



Berry Notes

Prepared by the University of Massachusetts Fruit Team

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Massachusetts Berry Notes Underwriters:



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UPCOMING MEETINGS

Crop Conditions

Strawberry renovation is complete. Keep renovated fields as well as new plantings regularly irrigated. Pull blossoms and set runners on new plantings. Also, check new fields for evidence of potato leafhopper burn and evaluate older fields for the level of foliar diseases, especially powdery mildew. **Highbush Blueberry** harvest is underway. Yields are variable with some growers reporting poor fruitset, possibly due to poor pollination. Leaf samples can be taken for tissue analysis from now to mid August to determine nutrient status of the bushes. This is especially important for blueberries since soil tests are not a reliable check on adequate nutrition. Also, be sure to keep young blueberries well watered during the coming weeks to help bushes sustain their fruit-load and go into the winter free from water stress. **Summer raspberry** harvest is winding down. Scout for Japanese Beetle which can cause fruit damage as well as foliar feeding. Sap beetles can be a serious problem in ripe raspberries. Malathion and pyrethrin-type (Evergreen and Pyganic) insecticides provide some control of sap beetles and have short pre-harvest intervals. White patches on fruit may be due to sunscald. **Grape** clusters are sizing up. Powdery and Downy mildew are common this year. Grape Berry Moth activity is increasing. Scout vineyards thoroughly and take corrective measures for these problems before veraison.

ENVIRONMENTAL DATA

The following growing-degree-day (GDD) and precipitation data was collected for a two-week period, July 13, 2006 through July 26, 2006. Soil temperature and phenological indicators were observed on July 26, 2006. Accumulated GDDs represent the heating units above a 50° F baseline temperature collected via our instruments since the beginning of the current growing season. 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	2006 GROWING DEGREE DAYS		Soil Temp (°F at 4" depth)	Precipitation (2-Week Gain)
	2-Week Gain	Total accumulation for 2006		
Cape Cod	332	1,408	85°F	0.75"
Southeast	356	1,426	84°F	0.90"
East	n/a	n/a	n/a	n/a
Central	n/a	n/a	n/a	n/a
Pioneer Valley	336	1,454	71°F	2.00"
Berkshires	316	1,324	71°F	1.69"
AVERAGE	335	1,403	78°F	1.34"

n/a = information not available

(Source: UMass Extension 2006 Landscape Message #20, July 28, 2006)

STRAWBERRY

Strawberry Powdery Mildew Research Updates from Home and Abroad

Mary Jean Welser, Cornell University

Strawberry is a major fruit crop both in Norway and in the USA. During the past week the department of Plant Pathology at the NYSAES has had the privilege of the hosting Arne Stensvand and his family from the Department of Plant Pathology, Plant Protection Centre, The Norwegian Crop Research Institute.

Arne together with David Gadoury, Bob Seem, Cathy Heidenreich, and I, have been addressing the gaps in the knowledge of strawberry powdery mildew caused by the fungus *Sphaerotheca macularis*. The available information on *S. macularis* ecology and epidemiology of is limited due to the lack of research done on this pathogen over the last 40 years, adding little to the advancement in our knowledge of strawberry powdery mildew biology and ecology.

Our goal in this project is to answer some of the basic questions pertaining to the ecology, epidemiology, and control of *Sphaerotheca macularis*. With this in mind we have focused first on documenting how the pathogen over winters. It is argued in the scientific literature on the subject that the pathogen only over winters as mycelium in the crowns of the strawberry plants.



Another possibility is that the disease may also over winter as cleistothecia, the common over wintering structures of other forms of powdery mildews. Cleistothecia are commonly found on the leaves of the strawberry plant in late fall. Last fall and early this spring we collected cleistothecia - infected leaves from fields known to have had

powdery mildew the previous growing season. In the lab, we tested for viability of the ascospores released from these cleistothecia both by staining techniques and by germination of the spores. By positioning the cleistothecia over susceptible leaf tissues and providing the right environment for infection, we were able to grow viable powdery mildew colonies from the ascospores shot out of the cleistothecia. This demonstrates it's possible for the pathogen to over winter in the cleistothecial stage. Potted strawberry plants infected with the mildew from those colonies were then transferred to newly planted, mildew-free field plots. Each of the 4 isolated plots got a different number of infected plants, allowing us to study disease spread under a number of different disease pressures (0, 1x, 10x, 100x). We are currently documenting the spread of the disease in these isolation plots under field conditions. We are also monitoring temperature, relative humidity and rainfall in all plots to determine conditions best for mildew development in the field.

Similar studies are underway in Norway, where strawberry powdery mildew is one of the main diseases

of concern for strawberry production. (*Source: New York Berry News, Vol. 5, No. 7, July 2006*)

RASPBERRY

Post Harvest Raspberry Chores

Pam Fisher, Ontario Ministry of Agriculture and Food

After harvest, raspberry plants store reserves and begin to build next years crop. Many grower choose to remove old fruiting canes after harvest: this should be done immediately after harvest, and with care so remaining primocanes are not wounded. Avoid pruning in late summer or fall.

The good news is that new fungicides have been recently registered for disease control on raspberries. These fungicides will not only control Botrytis fruit rot, but will no doubt help to reduce the incidence of cane disease. Growers and scouts should check the lower portion of new primocanes for purplish lesions and other signs of disease. After harvest, apply 2-3 fungicides, such as Pristine WG in alternation with Captan to prevent late season infections of anthracnose and spur blight. Adjust nozzles and spray pressure so

that the spray contacts the lower cane and middle of the row

White drupelet disorder, caused by high temperatures and intense UV light, has recently developed. Some varieties, ie Encore, Titan, seem to be prone to this disease, probably because they are late, and ripening fruit was exposed to the high temperatures. Dried up drupelets on raspberry fruit can be caused by anthracnose. Spots or lesions on leaves and laterals are also symptoms of this disease. (*Source: Berry Bulletin for July 24, 2006*)

BLUEBERRY

Japanese Beetles in Blueberries

Rufus Isaacs, Michigan State University



Adult beetles feed on ripe fruit and foliage.

Adult beetles are about 13 mm long with a metallic green thorax and shiny, brown wing coverings. Rows of white tufts are distinctive on the undersides of the abdomen. Male and female beetles congregate on the tops of plants in sunlight, where they feed and mate.

Adult beetle emergence begins in early June in North Carolina and early July in Michigan.

Mating occurs as soon as females emerge from the ground. Then they seek grassy areas with moist soil to lay eggs. Eggs are 1 to 2 mm in diameter, spherical and white, and are laid 5 to 10 cm deep in the soil in batches throughout the female beetle's month-long life. C-shaped, cream-colored grubs with brown heads and three pairs of legs develop in the soil, becoming 3 cm long when

fully grown.

Japanese beetle grubs can be distinguished from similar grubs by two rows of seven hairs in a V shape on the inside of the posterior segment. Beetles are best detected on blueberry bushes during calm, hot, cloudless afternoons. Traps for monitoring Japanese beetle are highly attractive but can



C-shaped grubs are found in soil under grassy areas



Japanese beetle grubs have hairs in a distinctive V pattern.

increase the number of beetles flying into an area. In small plantings, beetles can be removed from bushes. Control of attractive weed hosts and removal of grassy areas in and around fields during July and August can reduce field suitability for Japanese beetle. Biological control agents suppress populations in areas where the beetle is established. (*Source: Michigan Blueberry Facts, <http://www.blueberries.msu.edu/japanese-beetle.htm>*)

GRAPE

Monitoring and Managing Grape Berry Moth in July and August

Rufus Isaacs, Michigan State University

The third week of July is a critical time to scout vineyards for the effectiveness of post-bloom insecticides and to decide whether another insecticide application is needed. For vineyards where grape berry moth is usually a problem late in the season, and particularly where the crop was heavily infested with berry moth last year, this middle-season generation will require management to keep the population under control.

What stage is the population at?

At this time of the year, the best way to determine the stage your own grape berry moth population is to look directly on the clusters and try to find a sample of larvae. Mature larvae are dark purple, and 1 cm long and will soon pupate into an adult moth. From mature larva to an adult laying eggs takes approximately 8 to 10 days. Within a few days of eggs being laid, the young larvae will hatch from the eggs and bore into the berries.

Why scout vines?

By scouting now, an informed decision can be made as to whether to spend time and money on berry moth control, or wait until later in the year. At the same time, looking closely at the vines can detect the level of leafhopper and beetle infestation. If grape berry moth infestation is detected near harvest, it is often too late to get it under control because of pre-harvest interval restrictions. Because of this, proactive scouting and management now are key to protecting the fruit. Berry moth can often be a problem only at the vineyard edges, and scouting also allows growers to decide whether a border spray would be sufficient to control the infestation. This strategy can help reduce costs while preventing development of berry moth populations. Take a close look at grape clusters on the vineyard borders and also in the vineyard interior to determine how much cluster infestation is present. Sampling 25 clusters at two positions at the border and two in the inside is recommended, for a total of 100 clusters.

What to spray?

If damage is above the threshold of 6% infested clusters in mid- to late June (1 to 2 clusters in each 25 cluster sample), the decision to treat with an effective insecticide should be made. About one week of activity can be provided by broad-spectrum insecticides **Imidan** (use pH 6.0 spray water) and **Sevin**. A little longer activity can be provided by the pyrethroids **Danitol**,

Capture and **Baythroid**, but at the current high temperatures and UV conditions, these pyrethroids are likely to break down more quickly. **SpinTor** is a new class of insecticide that has some contact activity and works best when eaten by the insect. It has about a week of activity but is susceptible to wash-off. The previously-listed chemicals can also provide varying levels of control of leafhoppers and Japanese beetles. One highly selective insecticide that has shown good performance against grape berry moth is **Intrepid**. This acts by disrupting molting of the larvae, and so it has to be applied in enough water to get *excellent* coverage of the grape clusters. Once on the clusters, it has 14 days of activity and is highly resistant to being washed off. A good time to consider this insecticide is just before veraison when there is still time until harvest (it has a 30 day PHI) and when we typically see a long period of berry moth egg-laying. A spreader-sticker can help get cluster coverage with this product. **B.t.(Dipel, Deliver, Javelin)** is highly specific to berry moth larvae, and active for only three to four days.

Coverage, coverage, coverage

Achieving control of grape berry moth with any product requires good cluster coverage, so it's a good idea to focus sprays on the fruiting zone if targeting cluster pests only. The insecticide must get past the leaves to the clusters, and cover them, to be effective. Use of more water, driving more slowly, and spraying every row will all help improve efficacy. Pesticide longevity is also very important because recent research has shown that egg-laying by second generation grape berry moth is very spread out. Choose an effective insecticide with enough residual activity that eggs and young larvae are controlled as they develop on the cluster. Finally, remember resistance management: Change the class of insecticide from whichever was used earlier in the season. This will help prevent grape berry moth becoming tolerant to the currently effective tools that are available.

Taking the time to scout vineyards during the next month to determine infestation and see how well the spray program is working will reduce the chance of late season-surprises. Because vineyards can vary greatly in their level of infestation, this scouting should be done in as many different vineyards as possible. Most growers know the hot-spots on their farm, and can focus this sampling there to determine the need for sprays against second and third generation grape berry moth. (*Source: Michigan Fruit Crop Advisory Team Alert, Vol. 21, No. 14, July 25, 2006*)

Currants and Gooseberries

New "JEANNE" Gooseberry Resists Disease

Laura McGinnis, USDA-ARS,

July 20, 2006 . Agricultural Research Service (ARS) scientists have developed and released a new disease- and pest-resistant dessert gooseberry called "Jeanne." Sweet and sturdy, this new high-quality, late-fruiting gooseberry was developed by ARS scientists at the National Clonal Germplasm Repository (NCGR) in Corvallis, Oregon. Jeanne is named for a former NCGR employee.

Gooseberry production is limited in the United States, partially due to restrictions imposed in the last century. Like other Ribes species, gooseberries are generally susceptible to white pine blister rust. While the disease causes them little harm, it can be devastating--even fatal--to pine trees.

Jeanne gooseberries are highly resistant to white pine blister rust and to powdery mildew, the biggest disease threat to U.S. gooseberry production.

The plant's robustness protects it from insect threats as well. Jeanne is highly resistant to pests like aphids and sawflies. This and its high-quality fruit make it ideal for home plantings or commercial gooseberry production in the Pacific Northwest and similarly temperate climate zones.



Jeanne gooseberries. Image courtesy National Clonal Germplasm Repository.

How does Jeanne measure up against other cultivars? According to NCGR research leader [Kim Hummer](#), the plant produces green berries which ripen to a deep red as they mature to their full size of about 5 grams. Jeanne also boasts a higher yield than similar cultivars such as Invicta and Captivator, producing about 3.3 pounds of the flavorful fruits per plant during the growing season.

Scientists project that Jeanne, whose dark, sweet berries are well suited to desserts, juices and jams, could extend the production season because it blooms and produces fruit about one to two weeks later than other red gooseberry plants. The NCGR has provided Jeanne plant material to several nurseries that will propagate the gooseberry for homeowners. Cuttings and rooted cuttings are available for research.

Interested scientists should contact Hummer.

ARS is the U.S. Department of Agriculture's chief scientific research agency. (*Source: New York Berry News, Vol. 5, No. 7, July 2006*)

General

EPA Proposes Restrictions on Imidan and Elimination of Guthion in Blueberry – grower comments invited

Rufus Isaacs, Michigan State University

Earlier this month, EPA made an announcement regarding two important insecticides for use in blueberry. If you haven't seen the announcement, it is attached. If their proposal continues as written, it will completely phase out Guthion by 2010 in blueberry and restrict Imidan use in blueberry. Please pass this information on to blueberry growers in your area, and let them know that the comment period running until August 8th is their chance to make their voices heard regarding these proposed restrictions.

Growers should know that if they do not agree with the proposed changes, they need to provide comments directly to EPA on why these insecticides are important for their ability to produce their crop. Grower organizations and universities will be making comments on these proposals, but grower voices carry a lot of weight with EPA. They are interested in the economic impact of the proposals both for domestic and export markets, the relative effectiveness of alternative controls, and why restriction on application by air, within 100 ft of water bodies, or on U-pick fields might have negative impacts on blueberry farming. If you can estimate the economic costs or burdens of these proposals, explain how you came up with the estimate.

EPA Proposals for Imidan and Guthion in Blueberry - June 2006

Imidan

- 3 day re-entry interval (increased from 24 hours)
- Label amendments for buffer zones around houses and occupied dwellings
- Elimination of Imidan in U-pick field

Guthion

- Complete removal by 2010

In the meantime...

- Reduce maximum annual use to 1 lb active ingredient (i.e. 2 lb of 50WP)
- Increase re-entry interval to 14 days
- Label amendments for buffer zones around houses and occupied dwellings
- 100 ft buffer zones around bodies of water
- Manufacturers to gather data on workers after application
- Eliminate use on U-pick operations
- Eliminate aerial application

Making Comments to EPA

The comment period was announced in the Federal Register Vol. 71, No. 111 on Friday, June 9, 2006. It is open until August 8th for the blueberry industry and others to make their opinions of these proposed changes known to the agency. It is important that all comments identify these docket numbers: EPAHQOPP20050061 for Guthion, or EPAHQOPP20020354 for Imidan. Comments can be made on the internet or by mail.

To provide comments electronically, access <http://www.regulations.gov> and search for EPA as the agency, selecting "All documents" and entering this docket number: EPA-HQ-OPP-2002-0354-0004. Then click on the docket ID and look for the yellow speech bubble on the right to add a comment, either by typing it in directly or attaching a file. Alternatively, comments can be made by mail to the Office of Pesticide Programs (OPP) Regulatory Public Docket (7502P), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001. EPA's policy is that all comments received will be included in the docket without change and may be made available on-line at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through regulations.gov or e-mail. The Federal regulations.gov website is an anonymous access system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through regulations.gov, your e-mail address will be automatically captured and included as part of the comment that is placed in the docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For more information contact: Tom Myers, Special Review and Reregistration Division (7508P), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone number: 703-308-8589, fax number: 703-308-8041; e-mail address: myers.tom@epa.gov.

Upcoming Meetings

Aug 9, 2006. Tree Fruit Twilight Meeting, UNH Woodman Horticultural Research Farm, Durham, NH. Topics will include assessing damage for crop insurance claims and cultural practices to reduce risks. For more info, contact George Hamilton at (603)641-6060.

Aug. 10-13, 2006. NOFA Summer Conference. Amherst, MA. To see detailed program information or to register online, visit www.nofa.org or contact Deb Pouech at nofasc@herbsnhoney.com or 860-684-0551.

Aug. 14, 2006, 5:30 pm Farm Pond Construction – A Twilight Meeting in Northfield, MA. Eugene and Nathan L'Etoile of Four Star Farms have recently completed constructing two of three ponds for largemouth bass and baitfish

aquaculture. They will discuss their project at a twilight meeting at their farm on Monday, August 14 at 5:30 pm. Also presenting information will be Michael Marcus, senior scientist at New England Environmental, an expert on pond construction, and Keith Wilda, aquaculturist at Australis Aquaculture. Discussion will include permit requirements, site selection and pond construction techniques. Information on predator protection will also be provided. For directions Go to: <http://www.umass.edu/aquaculture/> and click on *News and Events*. For Information, contact Craig Hollingsworth at 413 545-1055 or chollingsworth@umext.umass.edu.

August 22-23, 2006 North American Strawberry Growers Association Summer Tour, Portland Maine. For more information including a full itinerary, visit www.nasga.org.

August 24, 2006 Bramble Field Day, 3pm – 7pm at Nourse Farms, Whately MA. Enhance your knowledge of bramble diseases and their management through an interactive field day at Nourse Farms. Co-sponsored by UMass Extension and PennState University, this workshop will provide an opportunity to learn about practical methods for identifying common field and postharvest bramble diseases through formal and informal activities. We'll even provide hand lenses that will be yours to keep. We'll discuss sustainable management options including cultural methods and organic fungicides. This meeting will also feature a walking tour of fall raspberry varieties and a review of summer varieties and their performance in 2006. Please pre-register for this meeting by contacting Sonia Schloemann at 413-545-4347 or sgs@umext.umass.edu. There is no fee for this meeting. One contact hour for pesticide recertification credit has been requested. Bring a lawn chair for this meeting. We designed this field day for growers who are intermediate in their knowledge of bramble production. This is a USDA-CSREES/SARE funded event (under SARE grant LNE05-227).

Renewable Energy for Farms and Greenhouses - A Series of Twilight Meetings

Sponsored by The University of Massachusetts Extension Agriculture and Landscape Program, Community Involved in Sustaining Agriculture (CISA) and Donald Campbell Associates

We will be exploring renewable energy systems for farms and greenhouses this summer and fall through a series of twilight meetings. Plan to join us for one or all meetings to learn how alternative energy sources might fit into your business. These meetings will provide information on funding opportunities and feature vendors and experts with a wealth of knowledge and experience. For more information, including opportunities for sponsorship, or to pre-register, contact Tina Smith, Extension Floriculture Program, 413-545-5306, tsmith@umext.umass.edu or Ruth Hazzard, Extension Vegetable Program, 413-545-3696, rhazzard@umext.umass.edu.

Wind and Solar Energy

Thursday, September 7, 2006

3:00 PM – 6:00 PM

Lion Spring Farm, 236 Dedham, St. Dover, MA

Host: Bob Loebelenz

Lion Spring is a small diversified farm, now engaged in the breeding of Massachusetts Thoroughbred horses. The farm also grows vegetables and herbs for local gourmet restaurants and have a collection of chickens who supply farm fresh eggs for retail sales. On site there is a 4.8 kilowatt photovoltaic system and 3.1 kilowatt wind turbine all feeding a battery bank.

Additional Speakers:

Henry Dupont, Lorax Energy Systems on licensing and choosing turbines

Warren Leon, Renewable Energy Trust on state funded opportunities for renewable energy

Don Campbell, Consultant, Donald Campbell Associates

Don will talk about the process of fitting a farm's needs to the types of renewable energy systems currently available

Field Corn Biomass for Heating Greenhouses

Wednesday, October 4, 2006

3:00 PM – 6:00 PM

Kosinski Farm, Westfield, MA

Host: Mike Kosinski, Kosinski Farm

Kosinski Farm grows 140 acres of blueberries, apples, grain corn, vegetables and tobacco. Five greenhouses provide flower and vegetable plants for retail sales at their farm stand and use in the field. Blueberries, apples and butternut squash are major wholesale crops.

Mike began heating one greenhouse with his own corn three years ago and has been expanding his use of corn for heat each year. This year he is installing two larger stoves with automated auger stoking systems. Field corn fits well into his vegetable rotation. The corn is dried off-site and trucked back to the farm. His production costs are about \$60-\$65 per ton of corn, which is about one-third of the cost of heating oil (\$2.45 per gal.) based on energy costs per BTU.

Additional Speakers:

Rob Rizzo, Mt. Wachusett Community College - Rob uses a variety of renewable energy sources including wood chips, wind and solar power and has reduced the energy costs at the college by 5%.

Bill Llewelyn, Five Point Farm, Northfield - Bill grows and sells corn for energy use. This season he harvested 1,000 tons of corn.

Christine Serrentino, From Field to Table - Christine will talk about the science and economics of burning corn.

Don Campbell, Consultant, Donald Campbell Associates - Don will talk about the process of fitting a farm's needs to the types of renewable energy systems currently available.

Massachusetts Berry Notes is a publication of the University of Massachusetts Extension Fruit Program which provides research based information on integrated management of soils, crops, pests and marketing on Massachusetts Farms. No product endorsements of products mentioned in this newsletter over like products are intended or implied.