

Berry Notes

Volume 17, 2005

Prepared by the University of Massachusetts Fruit Team

August 18, 2005, Vol. 17, No. 11

<http://www.umass.edu/fruitadvisor/berrynotes/index.html>

Massachusetts Berry Notes Underwriters:



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UPCOMING MEETINGS

Message from the Editor:

Strawberry fields are fairly quiet at this time of year. Now is a good time to make some notes about variety performance so you'll be able to refer to them when planning your order for next year's plants. Late summer and early fall is a good time to fertilize both new and established strawberry fields. Leaf tissue analysis can help guide fertilizer amounts but typically strawberries will need 20 – 50 pounds of nitrogen at this time of year. Amounts depend on how much was applied at renovation and the organic matter content of the soil. Growers planning to establish fall planted plasticulture or annual beds should be preparing their sites. The best time for planting is the first week of September. Keep renovated fields as well as new plantings regularly irrigated. Check new fields for evidence of potato leafhopper burn and evaluate older fields for the level of foliar diseases. **Highbush Blueberry** harvest continues on late-season varieties. Late season fungicides should target *Alternaria* fruit rot. Reports of mummyberry have been low this season. Remember, if you used Indar® under a Section 18 label this year, you must fill out the appropriate reporting forms. Call me or Steve Antunes-Kenyon at MDAR (617-626-1784) for the necessary forms. Send in leaf tissue samples for nutrient testing. Only non-nitrogen fertilizer applications should be made this late in the season. Also, be sure to keep your 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 done. **Fall raspberries** are starting up. Be sure to provide irrigation (drip preferred) so the canes can size up the fruit. Be on the lookout for Orange Rust on black raspberries and blackberries. Also keep an eye out for symptoms of a new rust disease described in an article below. **Grapes** are approaching veraison (coloring). Wine grapes are a week or so away while some table grape varieties are starting to color and ripen now (e.g., Mars). Scouting for disease and insect levels and taking corrective action are still important activities now. More on this below. Leaf pulling and cluster thinning are helpful to suppress disease potential. Mite infestations can build up quickly at this time of year. Be sure to check the underside of your leaves.

Environmental Data

The following growing degree day (GDD) and precipitation data was collected for the two-week period from July 20, 2005 through August 3, 2005. Soil temperature and phenological indicators were observed on August 3, 2005. Accumulated GDDs represent the heating units above the 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	2005 GROWING DEGREE DAYS		Soil Temp (*)	Accum. Precip (*)
	2-Week Gain (*)	Total accumulation for 2005 (*)	(°F at 4" depth)	(2-Week Gain)
Cape Cod	355 (281)	1,360 (1,296)	78° (72°)	0.25" (0.25")
Southeast	342 (270)	1,495 (1,335)	79° (70°)	0.30" (0.40")
East	335 (275)	1,492 (1,360)	75° (70°)	1.25" (2.75")
Central	316 (277)	1,468 (1,355)	65° (64°)	0.25" (4.38")
Pioneer Valley	314 (273)	1,611 (1,411)	72° (65°)	0.85" (2.76")
Berkshires	278 (252)	1,476 (1,321)	67° (68°)	1.74" (1.79")

*Data from same period in 2004. (Source: UMass Extension Landscape Message #20, August 5, 2005)

STRAWBERRY

Strawberry Fruit Bud Development

Bruce Bordelon, Purdue University

The time to fertilize strawberry fields is coming soon. Applications of 20 to 50 pounds of nitrogen in mid August to September stimulate flower bud initiation during the fall months. Rates depend upon amount of nitrogen supplied at renovation and plant vigor. New

fields with high vigor may not need additional nitrogen now, but older fields should benefit. Irrigation during this time is also extremely important, if rainfall has not been sufficient. We suggest about 1 inch per week. (Source: *Facts for Fancy Fruit, FFF05-06 July 29, 2005*)

Fall Herbicide Applications for Strawberries

Bruce Bordelon, Purdue University

A number of herbicides can be used on strawberries during late summer and fall to prevent weed germination, kill emerged weeds, and provide residue control until the following spring. The key set of weeds you need to control during this period are fall germinating winter annuals such as chickweed and shepherds purse. You may also need to control wheat, oats, or rye that come from seed in the straw mulch that you apply for winter protection.

Devrinol (napropamide) is a preemergence herbicide. It can inhibit rooting of daughter plants so it should be applied after early forming daughter plants have rooted. Late forming (after late August) daughter plants do not contribute to yield and Devrinol can be applied before these plants root. Devrinol must be applied before winter annuals and small grains emerge. Devrinol provides excellent control of small grains and some winter annuals such as chickweed. Devrinol must be moved into the soil by cultivation or water after application.

Dacthal (DCPA) is a preemergent herbicide that can be used in new plantings or immediately after renovation. It provides good control of many grasses and some broadleaves such as purslane and lambsquarter. Like Devrinol, it must be applied before weeds emerge.

Sinbar (terbacil) is primarily a preemergent herbicide but it has some postemergence activity against small susceptible weeds. Fall applications of Sinbar should only be applied after the strawberries are completely dominant. If Sinbar is applied to actively growing strawberries, injury can occur. Cultivars differ in tolerance to Sinbar. In general, less vigorous cultivars have greater injury. Applications are most effective when applied to the soil and activated by rainfall or irrigation. Sinbar provides excellent control of many winter annual weeds. Fall applications of both Devrinol and Sinbar will persist to the following spring.

Poast (sethoxydim) is a postemergent, grass specific herbicide. The grasses must be actively growing. Thus Poast should be applied in late summer or early fall before plants become dormant. Summer annual grasses, such as foxtails and crabgrass, will be killed by fall frosts, and do

not require Poast applications for control. Poast is more effective against annual than perennial grasses. Poast can be used in the fall to suppress perennial grasses such as quackgrass: control early emerging small grains, and kill winter annual grasses such as wild oats and downy brome.

A systemic, postemergence broadleaf herbicide, 2,4-D amine can be applied when strawberries are dormant to control some winter annuals. 2,4-D provides good control of many mustards and shepherdspurse, but is not very effective against chickweed. The herbicide should be applied to actively growing weeds. Be careful of 2,4-D drift causing injury to non-target plants. Check the label as only a few formulations are labeled for strawberries.

Gramoxone Extra (paraquat) can be applied as a directed spray between strawberry rows, using shields to prevent contact with strawberry plants. Gramoxone is a nonselective herbicide, so it will kill or severely injure strawberries it contacts. Gramoxone is a restricted use pesticide and is extremely toxic to animals including humans. It provides excellent control of annual grass and broadleaf weeds. Gramoxone does not extensively translocate in plants so it does not control perennial weeds. Weeds should be actively growing when Gramoxone is applied.

In conclusion there are a number of herbicide options that can be used on strawberries during the fall. Select herbicides that will control problem winter annuals and small grains. Herbicides such as Devrinol and Sinbar can provide residue weed control until spring. (*Source: Facts for Fancy Fruit, FFF05-06 July 29, 2005*)

RASPBERRY

New Blackberry Rust Invading the United States

Annemiek Schilder, Michigan State University

Earlier this year, a rust disease previously unknown in the United States was discovered on blackberries in Oregon. The fungus was identified as *Phragmidium violaceum*, which is being used as a biocontrol agent for Himalayan blackberry (*R. armeniacus/R. procerus*), a noxious weed, in Australia, New Zealand and Chile. It was first discovered on Himalayan blackberry in southern Oregon and later on Himalayan and Evergreen blackberries in the Willamette Valley and southwest Washington. As of yet, no other cultivated varieties of blackberries or raspberries have been found to be infected.

Identification

This disease is quite distinct from the usual leaf and cane rust. All green portions of both primocanes and floricanes can be infected. Wine-colored spots appear on the top of infected leaves. Directly under these spots, on the bottom of these leaves there will be circular patches of cream to yellow spore masses surrounded by a violet tinge. Older leaves close to the canes are the first to be infected and can eventually die. Defoliation of entire canes has been seen in severe cases. Spores may also be found on the blossoms and unripe fruit. More information and images of this rust can be found online at: <http://www.nwipm.info/blkrust-05.htm>

Host range

At this point, the rust is wreaking havoc in commercial 'Thornless Evergreen' and 'Everthornless' plantings in Oregon, but there is no indication that it affects any other commercial cultivars of blackberries or raspberries. Most of the varieties grown in California,

Washington and Oregon are not closely related to the susceptible varieties; however, many eastern varieties have susceptible species in their parental background. It is possible that this rust disease could spread to eastern plantings in the next couple of years. We do not yet know which varieties are susceptible, but varietal screening will be done.

Should Michigan growers worry?

There is no evidence that this disease has spread beyond the western United States at this point. However, it is good to be aware of the symptoms and to report any suspicious cases to MSU Extension personnel. The disease will not kill the plants outright, but will cause a decline and a loss of fruit production. In Michigan, plants weakened by the disease would probably suffer serious winter injury. Since rust spores are notorious for traveling long distances on air masses (think of soybean rust), it is not unthinkable that the disease could spread eastwards. In addition, the fungus could rapidly move to other areas of the country with planting material. It would therefore be wise not to obtain plants from Oregon or Washington unless they are from a reputable nursery and certified disease-free. Even then, it might be safer to obtain plants locally or from eastern nurseries. If the rust should appear in Michigan, we will likely be able to control it with available fungicides. In addition, we will be able to benefit from research done on control of this disease in the West. (*Source: Michigan State Fruit Crop Advisory Team Alert, Vol. 20, No. 15, August 9, 2005*)

BLUEBERRY

Cane Death

Gary Pavlis , Rutgers University

Farm visits over the last couple of days have turned up a number of canes dying from what used to be called winter damage. We now recognize that this wilting and death of individual canes during the summer can also be due to Phomopsis. Under severe disease conditions, several canes may be affected on a single bush. This fungus overwinters in infected twigs and canes, and produces infective spores. The greatest number of spores are released during bloom and petal fall and enter twigs or canes through injury sites, particularly those caused by winter damage, mechanical harvesters or early spring frosts.

Samples have been taken from canes suspected of having Phomopsis at several farms. As expected, Phomopsis was confirmed however stem blight, Botryosphaeria, was also confirmed. Like Phomopsis, this fungus enters the plant through wounds and causes rapid death of individual canes and entire bushes. This disease is especially severe on 1 and 2 year old plants of susceptible cultivars. In the field, the most obvious symptom is called 'flagging', stems recently killed by

the fungus do not drop their leaves. It should be noted that stem blight has recently been found most often in the 'Duke' variety.

Control of Phomopsis and Botryosphaeria depends largely on cultural methods. It is important to discourage late-season growth and promote early hardening off thus late-season fertilization, late-season weed cleanup and late-season irrigation should be avoided. Pruning to remove infected stems is the best method of reducing disease in established fields. Pruning serves two functions: 1) removes infections from bushes, preventing eventual death of the plant, and 2) reduces the number of spores released in the field by removing dead, spore bearing stems. Pruning can be done at any time infected stems are observed, but care should be taken to cut well below the infected area. After a stem is removed, examine the cut end of the remaining stem. If any brown areas are visible in this cross-section, a cut must be made further down the stem until all infected tissue is removed. (**Source:** *Blueberry Bulletin*, Vol. XXI, No. 17, Aug. 3, 2005)

Stunt Disease

Gary Pavlis, Rutgers University

The removal of a bush with stunt disease should never be attempted before some effort has been made to control the leafhoppers in it. The removal process could actually facilitate the spreading of the disease. The agitation of the bush will dislodge the leafhoppers, causing them to hop to another healthy bush, thereby transmitting the virus from a diseased bush to a healthy bush. Spray each diseased bush with a garden knapsack sprayer before it is rogued out. Malathion is safe to use and is effective against all stages of leafhopper. Spraying the entire field is not necessary at this time. In fields severely infected with stunt disease and in nurseries seeking NJ Department of Agriculture Certification, a special spray for leafhopper adults is needed. The leafhoppers are still in the wingless nymph

stage and usually do not start the flight period until late in August.

Stunt Symptoms are described as an overall dwarfing of the bush, hence the name stunt. Small leaves that are cupped downward or puckered are characteristic symptoms. Leaves on infected bushes are often chlorotic, with chlorosis most pronounced among the leaf margins and between lateral veins. Midribs and lateral veins usually retain normal green coloration. Chlorotic areas often turn a brilliant red in the later summer. Stem internodes become shortened, and growth of normally dormant buds caused twiggy branching. (**Source:** *Blueberry Bulletin*, Vol. XXI, No. 17, Aug. 3, 2005)

Tussock Moth Biology and Control in Blueberries

Rufus Isaacs, Michigan State University

The white-marked tussock moth (*Orgyia leucostigma*) can be a sporadic pest during blueberry harvest in Michigan, and later varieties are at greatest risk. By August, the larvae are getting big enough to be collected in the harvester, may be detected in the processing shed, and they can cause irritation and allergic responses if they are touched. Growers

sometimes need to control this insect if larvae are present in the fields during harvest.

Larvae hatch from an egg mass rolled inside a blueberry leaf, and they are brown and a few millimeters long at first. After molting to the second larval stage, they have a conspicuous red dot on segments six and seven. Full-grown larvae have a bright red head with a yellowish body, a pair

of upright pencil tufts of black hairs on the prothorax, and four white to yellowish brush-like tufts of hairs on the top of the body toward the head. They grow to about 1.5 inches long.

Young larvae chew holes in leaves when small, but as they grow, entire leaves can be removed by larvae that begin feeding at the leaf margins. There is no feeding on the fruit. When large numbers of larvae are present, sections of a bush can be completely defoliated.

However, larvae are primarily a pest due to their presence around harvest time, when their allergenic hairs irritate the skin of fruit pickers. Presence of larvae in mechanically-harvested fruit is also undesirable. Scouting of fields for first-generation larvae in mid-June can provide information on whether this pest should be controlled before re-entry and pre-harvest interval restrictions limit growers' options for controlling larvae near harvest.

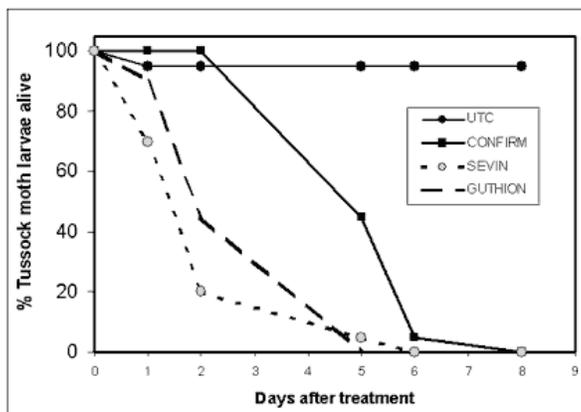
Regular scouting of bushes can provide an early warning of a tussock moth infestation. Larvae are often found on the underside of leaves, so turning over leaves with feeding damage can help locate larvae. Beware of the allergenic hairs and approach with caution! Past history of larvae in harvested fruit is a good indication of the need to be alert for their presence in the following year. In observations conducted this growing season, fields with good fruitworm control programs after petal-fall had much less tussock moth pressure at harvest.



Figure 1. Larva of whitemarked tussock moth feeding on blueberry foliage



Figure 2. Whitemarked tussock moth pupal case



insecticides if the spray is applied to reach where the larvae are feeding and walking. (Source: Michigan State Fruit Crop Advisory Team Alert, Vol. 20, No. 15, August 9, 2005)

Insecticides used for other moth larvae (e.g. Guthion, Sevin, Lannate, Confirm) are likely to also control tussock moth. The keys to successful control are: 1) Early detection during regular scouting, and 2) **excellent bush coverage** when spraying (including low in the bush). The larvae prefer the shady part of the bush and tend to be on the underside of leaves. If sprays are applied aerially or by a cannon sprayer, or if fields are weedy, it is very difficult for the spray to penetrate the foliage to where the tussock moths are feeding.

A test of insecticides was conducted by the Small Fruit Entomology Lab at MSU to compare their control of tussock moth. Untreated blueberry leaves were dipped in field rates of Sevin XLR (2 qts/acre), Guthion 50 WP (1.5 lb/acre) or Confirm 2F (16 oz/acre) and left to dry in a fume hood for one hour. Third stage tussock moth larvae were then placed on the foliage with these different treatments. All insecticides provided 100 percent control of the larvae, though they took different times to act. Sevin had the fastest effect with Guthion close behind, killing all of the larvae within four to five days of treatment. Other broad-spectrum insecticides effective for leafrollers are also likely to control tussock moth. Confirm is a selective insecticide that disrupts molting of moth larvae. This treatment took eight days to kill all of the larvae, but there was a similar low level of feeding in all of the insecticide treatments, because larvae on Confirm-treated leaves soon stopped feeding. These results indicate the potential for good control of tussock moth with these

GRAPE

Grape Berry Moth

Alice Wise, Cornell Cooperative Extension

A number of growers are reporting heavy grape berry moth infestations, heavier than usual. At the research vineyard, we thought we had an extraordinary amount of sunburn. Upon closer inspection, there was sunburn but GBM infested berries were also easy to find. We normally have little or no GBM damage. Growers are reporting GBM damage in blocks that have not been particularly susceptible in past years.

Why infestations are so high is anyone's guess. Could be that conditions in alternate hosts (wild vines) are not optimal. GBM winter survival is aided by snow cover, something we have had plenty of the last two winters. Also many of us have not applied as much insecticide this year as in previous seasons. We have applied only one Assail at the research vineyard. The hot weather may be promoting hatch and flight as well. Lack of control of GBM in the post bloom period (1st generation) has little to do with infestations seen now. The East End is filled with wild grapevines, which serve as alternate hosts. Being a mobile pest, GBM easily spills into vineyards from surrounding areas.

In speaking with entomologist Dan Gilrein and Finger Lakes Grape Specialist Tim Martinson (trained as an entomologist), we concurred that this is a 2nd generation infestation. Dan and Tim felt with the hot weather, a 3rd generation may appear this year. This means approximately late August to early September we may see a new flush of GBM damage. Note that generations are "sloppy" (Tim's word), that is, a generation does not occur over a clearly defined time period, rather it is more of a continuum.

Obviously, there is some direct crop loss. In upstate NY, they talk about a 6% infested berries threshold.

That is actually a fair number of berries. More worrisome is the threat of Botrytis infestation. Botrytis is opportunistic in that it attacks dead or injured tissue. While the weather is not particularly conducive to Botrytis, where dews and/or the spotty rainstorms have hit and/or where air drainage is limited. Botrytis could certainly take hold. A lot of cluster debris could also aggravate the situation.

Would treatment of this 2nd generation be warranted? Depends. In looking at berries, if you see a preponderance of small (1/4"), green larvae and fresh stings (new entrance holes made by young larvae), that is likely the start of a hatching cycle and an insecticide may help to limit damage. At the research vineyard, we have been seeing 1/2" brown larvae. These are almost ready to pupate. According to Tim, an insecticide would not be as effective under these circumstances.

Choice of material – best choice is what has worked for you in the past. The goal is to have insecticide present when the young larvae are hatching and taking their first bite of berry. Labeled for GBM: Biobit, Dipel, Entrust (all organically approved), Spinosad, Danitol, Sevin, Imidan. If berries suffer a 3rd generation attack, is treatment warranted? Perhaps on a red variety; it is a dicier decision for whites. Look for the fresh stings. Think hard about harvest date before applying an insecticide directed to the cluster zone.

Final comment: where there is substantial GBM infestation, timely and well-applied botrycides are warranted, particularly on susceptible varieties. This is the last thing vineyard managers want to hear at this time of year but scouting your vineyard will help you to make these decisions. Please feel free to comment and/or call to discuss conditions in your vineyard. (*Source: Long Island Fruit & Vegetable Update, No. 22, August 12, 2005*)

Controlling Botrytis Bunch Rot in Grapes

Annemiek Schilder, Michigan State Univ.

Botrytis bunch rot, caused by the fungus *Botrytis cinerea*, can seriously affect yield and quality of grapes. Tight-clustered varieties, such as Pinot Noir, Pinot Gris, Vignoles, etc, are most seriously affected. Late infections may actually be desirable as they shrivel up the berries and concentrate the sap: this is called "noble rot." Since the weather has been generally hot and dry, we may end up with less disease than in wet years unless the weather changes drastically in the weeks prior to harvest. Botrytis bunch rot may be confused with sour rot, which is caused by bacteria and yeasts.

The main difference is that clusters with sour rot smell distinctly like vinegar and do not support the gray sporulation typical of Botrytis. There are not many control options for sour rot, unfortunately.

Botrytis biology

Botrytis cinerea is a "weak" pathogen that primarily attacks highly succulent, dead, injured or senescent tissues such as wilting blossom parts and ripening fruit. The fungus thrives in high humidity and still air (optimum temperature: 59-77°F). Grape berries are most susceptible to infection after veraison. However, if *Botrytis* spores are available and wet

conditions prevail, berries can become infected anytime after bloom. Infection occurs through scars left by the fallen caps or by contact with sporulating floral debris. Infections often remain latent (dormant) until the fruit ripens or may not progress at all. However, the few that do activate can lead to rapid disease spread within the cluster as berries become highly susceptible upon ripening. Controlling infections at bloom provides no benefit if post-veraison weather is dry and doesn't support further disease development, but can pay significant dividends if the weather turns wet before harvest. In most years, fungicide applications at veraison and pre-harvest are more beneficial than earlier applications.

Factors that favor the disease

Factors that cause latent infections to activate are poorly understood, although high humidity and tissues with elevated nitrogen levels appear to promote this process. Cluster compactness also has a pronounced effect on disease development, due largely to rapid berry-to-berry spread. In addition, berries in tight clusters often crack due to pressure within the cluster, providing moisture and nutrients for growth as well as an entry point for the fungus. Insect or other injury, e.g., grape berry moth holes, can also lead to Botrytis as well as sour rot infection. Research in New York has shown that late powdery mildew infections (barely visible with the naked eye) of the berries can also predispose them to rots.

Control options

Promoting good air circulation by canopy management and leaf pulling is an important cultural option for managing Botrytis bunch rot. Avoid excessive leaf pulling, as berries may suffer from sun scald when suddenly exposed to sunlight and high temperatures. Sunscalding is usually restricted to the sides of the

berries exposed to the sun and will appear like browning and collapsing (flattening) of the affected berry surface. There are currently some excellent fungicides available for control of Botrytis bunch rot. Vanguard (cyprodinil) is absorbed by the blossoms and fruit, thus it appears to have some limited kick-back activity and doesn't wash off. The label allows two sprays per season. Do not rely on this single fungicide year after year, since it is highly prone to resistance development. Elevate (fenhexamid) is locally systemic, so it has limited kick-back activity and appears to be quite rainfast. Since it has a different mode of action from Vanguard, it can be rotated with Vanguard for resistance management. Rovral (iprodione), an older fungicide, does enter sprayed tissues, so it has limited kick-back activity and is a good anti-sporulant material. Activity is improved by mixing it with an agent that improves uptake into the fruit, such as oil or a nonionic surfactant. Since Rovral-resistant strains may have built up in some vineyards after repeated use, it should not be a primary component in rotational programs and should not be applied more than once per season. Several strobilurin fungicides have shown moderate to good activity, depending on the material and rate. Flint (trifloxystrobin) is now labeled for Botrytis control, although at a higher rate (3 oz/A) than that used for powdery mildew and black rot. Pristine (pyraclostrobin + boscalid) has good Botrytis activity, but also must be used at a higher rate than for other diseases. Two newer options include Endura (boscalid) and Scala (pyrimethanil). Experience with these products has been limited, but it appears that Endura will provide very good to excellent control at the high labeled rate, and moderate activity at the lower rate recommended for powdery mildew. Scala is in the same chemical group as Vanguard (so do not rely solely on these two products), and seems to perform fairly similarly to Vanguard. Rumor has it that this product is less expensive than Vanguard. (*Source: Michigan State Fruit Crop Advisory Team Alert, Vol. 20, No. 15, August 9, 2005*)

Grape Harvest

Bruce Bordelon, Purdue University

Grape harvest is getting near in the southern part of the state. As harvest nears, it is very important to monitor grape chemistry. Sampling should occur weekly leading up to harvest. Fruit quality is comprised of several factors of which the most important are sugars, acids, and pH. Other important factors are phenolics and anthocyanins, volatile terpenes, and other flavor and aroma compounds. Freedom from rots is also an important consideration. Unlike some other fruit, grapes do not continue to ripen after harvest. Consequently, it is extremely important to harvest grapes at the peak of quality and with the desired parameters for the intended

use. Fruit quality is the most important factor determining the quality of wine.

Winegrape growers should have the ability to monitor sugars (refractometer), titratable acidity and pH (pH meter and burette). Each of these factors is important in determining proper harvest time, but none alone can accurately estimate overall fruit quality. It is the balance of sugars, acids and juice pH that is important to the wine maker. Equipment and supplies for a small lab can be purchased for about \$250.

With winegrapes, all fruit of a given cultivar is usually harvested from the vineyard or block at a single time to coordinate winery activity and to reduce costs. The fruit is

bulked together for processing and eventually all the juice may be blended into a single tank. It is important to carefully plan the harvest date to coincide with the optimum fruit quality from the entire vineyard.

Most vineyards have some degree of variability in aspects such as soil type and drainage, sunlight exposure, wind, insect and disease pest, nutritional status, etc. These variations can have a significant effect on fruit ripeness on specific vines. In addition to variations between different parts of the vineyard, fruit from adjacent vines as well as from different parts of the same vine can vary. These differences are caused by differences in crop load (pounds of fruit/vine size), cluster position, degree of sun exposure, vine vigor, and

so on. Much of the variability can be reduced with proper vineyard management.

In order to estimate the juice parameters on the entire crop after harvest and processing, growers must accurately sample the vineyard. On a small, well-managed vineyard block with minimal variability, a sample of 100-200 berries might give a good estimation. However, on a larger vineyard with considerable variability in fruit maturity, it may take a much larger sample to accurately estimate the final juice chemistry. Growers should make every effort to accurately estimate fruit maturity before harvest begins. A workshop is planned for September 12 (see notice below) to discuss this topic. (*Source: Facts for Fancy Fruit, FFF05-06 July 29, 2005*)

Midwest Grape Production Guide Now Available

Bruce Bordelon, Purdue University

A new comprehensive guide is available in the Midwest covering all aspects of wine and table grape production in colder regions of the US including the Midwest and Northeast. It describes the physiology of the grapevine; site and variety selection; vineyard establishment; cultural practices including pruning; training; canopy management; soil management and fertilization; disease and pest management including weeds, insects, and wildlife; and harvesting and marketing. Whether you are a novice or a seasoned grower, this guide will suit your needs and answer most of your questions regarding growing grapes in the Midwest.

Over 30 years of research and over 100 years of combined experience and expertise from specialists at the Ohio State University and Purdue University, plus industry and grower experience and innovation are brought together in this production guide, sure to be an invaluable resource for the grape grower.

This 155-page guide is generously illustrated with 114 colored photographs and drawings, 18 tables, and a pullout centerfold illustrating step-by-step vine training and common training systems. A detailed appendix outlines additional viticulture resources and a glossary of common terms.

Copies of the new book will be available at our Purdue Grape and Wine Workshop in September. The cost is \$15. Copies may also be purchased from Media Distribution, Communications and Technology, The Ohio State University, 385 Kottman Hall, 2021 Coffey Road, Columbus, OH 43210-1044. Phone: 614-292-1607. Fax: 614-292-1248. Email: pubs@ag.osu.edu. Visa and MasterCard accepted. (*Source: Facts for Fancy Fruit, FFF05-06 July 29, 2005*)

General Information

End-of-Year Weed Scouting

A. Richard Bonanno, UMass Extension

It is worthwhile to take the time to check your fields for weed problems at this time of year. A quick scouting can alert you to problems that will be expensive to solve if they get out of control and can give you clues that will help you in designing your weed management program for next year.

Things to look for when you scout:

How Many? How dense are the weeds? If weeds are very dense, they may be having an impact on your

ields. This is especially true if these weeds emerged early in the season, when competition is greatest. If weeds come into your field during the period of greatest crop growth, you may want to consider changing your weed management program.

Which Weeds? Identifying weeds can help you identify potential problems before they get out of hand, and can help you decide if you need to modify your weed control program. Weeds like yellow nutsedge, hedge bindweed, and quackgrass are spreading perennials, which have

underground parts that enable them to spread throughout whole fields. Because these weeds can be very damaging, and are very difficult to control, they are worth "nipping in the bud." In addition, keep an eye out for annual weeds, which are new to your field or increasing in numbers. Some weeds can be very difficult to control in some or all of the crops in your rotation. Galinsoga, for example, is hard to control in cole crops, peppers, and squash. Nightshades are difficult to control in tomatoes for growers who rely on herbicides for control, because they are in the same family as tomatoes. Velvetleaf is hard to control in sweet corn. Spot treatment with Round-up, or hand pulling or hoeing, is worthwhile to eradicate small patches of particularly threatening weeds.

What worked? It is also useful to look at the whole field and evaluate the effectiveness of your weed control efforts. If some weeds are generally escaping, identify them. They may point to weaknesses in your herbicide or cultivation program. If mostly grasses, or mostly broadleaves are escaping, it may mean you need to adjust either the rates or the timing of your grass or

broadleaf herbicides. You may also find the New England Small Fruit or Vegetable Management Guides useful. These manuals contain charts listing the effectiveness of herbicides on most of the common weeds in New England. You can use these guides to find an herbicide labeled for your crop which might give better control.

Where are the weeds? Weeds in the rows or planting holes are much more damaging to crop yields than between-row weeds. Weeds in rows may be an indication that cultivation equipment needs adjustment, or cultivation needs to be done earlier. Mapping weedy spots, and keeping some kind of permanent record of weed surveys, can help you evaluate your weed management over the years.

What to do now? Once crop harvest and weed scouting is complete, disk or till the fields to destroy existing annual weed growth and to reduce or prevent weed seed dispersal. If perennial weeds such as bindweed or quackgrass are present, consider an application of Roundup before cold weather arrives. Time spent on these tasks now will greatly improve your level of weed management next season.

New England Vegetable & Berry Growers Association recognized among Sixteen Leaders In Pesticide Stewardship

Rick LeBlanc, Massachusetts Dept. of Ag. Resources

Sixteen members of the Pesticide Environmental Stewardship Program (PESP) were recognized for their efforts in preventing pollution and reducing pesticide risk at a ceremony July 15 in Arlington, Va. The 2005 "PESP Champions" used most or all of the following integrated pest management (IPM) strategies to reduce the human health and environmental risks associated with pesticide use: (1) sampling to accurately determine pest population levels; (2) training and demonstrating IPM practices; (3) employing cultural practices such as crop rotation or removing food and habitat for structural pests; (4) controlling or managing pests through biologically based technologies; (5) applying less toxic or reduced-risk pesticides such as insect growth regulators; and (6) using conventional pesticides only when absolutely necessary.

The 2005 "PESP Champions" are:

Audubon International Cooperative Sanctuary Program, Selkirk, N.Y.; Bay Area Storm water Management Agencies Association, Oakland, Calif.; Central Coast Vineyard Team Paso Robles, Calif.; Edison Electric Institute, Washington, D.C.; General Mills, Inc., Minneapolis, Minn.; Glades Crop Care, Inc., Jupiter, Fla.; IPM Institute of North America, Inc., Madison, Wis.; Lodi-Woodbridge Winegrape Commission, Lodi, Calif.; **New England Vegetable & Berry Growers Association, Methuen, Mass.**; North American Pollinator Protection Campaign, San Francisco, Calif.; Steritech Group, Inc., Charlotte, N.C.; Southwest School IPM Technical Resource Center, Dallas, Texas; University of Wisconsin - Center for Integrated Agricultural Systems, Madison, Wis.; U.S. Department of Defense, Washington, D.C.; U.S. Hop Industry Plant Protection Committee, Moxee, Wash.; and Walnut Marketing Board, Sacramento, Calif.

Launched in 1994, the Pesticide Environmental Stewardship Program is a voluntary public/private partnership to reduce pesticide risk. More information on the accomplishments of the 2005 PESP Champions is available at: <http://www.epa.gov/oppbpd1/PESP/>

Agricultural Chemical Collections for Producers of Agricultural Products on Cape Cod

Marilyn B. Lopes, Cape Cod Cooperative Extension

Cape Cod Cooperative Extension, collaborating with the Massachusetts Department of Agricultural Resources and Veridium Environmental Services, is sponsoring FREE collections of agricultural chemicals

for producers of agricultural products. The Massachusetts Department of Agricultural Resources is paying for the disposal costs through an EPA grant to reduce stores of no longer registered and unused agricultural chemicals.

In order to participate, you will need to return the Disposal Response Form with:

- a list of all the pesticides you wish to dispose of, with estimated weight or volume;
- your business name, mailing address, phone number and pesticide applicators license number (if you have one), which will be kept confidential; and,
- the collection in which you will participate, two weeks in advance of the date.

You may participate in any collections listed on the schedule of collections for 2005-2006, but you are restricted to transporting no more than 55 gallons or 440 pounds of product at one time. You will find information about accumulation, storage and

transportation of hazardous materials on our website capecodextension.org under Agricultural Pesticide Collections for Producers.

Contact: Marilyn B. Lopes
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Upcoming Meetings

UMass Extension - Weed Identification Workshops

Correct weed identification is an important first step in the development of an effective weed management program. Using a classroom presentation, potted weed herbarium and weed walk, UMass Extension Specialist Randy Prostack will help participants enhance their weed identification skills. Feel free to bring a weed or two to identify. Workshop held rain or shine (lunch not provided), 9 am - 3 pm.

4 pesticide contact hours available; MCLP and MCH credits will be offered.

Grassy Weeds in depth

Sept. 1 - Amherst

Cost \$90/person (pre-registration required, space is limited). Registration is first-come, first-served through the mail. For a registration form, go to www.umassgreeninfo.org or call (413) 545-0895.

September 12, 2005 - Grape and Wine Fall Workshop: a workshop for grape growers and wine makers that will focus on vineyard sampling and fruit processing in the winery. The workshop will be held on the Purdue campus in West Lafayette. For more information visit our web site at <http://www.indianawines.org> and click on Events or call Jill Blume at 765-494-1749. Registration is required and space is limited.

October 14-15, 2005. Passive Solar Greenhouse Workshop. 1522 Lefever Lane, Spring Grove, Pennsylvania. **Contact:** Steve and Carol Moore (717) 225-2489.

October 14-15, 2005. Highbush Blueberry Council (USHBC) Fall Meeting, Amway Grand Plaza Hotel, 187 Monroe NW, Grand Rapids, Michigan. **Contact:** 616-885-2000

December 6-8, 2005. Great Lakes Fruit, Vegetable, and Farm Market EXPO. DeVos Place Convention Center, Grand Rapids, Mich. www.glexpo.com.

December 13, 14, 15, 2005 – 2005 New England Vegetable & Fruit Conference, Expo Center of New Hampshire, Radisson Hotel, Manchester New Hampshire. For more information see <http://www.nevbc.org/>.

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.