring your seasonal total up to 100-120 lbs/acre. Most growers apply about 70-80 lbs of nitrogen on at renovation. The fall application should provide another 30-50 lbs (more on

soils with low organic matter content). This stimulates good root growth in the fall and supplies nitrogen needed for flower bud initiation. New fields need to have a total of 80 - 100 lbs/acre of nitrogen with about 40 lbs applied in the fall. Ammonium nitrate (35% N) is a good fertilizer for the fall application. If your leaf tissue analysis shows deficiencies in magnesium or boron, early fall is a good time for foliar applications of Epsom salts (15lbs/100gal/acre) for magnesium and Solubor (3lbs/100gal/acre) for boron. Don't make these applications on hot humid days, however, or phytotoxicity could result. Read the labels.

√ **Weeds:** Weed management in the early fall is limited to cultivation and hand weeding/hoeing. The only herbicides you should consider using are Poast or Select Max for controlling grasses postemergence. These will only work on relatively small grasses. Big clumps of crabgrass will

have to be pulled by hand. However, quackgrass can be knocked down by cultivation or mowing and then treated when new growth is less than 6" high. One note of caution; Poast, which is used with a crop oil surfactant, can injure strawberry foliage in cold weather. I would recommend its use as a spot treatment at this time of year rather than a broadcast treatment of the whole field. Chateau can be applied as a preemergence material to row middles to control broadleaf weeds in the fall, but should not be allowed to contact strawberry foliage. Weed management later in the fall can include applications of preemergent materials such as Devrinol, Ultra Blazer, Prowl H20, Spartan and Sinbar.

√ **Diseases:** Clean up severe infections of leaf spot and powdery mildew. Rally, Cabrio and Pristine may be good materials for this use. Organic options for leaf spots include copper products such as Nu Cop 50WP but consult label for sensitive cultivars. Organic options for powdery mildew include Oxidate, JMS Stylet Oil, potassium bicarbonate products and sulfur products

(again, consult label for cautions on sensitive cultivars). Healthy leaves are important at this time of year to supply the plant with the energy to produce flower buds for next year's crop and to store energy in the roots for the first flush of growth next spring. Apply Ridomil Gold, Alliette Prophyt or Phostrol in September or early October in areas where Red Stele has been identified. Organic growers can use Actinovate AG but this is best used prior to disease onset. It is best to apply these materials when the soil is beginning to cool but before heavy fall rains begin. This should not be considered an alternative to good site selection for strawberries.

√ **Insects:** Check fields for infestations of leafhopper, mites or aphids. Generally, plants can take a fair amount of feeding by these insects, but heavy infestations can be a problem. And, aphids in particular, can vector virus especially when they are in the winged form and can diseases and should not be allowed to build up disperse to other fields. **Dayneutral fields should continue to be treated for spotted wing drosophila until harvest ends.**

RASPBERRIES/BLACKBERRIES

Raspberry Fall Check List

Sonia Schloemann, UMass Extension

√ **General:** Encourage hardening off of canes in summer bearing varieties of red and black raspberries and blackberries by avoiding nitrogen fertilizers and supplemental watering at this time. Fall bearing raspberries can still benefit from irrigation in dry weather to help maintain fruit size.

√ **Nutrition:** Based on soil and tissue test results, apply non-nitrogen containing fertilizers and lime as needed. For example, Sul-Po-Mag or Epsom Salts can be applied now so that fall rains can help wash it into the root zone for the plants.

√ **Weeds:** Now is a good time to do a weed survey and map of problem areas, so that you can use this information to develop an effective management strategy. A late fall application of Casoron®, Devrinol®, Surflan®, or Princep® for preemergent control of broadleaf weeds next spring should be made. Apply Casoron® only when temperatures are below 40°F, preferably just before rain or snow. Most of these materials should only be used on established plantings, not newly planted fields. See the *New England Small Fruit Pest Management Guide* for more specific information.

√ **Diseases:** Fall bearing raspberries can suffer fruit rot problems due to increased moisture present in the planting (more frequent precipitation, longer dew retention, longer nights) late in the growing season. The majority of this fruit-rot is *Botrytis cinerea*, gray mold. Captan 80 WDG

is labeled for use on brambles. In addition Elevate®, Switch®, Pristine® and Rovral® are materials available for this use. Frequent harvesting and cull-harvesting are the best practices for keeping fruit rot levels low. Thinning canes in dense plantings can also help. Scout summer bearing brambles to look for powdery mildew and treat if necessary. See the *New England Small Fruit Pest Management Guide* for recommended materials and rates. If Phytophthora root rot has been identified in a field, treat the affected area with Ridomil Gold®, Alliette®, or Phostrol® in September or early October. This timing is important to get the material in place in the root zone before the onset of cool wet weather (and soil) in the fall.

√ **Insects:** Now is the time to check plantings for crown borers. Adults of this pest look like very large yellowjackets, but is actually a moth. They are active in the field in August and September laying eggs. Scout the fields for crown borer damage by looking for wilting canes. This symptom can also indicate Phytophthora root rot, so when you find a plant with a wilting cane (or two), dig up the plant and check the roots for brick red discoloration in the core of the roots (phytophthora) or the presence of a crown borer larvae in the crown. Rogue out infested crowns and eliminate wild bramble near the planting, since they will harbor more of this pest. **Fall bearing fields should continue to be treated for spotted wing drosophila until harvest ends.**

BLUEBERRY

Highbush Blueberry Fall Check-List

Sonia Schloemann, UMass Extension

√ **General:** Blueberry plants should be encouraged to harden off for the winter. This means no nitrogen fertilizer at this time. Flag bushes that show premature reddening of leaves compared to others of the same variety. This can be an indicator of infection with virus or other pathogens. If you haven't done it already, make some notes on observations from this year that might be helpful in coming years (e.g., variety performance, sections of the field that did well or poorly, how well some practices worked, or didn't, etc.). Relying on memory isn't always accurate enough. Nothing can replace a detailed field history when trying to diagnose problems.

√ **Nutrition:** Hold off on any nitrogen fertilizers. Based on leaf tissue tests and soil tests, sulfur, lime, and some fertilizers can be added now. Apply these before fall rains begin and also before adding any supplemental mulch to the plants.

√ **Weeds:** As with other small fruit crops, now is a good time to do a weed survey and map the weed problems in your planting. This information will be very useful in tailoring your weed management plan so that is effective and not wasteful. A late fall application of Casoron® for preemergent control of broadleaf weeds next spring should be made only when temperatures are below 40°F, preferably just before rain or snow. Devrinol®, Surflan®, and Kerb® may also be used in the fall according to label recommendations. See the *New England Small Fruit Pest Management Guide* for more specific information.

√ **Diseases:** Weak plants can easily be detected at this time of year because they tend to turn red earlier than healthy bushes. Upon finding weakened bushes, try to determine the reason for weakness. Is the root system damaged? If so, is it likely from disease infection or root damage by voles or grubs? If the roots are healthy, could a crown borer (Dogwood borer) be the culprit? Or is stunt disease the cause? Or Scorch? Accurate diagnosis is the first step in resolving the problem and avoiding spread. Enlist the help of specialists if you have trouble determining the cause of problems. See factsheet on Blueberry Scorch at www.umass.edu/fruitadvisor for help diagnosing this disease.

√ **Insects:** The main worry now is for sharp-nosed leafhopper which is the vector for stunt disease. If you have determined that you have bushes infected with stunt disease in your planting, an application of malathion to the infected bushes and any immediately surrounding bushes should be made to control leafhoppers BEFORE removing the infected bushes. Failing to do this will likely cause the spread of the disease to clean bushes even after infected bushes have been removed. In eastern areas of the state, growers are concerned about infestations of Winter Moth. Go to <http://www.umassgreeninfo.org/factsheets/defoliators> for more information on this new pest. For now, growers should know that any moths seen flying in their plantings now are NOT Winter Moth or Canker Worm moths. These moths do not emerge and begin flight until November.

GRAPE

Fall Weed Management

Joe Fiola, University of Maryland

Many of you are still busy with winemaking but a quick reminder that fall is a critical time for vineyard weed management. It is critical for controlling pesky perennial weeds and preemergence of winter annuals.

- The 3 main types of weeds:
 - Annuals - Plants that live for less than one year
 - * Winter annuals germinate in the late fall and winter, grow, and go to seed during the following spring and summer

- * Summer annuals germinate in the spring, grow, and go to seed during that spring and summer.
- Biennials - Plants that live for more than one year, but less than two years
- Perennials - Plants that live for more than two (2) years
 - * Can be herbaceous or woody
- To insure optimal efficacy of herbicides always remember:
 - Use the correct herbicide for the specific weed pest.

- Use the correct herbicide rate for the time and soil type.
- Use the proper application technique.
- Apply at the appropriate time.
- Sprayer calibration is important with pre-emergence herbicides. If you have been using a ‘Roundup only’ program and haven’t calibrated lately be sure to do so before making the pre-emerge application.
- Perennial weeds such as Canada thistle, nutsedge, poison ivy, mulberry, and many perennial grasses are especially susceptible to glyphosate (Roundup) at this time of year.
 - Fall applications are very effective because these plants are strongly translocating down so they will take the herbicide to underground storage structures which will greatly improve their activity.
 - Spring applications of glyphosate are less effective on most perennials since movement of stored energy is upward and away from storage structures.
 - An application after grape leaf drop but while the weed foliage is still intact is ideal. Glyphosate can be absorbed by any green tissue, so waiting until grapevine leaf drop or use of shielded sprayers is important. In any event, avoid contact with grape

foliage or green stems or damage may occur. See labels for complete instructions.

- This is also the time to include (tank mix) a pre-emergence herbicide with the glyphosate.
 - A pre-emergence herbicide will control winter annual weeds (e.g. chickweed and henbit)
 - * Residual grass herbicides include: Devrinol, Gallery, Kerb, Prowl, Sinbar, Solicam, and Surflan.
 - Kerb, Sinbar, and Solicam may be used but only be on vineyards established 3 years.
 - * Residual broadleaf herbicides include: Casoron, Gallery, Goal, Karmex, Princep, Sinbar.
 - Casoron, Karmex, Princep, and Sinbar may be used but only be on vineyards established 3 years.
 - * Again, these are only meant as suggestions – always see labels for complete instructions.

Fall herbicide applications are the first step in a successful weed management program. You can follow up in early to control the summer annual weed pressure.

(Source: Univ. of Maryland Timely Viticulture, Post Harvest Fact Sheet Series)

Cold Hardy Grape Wines: They tried it, and liked it!

Joanne Davidhizar, Don Holecek and Dan McCole, Michigan State University

Research surveys of Michigan tasting room visitors and Midwestern wine drinkers indicate low awareness and positive acceptance of cold hardy grape varieties.

Michigan State University Extension affiliated researchers in tourism, Don Holecek and Dan McCole, sought to better understand winery tasting room customers and regional wine drinkers, and their behaviors, through a 2012 survey of visitors to 15 geographically-diverse Michigan wineries and householders in six Midwest states.

One specific goal of the effort was to establish a baseline of consumer familiarity with cold hardy wines that could be used for comparison with the future expansion of cold hardy grape cultivation in the region. Cold hardy grapes are relatively new with few acres planted in contrast to the more traditional *Vitis vinifera*-based hybrids.

When asked if they were familiar with cold hardy grape wines, more than 50 percent of Michigan tasting room visitors and greater than 70 percent of regional wine drinkers indicated they were not familiar with these wines. Respondent recognition of varietal names, such as Marquette or Frontenac, was very low.

As for tasting cold hardy grape wines, 65 percent of Michigan tasting room visitors and 27 percent of regional wine drinkers had done so. Most reported having tasted a blend of cold hardy and other grape wines.

Despite general low awareness, about 70 percent of Michigan tasting room visitors and regional wine drinkers who have tasted cold hardy grape wines “liked them a lot” or “liked them a little.” Dislike among both groups was less than 3.4 percent.

This study was conducted as part of the [Northern Grapes Project](#), an initiative recognizing the emergence of cold hardy, *Vitis riparia*-based wine grape cultivars in the 1990s creating a new and rapidly expanding industry of small vineyard and winery enterprises in more than 12 states in New England, northern New York and the Upper Midwest, boosting rural economies in those regions. A detailed account of this study may be found at [Northern Grapes Project Newsletter Volume 3, Issue #1](#).

(Source: Michigan State University Fruit Crop Advisory Blog, Sept. 11, 2014)

GENERAL INFORMATION

Is a Sustainable Agriculture Grant Right for You?

Violet Stone, Cornell State SARE Outreach Coordinator, Small Farms Program Coordinator

Is a Sustainable Agriculture grant right for you?

Are you a farmer with a new idea you would like to test using a field trial, on-farm demonstration, or other technique? Are you an agricultural service provider or food system community organizer looking to conduct research or trainings with farmers as active cooperators?

If you answered "YES" to any of the above, a SARE grant might be the right fit for you. Funding is available to help you test your ideas in the way of Farmer and Partnership Grants from USDA/NIFA Northeast SARE (Sustainable Agriculture Research and Education). Both grants are capped at \$15,000.

Details and deadlines are provided below. Have more questions? Join Northeast SARE grants coordinator Carol Delaney for a lunchtime webinar on **Friday, October 10th at Noon**. Carol will cover topics ranging from the application process, designing a budget, choosing a technical advisor (for farmer grants) and the review process. There will be plenty of time for Q&A. [Register for the webinar here](#).

If you have questions about registration or the presentation, please contact NY SARE Coordinator Violet Stone at vws7@cornell.edu.

Farmer Grants

Farmer Grants let commercial producers explore new ideas in production or marketing. Reviewers look for innovation, potential for improved sustainability and results that will be useful to other farmers. Projects should be technically sound and explore ways to boost profits, improve farm stewardship, or have a positive impact on the environment or the farm community.

To qualify, you must be a farm business owner or manager in the Northeast SARE region. It is not necessary that you farm full time, but the primary activity of your farm must be to produce and sell agricultural products. There is a limit of one application per farm per year.

Grant funds can be used to pay for your time and time that your employees work directly on the project,

materials specific to the project, project-related services like testing and consulting, project-related travel, outreach expenses, equipment rental, and other direct costs.

The deadline to apply is December 2nd. For more information, visit <http://www.nesare.org/Grants/Get-a-Grant/Farmer-Grant>

Partnership Grants

Partnership Grants allow agricultural service providers to explore topics in sustainable production and marketing in cooperation with client farmers. The goal is to build knowledge farmers can use, encourage the understanding and widespread use of sustainable techniques, and strengthen working partnerships between farmers and farm service providers. Projects must take place on farms or directly involve farm businesses. Reviewers look for well-designed inquiries into how agriculture can enhance the environment, improve the quality of life, or be made more profitable through good stewardship.

You must be engaged in agricultural research or outreach in an organization like Cooperative Extension, NRCS, a state department of agriculture, a college or university, an agricultural nonprofit, or a commercial agricultural consulting business.

Funds can be used to pay for your time and time that your partnering farmers spend on the project, materials specific to the project, project related services like soil testing and lab fees, project-related travel, outreach expenses, equipment rental, and other direct costs.

The deadline to apply is November 4th. For more information, visit <http://www.nesare.org/Grants/Get-a-Grant/Partnership-Grant>

Northeast SARE Region

To be eligible for these grants, your project must be conducted in the Northeast region (Connecticut, Delaware, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, West Virginia, Vermont, and Washington, D.C)

NRCS Offers Help with Conservation Planning and Financial Assistance Programs

Thomas Akin, Massachusetts Natural Resource Conservation Service (NRCS)

If you're a farmer, you can get help from the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) to protect natural

resources on the land that you own or manage. NRCS provides free conservation planning assistance and administers several financial assistance programs,

authorized under the federal 2014 Farm Bill. These programs can help defray the cost of implementing conservation practices identified in your conservation plan.

Since 1935 when the agency was established during the Dust Bowl, NRCS has focused on soil erosion reduction. Over time, the NRCS has expanded its conservation focus to protect water quality, soil quality, water conservation, air quality, at-risk wildlife, and the sustainable production of crops and livestock. NRCS is currently promoting the multiple benefits of improving soil health. To learn more about soil health, ask your local NRCS representative, or visit: www.nrcs.usda.gov to learn about “Unlocking the Secrets in the Soil.”

A conservation plan should provide you with a long term strategy for sustaining or improving your production while also improving the natural resource base that supports your farm. A conservation plan cites your goals and objectives, identifies natural resource limitations, and presents you with alternatives and documents your decisions about addressing resource concerns. Developing a conservation plan is the first step in working with NRCS and is a prerequisite for applying for NRCS financial assistance programs. Call your local NRCS office to set up an appointment with a conservation planner.

At times, there is a backlog of farms waiting for conservation planning assistance, so it is best to start the process well before the deadlines for financial assistance programs. Awards for financial assistance are competitive, based upon the environmental benefits delivered by the selected conservation practices. Applications with conservation practices that deliver more environmental benefits will rank higher. However, farmers can begin the conservation planning process and/or apply for financial assistance (if a conservation plan is already in place) at any time of the year. If a conservation practice can help you address the resource needs identified in your conservation plan, an NRCS representative will be happy to explain the application process.

The Conservation Planning/Financial Assistance Application Process:

1. Establish a customer record with the USDA Farm Service Agency (FSA). This usually requires an appointment with the local FSA office, typically located in your local USDA Service Center. Often it helps to bring a map of your property and a copy of your latest tax return to aid with registration. You want to register the farm with FSA under the same name and tax ID with which you file your taxes.

2. Work with FSA to develop a map of your field boundaries. This will help the NRCS planner locate fields to visit during the site visit, as well as make sure that your field inventory is up to date in the FSA records.
3. NRCS determines if your land is eligible for conservation planning and/or programs. FSA determines additional eligibility (such as income limits) for conservation program participation.
4. A NRCS planner will conduct an initial site visit. During that site visit, you and the planner will work to identify the land that you would like to include in your conservation plan and determine what are the resource needs and which conservation practices may be used to solve the identified concerns. It is good to include leased fields that you plan to continue farming in your conservation plan.
5. After the site visit, your NRCS planner will work to develop some initial alternatives based upon your interests. The alternatives that you choose will be documented in your conservation plan and may ultimately become the basis for a program application.
6. Review your conservation plan and, if desired, work with an NRCS planner to identify which conservation practices you wish to include in a conservation program financial assistance application (e.g., as EQIP – Environmental Quality Incentives Program or CSP—Conservation Stewardship Program).
7. Your NRCS representative will also help you to determine the program and funding pool (e.g., “Organic”, “Beginning Farmer”, “Historically Underserved”) for which you are eligible to apply.
8. Fill out a Conservation Program Application and associated eligibility paperwork and submit it to NRCS.
9. Some of the FSA eligibility forms need to be updated each year to keep your USDA conservation program eligibility up to date. Your application can not be considered unless you keep these forms up to date.

For more information, contact your local NRCS office (<http://offices.sc.egov.usda.gov/locator/>) or visit the NRCS Massachusetts website at www.ma.nrcs.usda.gov. (*Source: UMass Veg Notes, Vol. 26, No. 22, Sept. 25, 2014*)

Agricultural Business Planning Courses 2014-15

Rick Chandler, Massachusetts Dept. of Ag. Resources

MDAR offers three course levels for participants who are 1) thinking about farming, 2) gearing up to start, with secure access to land, or 3) already operating Massachusetts agricultural enterprise. Our courses are not offered online because participants confirm greater benefit when they have a peer group to share ideas with over several consecutive weeks. Enrollment is limited to facilitate discussion. Attendance by the registrant (or an informed substitute) is required at all scheduled sessions. Fees are kept low through MDAR support, and a partner may attend at no additional cost.

Explorers - For those who are just thinking about getting into farming or are expanding a hobby to an income-generating scale: *“Exploring the Small Farm Dream”* offers guidance and feedback to help make informed decisions about whether or not to take the plunge - and how to proceed in the first stages of feasibility. Five sessions over 6 weeks on weekday evenings. Cost per enterprise - \$100. **Amherst 2014 November 5, 12, 19, December 3, 10 - and Marlborough 2015 March 3, 10, 17, 24, 31**

Planners – For those a step beyond Explorer who have a strong sense of what they intend to do and where: *“Planning for Start-up”* is a gut check before making significant investments of time and money. It requires completion of Explorer, or equivalent programs and experience. Planners have already made the decision to

farm on a revenue generating scale, and have secured the land and initial finances to do so. Six sessions over 8 weeks on Saturday mornings. Cost per enterprise - \$150. **Amherst Only 2014 November 1, 8, 15, 22, December 6, 13**

Established Farmers – For those already operating a commercial agricultural enterprise and in need of a comprehensive business plan. *“Tilling the Soil of Opportunity”* offers a chance to assess, regroup, plan 5 years ahead and finance expansion, or clarify transfer/succession. The course draws on peer experience, Instructor knowledge and guest speakers. This course is USDA/FSA certified for “Borrower Training”. Graduates may qualify for individual post-course technical assistance. Ten sessions over 11 weeks on weekday evenings. Cost per enterprise - \$200. **Dates and location to be determined between November and March 2014-15**

We offer each course once per year, sometimes both in eastern and a western locations if local demand exists. **Registration is rolling, so those who have completed an application (no payment until enrollment is complete) receive priority when locations and dates are finalized.**

Email information/application requests to rick.chandler@state.ma.us

Three Newer Biological Insecticides for Vegetable and Small Fruit Growers

Steve Bogash and Thomas Ford, Penn State University

This article reviews three of the newest biopesticides on the market for small fruit and vegetable growers: Grandevo, Met52 and PFR-97. These materials offer significantly different modes of action from traditional pesticides and add to growers' toolboxes for the control of whiteflies, aphids, thrips, and spider mites.

Much of the growth in new pesticides has been in the form of biologically-based materials. These pesticides can be sourced from naturally occurring bacteria in products like Dipel, Thuricide, and Javelin, from fungi in products like Botanigard, Met52, or PFR-97 or through the fermentation processes of two species of Saccharopolyspora bacteria like SpinTor*, Entrust and Conserve. As a rule, biologically-based pesticides go through a substantially faster review process at the EPA than conventional materials made through more traditional typical chemical processes. In this article, we will review how Met52, PFR-97 and Grandevo work (their modes of action) and where they may fit into your pest control strategies.

Grandevo: Active Ingredient: *Chromobacterium substugae* strain PRAA4-1 and spent fermentation media.

Grandevo is labeled for use on Asparagus, Cole Crops, Alliums, Bushberries, Caneberries, Sweetcorn, Cucurbits, Tomatoes, Peppers, Eggplants, Tomatillo, Grapes, Most Herbs, Hops, Most Leafy Vegetables, Beets, Turnips, Legumes, Most Roots and Tubers, and Strawberries.

Pests controlled include: Aphids, Armyworms, Cutworms, Whiteflies, Diamondback Moth, Cabbageworms, Thrips, Leafhoppers, Fruitworms, Corn Borers, Corn Earworms, Mites, Psyllids, Leafrollers and Plant bugs. This is a slightly abbreviated list, see the label for a more detailed listing.

REI: 4 hours, PHI: 0 days.

Rate of application: between 1lb and 3lb per acre depending on the crop and pest being treated.

Grandevo is OMRI listed and NOP approved.

Grandevo functions primarily as a stomach poison, so it must be ingested by insects and mites to be effective. It does not have systemic activity; therefore, it must be on the feeding surfaces to be effective. Like other stomach poisons, excellent plant coverage is necessary, so use plenty of water and pressure to get complete coverage. Grandevo is more effective on newly hatched larvae and nymph stages of insects and arthropods, so regular scouting and early applications are necessary for good control.

Met52: Active Ingredient: *Metarhizium anisopliae* Strain F52

Met52 is labeled for use on Onions, Celery, Lettuce, Spinach, Peppers, Tomatoes, Grapes, Strawberries, Caneberries, Raspberries and Blackberries.

Pests controlled include: Thrips, Whiteflies, Mites, and Weevils.

REI: 0 hours when soil incorporated and 4 hours when applied to the foliage, PHI: 0 days.

Rate of application: Drench: 40-80 oz. /100 gal. Foliar: .5pt to 2 qt. / acre.

Met52 does not appear to have a U.S. organic label at this time.

Met52 functions as a contact insecticide. Spores and or mycelia from the pathogenic fungus *M. anisopliae* that come in contact with insect penetrate the insect's exoskeleton and grow with the haemolymph (insect's blood) killing the insect or mite. The spores/mycelia do not need to be ingested, but must come into direct contact with the pests. Upon application, the spores/mycelia attach to the insect or mites cuticle. The spores/mycelia then germinate and form an appressorium, which penetrates the pest's cuticle. Blastospores are then formed in the haemolymph (insect's blood), which circulates and begins a systemic infection which kills the insect in 4-5 days. Under higher humidity conditions such as in a greenhouse or high tunnel, it is possible to get reinfection of other pests as fungal hyphae emerge from the exoskeleton of infected insects or mites and release new spores into the environment.

PFR-97 Active Ingredient: *Isaria fumosorosea* Apopka Strain 97.

PFR-97 is labeled for use on vegetable and strawberry transplants, strawberries, grapes, sweet corn, leafy vegetables, cucurbits, potatoes, beans, and herbs.

Pests controlled include: Black Vine Weevils, Thrips pupae, Rootworms, Wireworms, Beetle grubs and larvae, Lepidopteran caterpillars, Whiteflies, Aphids, Thrips, Spider mites, Broad mites, Rust mites, Leafminers, Mealybugs, Plant Bugs, and Psyllids.

REI: 4 hours, PHI: 0 days

Rate of application: 1lb – 2lb/acre for outdoor grown crops. Greenhouse production of transplants: 14-28 oz per 100 gallons applied to the foliage. Drench applications for soil surface and root feeding pests 14-28 oz./ 100 gallons with specific volumes applied per pot based on volume (see the label for these rates).

PFR-97 is OMRI labeled and NOP approved.

The fungus in PFR-97 infects both foliar and soil dwelling pests. Similarly to Met-52, it attaches to the insect or mite's cuticle, germinates, and then penetrates into the insect's or mites exoskeleton. Once inside the fungus continues to grow until it ultimately kills the insect or mite. Under high humidity conditions the white mycelia growth from this fungus will emerge from the dead insect / mite and will release more spores into the environment that can subsequently infect other insects / mites. As per the pesticides' label, PFR-97 is considered to be safe for use around bees and other beneficial insects. PFR-97 should not be tank mixed with fungicides, but it can be used with IGR's (Insect Growth Regulators such as buprofezin.

***SpinTor is no longer on the market**, but is used here as an example as it has been a highly effective tool for growers and is relatively well known in the industry. Both Conserve and Entrust contain the same active ingredient as SpinTor and are still readily available through your local pesticide dealer. Conserve is labeled for greenhouse and ornamental use and Entrust has an OMRI label and can be used on a wide range of food crops. The insecticide Radiant has a similar mode of action as the spinosyns' Conserve and Entrust, and can be used outdoors on a wide range of vegetable crops.

With insects such as Western Flower Thrips (WFT) developing resistance to many of our traditional classes of insecticides, these biologically-based materials and their novel modes of action show great promise as tools in our IPM toolbox. If you plan to incorporate these insecticides into your pest management program remember to scout your crops frequently, to develop a management strategy ahead of time for common pests such as spider mites on greenhouse or high tunnel tomatoes and to trial these newest biological tools in your operation to learn when and how to use these pesticides effectively

(*Source: PA Vegetable & Fruit News, Sept. 23, 2014*)

UPCOMING MEETINGS:

- October 2, 2014** - *NOFA/RI CRAFT-FSMA Compliant Produce Handling and Building a Cooler With a Coolbot*, 5:00 – 6:30. Sponsored by SEMAP. Wishing Stone Farm, Little Compton RI. For more information go to: <http://semaponline.org/events/>
- October 3, 2014** – *Cornell Small Fruit Open House, 1:00 – 4:30PM*. Cornell Orchards, Ithaca NY. **The open house is free and open to the public but pre-registration is required** to ensure adequate transportation, handouts, and refreshments. Signs will be posted on the day of the event. Please register by phone or e-mail by contacting Cathy Heidenreich, mcm4@cornell.edu, 315-787-2367, no later than Friday, September 26, 2014.
- October 6, 2014** – *Storage Crops for Winter Sales, 5:00 – 7:00*. Skinny Dip Farm, 1603 Main Rd., Westport MA. Sponsored by SEMAP. Cost: \$5-\$20 sliding scale. For more information go to: <http://semaponline.org/events/>
- October 7, 2014** – *Grow Your Own Food-based Business*. 5:30 – 8:00. Business Growth Center, 1 Federal Street, Building 101, Springfield MA 01105. Registration free. For more information go to: <http://ag.umass.edu/events/grow-your-own-food-based-business>.
- November 5-6, 2014** – *Soil Health in Vegetable Production – Farming with Nature*. 9:30 – 3:30 each day. Immanuel Lutheran Church, Nov. 5th, 867 N. Pleasant St., Amherst MA; Nov. 6th, location tbt. Co-sponsored between UMass Extension, Northeast SARE and NRCS. Featuring Ray Archuleta, Agronomist & Soil Health Educator USDA NRCS, and Farmer panels discussing their experiences with reduced tillage, cover cropping, and crop rotations in vegetable production. More information posted soon at <https://extension.umass.edu/fruitadvisor/> and <https://extension.umass.edu/vegetable/>.
- November 5-6, 2014** – *Northeast Greenhouse Conference*. Mass Mutual Center, 1277 Main St. Springfield, MA. For more information see: <https://extension.umass.edu/vegetable/events/northeast-greenhouse-conference>.
- November 17-19, 2014**. *2014 Southeast Strawberry Expo*, Pinehurst Resort, Pinehurst, NC. For more information see: www.ncstrawberry.com.
- December 2, 2014** – *CT Pomological Society Annual Meeting*. The Gallery Restaurant in Glastonbury. Program details available soon.
- December 4-5, 2014** – *Massachusetts Farm Bureau Annual Meeting*. University of Massachusetts – Amherst, Amherst MA. For more information or to register, go to: <http://mfbf.net/AnnualMeeting/MFBFAnnualMeetingAgenda/tabid/154/Default.aspx>.
- December 10, 2014** – *Greenhouse Vegetable Production in Containers*. 9:30 – 3:45. Publick House 277 Main St. Sturbridge, MA. \$40. Registration required. 2 pesticide license contact hours requested. For more information see: <https://extension.umass.edu/vegetable/events/greenhouse-vegetable-production-containers>
- January 13, 2015** - *Massachusetts Farm to Cafeteria Conference*. College of the Holy Cross, Worcester, MA. Save the date. For more information and updates, see: <http://www.massfarmtoschool.org/conference/>.
- January 15, 2015** - *CT Vegetable & Small Fruit Conference*. Thursday, January 15, 2015 at Maneely's Conference Center, S. Windsor. Program details available soon.
- March 17-18, 2015** - *Tree Fruit, Berry & Grape Plant Nutrition Short Course*, Maneely's Conference Center, S. Windsor. Program details available soon.

ODDS AND ENDS

[New Toolkit Helps Plan Shared-Use Kitchens](#) - A new resource from the Leopold Center for Sustainable Agriculture is designed to help community and organization leaders make informed decisions about starting shared-used kitchens. *The Shared-use Kitchen Planning Toolkit* is a 44-page guide that discusses what should be included in a feasibility study, business planning and other key considerations, licensing and insurance regulations in Iowa, and sample rental agreements. (Source: National Center for Appropriate Technology ATTRA Weekly Harvest Newsletter, Sept. 17, 2014)

[USDA Awards Conservation Innovation Grants](#) - USDA has announced the award of \$15.7 million in Conservation Innovation Grants to 47 organizations that will help develop and demonstrate cutting-edge ideas to accelerate innovation in private lands conservation. These grants are funded through the Environmental Quality Incentives Program. A full list of recipients is available online. (Source: National Center for Appropriate Technology ATTRA Weekly Harvest Newsletter, Sept. 24, 2014)

Participate in the MA Statewide Food Systems Planning Initiative - As you may know, the Massachusetts Food System Plan is an ongoing statewide initiative to support increased consumption of Massachusetts agricultural and food products while preserving water and land resources, to support a strong, robust food system where local and healthy foods are accessible to all residents, and job and business opportunities abound. The Metropolitan Area Planning Council is leading a team of planners to facilitate this statewide process. Statewide forums and listening sessions are being planned across the state. Four are organized, with others soon to be announced. It's an important opportunity to weigh in on what's happening in your local food system including on the farm, the food processing arena, and in your community. These forums will provide a platform to share what is being done well, challenges, and suggestions to improve our food system. Your input is important for to better understand the major strengths and obstacles in the region, and to support the development of a well-informed plan for the Massachusetts Food System going forward. For more details, check the MAPC and MDAR websites: www.mapc.org/massfoodplan and www.mass.gov/eea/agencies/agr/boards-commissions/food-policy-council.

- **October 6**, Southeast Regional Forum, 3 – 6 pm, Buttonwood Senior Center, New Bedford, hosted by the Southeastern MA Food Security Network
- **October 11**, Greater Boston Area Forum, 1 - 3:30 pm, Reggie Lewis Center, Boston, organized by the Trust for Public Land, Hayley House, Boston Collaborative for Food & Fitness, Babson College Food Sol Program, The Real Food Challenge and MDAR
- **October 15**, Central MA Food Systems Listening Session, 5-7 pm, Worcester Public Library, organized by the Worcester Food & Active Living Policy Council and the Central MA Regional Planning Commission
- **October 22**, Northeast Regional Forum, 4 – 7 pm, Lawrence Senior Center, hosted by Groundwork Lawrence
- **October 24**, Food Day Report Back, 9 am – 12 pm, Boston Statehouse, organized by MA Department of Agricultural Resources

(Source: MDAR August/Sept 2014 Farm and Market Report)

[The MA Farm Energy Program \(MFEP\)](#) MDAR and our new MFEP partner The Center for EcoTechnology, Inc., (CET) want you to know the MA Farm Energy Program is here to help you. Please visit our new website, get familiar with our new contact information and find out about our technical and financial assistance opportunities! Please visit (and bookmark!) our new website: www.massfarmenergy.com. Have you been meaning to get an energy audit for your farm? Are there energy efficiency projects you would like to complete? To learn more about how you can improve your farm's operations, reduce your energy use and save money, please complete the [Request Form](#) online or email us at info@massfarmenergy.com or call 413-727-3090. We look forward to hearing from you! (Source: MDAR August/Sept 2014 Farm and Market Report)

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