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Berry Notes

Prepared by the University of Massachusetts Fruit Team

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UPCOMING MEETINGS

Strawberry fields remain quiet at this time of year. Dayneutral varieties may still be fruiting but are winding down. Late summer and early fall is a good time to fertilize both new and established strawberry fields. 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. Evaluate established fields for the foliar diseases or other problems that could carry over to next year. Also scout fields for weed problems that can be addressed in the fall. **Highbush Blueberry** harvest is done. Survey fields for weak bushes and determine whether or not Blueberry Stunt or Scorch may be the cause. Only non- nitrogen fertilizer applications should be made this late in the season if leaf tissue tests indicate deficiency. Scout fields for weeds to prepare for late season management strategies. **Summer raspberry** harvest is long over but be on the lookout for late leaf rust. Look for Orange Rust on black raspberries and blackberries, too. **Fall raspberries** are still producing, but many are infested with the new fruit fly pest Spotted Wing Drosophila (see more on this below). Botrytis fruit rot is also a threat. Also check for and clean up mites and leafhopper damage. **Grapes** are being harvested. SWD is also a serious threat in this crop, both table and wine grapes are being infested. Prepare for wine grape harvest by checking fruit ripening parameters regularly. More on this below.

The most significant issues for all fruit crops in this region is the aftermath of Hurricane Irene and the continued wet weather. There are several articles in this issue that address issues related to flooding. The other big issue that has arisen is Spotted Wing Drosophila (SWD). See the articles in this issue for information and links to additional resources for managing this new pest.

New publication available: “Bird Damage Prevention for Northern New England Fruit Growers: by Dr. Alan Eaton, UNH. View at http://extension.unh.edu/resources/files/Resource001797_Rep2514.pdf or contact me for a copy.

ENVIRONMENTAL DATA

The following growing-degree-day (GDD) and precipitation data was collected for an approximately two-week period, September 1 through September 14, 2011. Soil temperature and phenological indicators were observed on or about September 14, 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)
	2-week gain	Total accumulation for 2011		
Cape Cod	208	2,446	72°	2.35"
Southeast	184	2,355	76°	4.35"
East	263	2,713	76°	3.70"
Metro West	235	2,547	64°	2.51"
Central	n/a	n/a	n/a	n/a
Pioneer Valley	248	2,481	69°	4.05"
Berkshires	203	2,069	69°	7.00"
Average	223	2,435	71°	4.00"

(Source: UMass Extension Landscape Message #23 Sept. 16, 2011)

STRAWBERRY

Strawberry Fall Check-List

Sonia Schloemann, UMass Extension

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

√ **Nutrition:** Nitrogen fertilizer should be applied to bearing beds in early September to bring your seasonal total up to 100-120 lbs/acre. Most growers apply about 70-80 lbs of nitrogen on at renovation. The fall application should provide another 30-50 lbs (more on soils with low organic matter content). This stimulates good root growth in the fall and supplies nitrogen needed for flower bud initiation. New fields need to have a total of 80 - 100 lbs/acre of nitrogen with about 40 lbs applied in the fall. Ammonium nitrate (35% N) is a good fertilizer for the fall application. If your leaf tissue analysis shows deficiencies in magnesium or boron, early fall is a good time for foliar applications of Epsom salts (15lbs/100gal/acre) for magnesium and Solubor (3lbs/100gal/acre) for boron. Don't make these applications on hot humid days, however, or phytotoxicity could result. Read the labels.

√ **Weeds:** Weed management in the early fall is limited to cultivation and hand weeding/hoeing. The only herbicides you should consider using are Poast or Select Max for controlling grasses postemergence. These will only work on relatively small grasses. Big clumps of crabgrass will have to be pulled by hand. However, quackgrass can be knocked down by cultivation or mowing and then treated when new growth is less than 6" high. One note of caution; Poast, which is used with a crop oil surfactant, can injure strawberry foliage in cold weather. I would recommend its use as a spot treatment at this time of year rather than a broadcast treatment of the whole field. Chateau can be applied as a preemergence material to row middles to control broadleaf weeds in the fall, but should not be allowed to contact strawberry foliage. Weed management later in the fall can include applications of preemergent materials such as Devrinol, Ultra Blazer, Prowl H20, Spartan and Sinbar.

√ **Diseases:** Clean up severe infections of leaf spot and powdery mildew. Rally, Cabrio and Pristine may be good materials for this use. Organic options for leaf spots include copper products such as Nu Cop 50WP but consult label for sensitive cultivars. Organic options for powdery mildew include Oxidate, JMS Stylet Oil, potassium bicarbonate products and sulfur products (again, consult label for cautions on sensitive cultivars). Healthy leaves are important at this time of year to supply the plant with the energy to produce flower buds for next year's crop and to store energy in the roots for the first flush of growth next spring. Apply Ridomil Gold, Alliette

Prophyt or Phostrol in September or early October in areas where Red Stele has been identified. Organic growers can use Actinovate AG but this is best used prior to disease onset. It is best to apply these materials when the soil is beginning to cool but before heavy fall rains begin. This should not be considered an alternative to good site selection for strawberries.

√ **Insects:** Check fields for infestations of leafhopper, mites or aphids. Generally, plants can take a fair amount of feeding by these insects, but heavy infestations can be a problem. And, aphids in particular, can vector virus especially when they are in the winged form and can disperse to other fields.

Choosing Fall Weed Management Options for Strawberries

Eric Hanson and Bernard Zandstra, Michigan State University Extension, Department of Horticulture

Fall is a crucial time for post-emergence control of several strawberry weeds. Know how to identify weed species so you can choose the most effective herbicide for your field.

Weeds can be a difficult and season-long problem in years with too much or too little rainfall. Delayed herbicide application in the spring because of wet soils often results in establishment of weeds that are difficult to control during the rest of the season. Fall is an important time for post-emergence control of several strawberry weeds. Late fall is a good time to apply residual herbicides for preemergence control the next spring. Fall application avoids the potential of strawberries greening up before mulch can be removed (because of wet soil) and spring herbicides applied. Most herbicide labels for strawberries require spring or fall application to dormant plants, and application on new growth can stunt or injure the plants.

Row middle management

Weeds emerging in row middles can be managed by cultivation or application of pre- and post-emergence herbicides. **Gramoxone Inteon** (paraquat) or **Aim** (carfentrazone) can be used as directed, shielded sprays to burn down weeds in the row middles in the fall. Gramoxone is more effective on larger weeds and grasses than Aim.

Post-emergence grass herbicides such as Poast (sethoxydim) or **Select Max** (clethodim) are effective against actively growing grasses. Most grasses are past this stage in September, but late applications may be effective against grasses germinating after frost. **Roundup** (glyphosate) can also be applied to row middles as a directed, shielded spray. Roundup is very damaging to strawberries and should be applied only with a shielded sprayer to control perennials or other hard-to-kill weeds.

Chateau (flumioxazin) is a preemergence herbicide that can be applied to row middles in the fall or spring. Chateau can injure strawberry plants, so only apply as a directed band in row middles. A fall application of Chateau should control weeds for about eight weeks the next season.

In-row management

Choices of post-emergence herbicides for use in fall are limited. One option for early fall application is **Stinger** (clopyralid), which controls most weeds in the composite, legume and nightshade families. These include troublesome strawberry weeds such as thistles, clovers, dandelions, common groundsel, oxeye daisies, mayweeds and curly docks. Stinger is effective if applied directly to weeds in the fall when they are still green before a killing frost.

Sinbar (terbacil), **Devrinol** (napropamide), **Ultra Blazer** (acifluorfen), **Prowl H2O** (pendimethalin) and **Spartan** (sulfentrazone) [*Ed. Note:* Ultra Max and Spartan not registered in New England] can be very effective the following year when applied after plants have become dormant in late November or December. Strawberries are more tolerant of these herbicides after they are dormant. An excellent timing is just before mulch is applied. Each product controls a different spectrum of weeds; make choices based on the weeds present.

Generally, Devrinol is active against annual grasses. It has a short residual life of four to six weeks. Sinbar controls most annual grasses and broadleaf weeds. It has fair to good control of quackgrass. It is weak on common groundsel and most pigweeds. Spartan controls several troublesome weeds, including common groundsel, field pansy, mayweed or dog fennel, pineapple-weed or chamomile, several pigweeds, white campion and yellow woodsorrel. It has some yellow nutsedge activity. Prowl H2O may be applied anytime strawberries are dormant. In the fall, apply Prowl just before mulching. It gives good control of most annual grasses and annual broadleaves for about eight weeks the next spring. Prowl does not control yellow rocket or other winter annual mustards. It is weak on most composites.

An effective strawberry weed control program includes fall dormant and early spring applications of residual herbicides, post-emergence grass herbicides during the growing season, post-emergence broadleaf and residual applications at renovation, and fall post-emergence applications. Cultivation at renovation also contributes to the weed control program. Some large annuals and persistent perennials will need to be removed by hand. With some combination of these treatments, growers

should be able to maintain their fields with minimal weed infestation for the three- to five-year life of a typical matted row planting.

Learn to identify weed species in order to choose the most effective herbicides for your fields. Excellent books on weed identification are “Weeds of the Northeast” by Uva, Neal, and DiTomaso (Cornell University Press, 1997) and

“Weeds of the Midwestern United States and Central Canada” by Bryson and DeFelice (University of Georgia Press, 2010). Current recommendations for herbicides and other pesticides are summarized in MSU Bulletin E-154, Michigan Fruit Management Guide.

Editor’s note: Many of these weeds can be viewed online at MSU’s [Identifying weeds in field crops](#).

	Blazer** (pre)	Devrinol (pre)	Sinbar (pre)	Spartan** (pre)	Stinger (post)
BROADLEAVES					
buckwheat, wild	x			x	x
campion, white				x	
chickweed, common		x	x		
clover			x		x
cocklebur, common					x
daisy, oxeye					x
dock, curly					x
dandelion			x		x
dogfennel			x		
groundsel, common				x	x
horseweed			x		x
knapweed, spotted					x
knotweed		x	x		
lambsquarters, com.	x		x	x	
mayweed				x	
mustard			x	x	
nightshade, black	x		x	x	x
pigweeds	x	x		x	
pineappleweed		x			x
purslane, common	x	x	x	x	
ragweed, common	x	x	x		x
sorrel, red					x
rocket, yellow			x		
shepherdspurse			x		
smartweed	x		x	x	
sowthistle, annual			x		x
thistle, Canada					x
thistle, bull					x
vetch, common					x
woodsorrel, yellow				x	
GRASSES					
barnyardgrass		x	x	x	
bluegrass, annual		x	x		
brome, downy		x	x		
crabgrass, large		x	x	x	
foxtail	x	x	x	x	
oat, wild		x			
orchardgrass			x	x	
panicum, fall	x	x	x	x	
ryegrass, Italian		x	x		
sandbur		x			
stinkgrass		x			
witchgrass		x			
SEDGES					
nutsedge, yellow				x	

** Not registered for use in New England States at this writing.

Herbicide efficacy on some strawberry weeds (x indicates control).

(Source: Michigan State University Extension News for Agriculture, Sept 9, 2011)

Back-Saving Tools for Strawberry Growers

Molly Shaw, Cornell Cooperative Extension

Jerry and Val Carocci bought Church St Produce in Burdett as an established farm stand and berry patch a few years back. Jerry was a few years away from retiring from state corrections, so he worked at the farm nights and weekends while Val looked forward to his full time participation after “retirement.”

Whichever way you cut it, growing strawberries involves hand labor. But before too long, the Caroccis invested in a couple of pieces of equipment that cut the hand work way down.

The Reigi weeder, which goes for about \$3,900, is used for weeding strawberries during the planting year and for uncovering the plants from the straw mulch in the spring. The single row version of the machine has two rotating (PTO-driven) heads that spin against the ground and are pulled in and out around plants by a person riding on the Reigi weeder. A different dethatcher head is used for straw removal.



“We figure for just over an acre of strawberries it used take two people roughly forty - fifty hours to uncover the

berries in the spring,” Jerry says. “Now with the Reigi weeder, we can uncover the fields with one person driving the tractor (no one riding on the weeder) in three to four hours. Sometimes we do it with one person riding the Reigi to make sure it is working properly... It has saved a lot of muscle and back aches.”

Their other favorite piece of equipment is a small mulcher, the Wic Strawberry Mulcher, purchased for \$4,130 thru Bechards in Champlain, NY. It takes one bale at a time and shreds it, dropping it over the row.

“It used to take two people sixty to seventy hours to cover the berries with straw. Now we think we are down to twenty-five to thirty hours and the labor involved is not as strenuous as the old way--saves a lot of aches, pains and time. We have also managed to make this a one person job if there is something else that needs to be done at the same time.”

Jerry also says that they use less straw than they used to because it is distributed so evenly, and straw is dropped just on the berry row, not in the aisle. Then come spring, that nice thick mat of straw is kicked into the aisle by the Reigi weeder, and their customers appreciate the soft surface on which to kneel. Even with cold NY winters (strawberries start getting winter injury when crowns reach approximately 17 degrees F) some growers don’t mulch their strawberry fields because of the cost and labor—both in putting on the straw and removing it in a timely manner in the spring. In my visits to strawberry growers in the southern tier, there is a huge variation in the vigor of strawberry plants from farm to farm. The berries at Church St Produce are top notch, and while many factors go into growing great strawberries, I think the good mulch and good fertilization set the Carocci’s fields apart. They make the mulching happen with these two key pieces of equipment. (*Source: New York Berry News, Vol. 10, No. 7, Aug 22, 2011*)

RASPBERRIES/BLACKBERRIES

Raspberry Fall Check List

Sonia Schloemann, UMass Extension

Goranson Farm - Reigi I weeder. Photo from NEON (Northeast Organic Network), www.neon.cornell.edu

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

√ **Nutrition:** Based on soil and tissue test results, apply

non-nitrogen containing fertilizers and lime as needed. For example, Sul-Po-Mag or Epsom Salts can be applied now so that fall rains can help wash it into the root zone for the plants.

√ **Weeds:** Now is a good time to do a weed survey and map of problem areas, so that you can use this information to develop an effective management strategy. A late fall application of Casoron®, Devrinol®, Surflan®, or Princep® for preemergent control of broadleaf weeds

next spring should be made. Apply Casoron® only when temperatures are below 40°F, preferably just before rain or snow. Most of these materials should only be used on established plantings, not newly planted fields. See the *New England Small Fruit Pest Management Guide* for more specific information.

√ **Diseases:** Fall bearing raspberries can suffer fruit rot problems due to increased moisture present in the planting (more frequent precipitation, longer dew retention, longer nights) late in the growing season. The majority of this fruit-rot is *Botrytis cinerea*, gray mold. Captan 80 WDG is labeled for use on brambles. In addition Elevate®, Switch®, Pristine® and Rovral® are materials available for this use. Frequent harvesting and cull-harvesting are the best practices for keeping fruit rot levels low. Thinning canes in dense plantings can also help. Scout summer bearing brambles to look for powdery mildew and treat if necessary. See the *New England Small Fruit Pest Management Guide* for recommended materials and

rates. If Phytophthora root rot has been identified in a field, treat the affected area with Ridomil Gold®, Alliette®, or Phostrol® in September or early October. This timing is important to get the material in place in the root zone before the onset of cool wet weather (and soil) in the fall.

√ **Insects:** Now is the time to check plantings for crown borers. Adults of this pest look like very large 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.

Spotted Wing Drosophila – More You Should Know

Kathy Demchak, Penn State

Given that spotted wing drosophila (SWD) has been found in PA [**Ed. Note:** and New England], many growers are scrutinizing their berries a little more closely. The main concern is that there could be SWD larvae in the fruit. Blackberries and raspberries are two favorite foods of SWD, and fall-harvested cultivars are the most at risk since SWD populations increase throughout the growing season. However, there are other types of larvae that could be in fruit, including those of fruit fly species that lay eggs in overripe fruit. With raspberries, some folks have noticed that if they see juice on the inside of the cap, and then pull apart or squish these fruit, they find larvae (not necessarily SWD larvae). They keep an eye out for red staining on the receptacle from the juice as they harvest. No juice inside the cap = white receptacle = no larvae. I don't know if that's always the case, but it held true with berries I've checked. With blackberries, finding suspicious fruit is trickier, as you need to find the oviposition hole and damaged flesh around it. You can also check suspicious fruit by squishing it in a plastic zip-lock bag, adding a 1:16 solution of salt to water (1/4 cup salt to 4 cups water), and looking for larvae floating at the surface of the water after about 15 minutes. Earlier recipes used sugar, but apparently salt makes the larvae exit the fruit faster. Here are a few other questions people seem to be wondering about.

If I find larvae in the fruit, does this mean my farm has SWD present? While larvae could be SWD larvae, they

also could be larvae of common fruit flies especially if the fruit was very ripe or overripe. SWD larvae are very tiny white maggots - they do not have a visible head. The larvae are actually in the flesh of the fruit – not on the surface, though they do extend their breathing apparatus to the surface. It's essentially impossible to tell types of maggots apart, unfortunately, without raising them to adulthood and then identifying the adults. If the larvae in your fruit flesh have a discernable head, you probably are looking at larvae of sap beetles or picnic beetles. If the larvae you find have a discernable head and are inside the cap, but not actually in the fruit flesh itself, you may have raspberry fruitworm.



How do I know whether the fruit flies I am seeing are SWD? First, it's important to note that the vast majority of fruit flies you see are *not* SWD. The identifying characteristic on the SWD males is a large black

spot on the outside edge of each wing near the tip, but not right at the very tip. If you see fruit flies with a small spot on each wing at the very tip, they may belong to a different genus of fruit flies that includes organic matter decomposers and a type of pea leafminer. Females are much more difficult to tell apart from other fruit flies. Another tiny insect I've noticed on raspberry fruit that could potentially be mistaken for SWD is a predatory insect of thrips that, when magnified, is obviously not a fruit fly. It is about the size of a fruit fly though, and without magnification, its markings give it the appearance of having black spots towards the outside edge of its

wings. You can set out vinegar traps to trap adults – this is especially important if you are finding larvae in order to determine whether SWD may be present. A good set of directions for making traps with excellent photos is at <http://www.ipm.msu.edu/SWD/SWD-monitor.htm>.

What should I do next if I think my farm has SWD? It's important to correctly determine whether you have SWD. You can contact your county extension office to ask for help. The folks there can contact me if needed. If it looks likely that you have SWD, we will contact PDA as the personnel there will need to confirm the ID and presence of SWD.

What cultural steps can I take to minimize problems? Note that most of these steps are the very same steps we recommend for minimizing problems with sap beetles and diseases.

1) Pick fruit as soon as possible. With raspberries, this means harvesting as soon as you can pull the fruit from the plant, and with blackberries, harvesting when the fruit is fully colored. If you notice any raspberry fruit with juice inside the caps, discard these berries, preferably after checking for larvae.

2) Harvest thoroughly. Even if you need to pay someone to pull off old fruit, keeping the planting clean will be

worthwhile for a number of reasons in addition to this one.

3) Dispose of unwanted fruit in a way that will keep fruit flies from using it as a food source or from hatching from it.

What insecticides work if they become necessary? Effective insecticides for which 2(ee) labels specific for spotted wing drosophila have been issued that are registered on raspberries and blackberries are: Danitol (fenpropathrin); Delegate (spinetoram); Entrust and Success (spinosad); Mustang Max (zeta-cypermethrin); and Pyganic (pyrethrins). Other materials registered on canberries for other pests are also effective on SWD. Our big concern is development of SWD populations that are resistant to certain insecticides. This pest has a very short life cycle, so please be sure to use materials from different activity groups for subsequent sprays. Here is a listing of insecticides registered for use on canberries in PA that have a PHI of 3 days or less, grouped by activity group. Ratings and length of expected residual activity are from information found at <http://www.berriesnw.com/SFU/2011/SFUdocs11/SWD-Caneberry-MngtPlan.pdf>. It should be noted that the residual activity has sometimes been reported to be shorter than what is listed here, so close watch for return of adults will be needed.

Trade name	Active Ingredient	PHI (days)	Activity Group*	Effectiveness	Residual Activity
Malathion	malathion	1	1B	Excellent	7-10 days
Brigade	bifenthrin	3	3A	Excellent	10-14 days
Danitol	fenpropathrin	3	3A	Excellent	10-14 days
Mustang Max	zeta-cypermethrin	1	3A	Excellent	10-14 days
PyGanic	pyrethrins	0	3A	Good	0 days
Assail	acetamiprid	1	4A	Fair	1-3 days
Provado	imidacloprid	3	4A	Fair	1-3 days
Actara	thiamethoxam	3	4A	Fair	1-3 days
Delegate	spinetoram	1	5	Excellent	5-7 days
Entrust, Spintor, Success	spinosad	1	5	Excellent	5-7 days

*1B = organophosphates; 3A = pyrethroids and pyrethrins; 4A = neonicotinoids; 5 = spinosyns

(Source: *The Vegetable & Small Fruit Gazette*, Vol 15, Issue 9, Sept. 2011)

BLUEBERRY

Highbush Blueberry Fall Check-List

Sonia Schloemann, UMass Extension

√ **General:** Blueberry plants should be encouraged to harden off for the winter. This means no nitrogen fertilizer at this time. Flag bushes that show premature reddening of leaves compared to others of the same variety. This can be an indicator of infection with virus or other pathogens. If you haven't done it already, make some notes on observations from this year that might be helpful in coming years (e.g., variety performance,

sections of the field that did well or poorly, how well some practices worked, or didn't, etc.). Relying on memory isn't always accurate enough. Nothing can replace a detailed field history when trying to diagnose problems.

√ **Nutrition:** Hold off on any nitrogen fertilizers. Based on leaf tissue tests and soil tests, sulfur, lime, and some

fertilizers can be added now. Apply these before fall rains begin and also before adding any supplemental mulch to the plants.

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

√ **Diseases:** Weak plants can easily be detected at this time of year because they tend to turn red earlier than healthy bushes. Upon finding weakened bushes, try to determine the reason for weakness. Is the root system damaged? If so, is it likely from disease infection or root damage by voles or grubs? If the roots are healthy, could a crown borer (Dogwood borer) be the culprit? Or is stunt disease the cause? Or Scorch? Accurate diagnosis is the

first step in resolving the problem and avoiding spread. Enlist the help of specialists if you have trouble determining the cause of problems. See factsheet on Blueberry Scorch at www.umass.edu/fruitadvisor for help diagnosing this disease.

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

Take Advantage of Fall Weed Management in Blueberries

Eric Hanson, Michigan State University

Fall can be an important time to control weeds. Here are a few tasks that should pay off in the future.

Scout your fields

Spend some time after harvest walking fields and recording weed pressure and determine how successful your spring preemergent herbicides were. Note where control was good and poor and which weeds are present, particularly where perennial weeds have become established. Birds drop seeds of many noxious perennials (Virginia creeper vine, grapevine, poison ivy) in blueberry fields, so even clean fields need to be monitored for new weeds. Is weed pressure related to the soil type or herbicides used last spring?

This information will help in formulating a weed management program for next spring. Are rows completely devoid of weeds in the fall? This might indicate too much herbicide was used the previous spring. Some annual weeds should begin establishing in the fall if rates are optimum.

Treat tough perennial weeds

Late summer and fall is a good time to work on tough-to-control perennial weeds such as Virginia creeper vine, grapevine, milkweed, goldenrod, poison ivy and brambles. These perennials generally do not respond to soil applied herbicides, but can be managed by careful applications of glyphosate (Roundup) late in the summer. Glyphosate is effective on these weeds, but can also kill blueberries. Perennial weeds are killed because the

chemical moves to below-ground plant parts. Treat before weed leaves senesce. Virginia creeper vine, for example, drops leaves early in the fall. For spot spraying perennials:

- Use 2 percent glyphosate solutions.
- Add ammonium sulfate to improve absorption.
- Avoid all green blueberry tissues.
- Apply when weeds are still green.
- Spray at low pressure to limit drift.

Use extreme care not to contact green blueberry tissues (stems and leaves) with glyphosate. Glyphosate absorbed by blueberry leaves and green bark moves within the bush and can kill whole canes or bushes. Weeds such as blackberry, Virginia creeper and grapevine may need to be pulled out of bushes so they can be treated safely. This may seem too slow to be practical, but consider what these weeds cost in lost income. Bushes covered by Virginia creeper vine may yield just 20 percent of their potential. This easily equates to a \$5 to \$10 loss per bush. The loss is incurred each year and increases as the vines spread to neighboring bushes. Investing 15 minutes to carefully pull vines out of that bush and safely treat them on the ground is money well spent.

Fall application of preemergent herbicides

October and November is often an effective time to apply preemergent herbicides. Fall is less busy than spring for

most growers and often we have periods of good conditions in the fall. In recent years, rainy periods in the spring have hampered herbicide applications and sometimes delayed applications until after weeds have established, so control is poor. Over the last three years, we have compared spring and fall applications of several standard herbicides. Most provided comparable control in both seasons. Fall may be better than the spring for control of some weeds. Marestalk, for example, can emerge in the fall, so spring applications are too late for control.

Consider experimenting with fall applications. Chateau and Solicam are good candidates for the fall, particularly in combination with older materials such as Karmex or Princep. Results of a trial this year (Table 1) showed that fall applications of Solicam plus Princep or Chateau alone provided good weed control through early August. The primary weeds present in this study were red sorrel, common crabgrass, common chickweed, Pennsylvania smartweed and horsenettle. Other trials indicate that fall applications of Karmex, Princep and Solicam are as effective as spring applications.

Table 1. Effect of herbicides applied in fall 2010 and spring 2011 on weed cover in summer 2011. ‘Duke’ field, South Haven.

Product	Rate lb. ai/acre	Date	Weed cover (%)	
			15 June	1 Aug
Control			98	100
Princep 90 Sinbar 80W	2 1	Nov 11	52	100
Princep 90 Solicam 80DF	2 2	Nov 11	3	27
Chateau 51%	0.38	Nov 11	6	16
Princep 90 Sinbar 80W	2 1	April 1	87	100
Princep 90 Solicam 80DF	2 2	April 1	83	90
Chateau 51%	0.38	April 1	2	13
Callisto 4SC	0.188	May 10	42	90
Callisto 4SC Sinbar 80W	0.094 1	May 10	2	10
Callisto 4SC Solicam 80W	0.094 2	May 10	6	33
Sandea 75WDG	0.047	May 10	37	98
Sandea 75WDG Sinbar 80W	0.047	May 10	1	17

Editor’s Note: Products listed below have a current NYS registration for use on blueberries. Sandea (EPA No. 81880-18-10163) new supplemental label for use on blueberries in NYS from 6/14/2011; Callisto (EPA No. 100-1131); Princep 90 (EPA No. 100-603); Sinbar (EPA No. 352-317); Solicam DF (EPA No. 100-849); Chateau WDG (EPA No. 59639-119) supplemental label for blueberries; Chateau SW (EPANo. 59639-99) supplemental label for blueberries. This article was adapted for NY from the MSU Extension News for Agriculture, August 29, 2011. Dr. Hanson’s work is funded in part by MSU’s AgBioResearch.

(Source: New York Berry News, Vol 10, No. 8. Sept. 2011)

GRAPE

Don’t Overlook These New Invasive Pests at Harvest Time

Roger Williams and Dan Fickle, Ohio Agricultural Research and Development Center

We have been talking a lot about the brown marmorated stink bug, two spotted fruit fly and the European grapevine moth as new grape pests for Ohio growers to be on the lookout for. Why are we so concerned about these pests? Because they all can directly threaten the integrity and quality of the fruit at harvest leading to an increase in late season bunch rots.



The brown marmorated stink bug (BMSB) is already present in Ohio. It threatens bunch integrity by its feeding habits but we are also very concerned about its possible presence in the fruit clusters at crush. Like



the Multicolored Asian lady beetle (MALB) this pest emits a strong defensive chemical when threatened. Make sure these bugs are not present in your harvested grapes before they go into the crusher or they might add an undesirable element to your juice. We do not know for sure that this will occur however it’s better to be safe than sorry.

The two-spotted fruit fly has recently been reported in our neighboring state to the east, Pennsylvania which means that it will eventually show up in Ohio.



Unlike our native fruit flies this one has the ability to damage sound fruit which means we could end up seeing more cluster damage at harvest. Be on the lookout for this fly when your clusters are ripening and let us know if you suspect it may be present in your vineyard. The two black spots on the wings easily identifies it from our native fruit flies.

Lastly, the European grape vine moth has not been detected west of the Rockies yet and we are crossing our

fingers that they contain it in California. We will keep everyone posted if it makes the leap to the mid-west but for now we seem to be a West Coast species. However, we know that it is able to overwinter in some colder climates in Europe.

(*Source: Ohio Grape-Wine Electronic Newsletter, Aug 31, 2011*)

Evaluating Grape Samples For Ripeness

Joseph A. Fiola, Univ. 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 your 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 is 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 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.

(*Source: Maryland Timely Viticulture, Preharvest*)

GENERAL INFORMATION

Dealing With Flooded Berry Fields

Steve Reiners and Marvin Pritts, Dept. of Horticulture, Cornell University

Record-breaking rains in New York State have left many berry growers with unmarketable crops. What had been shaping up to be a decent season has quickly turned into a bad situation.

Floods And Food Safety

There are two types of flooding. The first is more typical and occurs after a heavy downpour when fields become saturated and water pools on the soil surface. This type of flooding can reduce yields and even kill plants but usually will not result in contamination of produce with human pathogens. The second type of flooding is more severe and unfortunately occurred with the recent storm. This occurs due to runoff from stream/river overflows will more likely be contaminated with human pathogens, as well as chemicals. Unless you are absolutely sure that flooding is not from streams and surface water, do not use berries that were covered with flood water.

Plant Survival Under Water

How long a crop can live once it is flooded and what may be the effect on yield? Berry crops can tolerate a great deal of flooding when they are dormant, but when actively growing in summer, flooding for any length of time can be detrimental. This time of year is particularly bad because plants are preparing to make flower buds for next year, and stress can compromise this process. If plant roots were under water for more than 48 hours, expect next year’s crop to be compromised as well.

Plants previously flooded may develop an off-green or yellowish color. These plants are suffering from a complex of nutrient deficiencies, nitrogen, phosphorus, potassium and perhaps others, even though the soil contains adequate amounts. But the main deficient element is oxygen. Plant roots need oxygen to take up nutrients and water to utilize the photosynthate from the tops and to grow. With the heavy rains we have had, soils are saturated; that is, nearly all of the pore space is filled with water, leaving little room for air. Ideally, for good root growth 50 percent of the pore space should be filled with air. As soils drain, air is drawn into the soil, but when it rains, the water forces the air out of the pores. As is obvious to all, what is needed now is several rain-free days so the soils can drain and draw in air to stimulate root growth. Once the plant roots get adequate oxygen they will begin to grow and take up the nutrients present in the soil. Anything that can be done to remove surface water will be helpful.

Many plant diseases will be much worse following flooding rains (e.g. Phytophthora and Botrytis), so closely monitor crops and manage these diseases. Phytophthora spores are spread under flooded conditions, so chemical treatment may be warranted in susceptible crops (e.g. red raspberries and strawberries). (*Source: New York Berry News, Vol 10, No. 8. Sept 15, 2011*)

USDA Assisting Growers, Livestock and Milk Producers Damaged by Hurricane Irene

Michael Jarvis and Kent Poltisch, USDA FSA

Washington D. C., Sept. 8, 2011. The U.S. Department of Agriculture continues to offer services to farmers whose livestock and crops were damaged in the devastation brought on last week by Hurricane Irene. Agriculture

Secretary Tom Vilsack says USDA is deploying personnel and resources to assist the efforts by federal, state and local authorities in response to the hurricane.

"We continue to closely coordinate with many partners to meet the immediate and plan for the long-term needs of those affected by Hurricane Irene," said Vilsack. "Our thoughts and prayers go out to all who have suffered losses caused by this massive storm. USDA is ready to provide food, emergency assistance and other resources to the affected areas."

Hurricane Irene affected the ability of some dairy cooperatives and handlers in the Northeast to pick up milk at local farms particularly in Southern Vermont and Eastern New York. In some instances milk was dumped on the farm when it was unable to be picked up on a timely basis or where loss of power impacted milk quality, rendering such milk as non-Grade A. Due to the impact of this natural disaster on dairy farmers in the Northeast, USDA is taking administrative action to include this milk as part of the Federal milk marketing order pool for the months of August and September as needed, although it was never delivered to a plant for processing. This decision will enable cooperatives and handlers to pay the Federal order blend price to affected producers on all the volume that they produced including any milk dumped due to Hurricane Irene.

USDA encourages all farmers, ranchers, producers, landowners and rural communities to contact their local USDA Farm Service Agency Service Center to report damages to crops or livestock loss; their local Rural Development office for housing, business or community assistance information and/or their local Natural Resources Conservation Service office for help with debris removal. Below are some programs that offer assistance:

Noninsured Crop Disaster Assistance Program (NAP)

- NAP provides financial assistance to eligible producers affected by drought, flood, hurricane, or other natural disasters. NAP covers non-insurable crop losses and

planting prevented by disasters. Landowners, tenants, or sharecroppers who share in the risk of producing an eligible crop are eligible. Eligible crops include commercial crops and other agricultural commodities produced for food, including livestock feed or fiber for which the catastrophic level of crop insurance is unavailable. Also eligible for NAP coverage are controlled-environment crops (mushroom and floriculture), specialty crops (honey and maple sap), and value loss crops (aquaculture, Christmas trees, ginseng, ornamental nursery, and turf grass sod).

Supplemental Revenue Assistance Payments Program (SURE)

- SURE was authorized by the 2008 Farm Bill and covers crop revenue losses from quantity or quality deficiencies only in those counties and contiguous counties declared disaster areas by the Agriculture Secretary or in cases where the overall production loss exceeds 50 percent. Approved crop insurance or noninsured crop disaster assistance must be in place to qualify.

Emergency Assistance for Livestock, Honeybees, and Farm Raised Fish (ELAP)

- ELAP was authorized by the 2008 Farm Bill to provide emergency relief to producers of livestock, honeybees, and farm-raised fish and covers losses from disaster such as adverse weather or other conditions, such as blizzards and wildfires not adequately covered by any other disaster program.

Livestock Indemnity Program (LIP)

- LIP was authorized by the 2008 Farm Bill to provide assistance to livestock producers for livestock deaths from disaster events, in excess of normal mortality. (*Source: FSA Press Release, No. 0393.11 via New York Berry News, Vol. 10, No. 8*)

FSA Reminds Producers of Disaster Assistance Deadlines

WASHINGTON, Sept. 1, 2011 – The U.S. Department of Agriculture's (USDA) Farm Service Agency (FSA) Administrator Bruce Nelson reminded producers today about upcoming deadlines for disaster assistance. Nelson emphasized that losses must be the result of a weather event occurring on or before Sept. 30, 2011.

"This year brought a host of extreme weather challenges for America's farmers, ranchers and producers," said Nelson. "USDA is committed to use the resources at our disposal to reduce the impact of these conditions and help producers get back on their feet. And this year, especially, it's important for producers to be aware of program deadlines and to have their records in order so that they get the assistance they need."

The 2008 Farm Bill authorizes coverage of disaster losses through these five programs: Supplemental Revenue

Assistance Payments Program (SURE); Livestock Indemnity Program (LIP); Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish (ELAP); Livestock Forage Disaster Program (LFP); and the Tree Assistance Program (TAP).

SURE applications for 2010 crop losses will be accepted later this fall. SURE applications for 2011 crop losses will be accepted in the fall of 2012, when the 2011 farm revenue data required by statute becomes available.

FSA is required to determine that the claimed loss was because of a disaster occurring on or before Sept. 30, 2011. FSA must determine if a qualifying loss meets the established disaster relief criteria for at least one crop.

At the time the SURE application for payment is filed, the producer will be required to identify and certify a crop of

economic significance that suffered a qualifying loss of 10 percent or more. At least one such crop with 10-percent losses on or before Sept. 30, 2011, is required by SURE.

"We encourage all producers to read the applicable disaster program fact sheets and visit their local FSA

county office. The staff can provide additional information such as the deadline for filing a program application or the initial requirement for filing a notice of loss," Nelson said.

Important dates for the five disaster programs are summarized in the table below.

Program	Deadline to File a Notice of Loss	Application Period
SURE*	No deadline for SURE, but check with your crop insurance or Noninsured Crop Disaster Program (NAP) policy	2009: closed 2010: begins fall 2011: begins fall 2012
LFP*	Not applicable	Now through Jan. 30, 2012
LIP/ELAP*	Within 30 days of when the loss is apparent, but not later than Dec. 29, 2011	Now through Jan. 30, 2012
TAP*	Not applicable when loss is apparent	Within 90 days of when loss is apparent
* Losses must be due to a weather event that occurs on or before Sept. 30, 2011		

Fact sheets for these programs can be found at www.fsa.usda.gov; click on Newsroom, then Fact Sheets. Additional information regarding the programs is at <http://disaster.fsa.usda.gov>.

(Source: FSA Press Release, No. 0109.11 via New York Berry News, Vol. 10, No. 8)

Vole Management in Berry Plantings

Cathy Heidenreich, Cornell University

Voles, also known as meadow or field mice, can do a lot of damage to bushberry and caneberry plants during winter months from feeding on plant roots to girdling canes and gnawing on crowns below the snow cover.

Population monitoring and management can help reduce losses incurred to blueberries, raspberries and blackberries and other berry crops by these small mammals.

Vole Life History and Identification

Twenty-three species of voles occur in the United States. Most range in size from 5 to 9 inches in length, and 1 to 2 ounces in weight. They are generally gray-brown in color with grayish underparts. Compact is the term that best describes voles, which are stocky rodents with short legs and tails. These features, combined with small eyes and partially hidden ears make them ultimate tunnelers.

Home range for voles is usually 1/4 acre or less but this varies with food supply, population density, and other factors. Voles spend their days underground creating systems of subterranean tunnels and runways. These

tunnels are used to feed on plant roots, store food, and raise young. Tunnels have numerous surface entrances and a single burrow system may provide habitat for several adults and young.



(Vole feeding on apple. Photo courtesy P. Curtis)

Nocturnally active also, voles travel and feed at night along surface runways above ground. Runways consist of 1 inch wide depressions or matted trails in grass and ground cover that have characteristically close clipped vegetation and contain feces and bits of chewed debris.

Voles do not hibernate, reproducing for most of the year with peaks occurring in the spring and fall. Highly prolific, voles produce 1 to 5 litters per year with litters ranging in size from 3-11 young; average litter size is 3 to 6. Females are reproductively mature in 35 to 40 days. Young voles reach maturity within 21 days.

Vole lifespan is relatively short, ranging from 2 to 16 months. Populations tend to be cyclic with peaks occurring every 2 to 5 years. Cold winters can greatly



(Vole tunnel system. Photo courtesy I. Merwin.)

reduce vole population numbers. Numbers are also affected by other climatic conditions and food supply.

Voles feed on a wide variety of plants but most commonly feed on grasses and forages. Other plant food sources include seeds, tubers, bulbs, and rhizomes. They are also known to occasionally feed on insects, snails, and animal remains.

The preferred habitat for most voles is an area with heavy cover (grasses, grass-like plants, leaf debris or litter). When populations are high they may spill over from these habitats into fruit plantings, wind breaks, and cultivated fields.

The two types of voles most common to our area are the Meadow vole (*Microtus pennsylvanicus*) and the Pine or Woodland vole (*M. pinetorum*). The Meadow vole is the most common species found in the northern US and Canada. Ranging in size from 5.5 to 7.5 inches in length the meadow vole has gray to yellow brown fur with black-tipped hairs. Northern subspecies of this mammal may have reddish fur overtones. Meadow vole underparts are gray, sometimes washed with silver or buff; its tail is bicolored. Preferred habitats for *M. pennsylvanicus* are wet meadows and grasslands.

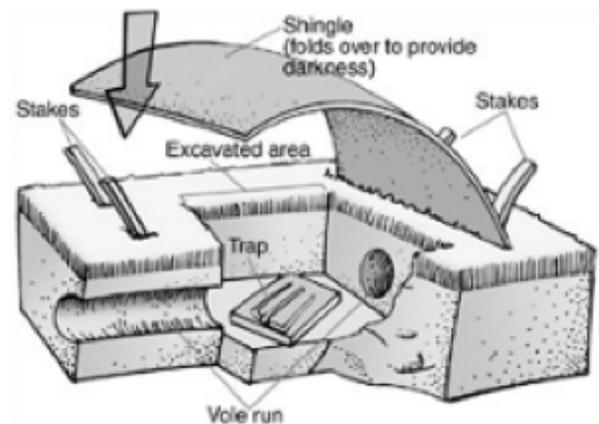
Pine vole, common to the eastern US, is smaller than Meadow vole, ranging in size from 4 to 6 inches in length. These voles are brown in color with soft dense fur. Underparts are gray mixed with yellow to cinnamon. The tail is one colored or just slightly bicolored. Pine vole's preferred habitats include deciduous and pine forests, abandoned fields, and orchards with heavy ground cover.



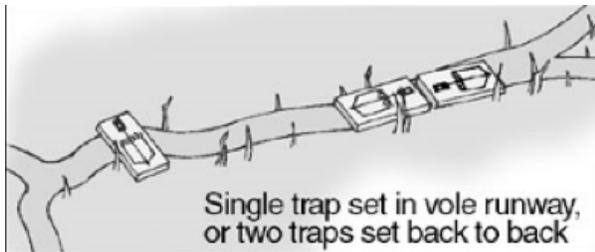
(Pine Vole; right: Meadow vole. Photo courtesy Ian Merwin).

Trapping is an effective way to positively identify vole species present in an area. A snap-type mouse trap is sufficient for this purpose. Bait the trap with a small piece of apple or a peanut butter oatmeal mixture. Some excavation may be needed to position traps in pine vole runs (*below left*). Place a bent roof shingle over the trap to form a protective cover for the trap. Allow sufficient height between the trap and the shingle roof for the trap to spring without hitting.

Meadow vole traps should be placed at right angles to surface runways or back to back inside runs.



Pine Vole trap (Pierce, 2003)



MeadowVole trap (Pierce, 2003)

Recognizing Vole Damage to Berry Crops

Voles feed on berry crop roots but may also girdle berry root crowns and canes. Girdling typically occurs in fall and winter. Damage may also occur to irrigation systems through vole feeding.

Girdling alone is not solely indicative of vole damage to bush and caneberreries. Rabbits and other rodents may also girdle berry canes. Rabbit girdling marks are larger than those of voles and not as distinct. Rabbits also clip off branch tips with clean cuts.

Vole girdling is typically 1/8" wide by 3/8" long and 1/16" deep. Marks occur at various angles and in irregular patches. This type of feeding, coupled with evidence of extensive burrowing, burrow entrances and surface runways may indicate Meadow vole damage. Pine vole spends most of its time and causes its damage *below* ground. In comparison, Meadow vole spends considerable time and causes most of its damage *above* ground. Extensive vole tunneling also creates air pockets in the root zone and may disrupt water movement through the planting.

Monitoring Vole Damage and Making Management Decisions

Monitoring may be done in spring, summer, and fall to track vole population changes. Fall monitoring however, is most often used in making management decisions. Monitoring should be done when temperatures are still above freezing during a period with little or no rainfall. Construct monitoring stations consisting of short pieces of PVC pipe or pieces of roofing shingle or other material to provide shelter. Place shelters over a tunnel entrance or section of runway. An apple wedge serves as bait under the shelter. Set out 4 to 8 monitoring stations per acre. Check apple wedges 24 hours after placement for evidence of feeding. If inclement weather is a factor, leave bait stations with wedges in place to allow ample

time for night feeding. Score each station as positive or negative for feeding. In general, management is recommended when 40% or more of the bait stations show positive feeding damage after 24 hours. For more in-depth information on this technique see: *Integrated Pest Management for Blueberries - A Guide to Sampling and Decision Making for Key Blueberry Pests in Northwest Washington*. <http://whatcom.wsu.edu/ipm/blue/>.

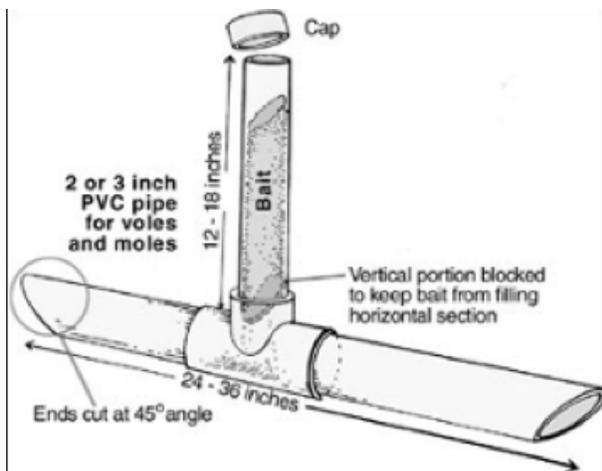
Vole Management Strategies

Cultural practices are effective in reducing vole populations in berry plantings. Weeds, ground cover and litter should be eliminated around bushes as much as possible. Grass alleyways should be mowed regularly, especially in spring and fall. Mulch used for weed management should not excessively cover bases of canes or crowns.

Voles are excellent swimmers. Unmanaged waterways, rights-of-way, and ditch banks provide excellent vole habitat. Manage these adjoining areas carefully to reduce vole numbers. Keeping surrounding vegetation to a minimum through mowing, spraying, or grazing may also reduce vole populations. Tillage of surrounding non-berry crop areas also helps reduce vole damage. Tilling removes cover, kills some voles outright, and destroys burrows.

In addition to cultural practices, some growers opt to use pelletized baits with rodenticides to further reduce vole populations. These products may be broadcast applied to whole plantings or applied by hand near entrance holes and in runways. Broadcast and hand applications, while easier to implement, have been found to be generally less effective than bait station use. Broadcast baits tend to degrade more quickly as they have full exposure to the environment. Moreover, their wide dispersal causes less frequent vole ingestion/exposure. This in turn may lead to bait-shyness through ingestion of sub-lethal doses of the bait.

Rodenticide bait stations (*below*) protect bait from moisture and reduce the likelihood of bait consumption by non-target animals. Stations should be activated in fall if population numbers are high and maintained through spring if populations remain high during winter months. .



(Bait Station diagram, Pierce, 2003)

They may be constructed from PVC pipe or other water repellent materials. Place bait stations at 10-ft intervals in infested areas. Repeat baiting again after 5 days. After 21 days, repeat the apple sign test to check efficacy of control measures.

Two types of rodenticide baits are currently available for vole population management: baits containing anticoagulant compounds such as chlorophacinone provide protection throughout the winter, and zinc phosphide containing baits which are a onetime application for quick knock down of rodent populations.

Zinc phosphide baits such as Prozap zinc phosphide pellets or ZP Rodent bait Ag contain 2% zinc phosphide. These products are restricted use pesticides which may be purchased and applied only by certified applicators. They are acutely toxic to all vertebrates (humans, domestic animals, wildlife). Broadcast applications by cyclone seeder or hand (follow all label precautions!) of these products may only be made during the dormant season (after final harvest and before leaf emergence in the spring); PHI for bushberries and caneberries is 70 days. Hand applications should consist of throwing tablespoon amounts of bait into heavy cover along bushes, rock out crops, fence lines and runways. Never apply these materials to bare soil. Zinc phosphide baits should not be applied when ground is snow- covered, or when rain or snow is forecast within 48 hours of application.

Zinc phosphide baits should reduce vole populations within 72 hours of treatment. After the vole population has been reduced, an application of anticoagulant bait will assist in reducing the number of voles re-populating the planting during winter months.

Anticoagulant baits, such as those containing chlorophacinone or diphacinone as active ingredients, are more toxic to voles than to other birds and

mammals. These baits have a lower percentage active ingredient (0.005%) and require multiple feeding events by voles to be effective. Risk to non-target wildlife is minimal with these products when they are use according to label directions. These products may be broadcast or hand applied. For hand applications, place small quantities of bait in runways and cover with roofing shingle (*below*). For broadcast applications, apply material with mechanical spreader to vegetative cover, avoiding application to bare ground. A second application is recommended 20-30 days after the initial application. As always, read and follow all label directions whenever apply rodenticides or other pesticide products.



(Roofing shingle cover over baited surface runway. Photo courtesy M. Fargione.)

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- (Source: New York Berry News, Vol. 9, No. 9, Sept. 2010)

Funding Opportunity for Growers from Northeast SARE

Tina Smith, UMass Extension

Have you ever had a great idea for a better way to grow a crop or an unusual crop, market a product, or engage members of your community in strengthening local agriculture? Would a little more time (or money) help you to follow up on that idea? If so, then check out the farmer/grower grants offered by the Northeast Sustainable Agriculture Research and Education program (NE-SARE). In a nutshell, the goal of this program is to provide funding to help farmers with a good idea to figure out if it works.

In a farmer/grower grant proposal you can request funds to pay yourself or employees for time spent on the project, or to buy materials or rent equipment needed for the project. Travel expenses, telephone, postage, and services like soil testing or consulting are also fundable if directly related to the project. However, these grants will not pay for normal operating expenses, or for capital expenses like buying land, greenhouses, equipment, or improvements to buildings.

Farmer/grower grants are intended to generate information that other growers can use. They are not meant to help an individual grower develop something solely for their own benefit. After testing their ideas, growers are required to share the results. Funding is available for this 'outreach' portion of a farmer's project, too. It doesn't have to be fancy – in most cases we're talking about a field day, a newsletter article, or a presentation at a grower meeting. Extension personnel are happy to work with you on such things.

To apply for funding, you have to be a farmer in the Northeast Region. You don't have to be a full-time grower, but your operation must be engaged in commercial agriculture and sell product(s) on a regular basis.

Unlike most grant applications, this one is short and sweet. There's no need for a lengthy literature review,

and no requirement to submit 20 copies of the proposal. You just have to provide well-thought out answers to 6 simple questions. 1) What do you want to do? 2) How will your project fit in with your farm operation? 3) What will your methods be? 4) How will you measure your results? 5) How will the results of your project help growers in the Northeast? And 6) What is your outreach plan? You'll also need to fill in the one-page budget sheet to show exactly what you will use the money for.

The cap on any single farmer grant is \$15,000. Each year, SARE awards about \$250,000 for up to 30 Farmer Grants. Awards range from \$2,500 to the \$15,000 maximum.

Proposals are reviewed by a team of farmers, researchers, extension agents and other agricultural service providers who select the best projects for funding.

There is a detailed guide for applicants on the Northeast SARE web site. See: <http://nesare.org/get/farmers/>

Follow-up questions can be emailed to Carol.Delaney@uvm.edu or call 802-656-0697. Massachusetts coordinator for SARE is Sonia Schloemann, Department of Plant, Soil & Insect Sciences, West Experiment Station, University of Massachusetts, Amherst, MA 01003, Phone: 413-545-4347, FAX: 413-577-3820, Email: sgs@umext.umass.edu

You can see a listing of all previous grants by clicking on 'funded projects' at www.sare.org/. Below are some of the projects that were funded this past year.

Note: Proposal deadlines are in December with awards announced in March

UPCOMING MEETINGS:

October 5th, 2011, 6-8pm - *New & Beginning Farmers Workshop*, sponsored by Belknap County Extension, 635 Main Street Third Floor, Suite One, Laconia NH. Registration for this free event is required. Call(603)527-5475storeregisterore-mailkelly.mcadam@unh.edu. For more information go to <http://extension.unh.edu/events/files/E811901C-A4BA-DB0D-3646EF21C349F1BA.pdf>.

October 13, 3-7pm – *Fall Crops Twilight Meeting*. Brookfield Farm, 24 Hulst Rd, Amherst, MA. Topics will include: winter storage of fall crops, producing late-season crops in high tunnels, heating greenhouses with a corn furnace, and Brookfield Farm's self-serve winter CSA. For more information, go to <http://extension.umass.edu/vegetable/events>.

November 6, 2-4pm - *Winter Hoop House Growing*. 217 East Rd. Tiverton, RI. RI Sustainable Ag Program. For more details go to http://cels.uri.edu/sustainableag/SAG_events2.aspx?id=292.

November 11-12, 2011. – *It Takes a Region: A Conference to Build Our Northeast Food System*. Desmond Hotel and Conference Center, Albany, NY. Sponsored by the Northeast Sustainable Ag. Working Group (NESAWG). We will be looking at exciting efforts underway in our region. We will hear and build from the work groups -- including distribution logistics, research, messaging, access & nutrition, and policy advocacy (how do we influence the 2012 Farm Bill?). We will welcome new participants! We'll be addressing pressing issues such as food system worker equity and growing biomass versus food. For more information go to <http://www.ittakesaregion.org/>.

December 13-15, 2011 - *New England Vegetable and Berry Conference*, The Center of New Hampshire Radisson Hotel, Manchester, NH. New England Vegetable & Fruit Conference and Trade Show will be held next December 13, 14, 15 at the Radisson Hotel in Manchester, NH and will include 27 educational sessions over 3 days, covering major vegetable, berry and tree fruit crops as well as various special topics. A Farmer to Farmer meeting after each morning and afternoon session will bring speakers and farmers together for informal, in-depth discussion on certain issues. And a 100+ vendor Trade Show will be open and accessible to attendees. For more details and registration information, go to <http://www.newenglandvfc.org/>.

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