



# Berry Notes

Prepared by the University of Massachusetts Fruit Team

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## IN THIS ISSUE:

### CURRENT CONDITIONS ENVIRONMENTAL DATA STRAWBERRY

- ❖ Strawberry Fall Check-List

### BRAMBLES

- ❖ Raspberry Fall Check-List
- ❖ Fire Blight Update: Information for High Tunnel Raspberry Growers

### BLUEBERRIES

- ❖ Highbush Blueberry Fall Check-List
- ❖ Leafhoppers and Stunt

### GRAPES

- ❖ Evaluating Grape Samples for Ripeness
- ❖ Management of Bunch Rot Diseases in Grapes
- ❖ Eastern Table Grapes: Is it time to build an industry?

### GENERAL INFORMATION

- ❖ USDA Reminds Producers of Sept. 16 Waiver Deadline
- ❖ National Farm Safety and Health Week, Sept. 21-27, 2008
- ❖ Managing Cover Crops With Rolling and Crimping Techniques

### UPCOMING MEETINGS

## Current Conditions:

**Strawberry** fields remain quiet at this time of year. Dayneutral varieties are still fruiting. Annual production or plasticulture fields are being planted now. 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. Check new fields for evidence of potato leafhopper burn and evaluate older fields for the level of foliar diseases. **Highbush Blueberry** is winding down. Survey fields for weak bushes and determine whether or not Blueberry Stunt may be the cause (see more on this below). 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. **Summer raspberry** harvest is done. Be on the lookout for Orange Rust on black raspberries and blackberries. **Fall raspberries** is in full swing. Botrytis fruit rot is still a threat, especially during wet weather. Be sure to provide irrigation (drip preferred) so the canes can size up the fruit. Also check for mites and leafhopper damage. **Grapes** are approaching harvest. Harvest for early season table grapes is already underway. Scouting for disease and insect levels and taking corrective action are still important activities now. Downy Mildew seems to be prevalent in susceptible varieties this year. Prepare for wine grape harvest by checking fruit ripening parameters regularly. Mite infestations can build up quickly at this time of year. Be sure to check the underside of your leaves.

## – 2008 New England Small Fruit Pest Management Guide –

This guide has been extensively updated and is now available for purchase for \$12 plus \$4 shipping and handling. Orders (including credit card purchases) can be placed via the UMass Fruit Team website at <http://www.umass.edu/fruitadvisor/fruitsubscriptions.htm>. (Scroll down for links to pest mgt guides.)

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## ENVIRONMENTAL DATA

The following growing-degree-day (GDD) and precipitation data was collected for a two-week period, August 20, 2008 through September 2, 2008. Soil temperature and phenological indicators were observed on September 2, 2008. Accumulated GDDs represent the heating units above a 50° F baseline temperature collected via our instruments from the beginning of the current 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	2008 GROWING DEGREE DAYS		Soil Temp (°F at 4" depth)	Precipitation (2-Week Gain)
	2-Week Gain	Total accumulation for 2008		
Cape Cod	243	2,187	78°F	2.00"
Southeast	n/a	n/a	n/a	n/a
East	254	2,242	65°F	0.00"
Metro West (Waltham)	247	2,230	58°F	0.03"
Metro West (Hopkinton)	n/a	n/a	n/a	n/a
Central	199	2,015	65°F	0.00"
Pioneer Valley	225	2,104	72°F	0.26"
Berkshires	255	2,277	70°F	0.22"
AVERAGE	237	2,176	68°F	0.42"

*n/a = information not available*

(Source: UMass Extension 2007 Landscape Message #22, Sept. 4, 2008)

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## 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 herbicide you should consider using is Poast® for controlling grasses. Poast® 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 with Poast® 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. Weed management later in the fall can include applications of preemergent materials such as Devrinol® and Sinbar®.

√ **Diseases:** Clean up severe infections of leaf spot and powdery mildew. Nova® and Pristine® may be a good materials for this use. 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® or Phostrol® in September or early October in areas where Red Stele has been identified. 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 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 diseases and should not be allowed to build up especially when they are in the winged form and can disperse to other fields.

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## RASPBERRY

### 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. Do not remove spent floricanes until later in the winter unless they are significantly infected with disease. 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® (dichlobenil) for preemergent control of broadleaf weeds next spring should be made only when temperatures are below 40°F, preferably just before rain or snow.

√ **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® are additional materials available for this use. Frequent harvesting and cull-harvesting are the best practices, but are expensive and impractical in many cases. 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 yellowjacket, 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.

### Fire Blight Update: Information for High Tunnel Raspberry Growers

*Laura McDermott, Cornell Cooperative Extension*

New York State tree fruit growers are familiar with Fire Blight caused by the bacteria *Erwinia amylovora*. A slightly different strain of this disease also affects other members of the rose family, including brambles. At this time, NY growers have only occasionally seen Fire Blight on raspberries and thornless blackberries in the field. But, since we are encouraging growers to consider growing raspberries in high tunnels, the fire blight challenge faced by growers in other regions is worth exploring.

Fire Blight has posed a problem for raspberry growers in Wisconsin, the mid west and Canada and has been reported in many states surrounding New York. Recently it was reported that a few high tunnel plantings of containerized raspberries outside of NYS had been infected by Fire Blight. The farm with the reported problem has been testing varieties such as Joan J, Polana and Himbo Top. All plants are containerized and grown in a high tunnel.

**Resources:** For information on this topic we looked to Dr. Steven Beer, with the Dept. of Plant Pathology at Cornell

University. Dr. Beer has been working with Fire Blight for many years, and is presently involved with characterizing the genome of *E. amylovora* and genetically engineering more effective strains of non-pathogenic bacteria for use in biological control of fire blight. Dr. Beer's lab has been collecting samples of fire blight in raspberries for a few years as he tries to uncover the genetic basis of host-specificity of strains of the fire blight pathogen for plants of two subfamilies of the Rosaceae family.

The other source of information has been Dr. Gordon Braun who works for Agriculture and Agri-Food Canada in Nova Scotia. His work entails developing new crop management strategies to help control plant disease. He has been studying the epidemiology and molecular biology of *Erwinia amylovora* in raspberry in hopes of finding alternate control strategies for this disease in all fruit crops.

A concise fact sheet from the University of Wisconsin can be found at <http://learningstore.uwex.edu/pdf/A3499.pdf>.

**Symptoms:** Fire Blight in raspberry has two different infection phases; the flower infection phase and the primocane infection phase. *E. amylovora* survives through the winter by moving close to the soil line in infected primocanes. As new lateral shoots develop in the spring, the bacteria moves up the cane into the fruiting lateral. The first sign of infection that a grower might see would be the bacterial ooze which would appear as milky droplets on the laterals when it is very humid or wet. This is the source of inoculum for the flower infection phase. In the field, rain is considered the primary vector, but studies on fire blight in raspberries indicate that a wide assortment of insects including tarnished plant bug, ants, spittle bugs and earwigs were responsible for the disease spread. Insects certainly are moving the disease in a high tunnel.

Upon infection the mid-veins of leaves of the fruiting laterals, beginning at the leaf stem, become black. This veinal discoloration moves rapidly toward the leaf margins. Laterals will wilt, exhibiting the classic "shepherd's crook" appearance (*photo right, courtesy of A. Schilder, Michigan State University*). The stalk of the fruit cluster becomes infected and turns black and the young, developing berries become hard and dry.

Infected fruiting laterals are also the source of bacteria that cause primocane infections. Stinging insects, like

tarnished plant bug, have been implicated as vectors for these infections. The tender tissue of newly emerged canes succumbs quickly to infection. Just like the fruiting laterals, as the bacteria moves in the tissue, leaf tissue surrounding the veins blackens, the leaf withers and dies.

**Management:** At this point there are no chemical controls for Fire Blight on raspberries grown in a field, tunnel or greenhouse situation. A few biocontrol materials have been tested, but little information about efficacy is available and the materials are not labeled. Good cultural management is imperative.

1. Purchase and plant only certified, disease free plants from reliable nurseries.
2. Remove and destroy diseased canes as soon as you see them. Disinfest pruning shears with a 10% solution of household bleach between each cut. This strategy has the potential to make the problem worse, especially if pruning is not done with great care.
3. Remove all primocanes in the fall, so that there is no disease inoculum present in the spring. The disease does not overwinter in the soil or the crown of the plant. This strategy is a challenge to accomplish with a small planting.
4. Manage insect pests to avoid spread of the disease. In a high tunnel this could mean screening, but there is little information to suggest that this would decrease disease incidence or be economically feasible.
5. Fertilize appropriately. Vigorous growth is most at risk.
6. Orient rows and prune and thin plants to maximize air circulation around the plants. This will help lower the humidity within the canopy.
7. Destroy wild brambles as they may be the source of the fire blight inoculum.

Many cultivars were screened for their relative susceptibility to *E. amylovora* by Canadian researchers (HortScience 39(6):1189-1192, 2004). Just a few cultivars were found to have some degree of resistance but that resistance may be related to the amount of apical growth the plants produce. Short lengths of tender apical growth resulted in less fire blight infection. (*Source: New York Berry News, Vol. 7, No. 9, Sept. 2008*)

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## 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® (dichlobenil) for preemergent control of broadleaf weeds next spring should be made only when temperatures are below 40°F, preferably just before rain or snow.

√ **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 a 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](http://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. More on this below. In eastern areas of the state, growers are concerned about infestations of Winter Moth. Go to [http://www.umassgreeninfo.org/fact\\_sheets/defoliators/wm\\_id\\_man.html](http://www.umassgreeninfo.org/fact_sheets/defoliators/wm_id_man.html) for more information on this alarming new pest. For now, growers should know that any moths seen flying in their plantings are likely NOT Winter Moth or Canker Worm moths. These moths do emerge and begin flight until November.

### Leafhoppers and Stunt

*Gary Pavlis, Rutgers University*

Stunt disease of blueberry plants is caused by a mycoplasma-like (MLO) organism as previously stated. MLO's are microscopic organisms that have no definite shape, unlike uniformly shaped types of bacteria or viruses. The MLO of stunt disease live mostly in the transport tissues of the plant, primarily in the phloem.

Leafhoppers of many species feed on plants by piercing the surface of leaves or stems and sucking juices from the phloem tissues. Any leafhopper feeding in the phloem of a stunt-infected blueberry plant has the potential to pick up some stunt MLO in its meal. Fortunately, only one species of leafhopper is known to be able to harbor these MLO's in its body and transmit them to other plants. This is the blueberry sharp-nosed leafhopper, *Scaphytopius magdalensis*. This leafhopper

feeds and reproduces on a relatively wide range of blueberry cultivars and on the wild blueberry which grows nearly everywhere in the pinelands of New Jersey. Sharp-nosed leafhoppers are not pest unless the following steps are completed:

- 1) They must feed on stunt-infected plants.
- 2) They must move to healthy plants.
- 3) They must feed long enough to transmit the MLO to the plants.

Stunt disease will spread quickly if these three steps are favored by the particular situation in a blueberry field. Disrupting any of these steps to a sufficient degree can reduce the spread of stunt disease.

Of course, getting rid of all leafhoppers in an area would halt the spread of stunt disease. This is a very impractical solution, since the wild blueberry plants in our area provide for a large population of leafhoppers in the areas around our cultivated fields. We can't control the development of these populations, so we must defend our cultivated plantings from them. We do this with insecticide treatments, made during the periods when adult leafhoppers are active. Only adult leafhoppers have wings and the ability to move great distances, so these are the real pests in the stunt disease problem.

Pesticides can affect only the second and third steps of stunt disease spread listed above. Leafhoppers are either killed before they reach healthy plants or they die before feeding long enough to transmit the MLO to a new plant. Errors in detecting the presence of adult leafhoppers and problems with the timing of pesticide

treatments make it difficult to achieve 100 percent stunt control by chemicals alone.

This is why the roguing of disease bushes provides an important factor in stunt disease control. Stunted bushes are easy to find especially when symptoms become bold in the fall. Attacking the stunt disease transmission cycle at steps one, by the removal of infected plants, is both simple and very effective.

Remember that it is highly recommended to spray stunt-infected plants with a short residual insecticide like Sevin or Malathion before the plant is removed. This will keep any MLO carrying leafhoppers on the infected plant from dispersing to healthy plants when the infected bush is disturbed during removal.

Many growers have told me they have trouble identifying stunt. Plants with this disease are usually the first to turn red in the fall. This may help with identification. (*Source: Blueberry Bulletin, Vol. 23, No. 22, August 27, 2007*)

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## GRAPE

### Evaluating Grape Samples for Ripeness

*Joe Fiola, University of Maryland*

It is critical to properly monitor and assess the fruit characteristics and maturity to make the appropriate management, harvesting, and winemaking decisions to produce the best quality grapes and wine possible. The last "Timely Viticulture" described how to take a proper sample that best represents the actual ripeness stage of the variety in that vineyard. The next step is set the priorities that will optimize fruit quality and give you the opportunity to make the best possible wine and then evaluate your sample based on that criterion.

- **The critical principals here are that high quality wine is the confluence of fruit derived flavor and aroma components and for red grapes also the reduction of immature tannins.**
- **These do not necessarily correspond to "desired" sugar and acid ranges.**
- **The highest priority needs to be the quality and quantity of varietal aroma/flavor in the fruit.**
  - *Simply stated, to obtain a desired characteristic aroma or flavor in the wine, it must be present in the grapes at the time of harvest!*
  - *By regular, continuous sampling you will learn through experience the succession of aromas, flavors and textures that each variety goes through.*
  - *Depending on the degree of ripeness red grape characteristics can range from green and herbaceous to fruity and "jammy."*
  - *Therefore the individual sampling must be diligent to monitor for that aroma and/or flavor in the sample.*
- **The next highest priority, especially for red wines, is the texture of the grape tannins in skin and the seed.**
  - *These quality and quantity of the tannins determine the structure, body, astringency, bitterness, dryness, and color intensity of the wine. Mature tannins are critical to the production of quality red wines.*
  - *The degree of ripeness and polymerization of the tannins will determine the astringency and mouth feel of your wine.*
    - *This can range from the undesirable, hard and course tannins of immature grapes, through to the desirable, "supple and silky" profile of mature grapes.*
- **Procedure:**
  - *Select a few random grapes and place them in you mouth. DO NOT look at the cluster when you are choosing the grapes because you will tend to pick more ripened berries.*
  - *Without macerating the skins, gently press the juice out of the berries and assess the juice for sweetness (front of tongue) and acid (back sides of your tongue). With experience (and comparison against*

- numbers from lab samples) you will be able to reasonably guesstimate the Brix and TA level of the grapes.
- Next gently separate the seeds from the skins and “spit” into your hand. The color of the seeds gives you a clue to the level of ripeness. Green seeds are immature, green to tan and tan to brown seeds are maturing, and brown seeds are mature. Ripe seed tannins are desirable as they are less easily extracted and more supple on the palette.
  - Finally macerate the remaining skins and press them in your cheeks to assess the ripeness of the skin tannins. You will be able to “feel” the astringency (pucker) of the skins. The less intense the astringency the more ripe the grapes.
    - A good way to practice is to first sample an early grape variety such as Merlot and then immediately go to a later variety such as Cab Sauvignon, and you will feel the difference in the acidity, astringency and ripeness.
  - **Of course, other factors must still be considered, such as the total acidity and pH**
    - Generally you would like to harvest white grapes in the 3.2-3.4 pH range and reds in the 3.4-3.5 range, as long as the varietal character is appropriate as described above. Remember the enologist can do a good job adjusting acidity but it is almost impossible to increase variety character in the wine.
  - **Brix or sugar level is good to follow on a “relative” scale but levels can greatly vary from vintage to vintage.**
    - In some years the grapes will be ripe and have great varietal character at 20 Brix and another year they may still not have ripe varietal character at 23 Brix.
  - **Disease/Rot - Monitor to see if the grapes are deteriorating do to fruit rots or berry softening.**
  - **Look at the short and long range forecast.**
    - If it looks good and the grapes have the ability to ripen further, then there may be a benefit to letting them hang a bit longer.
    - If the tropical storm is on the way....
    - When grapes are close to optimal ripeness, it is more desirable to harvest before a significant rainfall than to wait until after the rain and allow them to build up the sugar again afterwards.

## **Management of Bunch Rot Diseases in Grapes**

*Annemiek Schilder, Michigan State University*

There are several late-season bunch rots that can affect wine grapes in Michigan. The most common of these is Botrytis bunch rot caused by *Botrytis cinerea*, the same fungus that causes gray mold in a number of other crops. Botrytis bunch rot got an early start this year in Michigan vineyards. Tight-clustered varieties such as ‘Pinot gris’, ‘Pinot noir’, and ‘Vignoles’ are particularly susceptible to Botrytis bunch rot. Another, more sporadic bunch rot disease is sour rot, which smells distinctly of vinegar due to the presence of acetic acid bacteria. Often other organisms are also involved in sour rot, including various fungi and yeasts. Damage can be extensive because infections that begin in a single berry can rapidly spread to adjacent berries and destroy most or all of a cluster. While under cool, dry conditions, Botrytis bunch rot sometimes can be beneficial for wine quality (“noble rot”), sour rot is very undesirable.

### **Disease symptoms**

Bunch rot often begins in one or a few berries, usually at the site of an injury, and then spreads rapidly throughout the cluster. Generally, rotting berries turn brown and become soft, collapse or shrivel up. Specific pathogens are sometimes identifiable by their appearance. Botrytis produces gray spores, whereas

Penicillium produces green spores, and Aspergillus and Rhizopus have dark brown or black spores. Sour rot often has a wet look to it, with berries collapsing and leaking juice and no visible mold growth. It also results in the typical vinegar smell from which the name sour rot is derived. Fruit flies are often present and are thought to spread the disease. Botrytis bunch rot can sometimes also be confused with Phomopsis fruit rot; however, Phomopsis usually does not produce visible mold (only small black pimples) on berries, does not smell, and is characterized by a black or dark brown necrosis on the rachis and a browning and shriveling of the berries, much like a balloon that is being deflated. Phomopsis-infected berries are not leaky and tend to drop off when the berry stem is killed.

### **Factors that favor disease development**

Tightness of fruit clusters as well as injury to the berries are the primary factors influencing bunch rot development. As berries ripen and sugar content increases, injured fruit become increasingly susceptible to bunch rot pathogens. Other than *Botrytis cinerea*, which can directly penetrate intact berry skins under conditions of prolonged moisture or very high humidity, most other bunch rot organisms are opportunistic pathogens that live on plant surfaces and can only cause infections if they gain entry to the berry through wounds. Examples are injuries from fruit splitting due to



internal pressure, bird and insect feeding, hail, and rain splitting. Entry holes created by grape berry moth larvae are a common cause of bunch rot as well. Similarly, early-season feeding injury from thrips can cause scarring on fruit skin that reduces its elasticity, resulting in small cracks as the berry grows. Fruit flies that are attracted to rotting or overripe fruit may also play a role in development and spread of sour rot. In addition, infection by the powdery mildew fungus creates small dead spots on the berry skin, which can lead to cracking of the berry and possible invasion by bunch rot pathogens. Even inconspicuous powdery mildew colonies resulting from late-season infections can increase the severity of bunch rot. We have to remember that these microorganisms operate on a very small scale, so that even microscopic wounds that are invisible to the naked eye can lead to infection. Bunch rot is more common in grape varieties with tight clusters that may experience fruit abscission or splitting from growth pressure. Any juice leakage from cracked or abscised berries also boosts growth of fungi, yeasts, and bacteria. In addition, wet weather during fruit ripening also favors bunch rot, and the longer the wet period, the greater the amount of rot. Therefore, grapevines with dense canopies that dry slowly and maintain high humidity have an increased risk of bunch rot.

#### **Disease management strategy**

One of the main goals in managing bunch rot diseases is to minimize injuries to berries that enable bunch rot pathogens to get established. Reducing the number of

berries per cluster on tight clustered varieties would be the best method and may be possible by mechanical or chemical means. However, research is currently being done at MSU to determine a safe way to do this. In addition, effective management of grape berry moth and powdery mildew will greatly reduce the risk of bunch rot in many vineyards. In addition, promoting good air circulation within the grapevine canopy also reduces the risk of bunch rot. Canopy management methods aimed at improving air circulation and reduce humidity include leaf removal in the fruit zone, shoot positioning, shoot thinning, and hedging. Limit excessive vegetative growth by balance-pruning and avoiding excess nitrogen fertilization.

There are a number of fungicide options for control of Botrytis bunch rot, including Rovral, Vangard, Scala, Endura, and Elevate. However, these are generally ineffective against sour rot organisms. Captan, as a general broad-spectrum fungicide, is sometimes used to control a variety of bunch rot fungi, but does not have activity against bacteria.

There are two products that have sour rot listed on the label: BlightBan A506 (*Pseudomonas fluorescens* A506) and Serenade Max (*Bacillus subtilis* QST 713). Both are biological control products containing bacteria that are antagonistic to a variety of other microbes. Both are strictly protectants, so thorough coverage is important. Small plot and on-farm trials have not shown much efficacy of Serenade against sour rot and BlightBan A506 is being evaluated this year for efficacy. (*Source: Michigan Fruit Crop Advisory Team Alert, Vol. 23, No. 16, August 19, 2008*)

### **Eastern Table Grapes: Is it time to build an industry?**

*Steve Bogash, Penn State University*

The commercial production of Eastern Table Grapes and the subsequent development of supportive marketing has been proposed by many Land Grant University researchers and plant breeders (Fiola, 2001 & Reisch 2002) for at least 25 years. During this period many cultivars have been developed in New York, Arkansas, Michigan and Ontario. As has been the experience in every grape-growing region, specific cultivars have attributes that either identify them as appropriate and profitable to produce or of limited use. A grape that is successful in one region is often much less successful elsewhere based on climate, soil type, etc.

Huge increases in the cost to ship products from anywhere, but most especially California, coupled with the resurgence in demand for locally grown products may have shifted the balance in favor of increasing production of Eastern Table Grapes. Another factor worthy of consideration is the increasing diversification by traditional tree fruit growers in the Mid-Atlantic away from strictly apples and other tree fruits into a

growing list of specialty crops including small fruit, vegetables and cut flowers. Operations that formerly relied heavily on sales of processing apples have now broadened their focus to include a wide array of fresh market and value-added products serving both the organic and traditional produce marketplaces.

The question I have posed with Dr. James Travis is: Is it time to develop an Eastern Table Grape Industry? There are now 2 plantings of the following grape cultivars installed in the Biglerville, PA area: Steuben, Einset, Himrod, Marquis, Mars, Reliance, Saturn, Vanessa, Jupiter, Venus, Glenora, and, Seneca. One planting is located at the PSU Biglerville Fruit Research and Extension Center (FREC), and the other at Beechwood Orchards. Planning for this project started in 2006 with the majority of the installation in 2007. Due to the extremely dry conditions in 2007, some plants required replacement in the spring of 2008.

Prior to this project, plantings using many of these same cultivars have been placed at the University of Maryland Western Maryland Research and Education Center as well as Cornell Finger Lakes facilities. As with any issue



involving individual taste buds, there is substantial room for discussion when it comes to specific cultivars and their flavors. As a long time consumer of table grapes, I feel somewhat comfortable making the observation that in general, Eastern table grapes have stronger flavors than most of the grapes found in supermarkets when the source is Chile or our West Coast.

When shipping was inexpensive, it was very difficult to economically produce table grapes that were competitive with California. Many growers that I've visited over the years have small plantings of Concord, Himrod, Canadice, Lakemont and some other varieties that were managed as niche plantings, but with little commercial significance. The generally longer growing season and milder climate in California produces large yields of grape varieties that are all but impossible to grow here. High shipping costs, equally high labor costs, and the demand for locally grown products have

changed the formula. These factors significantly change the balance, making it time to reconsider locally produced table grapes.

Many questions remain: What varieties will meet the demands of the marketplace? What are the best methods to manage these grapes including trellising and pest management? And, What are the economics of producing them? As these 2 plantings mature and come into production in 2009, we hope to begin answering these questions.

Funding for this project has been provided by the Pennsylvania Vegetable Growers Association, small fruit funds and the Pennsylvania Department of Agriculture. (*Source: Pennsylvania Fruit Times, Vol. 27, No. 8, August 2008*)

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## GENERAL INFORMATION

# USDA NEWS RELEASE FSA

## USDA Reminds Producers of Sept. 16 Waiver Deadline

*Ted Smiarowski, USDA/FSA Franklin Cty MA*

Ted C. Smiarowski, Executive Director of USDA's Farm Service Agency in Hampshire/Hampden/Franklin Counties today reminded farmers of an important upcoming deadline for disaster assistance programs.

Farmers who are eligible for disaster assistance under certain new Supplemental Agricultural Disaster Assistance programs for losses caused by natural disasters in calendar year 2008, but who are not fully covered by crop insurance or the Noninsured Crop Disaster Assistance Program, only have until Sept. 16, 2008, to pay the "buy-in" fee for 2008 crops, including grazing lands.

"Tuesday September 16th is the deadline to pay the fee," said Smiarowski. "If your crops or land are not insured, I urge you to take advantage of this one-time opportunity. If you miss this deadline, you will be ineligible for these disaster assistance programs for your 2008 crops."

The 2008 Farm Bill (the Food, Conservation, and Energy Act of 2008) authorized five new Supplemental Agricultural Disaster Assistance programs: the Supplemental Revenue Assistance Payment (SURE) program; Livestock Forage Disaster Program (LFP); Tree Assistance Program (TAP); Livestock Indemnity Program (LIP); and the Emergency Assistance for

Livestock, Honey bees and Farm-raised Fish (ELAP) program. The "buy-in" waiver applies to SURE, TAP, LFP and ELAP for 2008 crop production and livestock losses.

To be eligible under the 2008 Farm Bill for disaster assistance under SURE, ELAP and TAP, producers must have enrolled in crop insurance or NAP for all crops in all counties in which they have an interest, including grazing and hayland. To be eligible for disaster assistance for LFP, producers need only have crop insurance or NAP coverage for the specific grazing land for which assistance is being requested.

Since the 2008 Farm Bill was enacted after the crop insurance and NAP application periods had closed, producers who did not buy coverage could not now comply with this requirement. However, the 2008 Farm Bill provides authority for a waiver for 2008 that allows producers to pay a fee to be eligible for the new disaster assistance.

The crop insurance and NAP coverage requirements will be waived in 2008 for producers who did not obtain crop insurance or NAP coverage by the applicable sales closing date, provided that the producer files an application for a waiver and pays a "buy-in" fee in an amount equal to the 2008 applicable NAP coverage or catastrophic risk protection plan fee for the crop or grazing lands.

In July 2008, USDA announced the "buy-in" waiver deadline and application process. Producers who do not pay the fee by the Sept. 16, 2008, deadline will not be eligible for disaster assistance under the Supplemental Agricultural Disaster Assistance programs.

Smiarowski also reminded producers that the payment of the applicable fee does not provide them with crop insurance or NAP indemnity payment for losses; it only makes them eligible to apply for assistance under the

Supplemental Agricultural Disaster Assistance programs.

For more information on the "buy-in" waiver and applicable fee, please contact the Hampshire/Hampden FSA office at 195 Russell Street Hadley Ma 01035, (413) 585-1000 ext. 2 or Franklin County FSA office at the Hayburne Building RM 270, 55 Federal Street Greenfield MA 01301 (413) 772 – 0384 before the September 16 deadline.

FSA news releases are available on FSA's Web site at: <http://www.fsa.usda.gov> via the "News and Events" link.

### National Farm Safety and Health Week, Sept. 21-27, 2008

The National Safety Council has declared the week of September 21 - 27, 2008 as National Farm Safety and Health Week. This annual promotional week commemorates the hard work, diligence, and sacrifices made by our nation's farmers and ranchers.

This year's safety theme is "Farm Safety - Protect Your Investment." As the message implies, personal well-being is important to the long-term sustainability of the farm operation.

On average, 27 Ohio farmers lose their life each year while working on the farm. That adds up to 276 people every decade. These fatalities are caused by accidental injury.

However, behind the injuries statistics lurk an even larger number of health concerns. Hearing, respiratory conditions, vision, skin, and the musculo-skeletal system are affected daily by the hard work and harsh

environments the body endures while performing farm work. Ask anyone involved in agriculture, and they will tell you that farming is physically hard work. That physical wear and tear takes it toll in many ways.

Wearing the recommended safety gear, eating healthy, and proper exercise will help reduce the physical stress of farm work. It will also provide a more efficient worker, able to take on more work!

For the most part, farming is perceived as a healthy lifestyle. However, farm living also has several environmental and occupational hazards that are inherent to the daily routines. So take the necessary precautions, and "Protect Your Investment!"

(*Source: Ohio Fruit ICM News Volume 12 (26), September 3, 2008*)

### The Roller in the Rye - Managing Cover Crops With Rolling and Crimping Techniques

*Laura McGinnis, USDA Agricultural Research Service*

Farmers could soon be on a roll when it comes to preparing their fields for planting. That's thanks to rolling machines—developed by [Agricultural Research Service \(ARS\)](#) scientists in Auburn, Alabama—that can quickly flatten mature, high-biomass cover crops such as rye.

Each roller consists of a long cylinder adorned with a series of evenly spaced, blunt, steel crimping bars, each about one-quarter-inch thick. As a standard tractor pulls the roller over the field, pressure from the bars flattens and damages the cover crop without cutting or uprooting it. Within 3 weeks, the rolled cover

crop dries out, forming a mat of dead biomass into which farmers can plant cash crops such as cotton.



**Agricultural engineer Ted Kornecki and his colleagues compared three different roller designs. This roller has a traditional roller with straight horizontal bars.**

The rollers' design is based on similar machines that have been used in South America for decades. Since 2001, ARS has been doing research to find the best crimping roller design for southeastern conditions, and benefits from this research are now becoming more widely recognized.

#### Heads (and Stalks) Will Roll

The one-pass process has plenty of benefits. It saves money, reduces soil erosion and runoff, helps control weeds, conserves water in the soil, and decreases—



**This roller has curved bars.**

or eliminates—the need for herbicides.

In the southern United States and other regions where water-use efficiency is a concern, cover-crop rollers can also help maximize water storage.

“The rollers have the potential to help some producers save a lot of money,” says Randy Raper, an agricultural engineer at the ARS National Soil Dynamics Laboratory (NSDL) in Auburn. “Insufficient water results in lower yields, particularly here in the southern states, so any practice that stores water in the soil will result in greater crop productivity.”

The rolling technology can extend drought resistance by as much as 2 weeks, help producers manage high-biomass cover crops, and facilitate planting in no-till fields, Raper says.

Tall cover crops like rye have many benefits for no-till farming. They prevent erosion, reduce moisture evaporation, limit runoff, and increase infiltration and soil water-storage capability. But planting a cash crop in a sea of unrolled grains can be daunting for producers who are new to the task. The roller simply reduces cover crops to a flat layer of mulch. A planter, running parallel to the roller’s path, can plant seeds directly into the ground without significantly disturbing the biomass mat.

Because using a cover-crop roller can eliminate the herbicide required to kill a cover crop, it’s an ideal tool for organic farmers or other managers who want to reduce or eliminate herbicide use, according to Chris Lawrence, an agronomist with the USDA Natural Resources Conservation Service. Lawrence has helped farmers in Virginia experiment with the ARS rollers for herbicide-free, no-till management. Lawrence worked with Raper and NSDL agricultural engineer Ted Kornecki to design rollers with specifications to address the needs of the local community.

Lawrence worked with one farmer who rolled his fields before planting no-till certified-organic soybeans, with promising results. By using the rollers, the farmer was able to eliminate multiple tillage trips and dramatically reduce both tillage costs and erosion risk, compared to his normal clean-till planting practice.

The no-till beans weren’t as tall as a heavily tilled control group, Lawrence says, and had lower yields as a result. But the

reduction in labor and fuel costs led to overall savings.

“After harvest, we estimated that the rollers had saved the farmer an average of \$50 per acre,” he says.

### **Crimp My Rye**

Auburn scientists have made several improvements to the original design, making rollers that are more effective and easier to use.

Kornecki and his colleagues compared the impact of three different roller designs (see photos at left). The first roller has a traditional design, with long, straight, horizontal bars. The second has diagonal bars that curve



**This roller has a smooth drum attached to a crimping bar to smash the rye down as the machine moves forward.**

around the roller. The third has a smooth drum attached to a crimping bar that mashes the rye down as the machine moves forward.

NSDL scientists developed and patented the curved-bar roller and have a patent pending on the crimping roller design. The scientists used each roller to flatten a rye cover crop and measured what percentage of the crimped plants died within 3 weeks. The scientists found that all three models killed enough rye—90 percent or more—to enable farmers to begin planting cash crops in the field. The third roller, which used the crimping bar, yielded the best results.

How does it work? The crimper uses a simple drum roller. As the machine rolls over the rye, a crimping bar attached to the drum rapidly pounds the flattened grain, damaging the stalks. The scientists also found that by spraying herbicide on every fourth crimp, they could kill 98 percent of the rye within a week, using 87 percent less Roundup (glyphosate) than would be required to kill nonrolled rye.

The NSDL team also examined the smoothness of each design. One drawback of the first cover-crop roller was excessive vibration, which could damage the tractor to



which it's attached and irritate the people maneuvering it.

"For a small farm, it's less of a problem," Kornecki says. "But a smoother ride is obviously more desirable."

The scientists measured the vibrations of the rollers at various speeds and found that each model's vibrations increased with higher operating speeds. Both the curved-bar and the crimping roller provided smoother rides than the traditional, straight-bar roller, allowing the cover crop to absorb most of the vibrations before they were transferred to the frame of the machine.

"With the crimping roller, all the energy is transferred to the cover crop, rather than to the tractor," Kornecki says. "This reduces vibrations, and it kills the rye effectively."

Future studies will help scientists maximize the efficiency and comfort of these machines. Kornecki is also developing



**Crimping roller used for elevated beds (for one bed and two furrows) with a customdesigned crimping bar to reach both furrows and a row top. The soybean cover crop (chosen for its ability to fix nitrogen into the soil and form a dense crop canopy) is being rolled and crimped to kill it, forming a mat of dead biomass into which growers can plant a cash crop.**

Sept. 2008)

new models to address different farming configurations—including one that could be used for crops grown in elevated beds and a lightweight model with two drums.

"We're still fine-tuning the technology," Raper says. "But these machines could have a major impact on sustainable farming."

*This research is part of Integrated Agricultural Systems (#207), an ARS national program described on the World Wide Web at [www.nps.ars.usda.gov](http://www.nps.ars.usda.gov).*

*(Source: September 2008 issue of Agricultural Research magazine by way of New York Berry News, Vol. 7, No. 9*

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## Upcoming Meetings:

Sept 17, 2008. **Using Hydrostackers to Grow Alpine and Day Neutral Strawberries.** 4:00pm 3007 Route 20, Hudson NY. *There is no charge for this meeting, but please call Peggy at 518-828-3346 before September 15th so we can plan appropriately.*

Sept 17, 2008. **Introduction to Growing Aronia.** 2:00pm. Mountain Range Farm, 1288 Route 31, Livingston, NY. *There is no charge for this meeting, but please call Peggy at 518-828-3346 before September 15th so we can plan appropriately.*

Sept 18, 2008, **On Your Way to Growing Greener: Using Biological Control in Greenhouses 9:15 AM – 3:45 PM Sturbridge Host Hotel and Conference Center, Sturbridge, MA** *Sponsored by: University of Massachusetts, University of Connecticut, University of Rhode Island and Northeast SARE* **Featuring Stanton Gill, (University of Maryland) and Suzanne Wainwright-Evans, (Buglady Consulting).**

Topics will include: Why Should Growers and Retailers Consider Biological Control in Their Greenhouses, Practical Steps in Starting a Biological Control Program: Is it for you? What crops should you start with? Sources and Quality Control of Natural Enemies, Which Natural Enemies are Best for Fungus gnats, Spider mites, Thrips and Aphids: How to use them, Compatibility, Where and how to release them, What rates to use, *Examples of Live Specimens!*, Using Banker Plants, "Future" New Products, Case Studies: Real Experiences of Greenhouse Growers, Panel of Wholesale Growers and Grower Retailers Cost: \$35 (includes Handouts, Refreshments, Lunch) Four pesticide recertification credits for attendees from CT, MA, RI, ME, NH and VT

Sept 19-21, 2008. **Common Ground Country Fair.** MOFGA Common Ground Education Center, Unity, ME. For info, visit [www.mofga.org](http://www.mofga.org). **AC, O.**

September 23, 30, October 7, 14, and 21. **Building a Successful Small Farm Operation** in Orleans County, NY. Contact Paul Lehman of Niagara County CCE or Lynn O'Brien of Allegany/Cattaraugus County CCE for more information.

Nov. 6-8, 2008 **Southeast Strawberry Expo**, at the Hilton Charlotte University Place, Charlotte, NC. Includes Strawberry Plasticulture Workshop for New Growers, farm tour, educational sessions, and trade show. For more information, email [info@ncstrawberry.com](mailto:info@ncstrawberry.com)

Dec. 8-10, 2008, **North American Raspberry & Blackberry Conference** in Grand Rapids, MI, as part of the Great Lakes Expo. For more information, email [info@raspberryblackberry.com](mailto:info@raspberryblackberry.com).

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*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. UMass Extension is an equal opportunity provider and employer, United States Department of Agriculture cooperating. Contact your local Extension office for information on disability accommodations or the UMass Extension Director if you have complaints related to discrimination, 413-545-4800.*