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Berry Notes

Prepared by the University of Massachusetts Fruit Team

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MESSAGE FROM THE EDITOR:

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IN THIS ISSUE:

MESSAGE FROM THE EDITOR

ENVIRONMENTAL DATA

STRAWBERRY

- ❖ Strawberry Renovation
- ❖ NASGA Summer Tour is coming soon!
- ❖ Disease Snapshot - Red Stele in Strawberries

RASPBERRIES/BLACKBERRIES

- ❖ Weeds in Raspberries

BLUEBERRIES

- ❖ Notes on Anthracnose Control
- ❖ Controlling Japanese Beetles in Blueberries

GRAPES

- ❖ Shoot Positioning and Canopy Management

GENERAL INFORMATION

- ❖ Small Fruit Leaf Tissue Analysis
- ❖ New Native Pollinator Video Now Available on YouTube

UPCOMING MEETINGS

Strawberry harvest is complete in many locations. Renovation will be underway soon. See more on this below. Fertilization is important for good canopy regrowth. Watch for root weevil infestations and renovate or plow down promptly if feeding is observed. This will reduce populations significantly. Sprays may still be needed. Also watch for cyclamen mite and potato leafhopper infestations, especially in new fields. Pull blossoms and set runners on new plantings. **Highbush Blueberry** harvest is underway. Fruitset looks very good and good yields are expected. Blueberry Scorch has been found in Massachusetts. Be sure to check for aphids and promptly control aphids in blueberries as they can vector the blueberry scorch virus from infected to healthy plants. Leaf samples can be taken for tissue analysis from now to mid August to determine nutrient status of the bushes. This is especially important for blueberries since soil tests are not a reliable check on adequate nutrition. Late varieties may still benefit from fungicide applications to control anthracnose and alternaria fruit rots. **Raspberries** harvest is also underway. Primocanes may show flagging from infestation by cane borers. These should be cut out below any sign of tunneling. Watch for twospotted spider mites and potato leafhopper, especially in fall fruiting varieties. Intermittent rain can cause increases in fruitrot during harvest. Be on the lookout for Orange Rust on black raspberries and blackberries. Also keep an eye out for symptoms of fireblight in raspberries. **Grape** clusters are sizing up. Poor fruitset has been reported in some varieties and may be the result of poor pollination conditions during bloom. Scouting for disease and insect levels and taking corrective action are important activities before bunch closure. 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. Insects that will need attention now are Potato Leafhopper, rose chafer/Japanese beetle and Grape Berry Moth. **Currants and Gooseberries** harvest continues with growers reporting a heavy crop. Some foliar diseases are evident now and should be controlled. Twospotted spider mites may also be building up.

ENVIRONMENTAL DATA

The following growing-degree-day (GDD) and precipitation data was collected for an approximately one-week period, June 16 through June 22, 2011. Soil temperature and phenological indicators were observed on or about June 22, 2011. Total accumulated GDDs represent the heating units above a 50° F baseline temperature collected via our instruments for the 2011 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	2011 Growing Degree Days		Soil Temp (°F at 4" depth)	Precipitation (1-week gain)
	1-week gain	Total accumulation for 2011		
Cape Cod	130	693	72°	0.00"
Southeast	129	684	74°	0.30"
East	147	739	67°	0.10"
Metro West	126	743	70°	0.10"
Central	120	693	62°	0.26"
Pioneer Valley	116	756	68°	0.35"
Berkshires	100	604	69°	1.77"
Average	124	702	69°	0.41"

(Source: UMass Extension Landscape Message #17 June 24, 2011)

STRAWBERRY

Strawberry Renovation

Sonia Schloemann and A. Richard Bonanno, UMass Extension

Matted row strawberry plantings benefit from a process called 'renovation' after harvest to stimulate new growth to support next year's crop and to interrupt the build-up of certain pests and diseases mid-way through the growing season. For best results, renovation should be started immediately after the harvest is completed to knock down two-spotted mites, sap beetles and/or root weevils and to promote early runner formation. Early runner-set translates to higher yield potential the following year. Build-up of leaf spots and other foliar pathogens can be cleaned up with this process, too. Renovation should be completed by late-July in normal years. The following steps describe renovation of commercial strawberry fields. Specific rates and timing of applications can be found in the New England Small Fruit Pest Management Guide at <http://www.umass.edu/fruitadvisor/pdf/2010NESmallFruitGuide.pdf>.

1. **Weed control:** Annual broadleaf weeds can be controlled with the 2,4-D amine formulation (Amine® 4 or Formula 40) applied immediately after final harvest. Be extremely careful to avoid drift when applying 2,4-D. Some strawberry damage is also possible if misapplied. Read and understand the label completely. If grasses are a problem, sethoxydim (Poast) will control annual and some perennial grasses. However, do not tank mix Poast and 2,4-D.

2. **Mow the old leaves off** just above the crowns 5-7 days after herbicide application. Be careful not to damage crown by mowing too low.

3. **Fertilize the planting.** The main goal is to deliver nitrogen at this time to help regrow the canopy. Nitrogen should be applied at 25-60 lbs/acre, depending on vigor and basic soil fertility. Split applications (one now and the rest in 4-6 weeks) are better than a single fertilizer application. This gives plants more time to take up the nutrients in the fertilizer. A leaf tissue analysis (recommended once the canopy has regrown) is the best way to fine-tune your fertilizer program. This will tell you what the plants are actually able to take out of the soil and what nutrients are in sufficient supply or not. See Leaf Tissue Test Sampling Instructions at the UMass Soil and Tissue Testing Lab website at http://www.umass.edu/soiltest/list_of_services.htm for more on this.

4. **Subsoil:** Where tractor and picker traffic has been heavy on wet soils, compaction may be severe. Subsoiling between rows will help break up compacted layers and provide better infiltration of water. Subsoiling may be done as a later step if field conditions are unsuitable.

5. **Narrow rows and cultivate between rows:** Reduce the width of rows to 12-18 inches at the base. More berries are produced along row edges than in row middles. Wider rows lead to lower fruit production (yield and quality) and increased disease pressure. Narrow rows also give better sunlight penetration, air circulation, spray coverage, and over-all fruit quality. Use a roto-tiller, multivator or cultivator to achieve the row-narrowing. Work in the straw between the rows at this time, too. If possible, try to throw 1-inch of soil on top of the rows at

this time to stimulate new root formation on established crowns and new runners.

6. Weed control: Pre-emergence weed control should begin immediately after the plants are mowed and the soil is tilled to narrow the crop row. The most common practice at this time is to apply half the annual rate of terbacil (Sinbar at 4 oz/acre). It is essential that the strawberry plants are mowed, even if 2,4-D was not applied, to avoid injury from Sinbar. If regrowth of the strawberry plants has started, significant damage may result. Some varieties are more sensitive to Sinbar than others. If unsure, make a test application to a small area before treating the entire planting. Sinbar should not be used on soils with less than 0.5% organic matter or on reportedly sensitive varieties. Injury is usually the result of too high a rate or overlapping of the spray pattern.

If Sinbar is not used, napropamide (Devrinol at 4 lb/acre) or DCPA (Dacthal at 8- 12 lb/acre) should be applied at this time. Dacthal is preferred over Devrinol if the planting is weak. If Sinbar is used, napropamide (Devrinol at 4 lb/acre) should be applied 4 to 6 weeks later. This later application of Devrinol will control most winter annual weeds that begin to germinate in late August or early September. Devrinol should be applied prior to rainfall or it must be irrigated into the soil. During the summer, Poast can be used to control emerged grasses. Cultivation is also common during the summer months. Cultivations should be shallow and timely

(weeds should be small) to avoid root damage to the strawberry planting. The growth of strawberry daughter plants will also limit the amount of cultivation possible especially near the crop row. Other materials that can be used at this time include Chateau and Prowl H20. See the New England Small Fruit Pest Management Guide for specific rates and other information.

7. Irrigate: Water is needed for both activation of herbicides and for plant growth. Don't let the plants go into stress. The planting should receive 1 to 1-1/2 inches of water per week from either rain or irrigation.

8. Cultivate to sweep runners into the row until plant stand is sufficient. Thereafter, or in any case after September, any runner plant not yet rooted is not likely to produce fruit next year and is essentially a weed and should be removed. Coulter wheels and/or cultivators will help remove these excess plants in the aisles.

9. Adequate moisture and fertility during August and September will increase fruit bud formation and improve fruit yield for the coming year. Continue irrigation through this time period and fertilize if necessary. An additional 20-30 pounds of N per acre is suggested, depending on the vigor.

NASGA Summer Tour is coming soon!

The 2011 NASGA Summer Tour will be held out of the Boston, Massachusetts area. The tour dates will be August 16th and the 17th. Massachusetts has the highest sales of produce at the farm gate in the country so we will be sure to see some fabulous farms and markets.



Day 1 Tuesday August 16th

The first stop on the tour on August 16th will be **Marini's Farm**. This farm is located in Ipswich Massachusetts, and has been around for three generations. Marini's Farm has several greenhouses, a nursery and a farm stand. Strawberry and blueberries are only two of the many crops produced at Marini's Farm. Richardson's Dairy Products, local bakery's, Danver's Butchery Meats and a variety of specialty food items are also sold at the Marini's Farm Stand.

Cider Hill Farm is the next stop on day 1 of the tour, and it is located in Amesbury Massachusetts. Cider Hill Farm has a large diversity of home-grown produce; including strawberries, blueberries and raspberries. They also offer a selection of herbs and flower baskets. A large farm store is located on the farm, which provides an opportunity for customers to purchase produce, bakery items, honey, candy, crafts, gifts and cider.

Parlee Farms is located out of Tyngsboro Massachusetts, and contains almost 100 acres of scenic farmland along the Merrimack River. They produce pick your own strawberries, blueberries and many other types of fruit and vegetables. The farm also contains a farm stand that provides already picked fruit and vegetables, potted flowers, apple cider, bakery items and their very popular donuts!

The final stop on day 1 of the tour is at **Verrill Farm**, located in Concord Massachusetts. This farm is open daily, year round and offers many different festivals and events. It also has a farm stand which features farm-grown produce such as strawberries, and food prepared in the stand kitchen; such as soups, baked goods and award winning pies.

Day 2 Wednesday August 17th

On the second day of the tour, August 17th, the first stop will be at **Wards Berry Farm**, in Sharon Massachusetts. Since 1982, Jim & Bob Ward have offered fresh picked fruits and veggies for sale at their roadside stand. Baked goods, breads, cheeses, jams, fruit baskets, and plans are some of the many other products that Ward's Farm has to offer. Ward's Berry Farm has pick your own strawberries, blueberries and raspberries for all customers to enjoy!

Spring Rain Farm is the second stop on day 2 of the tour, and it is located in East Taunton Massachusetts. It contains 112 acres of farm land, where you can explore cranberry bogs and pick your own strawberries.

Four Town Farm is located in Seekonk Massachusetts, growing a wide array of produce such as strawberries and blueberries. The farm offers pick your own produce, a farm stand and beautiful flower gardens.

The final stop of the 2011 NASGA Summer Tour is at **Foppema's Farm** in North-bridge Massachusetts. They offer a diverse array of fruits and vegetables, including raspberries, strawberries and blueberries. Every year they try and something new for the customers to try, such as Japanese eggplant, peach and nectarine trees.

For more information visit the NASGA website at www.nasga.org or call Kevin Schooley at 613-258-4587.

Disease Snapshot – Red Stele in Strawberries

Kerik Cox, Cornell University

Disease Name: Red Stele (Phytophthora Root Rot)

Cause: *Phytophthora fragariae*

When to watch for it: Bloom Spring, Fall

First line of defense: Site preparation to avoid standing water and promote soil drainage. Do not plant adjacent to infected fields.

Summary: Red Stele is named for a sign of *Phytophthora* infection, which causes the stele of primary roots to become reddish. In the spring, plants infected with *Phytophthora* may be stunted and chlorotic with marginal leaf scorching and other typical wilt symptoms due to impaired root function. Plants will continue to wilt and die in patches as the soil warms and roots are unable to uptake water and nutrients. Below ground, *Phytophthora* is destroying all of the fine/feeder roots, and infecting the vascular tissue (the stele) of the



primary roots, which causes the root ball to look like a bundle of pale brown “rat tails”. If one excavates a dying plant, scrapes away the epidermis from such a ‘rat tail’, they may find that the stele is reddish brown from infection. Once the infection has progressed to the point where the plant has died, other saprobic fungi will rapidly colonize dead tissues obscuring these diagnostic symptoms. *Phytophthora* is an aquatic organism, and as such, the best means of managing the disease is to limit exposure to standing water by avoiding low-lying fields, selecting well-drained sites, and planting on raised beds. Pesticides such as mefenoxam and phosphorous acid-based products can provide control of the disease when used in conjunction with the aforementioned cultural practices. (**Source:** *New York Berry News*, Vol. 10, No. 5, June 2011)

RASPBERRIES/BLACKBERRIES

Weeds in Raspberries – Dandelions and Quack Grass and Thistle, Oh My!

Molly Shaw, Cornell Cooperative Extension

Weeds are the nemesis of berry growers, the pest that causes the most economic loss. If you’re having trouble with them, be comforted that you’re not alone. Weed control always comes up high on the list of research priorities among berry growers, and while we all wish someone would come up with a magical new way to control them, some folks do on average win the battle more often than others. A careful review of the tools and techniques currently available should prove useful.

Cornell organized a series of berry webinars last winter. David Handley (University of Maine) and Rich Bonanno (University of Massachusetts) presented on cultural and chemical weed control for berries, and notes from their

presentations are compiled here. The full webinar is archived on the Cornell Berry Website (www.fruit.cornell.edu/berry.html/).

Pre-plant weed control is critical for berries because controlling weeds once plants are in is so tough, especially for those perennial weeds. And consider this: 70% of raspberry roots are in the top 8” of soil, *the same zone as grass*. Preplant weed control takes 1-3 years, more for higher weed pressure, especially perennials. Growers who prefer not to use glyphosate (round-up) on perennial weeds will also want to prep the soil a couple years in advance, since it can be tough to get rid of perennial weeds in just one year. Before you turn the soil,

make note of weeds that are there. If there is a lot of quack grass, nutsedge, or wild brambles, you might even want to choose a different spot.

If you use Round-Up (or some other brand of glyphosate), fall applications work best because the plant is in “move food to my roots” mode, and the herbicide gets to the target better than in the spring, when the plant carbohydrates are moving up from roots to new leaves. For broadleaf weeds, fall application should be before we get heavy frosts, when the plants are still actively growing. For grasses, you can go as late as Thanksgiving, just wait for a day that is 40 ° F at noon, and put the glyphosate on then.

Side note: Sparse perennial weeds can be spot-treated in the summer with glyphosate. Particularly tough weeds, woody vines, bindweed and the like, can be treated in the following manner: Mix 2 parts water with one part Roundup, dip cutting sheers in the solution, and cut the base of the weed of any actively growing plant (doesn't need to be fall). Cutting the vine and painting the stub with glyphosate doesn't work as well because the phloem of the plant is in tension, like a vacuum, and when the vine is cut that vacuum is released. If the glyphosate is present on the cutting sheers, it gets sucked down into the stem when the plant is severed. Heartless, yes, but effective.

The planting site for berries can be managed with a combination of cover crops and stale seed bed techniques. Cover crops are good as long as they are managed to deplete the weed seed bank—that would be short term cover crops with tillage in between and no weeds going to seed in the cover. An example would be spring oats followed by buckwheat (one or two rounds), followed by a winter cover crop, or even a fall brassica. Leaving a couple weeks to bare fallow between cover crops can help deplete weeds germinating by seeds, if the soil is moist enough.

If you choose to use a stale seed bed right before planting berries (a good idea), disturb the soil as shallowly as possible during the tillage, and start the stale seedbed process 6 weeks before planting the berries. If your weeds are pretty well under control and you choose to plant early in spring before it's possible to have 6 weeks of stale seed bedding, you can till just the planting strips of your

overwintered cover crop such as killed cereal rye or oats. Don't simply till strips out of a lawn or old field—the grass will come back aggressively. Subsoiling in the planting strips will help with drainage if you have a hard pan (common). You can also establish your ground cover (slow growing grass) the fall before planting and kill (spray) strips for the berries. A commercial grass mix called “Orchard Vineyard Nursery mix” (OVN mix) works well, composed of slow growing fescues and rye grasses. Conservation grass mixes are too aggressive, and lawn mixes will need more mowing.



Mulch new brambles with straw or wood chips, but realized that leaving straw on the planting over winter can keep the soil too wet and cause the berries to get Phytophthora, a nasty root disease. Wood chips 4-8” thick don't hold too much moisture, pine needles are fine too.

Fall leaves keep the soil too wet. Keep track of the pH

under wood chip mulch, as they rot they tend to lower the soil pH.

Pre-emergent herbicides work on not-yet-germinated seeds, so they are used in the fall or in the spring before weeds emerge. Casoron is used in late fall, just before snow, when temperature is <50F. If it's too warm, it volatilizes and hurts the plants. Princep (simazine) and Sinbar have the same mode of action and work on broadleaf weeds. Princep can be used 1/2 rate the year of planting—don't use Sinbar in the planting year. Solicam, Devrinol and Surflan are all effective on grasses (ones that grow from seeds, not quack grass). Devrinol is the safest one to use on new plants. Often Princep or Sinbar is combined with one of the grass pre-emergent herbicides.

Last fall, one of the blueberry farms in the southern tier decided to try various combinations of pre-emergent herbicides and compare them. Normally Princep and Sinbar were used together in March, but pigweed wasn't well controlled. So two more treatments were added: Princep and Chateau (a pre-emergent herbicide) in the beginning of November followed by Princep and Sinbar in March, and Princep and Chateau in November with no spring application. Compared to the “normal” Princep and Sinbar in March, the addition of Chateau in the fall gave better weed control. In the treatment with no spring herbicide, sorrel was becoming a problem and will require more spot spraying than the “normal” treatment.

Kerb and Velpar are two rather new labels for blueberries which I don't have any experience with. Velpar is reputed to be pretty effective, controlling a broad range of annual and perennial broadleaf weeds. Anyone have experience with either of these that you're willing to share? Contact me at meh39@cornell.edu, 607-687-4020.

Post-emergence herbicides are pretty limited. Paraquat and Aim are contact materials—they kill green tissue that they touch, but don't move through the plant. Post, Select, and Fusilade are all grass-specific herbicides. They have no effect on berries or broad-leaf weeds because they act specifically on the growing points of grass when used in spring when grasses are <8" tall. Even quack grass is

knocked back, though it eventually regrows from the roots. For herbicides that move in the plant like glyphosate and the above-mentioned grass herbicides, using less water in the application works best. For example, applying a spray using 10 gal/A water will work better than spraying on the same amount of active ingredient in 40 gal/A.

Herbicides are definitely useful in berry production, but they can't be counted on as the only technique. Their efficacy is limited, so it pays to give attention to pre-plant site prep. (*Source: New York Berry News, Vol. 9, No. 7, July 2010*)

BLUEBERRY

Notes on Anthracnose Control

Peter V. Oudemans, Rutgers University

Fields that received good fungicide coverage throughout bloom should not experience significant problems and anthracnose sprays will show little or no benefit. This year there is a very heavy crop and it is easy to get behind in picking. Anthracnose can become a problem if you get behind in picking because it can spread extensively if it starts to sporulate on the fruit in the field. If you observe anthracnose in the packing house, that means you may have a problem.

If this is the case an application of Abound, Cabrio or Captan will help



slow down the fruit infections. Addition of a Phosphite such as K-Phite, Prophyt, Phostrol or Rampart will help maintain quality. Neither of these options is as good as early treatment but will help if the disease starts showing up. Please remember that Cabrio, Abound and Pristine are all strobilurin fungicides and are vulnerable to resistance build-up. DO NOT make more than two applications in a row or three applications total with these strobilurin fungicides. Use Captan to separate applications. (*Source: Blueberry Bulletin, Vol. XXVII, No. 13, June 20, 2011*)

Controlling Japanese Beetles in Blueberries

Rufus Isaacs, Michigan State University

Japanese beetles can feed on the foliage and fruit of blueberries, causing damage to the plant and increasing the risk of fungal diseases. Their emergence during mid-summer can also create a risk of contamination of harvested berries. Japanese beetles are highly mobile insects and can fly into fields from surrounding areas. This article provides information on management options based on research conducted over the past few years at the Trevor Nichols Research Complex and at grower's farms.

Scouting. Weekly scouting for beetles should be done through July and August to identify field with, and without, beetle pressure. This can help ensure that management is targeted to the most important areas, and it will help with planning pest management activities around harvest activities. Regular field scouting can also detect the distribution of beetles in a field. If scouting indicates that the field only has beetles on the perimeter,

as is often the case, a border application can be sufficient to gain control and allow harvest of beetle-free fruit. Grassy adjacent areas are often a source of beetles, so be on the lookout for this pest in fields near pastures, golf courses, urban areas, etc. Since the beetles are good flyers, this also applies to areas that might be across a road or hedgerow.

Field management. Clean cultivation is a highly effective method to reduce the suitability of fields for Japanese beetles, because the female beetles search out moist grassy areas to lay their eggs. Grassy perimeters may still be attractive and harbor beetle grubs, but there are approaches to making these areas less suitable for larval survival (see last section below). For many farms, clean cultivation may not be a suitable system due to potential problems with dust or mud, so growers have implemented a mixed system that has bare ground when

beetles are flying in July and August, followed by a fall seeding of winter rye to provide soil structure during winter and spring. This is then mowed and tilled in the spring before beetle activity. Such a system is an effective approach to minimizing the suitability of fields for this pest.

Weeds can be a big draw for this beetle, so make sure fields do not have sassafras, Virginia creeper, raspberry or blackberry, or any other attractive weeds growing in them. These plants are much more attractive than blueberry plants, and once beetles find them and start feeding, this will attract more beetles to the field.

In small plantings, beetles can be removed by hand and put into soapy water to help reduce the population. Use of monitoring traps in crop fields is not recommended since these traps will draw beetles from the surrounding landscape into the field, creating hot-spots around the trap where the beetles feed, mate, and lay eggs.

Broad-spectrum insecticide options. The organophosphate Imidan (buffer to pH 6.0) provides excellent activity on adult beetles, providing 7-10 days of activity, with a 3 day PHI.

The pyrethroid Asana has been labeled for a few years in blueberry and this provides high mortality and some repellency of Japanese beetles. However, this insecticide also has a 14 day PHI making it of less use as harvest approaches. Blueberries also have label for Mustang Max (4 oz per acre) and Danitol (10-16 oz per acre) which are also pyrethroids. These have shorter pre-harvest intervals (Mustang = 1 day, Danitol = 3 days) and can be applied aerially and by ground. These products are also highly effective against Japanese beetles.

The carbamates Sevin and Lannate provide immediate kill of beetles present during the spray. They are also stomach poisons, so if beetles eat treated foliage they will also receive a higher dose. This can be a good property for control of Japanese beetles since they eat so much that a strong dose of insecticide is taken up. Lannate has a short residual activity of a few days, whereas Sevin provides a week or more of protection. Sevin has a 7 day PHI in blueberries which has reduced its usefulness near harvest.

Selective insecticides. The labeling of Provado, Actara, and Assail for use in blueberries after bloom provides selective options for Japanese beetle management. These provide 2-3 days of lethal activity from the surface residues before the residue is absorbed into the foliage. Thereafter, beetles must eat treated foliage to get a dose

of the insecticide. Once inside the foliage, these neonicotinoid insecticides are rainfast and provide significant sub-lethal effects of repellency and knockdown activity, but with much less direct mortality from the residues. All three of these insecticides will also provide excellent control of aphids and leafhoppers, especially if the spray is applied to the whole bush. Assail has a 1 day PHI, while Provado and Actara have a 3 day PHI in blueberries.

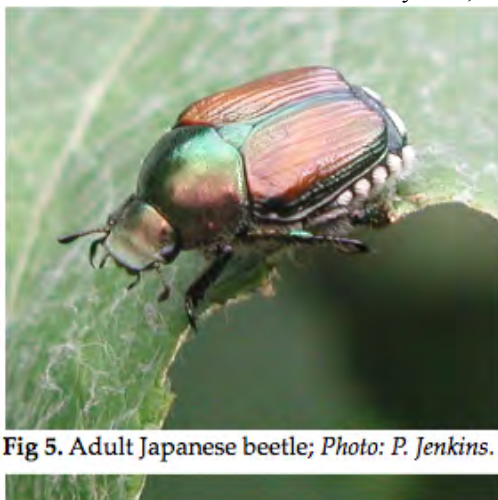


Fig 5. Adult Japanese beetle; Photo: P. Jenkins.

Short PHI and organic insecticide options. For growers looking for beetle control immediately before harvest or in organically grown fruit crops, some selective insecticides with 0 day PHI's can provide a tool to repel beetles and help achieve beetle-free fruit during harvest. Compounds containing neem (Azadiract, Neemix etc.) have a 0 day PHI and pyrethrum (Pyganic) has a 12 h PHI. These compounds are labeled for organic use, and have a short but effective impact on adult Japanese beetles, with some

mortality, some knockdown off the crop, and some repellent activity. Typically there is only 1-2 days of activity against beetles because the residues do not remain active for long. The non-organic form of Pyganic, called Evergreen, also has a 12 h PHI, and is much more effective against Japanese beetle than Pyganic due to the addition of a chemical that inhibits the beetle's ability to break down the insecticide.

Soil-applied insecticides. Japanese beetles typically lay their eggs in moist grassy areas and many fruit farms have a large amount of this suitable habitat. An additional approach to managing Japanese beetle populations is to target the grub stage of this pest in these areas to reduce the abundance of beetles in the following year. If the location of high grub densities near fruit fields is known, these areas could be treated with a soil insecticide to get maximum return on this treatment. Our experience in Michigan blueberry fields has been that application of Admire (16 oz/acre) to grassy field perimeters, applied in late June, reduced the abundance of beetles on nearby bushes in the following year. This effect only lasted for the first few weeks of their flight period, however. After that, beetles flying into the area from outside swamped out this effect, so there is only a short-lived benefit from targeting the grubs in fields that are surrounded by infested grassy areas. This approach is expected to work best in isolated farms with minimal immigration of beetles from surrounding areas. (**Source:** *Michigan Blueberry Newsletter, Volume 4, Issue 12, June 22, 2010*)

Shoot Positioning and Canopy Management

Bruce Bordelon, Purdue University

Once grapes are past fruit set and shoots have toughened-up, it's time to get serious about shoot positioning in grapes. Varieties differ in their need for shoot positioning due to their growth habit and vigor. Some varieties such as Vignoles and Chancellor tend to have a semi-upright growth habit and relatively short shoots that stand up well on their own, so shoot positioning is seldom needed. Traminette has relatively upright shoots, but they tend to be long, with large leaves so shoot positioning is important. Other varieties such as Chambourcin, Vidal, and all the American varieties produce horizontally growing shoots that tend to run along the top of the trellis and cause significant shading of the fruit and renewal zone. Shoot positioning is very important with these varieties.

The need for shoot positioning on other varieties will vary depending on vigor of the particular site. In high cordon-trained vines, shoot positioning involves pulling lateral-growing shoots off the top of the trellis to hang vertically downward. In mid-wire cordon-trained vines, shoot positioning is done by tucking shoots between sets of catch wires, or pulling catch wires up into position so that

the shoots grow vertically upward. Shoot positioning is critical for improving sunlight exposure of fruit and increasing fruit quality. Additionally, it improves fruitfulness of the basal nodes on the shoots for full fruiting potential next year. Shoot positioning may need to be repeated two or three times during the summer.

Leaf removal is another important component of canopy management. While most commonly associated with mid-wire cordon vertically shoot positioned training systems, it can be used on high cordon trained vines as well. Removal of 2-3 basal leaves in the cluster zone anytime from 1 to 3 weeks after bloom can significantly improve fruit quality by decreasing fruit rot potential, and improving sunlight exposure of clusters. Leaf removal later in the season can be effective, but care should be taken to avoid sun-burn. We generally recommend removal of leaves mainly on the east side of the rows. Our work with Traminette has shown a significant increase in important flavor and aroma compounds (monoterpenes) and wine quality scores when fruit gets partial sun exposure. (*Source: Facts for Fancy Fruit, Volume 11 • Issue 6, June 17, 2011*)

GENERAL INFORMATION

Small Fruit Leaf Tissue Analysis

Sonia Schloemann, UMass Extension

Leaf tissue testing is an excellent way to monitor plant nutrient levels. With perennial fruit crops, leaf analysis is better than soil tests for determining an optimal fertilization program. While soil tests reveal the quantity of certain nutrients in the soil, leaf analysis shows exactly what the plant has taken up. However, soil tests are necessary for determining soil pH (and lime or sulfur recommendations) and soil organic matter content (SOM). If nutritional problems are suspected in a given planting, it's a good idea to take both leaf and soil tests.

Leaf analysis is helpful for detecting nutrient deficiencies (especially of minor nutrients) before they effect plant health or yield. The best tissue analysis for berry crops comes from green, healthy, whole leaves (except for grapes). Do not submit plant tissue that has disease, leaf burn, insect or hail damage. Keep the material in a cool place (insulated chest) or refrigerate before mailing. Record all foliar sprays in case the results are influenced by nutrient or pesticide applications.

A minimum of 50 leaves from raspberries or strawberries, and 80 to 100 leaves from blueberries should be selected for each analysis. Do not mix leaves from fields with different soil types or management histories. Do not

combine leaves from healthy plants with plants that are not growing well.

Strawberry:

Strawberry samples should be taken from the first fully-expanded leaves after renovation, about July 15 to August 15.

Raspberry:

Raspberry samples should be leaves from non-fruiting canes taken between August 1 and 20.

Blueberry:

Blueberry samples should be leaves taken during the first week of harvest, from July 15 to August 15.

Grape:

Grape samples should be taken either at bloom or veraison (berry coloring). Bloom samples should be taken from leaves opposite first fruit cluster on a shoot. Veraison samples should be taken from the furthest fully expanded leaf on a current season's shoot. Unlike other berry crops, grape tissue testing is done on just the leaf petioles, so the leaf blades can be discarded.

Place samples in sealed paper bags, clearly labeled with field names. Below is a list of labs that perform leaf tissue analysis:

MASSACHUSETTS

Soil & Plant Tissue Testing Laboratory - West Experiment Station/UMass Amherst MA 01003 Telephone: 413-545-2311 www.umass.edu/soiltest

NEW HAMPSHIRE

University of NH Analytical Services Lab - Spaulding Hall, Room G28A, 38 Academic Way Durham NH 03824

(603)862-3200

<http://extension.unh.edu/agric/agppts/soiltest.htm>

PRIVATE

Brookside Laboratories - 308 South Main St. New Knoxville, OH 45871 Telephone: 419-753-2448 <http://blinc.com>

Spectrum Analytic - 1087 Jamison Rd. Washington Court House, OH 43160 Telephone: 800-321-1562 <http://www.spectrumanalytic.com/>

New Native Pollinator Video Now Available on YouTube

Kristie, Auman-Bauer, Penn State IPM Program

A new video describing the importance of native pollinators in Pennsylvania has recently been posted on YouTube. Produced by Penn State's Dr. Ed Rajotte and Dr. David Biddinger, "Native Pollinators: A Promising Solution to an Emerging Crisis", describes the decline of honey bees and the role other native pollinators play in pollination of crops. It depicts the efforts of Penn State,

NRCS and the Xerces Society in researching the most effective native pollinators and assisting growers by planting pollinator habitats in farms and orchards in Pennsylvania. To view the video, go to <http://www.youtube.com/watch?v=IYKVI8ayzsw>. For more information on pollinators, visit the Center for Pollinator Research at <http://ento.psu.edu/pollinators>.



UPCOMING MEETINGS:

July 12, 2011 - *Vegetable & Berry Twilight Meeting*. Moulton Farm, Meredith NH. For info, contact Kelly McAdam at kelly.mcadam@unh.edu or 603-527-5475.

July 12, 2011 - *On-Farm Workshop: Raspberries and Blue Berry Production*: Rochester VT. For more info contact Vern Grubinger at vernon.grubinger@uvm.edu

July 13, 2011 - *Tree Fruit Twilight Meeting*, 5:00 PM - 08:00 PM. Poverty Lane Orchards and Farnum Hill Ciders, 98 Poverty Lane, Lebanon, NH, 03766. At this workshop participants will receive an update on tree fruit insect and disease issues, as well as orchard management issues including initial results from work to attract native pollinators. Two (2) pesticide recertification credits have been approved. For more information see: <http://extension.unh.edu/events/files/9AF6F61F-A4BA-DB0D-3646D1E4B620E8FB.pdf>.

July 14, 2011 - *Great Ideas Summer Conference and Trade Show* (All day). Mahoney's Garden Center, Falmouth, MA The Massachusetts Nursery and Landscape Association and the Massachusetts Flower Growers Association will again hold a joint Summer Field Day in 2011. The day will offer horticultural education workshops by well-known researchers and educators and a trade show. For more information see: http://www.mnla.com/view_event/23

July 14, 2011 - *Connecticut Pomology Society Summer Meeting*, Dzen Brothers Farm at 244 Barber Hill Rd. in South Windsor, CT starting at 5:30PM. For more information contact: Jude Boucher, 860-875-3331, jude.boucher@uconn.edu or Rick Macsuga, 860-713-2544, Richard.Macsuga@ct.gov or Lorraine Los, 860-486-6449, lorraine.los@uconn.edu

July 18, 2011 - *Massachusetts Fruit Grower's Association/UMass Fruit Team Summer Meeting*, 10 - 3. Parlee Farms, 95

Farwell Rd., Tyngsboro MA. <http://www.parleefarms.com>. Cost: \$50 (\$40 for members). For more information see: <http://www.massfruitgrowers.org/2011/2011summermeeting.html>

July 18, 2011 - Veggie and Berry Twilight Meeting (05:00 PM - 08:00 PM) J & F Farms, 124 Chester Road, Derry, NH, 03038. **Topics will include:** - Cultural practices - Preventing, managing and controlling strawberry, raspberry, blueberry and mixed vegetable diseases - Monitoring insect pests (An update on the Brown Marmorated Stink Bug and the Garlic Bloat Nematode will also be discussed.) For more info see: <http://extension.unh.edu/Counties/Rockingham/Docs/VegBerry.pdf>

July 20, 2011 - Vegetable & Berry Twilight Meeting. Meadow-stone Farm, Bethlehem NH. For info, contact Heather Bryant at heather.bryant@unh.edu or 603-787-6944.

August 1, 2011 - On-Farm Workshop: Pest Management/IPM, Littlewood Farm, Plainfield VT. For more info contact Vern Grubinger at vernon.grubinger@uvm.edu

Aug 2, 2011 - Vegetable & Berry Twilight Meeting. Dimond Hill Farm, Concord NH. For info, contact Amy Ouellette at amy.ouellette@unh.edu or 603-796-2151.

Aug 12-14, 2011 – NOFA Summer Conference, UMass Amherst MA. For a complete program see: <http://www.nofasummerconference.org/index.php>

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.