

# MASSACHUSETTS BERRY NOTES

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## Message from the Editor:

**Subscription Renewals:** Enclosed in this mailing is the last call for subscription renewals for Massachusetts Berry Notes. If you would like to renew your subscription, please return the renewal form with a check made out to the Univ. of Massachusetts for \$30 and mail them to me at 25 West Experiment Station/UMass, Amherst, MA 01003.

### Thanks to Massachusetts Society for Promoting Agriculture:

The UMass Extension Small Fruit Program has received generous support from the Mass. Society for Promoting Agriculture to construct a portable drip irrigation pump and filtration trailer that can be used for specific grant funded projects and/or for grower demonstrations. The UMass Extension Vegetable program also has one of these trailers. In view of the repeated dry years we have experienced of late, many growers are becoming interested in this technology. We thank the MSPA for their generous support. I am now looking for someone who can assist me in the construction of this trailer. Please call me (413-545-4347) if you are interested in helping.

**Meetings:** Winter-time always offers the opportunity to attend a lot of educational meetings. This issue of BerryNotes contains a list of late winter meetings that may be of interest to you. Some of them are not generally focused on Small Fruit topics, but do contain some elements that may still be of interest to you. Many of them carry pesticide recertification credits.

## Strawberries

### Above and Below the Ground: Know Your Strawberry Plant

*Christoph Kessel, Horticulture Crop Nutrition, OMAFRA*

Strawberry plants are mulched for the winter and the growing season is over. This is a good time to reflect on how you managed the crop's nutrition over the past season. Getting the best use out of your fertilizer

application means thinking about how the strawberry plant grows. It is important to understand what is happening above ground as well as below the ground. This will help you to maximize fertilizer uptake and minimize fertilizer loss.

Consider these facts about when and how strawberry plants use Nitrogen (N).

### **June bearing varieties, matted row**

*1st year: new planting*

#### Spring

- Little nitrogen is absorbed shortly after planting.
- New roots develop and are functional about 5-10 days after transplanting.
- Roots continue to develop at soil temperatures of 7-32°C.
- Root biomass is reduced during fruiting.

#### Late summer and fall

- Flower bud initiation and crown branching occurs now.
- Roots grow again during cooler late fall temperatures.
- Leaf production continues until temperatures drop below 0°C.
- 76% of total nitrogen is absorbed at this time.
- 80% of total plant growth develops at this time, 67% of this is underground.
- Plants recover a higher percentage of N now, compared to a lower percent N recovered at planting.
- N accumulates in plant roots.
- Overall N uptake, (from May 15-Oct 15) is about 22-60 lbs/ac, depending on variety.

#### Winter

- Plants lose about 50% of their biomass, mostly as leaves.
- Roots will continue to grow after leaves stop proliferating and remain active until ground freezes.

*2nd year:*

#### Spring

- Once growth begins in spring, it takes only 6 weeks for plants to reach the size they were the previous autumn.
- Accumulated fertilizer nitrogen in roots is depleted through spring harvest.
- The fruit crop uses more nitrogen from plant reserves than from newly applied fertilizer nitrogen.
- During growing season, leaves use the most N, although fruit removes significant portion of N from the plant.
- Biomass of the plant roots becomes smaller during fruiting.
- Fertilizer uptake is reduced while fruits are developing.

### **Are day neutral varieties different?**

In the planting year, day neutrals initiate flower buds and crowns about 2-3 months after planting and throughout the growing season. More fruit are produced; so more N is used for fruit production. Fruit from day neutral varieties seem to use more stored N than newly absorbed N. (*Source: All Ontario Berry Grower, Volume #0.12 - December/2001*)

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## **Brambles**

### **2001 Raised Bed Planting Demonstration for Raspberries**

*Shawn R. Wright, Christie Welch, Lynn Miller, and Richard C. Funt, Ohio State Univ.*

#### **Introduction**

Individuals who are planting raspberries are encouraged to establish raised beds. The root system of a raspberry is fibrous and relatively shallow (Dana and Goulart 1989), which makes the plants susceptible to moisture extremes. Too much water may kill the roots or make the plants more susceptible to soilborne diseases. Too little water will stress plants and limit cane growth and fruit production (Goulart and Funt, 1986).

The establishment of raised beds by incorporating organic matter will allow the grower to modify soils that are less than ideal (Funt and Bierman, 2001). Organic matter that is added to soils that drain too slowly (finetextured clay soils) will help improve the soil structure so that excess water drains more quickly. Organic matter that is added to soils that drain too quickly (coarsetextured sandy soils) will help those soils retain moisture in the root zone where it is available for the plant's use (Funt and Bierman, 2000).

If additional organic matter is not available, raised beds can be built up from the topsoil in the interrow areas by

plowing the soil to the center of the row. This method is less satisfactory than adding additional organic matter, but on small, noncommercial plantings may provide acceptable results. It is important to have soil testing done prior to planting so that any pH or fertilizer needs can be addressed however the beds are constructed. For commercial plantings, nematode testing is also recommended.

#### **Conclusion**

Because it is not difficult to create raised beds, and because raspberry beds are usually in place for 10 years, we believe that the benefits provided are worth the time and effort it takes to create them. Careful consideration should still be given to the economics of creating raised beds and to site selection. Raised beds can be less expensive than the installation of tile drainage. The complete report is available at:

[www.ag.ohio-state.edu/~prec/hort/data/2001/raised2001.htm](http://www.ag.ohio-state.edu/~prec/hort/data/2001/raised2001.htm).

(*Source: Ohio Fruit ICM News, Volume 6, Issue 1, January 17, 2002*)

## Bramble Cold Injury

*Dr. Richard C. Funt, Ohio State Univ.*

Cold winter temperatures can cause damage and result in reduced yields in brambles (raspberries and blackberries). Generally, bramble plants acclimate for the winter in late September to early December in Ohio. Acclimation can be noticed by reduced or no terminal growth, change in leaf color, and leaf drop. The 1998 season was warm with nearly every month recording above normal average daily temperatures. However, several cold days in November and relatively dry conditions allowed good acclimation for most brambles. If November 1998 had been warmer and wetter than average, berry yields for 1999 would have been reduced. The exception was Chester thornless, which stopped terminal growth but had green or slightly turning leaves in early December.

The retention of leaves indicates reduced bud survival. However, cold hardiness is complex, with different species and cultivars varying in their response to low temperatures, depending on location, exposure to cold, dry winds, fluctuating cold-to-warm temperatures, and prolonged wet soils or poor soil water drainage. Red raspberry plants are generally hardier than black raspberry. Early growth cessation in red raspberry plants is positively correlated with winter hardiness. However, a cultivar with a low chilling requirement may begin growing in late January when temperatures rise above 50 degrees F. Temperatures rising above 42 degrees F followed by a period of temperatures dropping below 20 degrees F for several hours can cause severe winter damage to canes. Cold hardiness is generally determined by cultivar, but can be enhanced by different methods of management, such as irrigation, soil fertility, and mulching.

Raspberry plants on raised beds suffer less winter injury than plants on flat beds. This can be an effect of higher soil air (less water) volume and an improved root environment.

Fertigation during the growing season can be beneficial in that nitrogen can be increased in the leaf, and more effectively in primocanes, as compared to nitrogen broadcast as dry fertilizer over plants in early spring. Freeze tolerance is negatively correlated with cane growth and leaf nitrogen. With certain red raspberry cultivars winter dieback was greater as the number of canes (cane density) increased. Therefore, cane thinning can increase cold hardiness. In Ohio, straw mulch improved yields of certain thornless blackberries when mulch was applied around December 15 and removed in early March.

In Missouri, in a test with five black raspberry cultivars, Bristol was best for fluctuating seasonal temperatures. Jewel performed equal to Bristol. Similar observations have proven Bristol and Jewel to be preferred in Ohio. Researchers also indicate that control of the disease anthracnose is an important practice for cane survival.

### Conclusions:

- Select a well-drained soil type; use raised beds.
- Select a site with wind breaks or establish wind breaks so that plants are not subjected to cold, dry winds.
- Select cold hardy cultivars and those which have shown resistance to fluctuating mid-winter temperatures.
- Maintain good cane density and vigorous, disease-free plants.
- Use irrigation and fertilizer wisely for primocane growth.

*(Source: Ohio Fruit ICM News Vol. 3, No. 3, Feb. 11, 1999)*

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## Blueberries

### Can Lime Sulfur be Used to Control Phomopsis in Blueberries?

*Annemiek Schilder, Michigan State University*

"Can lime sulfur be used to control Phomopsis in blueberries?" is a question commonly asked. Lime sulfur has gained renewed interest in fruit grower circles because of its use in organic fruit production. Some growers undoubtedly have used lime sulfur and can speak from experience. Unfortunately, it has been difficult to find documented evidence on the efficacy of lime sulfur for control of Phomopsis in blueberries, particularly in Michigan. Add to that the corrosive nature of the product, which might discourage even the most seasoned grower from using it.

Lime sulfur, which has 30 percent calcium polysulfide as its active ingredient, is sold as a liquid spray material.

Some people have found Orthorix, a similar product, to be somewhat easier to work with. Lime sulfur is recommended for control of raspberry cane diseases, such as anthracnose and spur blight. Keep in mind that raspberry anthracnose is caused by a completely different organism (*Elsinoe veneta*) than the one responsible for anthracnose fruit rot in blueberries (*Colletotrichum acutatum*). In raspberries, lime sulfur is applied as a delayed dormant application to "burn out" or eradicate the fungus from overwintering canes. Timing is important: if lime sulfur is applied too early, the fungus is not yet active, and if applied too late, it can cause burning of the foliage.

To substantiate the rumors about use of lime sulfur in blueberries, I was able to track down some unpublished data from New Jersey trials done in 1977-78. These data, probably the only ones in existence, were obtained from 35-mm slides from Drs. Al Stretch and Phil Marucci. Lime sulfur was compared to Difolatan (no longer available) and an untreated check for control of Phomopsis twig blight in cv. Weymouth (Table 1). In this New Jersey study, lime sulfur provided moderate control of Phomopsis twig blight. Depending on the cost of the product, this level of control

could still be economically interesting. Unfortunately, we cannot simply extrapolate these results to Michigan, because cultivars, climatic conditions, and even pathogen populations may differ from those in New Jersey. However, it does suggest that more research is warranted to confirm the efficacy of lime sulfur for control of Phomopsis in blueberries in Michigan, especially if there is grower interest in the material.

Table 1. Control of Phomopsis twig blight in blueberry cv. Weymouth in New Jersey (Marucci, 1977-1978).

Fungicide	Rate	Application	Infected twigs per bush	% Control
Untreated check	---		74	0
Lime sulfur	5 gal/100 gal	Fall	30	59
		Spring	46	38
		Fall + Spring	34	53
Difolatan	4 lb/100 gal	Fall	19	74
		Spring	11	85
		Fall + Spring	9	87

(Source: Fruit Crop Advisory Team Alert Vol. 16, No. 1, March 27, 2001)

## Grapes

### Season Review

Mark Chien, PennState Univ.

Now that harvest is well behind us, it's a good time to take stock of the 2000 season. Without a doubt it was a challenging one and many of you are breathing a sigh of relief. It clearly showed how vintages sometimes swing precipitously from one extreme to another. The rainy and cool weather of last year made a petri dish of eastern vineyards and only those who executed a tight spray program and good canopy management came away with clean fruit.

#### Good time to assess disease control program

This would be a very good time to assess the quality of your disease control program. If you had trouble with control, look back in your records (you are, of course, keeping records - EPA regulation) and see if you can find where the problems might have occurred. Go back to the books and ask others how you might be able to change your spray program to address these shortcomings. It may mean changing materials, checking calibration, increasing spray volume, reducing ground speed or any of a number of factors that influence disease control.

#### Canopy Management Program

Use the same kind of retrospective thinking on your canopy management program. Evaluate your shoot positioning - timing, quality, number of passes etc. Also, leaf pulling, hedging, suckering and all practices that aerate the fruit zone and open the canopy to light.

We were fortunate last year that lousy weather at bloom limited the fruit set and reduced overall yields. I have heard numbers between 5% - 30% reduction in crop. If vineyards had a big crop hanging, it is likely the fruit would have been even less ripe. This may indicate the need for more growers to perform crop estimates on their vineyards and decide whether or not to crop thin in a given year. (See [Seeking a Perfect Balance - Optimizing Yield and Quality](#) article in next weeks BerryNotes.)

#### Make Visitations

I always use this time to visit the wineries and taste the wine made from my grapes if they were not blended. I realize that most wineries currently blend grapes at the fermenter. If you are lucky enough to have a wine maker who keeps separate lots, be sure to taste the wine before its blended in the spring.

You can tell a lot about what happened in the vineyard by the wine quality. Flavors are especially indicative of whether the fruit was mature when it arrived at the winery. If you do not have a wine to taste, review the grape quality with the wine maker and agree upon what can be done next season to increase the quality of fruit. My tendency is to never judge wine quality until spring, certainly wait until after the wine goes through malo-lactic fermentation.

It's not too early to be thinking about your grape sales and contacting old and new customers. I encourage the use of grape contracts and would be happy to advise any interested growers on these documents.

Winter is the time for meetings, and you will see by the calendar attached to this newsletter that there is a lot of activity in Pennsylvania and the region, both in wine making and grape growing. These are great opportunities to learn, update your pesticide credits, and visit with your friends. In January I will be giving presentations in Elk County and Philadelphia. The first ever wine grape section to the Mid-Atlantic Fruit and Vegetable Convention in Hershey will feature speakers from Penn State. Please check the [calendar](#) page for meetings that might interest you.

### **Time to Prune**

Of course, winter means pruning. I believe we had an adequate acclimation period prior to the first hard frost in most vineyards in the region. This would be a good time to go out and take some pruning weights. I urge all growers to make an attempt to balance prune your vines. I'll have more about this in another section of the

newsletter. Pruning is the most important single practice you perform in your vineyard during the year. It's a lengthy chore that requires knowledge, experience and judgment.

### **And Make Repairs**

Winter is a great time to catch up on all the maintenance work that just didn't get done during the busy growing season. Take care of repairs to equipment, trellis, buildings and relationships. Be sure to winterize your equipment, especially sprayers. Sharpen pruning shears and get a few extra blades and layers of clothes. It looks like we are in for a cold one. You may want to read up on how to check buds for cold damage. This could influence your pruning decisions.

*(Source: The Grapevine Newsletter, Jan. 2001)*

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## **General**

### **The Many Faces of Anthracnose Diseases**

*Pam Fisher, Berry Crop Specialist, OMAFRA*

Anthracnose diseases attack fruit, leaves and stems of many different crops. They typically cause dark coloured spots or slightly sunken lesions with slightly raised edges, on fruit, leaves, and stems. Anthracnose diseases affect every one of our major berry crops. The causal organism, a fungus, is not the same for each crop. However, some aspects of disease biology and management practices are similar.

The fungi that cause anthracnose overwinter mainly in plant tissue and crop debris. Spores are spread by splashing and wind-blown rain. Fungicides used to control these diseases tend to be older, broad-spectrum products that provide moderate control at best. New products are being developed that have very good efficacy against anthracnose. Hopefully berry crops will be included in some of these new labels.

#### **Blueberries:**

*Symptoms:* Blossom end of ripe fruit softens and orange spore masses seep out.

Infected green fruit do not show symptoms until they ripen, and so the disease is nick-named "ripe rot".

*Biology:* The fungus overwinters on twigs. Spores are spread by rain splash to bloom and green fruit. Anthracnose is favoured by prolonged periods of warm wet weather during bloom and just before harvest. Overhead irrigation can make it worse.

*Control:* On blueberries, Bravo applied pre-bloom will reduce overwintering inoculum and twig blights. See OMAFRA Pub #360, Fruit Production Recommendations.

#### **Raspberries:**

*Symptoms:* Pits and oblong lesions form on canes and fruiting laterals. Leaf spots are small, round, purple, developing a white center. Infected raspberry fruit have small scabby drupelets that are slow to ripen.

*Biology:* The fungus infects primocanes and overwinters on them. In spring, spores are spread by rain to new canes and fruiting laterals. High cane densities, wide rows and vigorous growth favour this disease. Disease levels are highest after wet years. Boyne and Qualicum are very susceptible.

*Control:* On raspberries, apply Ferbam to new canes in spring, but before bloom. Repeat after harvest. Improve air circulation in the row by trellising, pruning. Biennial production interrupts the disease cycle.

#### **Strawberries:**

*Symptoms:* Brown, firm sunken circular spots form on fruit, later becoming dark. Distinct, dark, sunken lesions may form on petioles and runners, and crowns. Daughter plants may die, outer leaves die prematurely, and occasionally the plant may collapse from crown rot. Certain varieties, i.e. G19 seems to be very susceptible.

*Biology:* Anthracnose overwinters on infected strawberry plant debris. Spores splash to bloom, and developing fruit, and may be spread on equipment and workers. Disease is favoured by splashing rains, and warm humid weather, especially close to harvest. The disease may be present on plants, but not show symptoms until weather conditions turn favourable for the disease. Day neutrals and other varieties grown on plastic mulch are higher risk for anthracnose.

*Control:* Vigorous plants high in nitrogen seem to be more susceptible to this disease, so don't apply excessive nitrogen.

There are no registered fungicides. Purchase plants from an accredited propagator. Remove infected fruit from the field during harvest. Clean up crop debris between crops. Work in infected fields last. Use straw mulch to reduce rain splash.

#### **Currants and Gooseberries:**

On currants and gooseberries, a leaf spot, sometimes called anthracnose leaf spot, can be devastating to red currant and gooseberry. Small circular or irregular spots develop on both leaf surfaces. Spots are dark brown and coalesce when numerous. Leaves can become yellow

and brown and drop prematurely. The injury can be confused with spray-burn. Some varieties are more tolerant than others of leaf spot. Invicta gooseberry is very susceptible, Rovada and Red Lake red currants are less so.

**Diagnosing the problem:** Do you think you recognize a problem? Send a sample to the Pest Diagnostic Clinic in Guelph for positive identification. (519-767-6256). Several pathogens can cause similar symptoms, especially on strawberry and currant. (*Source: All Ontario Berry Grower, Volume #0.01 - January/2002*)

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### **Farmers' Markets Seeking Growers for 2002 Season**

Berries are always good sellers at Farmers' Markets. See below for contact information for markets that are looking for more growers.

For more information on the following markets, contact Jeff Cole at the Federation of Massachusetts Farmers' Markets, 781-893-8222.

- Downtown Springfield, Fridays
- New Bedford, Saturdays
- Boston City Hall, Monday and Wednesdays
- Boston Copley Square, Tuesdays and Fridays
- Framingham on Rt. 9, Thursdays
- Norwood, Tuesdays

For more information on these markets call the contacts below or David Webber at 617-626-1754, <mailto:David.Webber@state.ma.us>David.Webber@state.ma.us.

- Auburn, Saturdays, 9:30 am- 2:00 pm. Contact Ray Samek, 508-867-4763.
- Mass. Turnpike, various locations. Contact David Fenton, 617-248-2800.
- Shrewsbury, Tuesdays. Contact Andy O'Keefe, 800-448-0045.
- South Boston, (new market) Day and time TBA. Contact Mary Lou Rosher, 617-464-5858.
- Sturbridge - Thursdays. Contact Andy O'Keefe, 800-448-0045.
- Worcester, Mondays, Wednesdays, Fridays. Contact Andy O'Keefe, 800-448-004

(*Source: Massachusetts DFA Farm & Market Report, Vol. 79, No. 1, January/February 2002*)

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## **Meetings**

### **All-Day Vegetable Growers Meeting**

UMass Extension and New England Vegetable and Berry Growers' Association Cooperating

When: Friday, January 25, 2002, 9:30am-3:00pm  
Where: Eastern Massachusetts Extension Center, 240 Beaver Street, Waltham, Mass.  
We expect to offer one hour of credit toward pesticide recertification. For more information call Dominic Marini, 508-378-2546.

### **2002 NOFA/Massachusetts Winter Conference & Annual Meeting**

Co-sponsored by NOFA/Massachusetts and the UMass Extension Vegetable Program

When: Saturday, January 26, 2002, 8:30am-5:30pm  
Where: Quabbin Regional High School, Barre, Mass.,  
The cost of registration for adults is a sliding scale ranging from \$25 to \$40 per person. For more information or to register, contact Elaine Peterson, 411

Sheldon Road, Barre, MA 01005, or email her at jackkitt@aol.com or [www.massorganic.org](http://www.massorganic.org).

### **New England Grows**

When: February 7-9, 2002  
Where: Hynes Convention Center, Boston, Massachusetts  
Call (508) 653-3009, or visit [www.negrows.org](http://www.negrows.org)

### **New York Vegetable and Berry Conference**

When: February 11-14, 2002  
Where: Holiday Inn, Liverpool, NY (near Syracuse)  
Call 607-539-7648.

### **Stockbridge School of Agriculture Job Fair**

When: February 12, 2002  
Where: UMass Campus Center, UMass, Amherst  
Call (413) 545-2222 for more information

### **NOFA-VERMONT WINTER CONFERENCE**

When: February 16, 2002

Where: VT Technical College, Randolph Center, Vt.  
Call 802-434-4122

## **VERMONT VEGETABLE AND BERRY GROWERS ANNUAL MEETING**

When: February 19, 2002

Where: Rutland, Vt.

Call Vern Grubinger at 802-257-7967.

## **Connecticut Ag. Experiment Station Vegetable Production Conference**

When: Tuesday, 19 February 2002, 8:45 to 3:30

Where: Jones Auditorium, the CT Ag. Experiment Station, 123 Huntington Street, New Haven, CT 06504  
Pesticide re-certification credits.

REGISTRATION: \$15 pre-registration, \$20 day of meeting, includes lunch.

Send to: Martin Gent, CT Ag. Experiment Station  
123 Huntington Street, PO Box 1106  
New Haven, CT 06504-1106

Call 203-974-8489 or E-mail  
[Martin.Gent@po.state.ct.us](mailto:Martin.Gent@po.state.ct.us) for more info and/or directions

## **2nd Annual NE Farm Direct Marketing Conference & Trade Show**

Farm direct marketers, get ready for some fireworks! The 2nd annual New England Farm Direct Marketing Conference & Trade Show will be held

When: March 14, 2002,

Where: Holiday Inn Boxborough Woods in Boxborough, Mass.

The conference will feature some dynamite speakers who will gather for a grand finale panel discussion at the end of the day. The registration fee is \$65 per person; it

includes all sessions, trade show, lunch (hot buffet), coffee break, and all written materials and handouts.

Call Jonathan Bates at 413-529-9232 for a registration program. You can also find conference information at [www.newenglandconference.com](http://www.newenglandconference.com)

## **Pruning Fruit Workshops**

### **I Pruning Fruit Trees**

When: April 2, 2002

### **II Pruning Neglected Apples Trees**

When: April 16, 2002

Where: Cold Spring Orchard/UMass Horticulture Research Center, Belchertown

Both workshops will be held from 9AM to noon. Wear clothing for April weather conditions! The workshops will be held rain or shine. In the event of a blizzard forecast call 413/545/0895.

ISA and MCA credits have been requested. Certification program approval has been requested from the following associations: ALCM, CNLA, MeNLA, MNLA, NHLA, RINLA and VTAPH.

To register send \$45.00 for each workshop payable to UMASS to Fruit Trees, UMass Extension, 104 French Hall, UMASS, Amherst, MA 01003. Registration is limited and first come first serve.

Questions? Call Kathleen Carroll 413-545-0895 or fax 577-1620.

## **Agriculture Day at the State House.**

When: April 3, 2002

Where: Boston, MA.

Contact Mary Jordan, 617-626-1750, [Mary.Jordan@state.ma.us](mailto:Mary.Jordan@state.ma.us)  
Rick LeBlanc, 508-792-7712, x17,  
[Richard.LeBlanc@state.ma.us](mailto:Richard.LeBlanc@state.ma.us).

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