



# Berry Notes

Volume 14, 2002

Prepared by the University of Massachusetts Fruit Team

Dec. 2002, Vol. 14, No. 19

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

*Berry Notes is edited by Sonia Schloemann with articles reprinted from other sources. Authors and sources are always cited. Publication is funded in part by the UMass Extension Agroecology Program and grower subscriptions. A text version can be e-mailed to you if you contact Sonia Schloemann at 413-545-4347, sgs@umext.umass.edu. Please cite this source if reprinting information.*

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## Message from the Editor:

**Policy Change – I:** Massachusetts Berry Notes will no longer be delivered via surface mail. We have had declining subscriptions for delivery of Berry Notes this way for several years. In 2002 we only had 52 hardcopy subscribers while over 350 recipients receive it via email. Due to the impact of declining budgets, it is no longer feasible to support the delivery of Berry Notes via surface mail for so few subscribers. However, we will instead mail out at key intervals during the year, announcements of important meeting dates, pesticide updates, and other important items of general interest. These mailings will be free (for now!) for those who request to remain on the distribution list. Federal Law requires that recipients renew this request annually. So, please fill out and return the enclosed card if you wish to receive these mailings.

**Policy Change – II:** Massachusetts Berry Notes will continue to be produced

monthly and will be posted at the UMass Fruit Team's website <http://www.umass.edu/fruitadvisor/>. Email subscribers to Berry Notes will receive a notification of when it is posted on the web (including a Table of Contents) instead of a large text file with the entire contents. This saves duplicated formatting time in three different formats. These changes are all dictated by the decline in budgets and the increased demand on staff time for a wider range of activities.

**Feedback:** As we move into a new delivery mode for Massachusetts Berry Notes, it is important to receive an evaluation from subscribers on the quality of the newsletter in the past year. Please fill out and return the enclosed card so that we can better meet your needs with this newsletter.

**Planning New Plantings:** Last month's issue of Massachusetts Berry Notes included information on locating sources of specific cultivars or varieties of berry crops. This is an online source compiled by Cornell University and can be found at <http://www.hort.cornell.edu/departments/faculty/pritts/sfruit/index.html>. In this issue of Berry Notes you will find a very good article written by Dr. Courtney Weber, plant breeder at Cornell University's Geneva Experiment Station. If you need assistance in obtaining access to the Nursery Guide, please let me know and I can send you a copy in the mail.

**New England Small Fruit Pest Management Guide:** This important guide is in the process of being updated for 2003 – 2004. It is expected to be available for distribution in March 2003. Please look for announcements in this newsletter about availability.

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## General

### Strawberry, Raspberry, and Blueberry Cultivar Review

Courtney Weber, Cornell University

The winter months are a good time to review your current small fruit cultivars and to make plans for new plantings. New cultivars are released all the time, and the vast majority of them fail to catch on for various reasons including poor adaptability to diverse growing regions, unforeseen disease or insect susceptibility, or fruit characteristics that are unacceptable to the buying public. The following sections are meant as a guideline for New York and the northeastern U.S. No cultivar will work well in all locations, soil types, and production systems, but many have proven to be useful in many different situations. In addition, many new cultivars show promise and may be suitable for your operation. However, as always, try new cultivars on a limited basis before abandoning cultivars that have proven reliable in your production scheme. This list is by no means complete but should address most situations. For convenience, the standard cultivars are followed by an asterisk (\*). The author can be contacted with questions or to discuss other possibilities at [caw34@cornell.edu](mailto:caw34@cornell.edu).

#### STRAWBERRY CULTIVARS

Strawberries are probably the most variable and temperamental of the small fruits and also probably have the most cultivars to choose from because they are often adapted to a relatively small growing region. June-bearing types are most commonly grown in NY and the NE U.S., but interest is growing in day-neutral types grown on plastic. If you are looking to try a new cultivar check out Darselect or Cabot or if you want to see the latest thing, NY1829 and NYUS304B are available in limited numbers.

#### Early Season

**Earliglow\*** is still considered the best tasting berry around. Primary berries are large, and attractive and are suitable for retail or wholesale. Berry size drops off quickly after the primary berries and yields are relatively low.

**Honeoye\*** has reigned as the yield king for many years and produces an abundance of large, attractive, firm, berries that are suitable for all markets. Closer to an early mid season, the look of this berry sells it, but taste is the major drawback as it can be tart and can develop disagreeable aftertastes when over ripe or in heavy soils. It is susceptible to red stele disease but is manageable.

**Northeaster** was billed as a replacement for Earliglow and out performs it in all ways except flavor. Yield is higher and fruit size and attractiveness are equal to

Earliglow but the flavor is unusual. The grape Kool-Aid like aftertaste can be a turn off to many customers.

**Sable** is earlier than Earliglow and is equal or better in flavor. Unfortunately it lacks size and firmness. This cultivar is only suitable for direct retail and u-pick operations. Frost damage can be a problem because the flowers open very early.

#### Mid Season

**Brunswick** is a new cultivar out of Nova Scotia that sizes and yields similar to Honeoye. However, it has a squat, round shape and tend to be dark and bruise easily. The flavor is good but can be tart when under ripe.

**Cavendish** is a high yielding, high quality berry in a good year. However, high temperatures during ripening can cause uneven ripening that can be a real problem.

**Darselect** is a large fruited, high yielding cultivar. The berries are an attractive bright red with a long conical shape. The flavor is very good. However, it tends to be soft. It is worth a look.

**Kent\*** produces medium sized berries with very good yield, especially in new plantings. Hot weather can cause skin toughness to deteriorated. It is very susceptible to leaf spot and scorch and to angular leaf spot. It is very sensitive to Sinbar herbicide. It does not do well in hot weather.

**Mesabi\*** is a very high yielding berry with large berries and good flavor, but does not store well. It is resistant to red stele and tolerant to leaf diseases and powdery mildew.

**NY1829** is an advanced selection from the Cornell program that is available for testing this season. It is an early mid-season type with excellent fruit quality. Berries are bright red and firm but not hard, with excellent eating quality and flavor. Fruit is long round conical with a fancy calyx, which makes them very attractive. Disease and insect resistance is unknown at this stage but no significant problems have been noted to date. I like this one a lot.

#### Late Season

**Allstar\*** is good yielding, high quality cultivar with good flavor. Unfortunately, the color is pale to orangish and is unacceptable to an uninformed consumer.

**Cabot** produces impressive berries. Average fruit size is far larger than any cultivar currently available. Primary berries often top 40-50 g. The color can be pale and primary berries are often irregular in shape. Secondary berries do not have this problem. Yields are very good. Resistant to red stele. Definitely worth a look.

**Jewel\*** continues to be the favorite in this season. The high quality berries are large and attractive with good flavor.

Yields are moderate. On a good site, it's hard to beat. It is susceptible to red stele and can have vigor problems in poor sites.

**NYUS304B** was developed through a joint venture with the USDA breeding program in Beltsville, MD and Cornell University and has parents that are resistant to red stele root rot. The fruit is a round conical shaped with darker red color and good flavor. The flesh is firm with good texture and eating quality. Insect and other disease resistance is unknown at this time but no significant problems have been noted to date. It is available for testing in the coming season. Growers looking for a firm late season berry may want to try this one.

**Seneca** is probably the firmest cultivar available for the northeast. The fruit is large, bright red and attractive but the flavor is only acceptable. It does not runner heavily and can be adapted to plasticulture.

**Winona** has very large berries and average yields but can not compete with Jewel for fruit appearance. It has good vigor though and might be useful where Jewel does poorly.

#### **Day Neutral**

**Everest** is a fairly new cultivar out of the U.K. It has large, firm, bright red berries. It does not runner well and is only suited for plasticulture. Over wintering can be a problem with this one.

**Seascape** is a day neutral out of California that is seeing some success in the east. The fruit is large and very attractive. It is firm and good quality. It does not runner and is only suited for plasticulture. Over wintering can be a problem with this one.

**Tribute** and **Tristar\*** have been the standard day neutral cultivars for the northeast for the last 20 years. They are disease resistant, vigorous, and runner enough for matted row production. Both are relatively small fruited and low yielding but off-season fruit may pay off. Of the two, Tribute has better size and Tristar has better flavor.

### **RASPBERRY CULTIVARS**

There are a lot of raspberry cultivars out there dating from the 1940's to 2002. They come in summer bearing floricanes types and fall bearing primocane types. By planting a series of cultivars, it is now possible to have fruit from mid to late June until frost in much of NY and the northeastern U.S. without much late summer gap. Here are some thoughts on some of the cultivars available.

#### **Early Season**

**Boyne** (sibling to Killarney) plants are spiny and produce many suckers. The fruit ripens early and is small to medium in size and somewhat dark and soft, but it has fair flavor and good freezing quality. It has excellent winter hardiness but is susceptible to anthracnose. It is

moderately resistant to late yellow rust and tolerant to Phytophthora root rot and crown gall, but is susceptible to raspberry fireblight. Boyne yields very well and is recommended for colder climates.

**Killarney\*** (sibling of Boyne) has short to medium canes, is spiny, and produces many suckers. It is susceptible to mildew and anthracnose. The fruit ripens early, but after Prelude and Boyne. The fruit is medium-sized but very bright red and may crumble. Flavor and freezing quality are good, but berries may soften in warm weather. This cultivar is very hardy and is recommended for colder climates.

**Prelude\*** is the earliest summer fruiting cultivar available. The fruit is medium sized, round, and firm with good flavor. It shows good field resistant to Phytophthora root rot and has good cold hardiness. A moderate fall crop is large enough to warrant double cropping. It is probably the best early season cultivar available for the northeast.

#### **Mid Season**

**Canby\*** canes are tall, nearly spineless, and moderately productive. The fruit ripens mid season, is medium to large in size, firm, and bright red with excellent flavor. It has moderate to poor hardiness, and buds may winter kill in cold climates. It is susceptible to Phytophthora root rot.

**Claudia** (KCE-1) (Patent pending) is a new cultivar from the Maryland program. It produces stout, upright canes. The fruit is large and conical with good flavor and ripens mid to late season. A late fall crop is common. It has acceptable cold hardiness for most areas. This is a new release that is relatively untried, but has performed well in Geneva.

**Emily** (JAM-1) (Patent pending) is a new cultivar from the Maryland program. It produces large midseason fruit with good yield potential. It is susceptible to Phytophthora root rot and has suspect cold hardiness. This is a new release that is relatively untried and has performed poorly at Geneva.

**Esta** (GEL-114) (Patent pending) is a new cultivar from the Maryland program. It produces fruit mid to late season that are large and conical with a mild, bland flavor. It is susceptible to Phytophthora root rot and lacks cold hardiness. It is resistant to leaf hoppers. It needs trellising for ease of picking. This is a new release that is relatively untried.

**Nova** is vigorous and upright with long, fruiting laterals. The canes have very few spines. The fruit ripens in mid season and is medium sized, bright red, firm, and somewhat acidic in taste. It is considered to have better than average shelf life. The plants are very hardy and appear to resist most common cane diseases, including rust. It will set a late fall crop.

**Titan\*** (Plant patent # 5404) produces large canes with very few spines with suckers that emerge mostly from the crown, so it is slow to spread. It is susceptible to crown gall and Phytophthora root rot but is extremely productive. Fruits ripen mid to late season and are extremely large and dull red, with mild flavor. Berries are difficult to pick unless fully ripe. With only fair hardiness, Titan is for moderate climates.

It is resistant to the raspberry aphid vector of mosaic virus complex.

#### **Late Season**

**Encore\*** (NY 7) (Plant patent # 11,746) is the latest summer fruiting raspberry available. It produces large, firm, slightly conical berries with very good, sweet flavor. The fruit quality is considered very good. It is tolerant to Phytophthora root rot and has good cold hardiness.

**K81-6** produces canes that are medium tall with spines only at the base. The fruit is very large with good flavor that ripens very late summer with average firmness. It is resistant to late yellow rust but is susceptible to leaf curl virus and raspberry fire blight. Hardiness is judged adequate for most areas

#### **Black Raspberries**

**Bristol** is vigorous and high yielding for a black raspberry especially in a newly established planting. The fruit ripens early and is medium to large and firm, with excellent flavor. Bristol is hardy for a black raspberry but should be tested to ensure adequate hardiness. It is susceptible to anthracnose and raspberry mosaic complex but is tolerant to powdery mildew.

**Jewel\*** is vigorous, erect, and productive for a black raspberry. This cultivar appears to be more disease resistant than others and includes resistance to anthracnose. The fruit is firm, glossy, and flavorful and ripens in mid-season. This is a hardy black raspberry cultivar.

**Mac Black** is new to the scene and has not been tested much. It is a late season black raspberry with medium large berries. It is reported to have good cold hardiness for a black raspberry. Definitely worth a look to extend your black raspberry harvest by 7-10 days.

#### **Purple Raspberries**

**Brandywine** produces canes that are very tall with prominent thorns, and suckers grow only from the crown so the plant will not spread. It is susceptible to crown gall but partially resistant to many other diseases. Fruits ripen later than most red cultivars and are large, dull reddish-purple, and can be quite tart. Berries are best used for processing. This is a high yielding cultivar.

**Royalty\*** (Plant patent # 5405) is considered the best purple raspberry available. The canes are tall and vigorous, with thorns, and are extremely productive. Royalty is immune to the large raspberry aphid, which decreases the probability of mosaic virus infection, but is susceptible to crown gall. Fruits ripen late and are large and reddish-purple to dull purple when fully ripe. Berries tend to be soft but sweet and flavorful when eaten fresh. Excellent for processing. Hardiness is acceptable for northern growing areas.

#### **Fall Bearing**

**Anne** (Plant patent # 10,411) produces large, conic, pale yellow fruit with very good flavor and texture in mid to late season. It produces tall upright canes but does not sucker adequately for good stands. It is susceptible to Phytophthora root rot.

**Autumn Bliss** is an early ripening raspberry with large, highly flavored fruit. It ripens 10 to 14 days before Heritage. Much of the crop is produced within the first two weeks of harvest, which is an advantage in northern climates. It produces short canes with few spines. The fruit is somewhat dark fruit. It is susceptible to raspberry bushy dwarf virus.

**Autumn Britten\*** (Patent Pending) is early ripening with large, firm, good flavored fruit. It is taller than Autumn Bliss with better fruit quality but slightly lower yields. It is a day or two later than Autumn Bliss.

**Caroline\*** (Plant patent # 10,412) is a large, good flavored, conical fruit. It produces tall upright canes. The short fruiting laterals can be challenging to pick. It has moderate tolerance to Phytophthora root rot.

**Goldie** and **Kiwigold** (Plant patent # 11,313) are nearly identical cultivars. They are amber sports of Heritage, similar in all characteristics except fruit color. Fruit blushes pink when fully ripe. Goldie blushes slightly more than Kiwigold.

**Heritage\*** is considered the standard for fall bearing cultivars. These tall, rugged canes have prominent thorns and are very high yielding. The primocane crop ripens relatively late. Fruit is medium-sized and has good color and flavor, firmness, and good freezing quality. It is resistant to most diseases. Due to its late ripening, this cultivar is not recommended for regions with cool summers or a short growing season with frost before September 30.

**Josephine** (JEF-f1) (Patent pending) is a new cultivar from Maryland. The plants are upright and vigorous. Fruit is large with average flavor that ripens mid season. It is resistant to leaf hopper. This is a new release that is relatively untried.

**Polana** (Patent pending) is a very early season cultivar that ripens 14 days before Heritage. It produces short productive canes with multiple laterals per node. The fruit is medium sized fruit with good flavor. Susceptible to verticillium wilt. It needs extra nitrogen to perform well.

**Ruby** (Plant patent # 7067) is moderately vigorous with good productivity. The primocane crop ripens slightly ahead of Heritage. The fruit is large with a mild flavor. Ruby is moderately susceptible to Phytophthora root rot. The cultivar is suggested for fresh market or shipping in areas with longer growing seasons. It is susceptible to mosaic virus complex and resistant to late yellow rust and powdery mildew.

#### **Greenhouse Production**

**Tulameen\*** has been shown to be superior for greenhouse production. It produces very large fruit, and high yields. The fruit is glossy and firm. It is resistant to aphid vector of mosaic virus complex. Plants are not adequately hardy for field production in the Northeast.

## BLUEBERRY CULTIVARS

While blueberries are not widely grown in NY there are regions with suitable soil and they are more widely grown in other regions in the northeast. They exhibit a wide range of hardiness that must be taken into account when selecting cultivars.

### Early Season

**Bluetta\*** is very hardy but has small dark berries that are difficult to machine harvest. The large scar on the berry is also a problem. Suitable for Zones 3-4.

**Duke\*** is considered the best early season cultivar available. The fruit size and quality is very good but the flavor can be bland if picked late. It can be machine harvested. Frost tolerance and winter hardiness is good. Suitable for Zones 5-6.

### Early Mid Season

**Bluejay** has high quality fruit that can be machine harvested but may be less productive than other cultivars. Suitable for Zones 5-6.

**Northland\***, as the name suggests, is very winter hardy. It is a half-high bush with small, dark, soft fruit. It is productive but requires heavy pruning. Suitable for Zones 3-4.

**Patriot** is winter hardy but frost sensitive. It is a smaller bush but still productive but must be pruned hard for large fruit. It must be fully ripe for best flavor. A recent disease problem resembling virus infection has taken it off the recommend list.

**Spartan** produces large, good quality fruit with good flavor. It can be machine harvested, but it needs cross pollination for good yields and can be difficult to grow in some sites. Suitable for Zones 5-6.

### Mid Season

**Bluecrop\*** is a commonly planted cultivar in New York. It has good flavor and fruit size and firmness. It has high yield potential. It is hardy in most of NY and can be machine harvested. The canes tend to be weepy. Suitable for Zones 5-6.

**Blueray\*** is also one of the more widely planted cultivars in New York. Fruit size is very good with good flavor and high yield potential. Extra pruning is needed with this spreading bush. Suitable for Zones 5-6.

**Chippewa\*** is a very winter hardy cultivar that is productive with large firm fruit. This half-high bush is relatively new and has not been widely tested. Suitable for Zones 3-4.

**Sierra** is productive and has large firm berries that can be machine harvested. It is less hardy than other cultivars. Suitable for Zones 5-6.

**Toro** is a productive cultivar with large fruit that ripen uniformly. The clusters tend to be tight which makes picking harder. The canes tend to be too upright and thick. Competes with Bluecrop, which is probably better. Suitable for Zones 5-6.

### Late Season

**Brigitta** is a large flavorful fruit that stores well. It is vigorous but can be less hardy because it grows late into the fall. Excess nitrogen will make this worse. It is susceptible to phomopsis. Suitable for Zones 5-6.

**Elliott\*** is a very late season berry with very good shelf life, 30-45 days in a Modified Atmosphere. The fruit is large and firm but can be tart. It is a good producer. Suitable for Zones 5-6.

**Jersey** is an old (1928) cultivar that is adapted to a wide soil range. It has high yields of machine harvested fruit but the berries are small and soft. Suitable for Zones 3-6.

**Nelson\*** is productive with firm, attractive, good flavored that can be machine harvested. The fruit can hang on the bush for extended periods. It is a vigorous, hardy bush with wide soil adaptation. Suitable for Zones 5-6.

(Source: *New York Berry News*, Vol. 1 No. 9, Nov. 17, 2002)

## Fruit Web Sites

*Ted Gastier, Ohio State University*

The last issue of this newsletter included general fruit websites. We should have mentioned that all of these addresses are also available at <http://newfarm.osu.edu>. Click on "crops" and choose "berries," "grapes," or "tree fruit." In this issue, we are including addresses specific to blackberries, blueberries, currants, elderberries, and gooseberries. These are also available at <http://newfarm.osu.edu>.

### Blackberries

Blackberries NC: <http://www.ces.ncsu.edu/depts/hort/hil/pdf/ag401.pdf>

Blackberry Crop Profile NY: <http://pestdata.ncsu.edu/cropprofiles/docs/nyblackberries.html>

Blackberry Production OR: <http://berrygrape.orst.edu>

Brambles, Production Management & Marketing OH: <http://ohioline.osu.edu/b782/index.html>

### Blueberries

Blueberry PA: [http://agalternatives.aers.psu.edu/crops/highbush\\_blueberry/highbush\\_blueberry.pdf](http://agalternatives.aers.psu.edu/crops/highbush_blueberry/highbush_blueberry.pdf)

Blueberry Bulletin (The) NJ: <http://www.rce.rutgers.edu/pubs/blueberrybulletin>  
 Blueberry Crop Profile MI: <http://pestdata.ncsu.edu/cropprofiles/docs/miblueberries.html>  
 Blueberry Crop Profile NY: <http://pestdata.ncsu.edu/cropprofiles/docs/nyblueberries.html>  
 Blueberry Diseases MI: <http://www.msue.msu.edu/vanburen/e1731.htm>  
 Blueberry Establishment BC: [http://www.agf.gov.bc.ca/busmgmt/budgets/budget\\_pdf/berry/blueberry\\_establishment\\_summer\\_2001.pdf](http://www.agf.gov.bc.ca/busmgmt/budgets/budget_pdf/berry/blueberry_establishment_summer_2001.pdf)  
 Blueberry Insect Pests MI: <http://www.msue.msu.edu/vanburen/e1863.htm>  
 Blueberry Production OR: <http://berrygrape.orst.edu/fruitgrowing/berrycrops/blueberry.htm>  
 Hand Harvest BC: [http://www.agf.gov.bc.ca/busmgmt/budgets/budget\\_pdf/berry/blueberry\\_hand\\_full\\_prod\\_summer\\_2001.pdf](http://www.agf.gov.bc.ca/busmgmt/budgets/budget_pdf/berry/blueberry_hand_full_prod_summer_2001.pdf)  
 Highbush Blueberry Nutrition MI: <http://www.msue.msu.edu/vanburen/e2011.htm>  
 Hints on Growing Blueberries MI: <http://www.msue.msu.edu/vanburen/e2066.htm>  
 Machine Harvest BC: [http://www.agf.gov.bc.ca/busmgmt/budgets/budget\\_pdf/berry/blueberry\\_machine\\_full\\_prod\\_summer\\_2001.pdf](http://www.agf.gov.bc.ca/busmgmt/budgets/budget_pdf/berry/blueberry_machine_full_prod_summer_2001.pdf)  
 PickYourOwn NC: <http://www.ces.ncsu.edu/depts/hort/hil/hil202.html>  
 Postharvest Cooling & Handling NC: <http://www.bae.ncsu.edu/programs/extension/publicat/postharv/ag4137/index.html>

### **Currants & Gooseberries**

Black Currants BC: [http://www.agf.gov.bc.ca/busmgmt/budgets/budget\\_pdf/berry/currants\\_12\\_2000.pdf](http://www.agf.gov.bc.ca/busmgmt/budgets/budget_pdf/berry/currants_12_2000.pdf)  
 Black Currants CA: [http://www.sfc.ucdavis.edu/cgi-bin/spec\\_crop.exe/show\\_crop&ID=3](http://www.sfc.ucdavis.edu/cgi-bin/spec_crop.exe/show_crop&ID=3)  
 Currants & Gooseberries ID: <http://www.uidaho.edu/~sandpnt/ribes.htm>  
 Currants & Gooseberries IN: <http://www.hort.purdue.edu/ext/HO17.pdf>  
 Currants & Gooseberries OR: <http://berrygrape.orst.edu/fruitgrowing/berrycrops/currantgoose.htm>  
 Gooseberry Crop Profile NY: <http://pestdata.ncsu.edu/cropprofiles/docs/nygooseberries.html>  
 Currants, Gooseberries, and Elderberries WS: <http://www1.uwex.edu/ces/pubs/pdf/A1960.PDF>

### **Elderberry**

Elderberries PA: <http://ssfruit.cas.psu.edu/chapter11/chapter11a.htm>  
 Elderberries WI: <http://www1.uwex.edu/ces/pubs/pdf/A1960.PDF>  
 Elderberries for Home Gardens Ontario: <http://www.gov.on.ca/OMAFRA/english/crops/facts/95005.htm>

(*Source: Ohio Fruit ICM News, Volume 6, Issue42, December 12, 2002*)

## **Pesticides: What the Terminology Tells You**

*Janice LeBoeuf, Ontario, Vegetable Crop Specialist*

Are systemic pesticides better than contact pesticides? What does it mean when a fungicide is translaminar? Should I use an eradicant or a protectant? A good understanding of the properties of a pesticide is essential for making good pest management decisions, but pesticide terminology can be confusing. Here's a primer.

### **Systemic**

1. The pesticide is absorbed by the plant. It moves around in the plant to protect areas of the plant not contacted by the original application. Fungicides and insecticides may have this type of systemic activity. Systemics are not subject to washing off or weathering, and may provide longer residual activity than contacts. However, systemics tend to act on specific sites in the pest, and are often more subject to the development of pest resistance.

2. The pesticide is absorbed by the pest, and moves around within the pest, to reach parts of the pest not contacted by the original application. Herbicides may have this type of systemic activity.

Systemic pesticides may not move through the entire plant (symplastic or basipetal translocation), but may only be absorbed in the local area of application (locally systemic), or may only move upward in the plant (apoplastic or acropetal translocation).

### **Contact**

The pesticide kills only the pest, or part of the pest, to which it is applied. Insects which are hit by or eat or walk on or breathe a contact insecticide could be affected. The part of the plant which is hit by the contact herbicide is affected. Fungal pathogens which attempt to invade the area of the plant where a contact fungicide is present, will be affected.

**Preventative:** See protectant.

**Protectant**

A fungicide which must be applied to the plant before infection occurs. It acts as a shield against fungal infection. It has no effect on infections which have already occurred. These are generally contact fungicides, often have broadspectrum activity, and are usually applied at higher rates than eradicants or curatives.

**Eradicant**

A fungicide which is applied after disease symptoms are present, used to prevent the spread of the disease. These fungicides have systemic activity and most have preventative activity as well. Pest resistance tends to develop more easily than for protectants.

**Curative**

A fungicide which is applied to the plant after infection has occurred, but before symptoms are present. These

fungicides have systemic activity and most have preventative activity as well. Pest resistance tends to develop more easily than for protectants.

**Kickback or Reachback**

Curative or eradicant fungicidal activity.

**Translaminar**

A pesticide which can move through the leaf, but does not otherwise move around in the plant.

**Locally systemic**

The pesticide is absorbed into the immediate area of application. It can move from cell to cell in the plant, but is not capable of long distance transport.

*(Source: Hort Matters, November 27, 2002, vis Ohio Fruit ICM News, Volume 6, Issue42, December 12, 2002)*

## Pesticide Update

### ORGANIC FUNGICIDE LABELED FOR MUMMY BERRY

*Vern Grubinger, University of Vermont*

Blueberries, and many other crops, have been added to the Serenade WP label. This product, manufactured by AgriQuest, is OMRI approved for organic production and the active ingredient is the bacterium called *Bacillus subtilis*. Dr. Annemiek Schilder, a plant pathologist at Michigan State Univ. has conducted field trials comparing a variety of materials for control of mummy berry disease in blueberry. The data suggest that Serenade can provide moderate control of mummy berry although not as good as Indar, a conventional, 'low-risk'

material that has a special use permit in Vermont. Efficacy of Serenade may be improved by spraying frequently (e.g. every 7 days during high-risk periods) and perhaps by spraying right after a frost event, which may predispose the shoots to infection (in lowbush blueberries at least). Conventional growers may also alternate with other fungicides (e.g. Indar or Bravo) to increase efficacy of the fungicide program. *(Source: Vermont Vegetable and Berry News, December 15, 2002)*

### Cabrio Registration for Berry Crops

*Mike Ellis, Ohio State*

Cabrio 20 EG fungicide (pyraclostrobin) was recently registered for use on blueberry, brambles (blackberry and raspberry), and strawberry. It is registered for control of *Alternaria* leaf spot and fruit rot, powdery mildew, anthracnose fruit rot, *Phomopsis* leaf blight and twig blight, and suppression of mummy berry and *Botrytis* gray mold on blueberry. On brambles, it is registered for control of anthracnose, *Septoria* leaf spot, raspberry leaf spot, powdery mildew, rust diseases and spur blight, and suppression of *Botrytis* gray mold. On strawberry, it is registered for control of anthracnose fruit rot, powdery mildew and leaf spot, and suppression of *Botrytis* gray mold. Cabrio is an excellent material and provides good to excellent control of all these diseases. This is a very important product on brambles, largely due to the current lack of registered fungicides on

brambles. Cabrio is a strobilurin fungicide. This is the same class of chemistry as Quadris and Abound. Quadris is currently registered for us on strawberry, and Abound is currently registered for use on blueberry and grape. For purposes of fungicide resistance management, only four applications of Cabrio can be applied per crop per season on blueberry and brambles and no more than five applications can be made per season on strawberry. In addition, no more than two sequential applications can be made before switching to a fungicide with another type of chemistry. Cabrio cannot be alternated with Quadris or Abound as a fungicide resistance management strategy. Cabrio has a 0-day preharvest interval on all registered berry crops; however, the re-entry interval is 24 hours. Remember: Always read the label. *(Source: Facts for Fancy Fruit, Vol. 02, No. 13, ue, 26 Nov 2002)*

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## Upcoming Meetings

**New England Vegetable and Berry Growers Winter Meeting:** Tuesday, January 7, 2003. 9:30AM – 4:00PM.

**Location:** Sturbridge Host Hotel & Conference Center, Sturbridge MA.

This program is being held in conjunction with the New England Fruit Meetings and Trade Show and includes a large trade show.

This program includes presentations on:

- *Strawberries on Plastic Mulch*
- *Raspberry Culture in Containers*
- *Strawberry Black Root Rot*
- *New Prospects for Managing Black Vine Weevil in Strawberries*

- *Greenhouse Bio Control*
- *Farm Truck Regulations*
- *New Sweet Corn Varieties*
- *Precision Greenhouse Seeders*

Please Contact Dominic Marini (508-378-2546) for registration information and directions or visit <http://www.umassvegetable.org> or <http://www.umass.edu/fruitadvisor>

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**Cranberry Management Update:** January 14, 2003 from 7:30AM to 1PM

**Location:** Radisson Hotel Plymouth Harbor (Previously known as the Plymouth Sheraton)

This program includes presentations on:

- *Cranberry Station Update*
- *Cranberry Best Management Practices*
- *Perennial Weed Control in Cranberries*
- *DayNeutral Strawberries on Cranberry Uplands*
- *Diversified Business Strategies*

- *Flood & Carbohydrate Stress in Cranberries*
- *Raptor Retrofit Project*
- *Disease Management in Cranberries*
- *Insect Management in Cranberries*

Please contact the Cranberry Experiment Station (508-295-2212) for more information on this meeting or visit <http://www.umass.edu/umext/programs/agro/cranberries>.

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**Winter Flower Growers' Meeting** (Open to all commercial flower growers, large or small) January 21, 2003 9:30AM – 4:00PM

**Location:** FAF Growers, Hinsdale Rd., Northfield, MA  
Co-sponsored by UMass Extension Floriculture Program and the Massachusetts Flower Growers' Association.

This event will feature a full day educational program and tour of FAF Growers. The program will begin with a demonstration on Respirator Fit Testing. Growers are invited to bring their respirators for a fit test. Other topics will include Root rots and Subdue Resistance, Managing Fungus Gnats, Growing New Seed Varieties, Growth Regulators for Spring Crops, Marketing Tips and More. Three pesticide recertification credits have been approved.

*FAF is a wholesale greenhouse and retail garden center with 3 acres of greenhouse production and 7 acres of fall outdoor container production. They specialize in plugs, rooted liners, pre-finished and finished annuals and herbaceous perennials. You will have an opportunity to see how FAF overwinters their perennials during the lunchtime tour.*

**Contact:** Tina Smith 413-545-5306, [tsmith@umext.umass.edu](mailto:tsmith@umext.umass.edu) or Paul Lopes 508-295-2212 ext 24, [lopes@umext.umass.edu](mailto:lopes@umext.umass.edu) University of Massachusetts, Extension Floriculture Program or Bob Luczai, 781-275-4811 Massachusetts Flower Growers Association.

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**2003 MID-ATLANTIC WINTER BRAMBLES CONFERENCE:** The "North American Bramble Growers Association - Mid Atlantic region" and Virginia Cooperative Extension will sponsor a Bramble meeting February 7 & 8, 2003 at the Holiday Inn at Carradoc Hall in Leesburg, Virginia.



The conference has a focus on subjects most currently critical to the production of bramble fruit and factors affecting the viability of individual farms and the growing industry.

Key topics include season extension, irrigation in heat and drought, nutrition, in-depth cultivar discussion, specifics of insects pests - diseases - virus' - & nematodes, direct marketing, wholesale marketing, and grower profiles.

Speakers include Dr. Richard Funt of Ohio State University, Dr. Harry Swartz of the University of Maryland, Bryan Butler of Maryland Cooperative Extension, Dr. Doug Pfeiffer and Dr. Tony Bratsch of Virginia Tech, Dr. Bill Cline and Dr.

Zvezdana Pesic-VanEsbroek of North Carolina State University, Dr. John Halbrecht of Pennsylvania State University, Mike Droney of the Virginia Department of Agriculture, and discussions with individual growers.

Information including conference schedule and registration can be obtained at <http://www.ento.vt.edu/Fruitfiles/HotBramble.html> and will soon be posted at <http://www.nabga.com>; or by contacting Jason Murray at [jamurray@vt.edu](mailto:jamurray@vt.edu) & 703-737-8978, or Richard Fagan at [rfagan@mindspring.com](mailto:rfagan@mindspring.com) & 301-724-4085.

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*MassachusettsBerryNotesisapublicationoftheUniversityofMassachusettsExtensionFruitProgramwhichprovidesresearchbasedinformationonintegratedmanagementofsoils,crops,pestsandmarketingonMassachusettsFarms.Noproductendorsementsoverlikeproductsareintendedorimplied.*