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# Berry Notes

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## SHORTS:

**2017 Mass Aggie Workshop Series now posted** – The 2017 line-up is set. This popular hands-on workshop series kicks off in February with ‘Pruning Grapes – a hands-on workshop’ and wraps up in April with ‘Edible Landscaping with Fruit’ Along the way you can learn about ‘Pruning Blueberries’, ‘Apple Tree Grafting’, ‘Pruning Raspberries & other Bramble Fruit’, and ‘Home Orchard Pest Management’, among other topics. Check out the [Mass Aggie registration site](#) and see what you might like to learn more about.

**University of Wisconsin Work Efficiency Tip Sheets:** A series of tip sheets on labor efficiency for fresh market fruit and vegetable growers. For example, the non-motorized field cart: Stooping or kneeling and crawling to harvest or weed strawberries or low-growing vegetable crops requires a lot of time and energy. Lifting and moving your harvest container many times as you fill it adds to the workload. An alternative is to build a simple cart that allows you or your workers to sit and roll over the bed or row while working. Plans for building a simple cart may be obtained for free from the University of Wisconsin's Healthy Farmers, Healthy Profits Project. See: <http://bse.wisc.edu/HFHP/tipberry.htm>.

**Urban Agriculture in Boston** – Urban agriculture improves access to fresh, healthy, affordable food, with decreased transportation costs and lower carbon emissions. In December 2013, the City passed Article 89, a city-wide zoning article that allows for commercial urban agriculture in Boston. New farming endeavors will bring communities together, empower small entrepreneurs, and increase access to fresh food for Bostonians. The Office of Food Initiatives supports urban agriculture in Boston. By transforming land into urban farms, this will enable citizens to grow food. This will increase the availability of fresh produce in Boston neighborhoods, which is particularly important for low-income neighborhoods that may not have sufficient access to healthy food. These farms will also improve the aesthetics of neighborhoods and bring neighbors together around gardens. See: <http://www.cityofboston.gov/food/urbanag/> for more information.

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## STRAWBERRY

### Strawberry Variety Review

*Courtney Weber, Cornell*

The most critical aspect of establishing a healthy berry planting is obtaining high quality planting stock that has a vigorous root system and is free from disease and insect pests. The plants should be obtained from a reputable nursery that participates in a certification program to ensure plants are free from diseases such as viruses and root diseases. Mother plants or stock plants derived from tissue culture for starting propagation fields provide the best source of disease and pest free plants. Plants should be ordered well in advance of planting to ensure an adequate supply the desired varieties and plant sizes.

Strawberries are one of the most variable and temperamental of the fruit crops and the choice of varieties is extensive because individual varieties are often adapted to a relatively small growing region. The most commonly grown varieties in the northeastern U.S. are June-bearing types and new varieties are constantly being developed. Most varieties have weaknesses so growers are advised to try new ones on a limited scale to determine how they will perform in each situation.

#### VARIETY DESCRIPTIONS

##### Early Season

**AC Wendy** (Nova Scotia) produces large blocky/conic fruit with very good quality and flavor and higher yields than most early season varieties. Ripening tends to be uneven leaving white tips and/or shoulders. Establishment of new plantings has been uneven. It is susceptible to leaf spot late in the season.

**Annapolis** (Nova Scotia) is a large fruited early season variety. The fruit is pale red and soft with good flavor. Suitable for local retail. It yields well. It is susceptible to powdery mildew and Verticillium wilt.

**Daroyal** (France/Spain) produces large, blocky fruit in the Honeoye season. It is new to the U.S. and little information is available at this time.

**Earliglow** (USDA, MD) is still considered the best tasting berry around. Primary berries are large and attractive and are suitable for retail or wholesale. Berry weight drops off quickly after the primary berries and yields are relatively low. It is susceptible to powdery mildew after harvest.

**Evangeline** (Nova Scotia) fruit is long conical in shape with a pronounced neck and generally small with low yields. The interior is pale, and it is susceptible to red stele. The fruiting laterals are stiff and upright which keeps the fruit off the ground and clean.

**Honeoye** (Cornell University, NY) 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.

**Itasca** (MNUS 138, University of Minnesota) is a cross between Seneca and Allstar. It fruits early to early-midseason in New York. The fruit is larger than that of Annapolis, conic to blunt wedge shaped. Fruit flesh is orange-red with an average to good flavor. Itasca is resistant to five races of red stele, and its foliage is highly resistant to mildew.

**L'Amour** (Cornell) produces very attractive heart shaped berries with bright red color. The fruit has a very good, aromatic flavor with good eating quality. The plants are vigorous and disease resistant and remain productive for many years. The fruit is larger than most early season varieties.

**Northeast** (USDA, MD) 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** (Nova Scotia) is slightly earlier than Earliglow and is equal or better in flavor. Unfortunately it lacks fruit size and firmness. This variety 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** (Nova Scotia) has fruit weight and yield 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** (Nova Scotia) 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.

**Chandler** (University of California) is a standard southern variety grown for wholesale markets in plasticulture. High yields have been experienced throughout the Carolinas and California. Not well suited for planting north of the mid-Atlantic region due to lack of winter hardiness. Chandler is also susceptible to anthracnose disease.

**Darselect** (France) is a large fruited, high yielding variety. The berries are attractive and bright red with a

long conical shape. The flavor is very good. However, it tends to be soft. It is susceptible to powdery mildew, which can be a problem in areas with morning fog.

**Elsanta** (Netherlands) is one of the most widely planted varieties in northern Europe. It is June-bearing with high yield potential. Fruit is firm and aromatic. It is susceptible to red stele, anthracnose, and Verticillium wilt.

**Herriot** (Cornell University, NY) is a new mid-season variety from the Cornell University breeding program. It produces large, bright red fruit that are uniformly conic in shape. The fruit is firm with good flavor. The plants renovate better than Jewel and are disease resistant.

**Jewel** (Cornell University, NY) 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 or cold sites.

**Kent** (Nova Scotia) produces medium sized berries with very good yield, especially in new plantings. Hot weather can cause skin toughness. 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.

**L'Amour** (Cornell University, NY) 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. No significant disease or insect problems have been noted to date.

**Mesabi** (University of Minnesota) 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.

**Raritan** (Rutgers University, NJ) is productive with the fine taste of an heirloom strawberry. Raritan is very flavorful. Its small, deep-red berries are easy to pick. Plants are susceptible to a wide range of diseases.

**Sapphire** (University of Guelph, Ontario) is a late mid-season variety with bright red and large berries. It is reported to be tolerant of the herbicide Sinbar (terbacil).

#### **Late Season**

**AC Valley Sunset** (Nova Scotia) produces large conic fruit into the late season. The conic fruit tends to be a bit rough in shape but still attractive. As with all late season varieties, tarnished plant bug can become a problem and extra care at renovation is warranted.

**Allstar** (USDA, MD) is good yielding, high quality variety with good flavor. Unfortunately, the color is pale to orangish and is unacceptable to an uninformed consumer.

**Cabot** (Nova Scotia) produces impressive berries. Average fruit weight is larger than any variety currently available. Primary berries often top 40-50 g. The color can be pale throughout the berry and primary berries are often irregular in shape. Yields are very high. It is resistant to red stele but is susceptible to virus infection and cyclamen mites.

**Clancy** (Cornell University, NY) was developed through a joint venture with the USDA breeding program in Beltsville, MD. Its parents were resistant to red stele root rot. The fruit is a round conical shaped with darker red color and good flavor. The flesh is very firm with good texture and eating quality. The fruiting laterals are strong and stiff, keeping the fruit off the ground until they reach full size. No significant disease or insect problems have been noted to date.

**Donna** (France/Spain) produces large blocky fruit in the late season. The fruit is darker than Darselect with similar quality. It is new to the U.S. and has not been widely trialed.

**Eros** (Italy) is a light colored late season variety with large but somewhat squat berries that are not particularly attractive. Yields are adequate in good stands but it does not renovate exceptionally well. It is susceptible to cyclamen mites.

**Ovation** (USDA, MD) is extremely late. It doesn't flower until after most others are past their peak bloom. Fruit quality is average but there is little to compare it to in this season. Yields are moderate.

**Record** (Italy) produces large fruit in the late season with good yields reported. The color is darker than Idea which it replaced but still considered light to slightly orange, similar to Allstar.

**Seneca** (Cornell University, NY) is probably the firmest variety available for the east. The fruit is large, bright red and attractive but the flavor is only average. It does not runner heavily and can be adapted to plasticulture.

**Serenity** (University of Guelph, Ontario) is a late season variety that is also tolerant to Sinbar (terbacil). The fruit is large and bright red. The skin tends to be soft. It reported to be moderately resistant to scorch and mildew.

**Winona** (University of Minnesota) has very large berries and average yields but cannot compete with Jewel for fruit appearance. It has good vigor though and might be useful where Jewel does poorly.

#### **Day Neutral**

**Albion** (University of California-Davis) produces large attractive berries with good flavor. The color is bright red with little interior color. They are only weakly day-neutral and do not fruit heavily in the fall in temperate climates. Developed for plasticulture systems, overwinter potential and root rot resistance are unknown but doubtful.

**Evie 2** (U.K.) produces medium large beet-shaped fruit that are bright red. Fruit production in the fall in temperate climates has been moderate. This variety is relatively unknown and needs to be trialed more extensively for a temperate climate.

**Seascape** (University of California) is a day neutral 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** (USDA, MD) have been the standard day neutral varieties 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.

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(Source: Cornell University Berry Production Webpage: <http://www.fruit.cornell.edu/berry/production/strawberryproduction.htm>)

## Matted-Row Strawberry Variety Trial—Second-Year Results

*Kathy Demchak, Penn State Univ.*

We collected data on performance of sixteen cultivars or advanced selections of strawberries in the second harvest year of a matted-row trial. Some were great, and others had a few issues.



*'Malwina' fruit sprouting leaves. Photo: Kathy Demchak*

Unlike last year, when nearly all of the cultivars started to fruit at the same, there was some separation in the fruiting time of the varieties.

**'Earliglow'**, and **'Jewel'**, our early-season and mid-late season standards, respectively, continued to perform as expected, with yields up relative to last year and fruit size dropping off a bit, as would be expected. **'Earliglow'** produced total yields of 9,900 lb/a with a mean berry

weight of slightly less than last year, at 9.0 g/berry while Jewel produced 14,200 lb/a of fruit averaging 9.2 g/berry.

**'Galletta'** - **'Earliglow'** was the first variety to ripen, with **'Galletta'** following about 3 days later. **'Galletta'** was developed for plasticulture, but produced sufficient runners to fill the rows in very nicely after last year's renovation. **'Galletta'** was still a little low-yielding in this system, producing 7,000 lb/a, but had nice-sized fruit averaging 11.1 g/berry.

**'Laurel'** was another early-season variety, and continued to perform well, yielding 13,100 pounds per acre, and nice-sized berries averaging 9.8 g/berry. Flavor is good, but not excellent. It is resistant to foliar diseases. Unfortunately, it isn't available from any U.S. nurseries that I know of.

**'Sonata'** was the top-yielder, producing 18,800 lbs/acre of average-tasting fruit, averaging 9.3 g/berry, and fruiting in the mid-season. Flavor is average.

**'Rubicon'** produced fruit at the same time as **'Sonata'**. Yields were perfectly acceptable at 11,800 lb/a, but berries were on the small side averaging only 8.8 g/berry. The fruit were tart as they were last year, but much less of the fruit was lost to gray mold, probably because we had a considerably drier harvest season.

**'Mayflower'** fruited at about the same time as **'Jewel'**. Its yield increased considerably over last year, coming in at 11,900 lb/a. As happened last year, this cultivar had the highest percentage of marketable fruit compared to any other variety, at 75% marketable fruit. This is fairly impressive, especially considering that no fungicides or insecticides were applied to this plot this year. The flavor wasn't the best, but seemed somewhat improved compared to last year.

'**Malwina**' was again in a harvest season all its own, not beginning to fruit until June 24 when only 'Jewel', 'Mayflower', and 'Rubicon' were still fruiting decently, and continuing to produce until July 13. A tiny percentage of the fruit (only a few berries) sprouted leaves, which is just a genetic disorder with this variety, and some of the caps looked like they were trying to mimic leaves. Seeing this does get one's attention!

Two of the four Cornell advanced selections had good total yields, but fruit tended to be on the small side. One of the Rutgers advanced selections had amazing flavor

later in the harvest season, and yields of all three were decent ranging from 7,100 to 10,000 lbs/acre.

Disease and insect incidence was fairly low overall, with the main reason for unmarketable fruit being small berry size.

Thanks to the [Pennsylvania Vegetable Growers Association](#) for providing funding for this trial.

(*Source: Penn State Fruit & Vegetable Update, Dec. 2016*)

### Additional Strawberry Variety Notes

*Sonia Schloemann, UMass Extension*

#### **Junebearing:**

**Flavorfest** (USDA) – mid-season high-yielding variety adapted for both plasticulture and matter row systems. Berries large and firm with excellent flavor. Plants show some resistance to red stele and some leaf diseases and tolerance to Anthracnose crown and fruit rot. May work well in organic production systems.

**Galletta** (NC State Univ.) – Fruit on this early-season variety (Earliglow hybrid) is large and glossy with excellent flavor. Plants moderately vigorous and have some tolerance to red stele and leaf diseases.

**Malwina** (Germany) – very late-season variety with glossy high flavored dark fruit. Late flowering can also be useful for avoiding frost/freeze damage during bloom. Berries are large and size holds well through several harvests. Plants vigorous showing resistance to Powdery Mildew and tolerance to Verticillium and red stele.

**Mayflower** (U.K.) – late mid-season productive variety with good flavor and tolerance to wet conditions.

**Mira** (Ontario) – late mid-season high-yielding variety with light color and good flavor. This variety replaces 'Blomidon' which had held a lot of promise 20 years ago but developed genetic instability and was discontinued.

**Rubicon** (CAES) – mid-season variety with moderate fruit size that has excellent flavor. This variety is distinctive in showing resistance to Black Root Rot and adult Black Vine Weevil feeding. This may make this a valuable variety for replant sites. Plant patent problems may limit the availability of this variety.

**Rutgers Scarlet** (Rutgers) – mid late-season variety with large firm fruit with excellent flavor. Plants are moderately vigorous and show resistance to red stele.

**Sonata - Sonata** (Netherlands) mid-season variety that produces dark red fruit with good flavor. Fruit firmness is

variable. Plants are vigorous but show some susceptibility to leaf diseases.

**Sparkle** (UNK) – heirloom variety of note due to its devoted following. Late season fruiting yields moderately sized, highly flavored fruit prized by many for over 60 years. Fruit size and softness reduce its commercial value, but excellent for small scale or home production.

**Yambu** (Netherlands) - early-midseason vigorous variety with firm, glossy fruit with good flavor. Yield potential appears promising and it has a long harvest season.

#### **Dayneutral:**

**Mara Des Bois** (France) – small to medium fruit with excellent flavor. Limited use for commercial production due to size and yield but flavor makes it appealing for pyo and home production.

**Moterey** (Univ. of Calif.-Davis) moderate yielding variety with excellent flavor and tolerance to high temps. Moderate vigor and some tolerance to leaf diseases, but susceptible to powdery mildew.

**Portola** (Univ. of Calif.-Davis) – strong yielder with very large, firm, light-colored fruit with good flavor.

**San Andreas** (Univ. of Calif.-Davis) – moderate yielder with large, firm fruit with excellent flavor. Plants are vigorous and it shows some disease resistance.

**Verity** (UK?) – high yield potential with proper management, good – excellent flavor. Plants vigorous with upright dense growth habit and show tolerance to powdery mildew.

#### **References:**

C. Weber, 2015. *Performance of New Berry Varieties at the NYAES in Geneva, NY*. New York Fruit Quarterly, Winter 2015.

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## RASPBERRIES/BLACKBERRIES

### Raspberry Variety Review

Courtney Weber, Cornell University

Raspberry varieties are classified as floricanes (summer) or primocane (fall) bearing. (A few primocane bearing types are described as everbearing, which produce a small to intermediate fall crop and can be managed in a double cropping system.) Raspberries are naturally biennial with a perennial crown. Primocanes grow the first year, go dormant in fall, get chilled in winter, and fruit the following summer (the primocanes are now called floricanes, which die after fruiting). New primocanes are growing as the floricanes fruit. Floricane varieties must be pruned in the spring to thin the fruiting canes and remove dead canes for better disease management and fruit size. There are red (*Rubus idaeus*), black (*Rubus occidentalis*), and purple (red x black hybrid) raspberry varieties suitable for production in temperate states.

Primocane varieties fruit on the first year's growth in the fall of the year. Currently, only red varieties (and some a few yellow) are available of this type although developments in black and purple raspberries include primocane fruiting. The strength of fruiting in primocane types varies widely from tips only on some floricanes varieties to nearly the whole cane in varieties such as 'Autumn Britten' and 'Himbo Top'. Later primocane varieties such as 'Ruby' and 'Heritage' can have yield reductions from early frosts in more northern growing regions. Pruning in primocane varieties is done by mowing spent canes to the ground before primocanes emerge in early spring.

Currently available black and purple raspberry varieties are floricanes bearing with most developed in New York or derived from germplasm from the region. New raspberry varieties are actively being developed in about 11 public breeding programs around the world with the majority suitable for production in the temperate regions of the U.S. coming from Cornell University ('Heritage', 'Encore', 'Prelude', 'Titan', 'Ruby', 'Taylor'), University of Maryland ('Caroline', 'Anne', 'Jaclyn') and Ag Canada in Nova Scotia ('Nova', K81-6). Increasingly, new varieties from European programs are being introduced in to the U.S. ('Autumn Bliss', 'Autumn Britten', 'Polana', 'Polka', 'Himbo Top' and others). No variety will work well in all locations, soil types, and production systems, but many have proven to be useful in many different situations. By planting a series of varieties, it is now possible to have fruit from mid to late June until fall frost (or longer with protection) in much of the temperate U.S. with only a short late-summer lag in production. Cornell's newest variety, 'Crimson Giant', released in 2011, extends the season in the fall to the end of October and beyond with large, high quality, bright red fruit.

### PRIMOCANE RED RASPBERRIES

**Autumn Bliss** (Great Britain, Plant Patent #6597) 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 dark red and darkens with storage and is fairly soft. It is susceptible to raspberry bushy dwarf virus.

**Autumn Britten** (Great Britain) is early ripening with large, firm, good flavored fruit. The fruit tends to be dark and darken in storage. It is taller than 'Autumn Bliss' with better fruit quality but lower yields. It produces sparse cane numbers.

**Caroline** (University of Maryland, Plant patent #10,412) is a large, good flavored, conical fruit. The fruit will darken with storage. It produces tall upright canes. The short fruiting laterals can be challenging to pick, but yields are very good for the fall. It has moderate to good resistance to Phytophthora root rot.

**Crimson Giant** (Cornell University-NYSAES, Plant patent applied for) is the latest release from the Cornell program and has large, bright red fruit with a conical shape. The berries are firm and flavorful. It ripens after 'Heritage' and extends the season until late October or later with high tunnels. There is a significant risk to the crop from early frost with outdoor production.

**Heritage** (Cornell University-NYSAES) is considered the standard for fall bearing varieties. These tall, rugged canes have prominent thorns and can very high yielding if the complete crop can be harvested. 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 variety is not recommended for regions with cool summers or a short growing season with frost before September 30 unless high tunnels or other cold protection is used.

**Himbo Top**™ (variety 'Rafzaqu') (Switzerland) produces good quality, large fruit. The fruit is bright red with good flavor. Plants are vigorous and upright and medium in height with very long fruiting laterals that require trellising. Sucker production is somewhat sparse leading to moderate yields.

**Jaclyn** (University of Maryland, Plant Patent #15647) is an early season variety with large firm berries ripening 2 weeks before Heritage. The fruit is dark red with superior flavor and will darken with storage. The fruit is very long conical and adheres tightly until fully ripe. Plants are vigorous and erect but susceptible to yellow leaf rust.

Potato leaf hoppers show a strong preference for this variety and can cause significant damage.

**Joan J** (Great Britain) is an early season variety with very firm fruit with a thick texture. The fruit is conic and dark red and will darken with storage. The canes are vigorous, upright and spineless making picking easy. Yield and fruit size is very good. The fruit skin is thin and can be damaged easily, especially in high temperatures.

**Josephine** (University of Maryland, Plant Patent #12,173) fruit is large with very good flavor ripening in the late season. Berries are firm and cohesive. The color is dark red. Plants are upright and vigorous needing little containment trellising. It is resistant to leaf hopper and Phytophthora root rot. This variety will extend the season in a high tunnel system.

**Polka** (Poland) has medium large primocane fruit that ripen in the mid-fall season. The fruit is somewhat soft with good quality and a shiny red appearance. It is a vigorous variety with good sucker production. Potato leaf hoppers so a strong preference for this variety and can cause significant damage.

#### **PRIMOCANE YELLOW RASPBERRIES**

**Anne** (University of Maryland, Plant patent #10,411) produces large, conic, pale yellow fruit that ripen mid- to late season. It has very good flavor and texture. Tall upright canes sucker sparsely requiring higher planting density. It is resistant to Phytophthora root rot but susceptible to leaf hoppers and rust.

**Kiwigold** (New Zealand, Plant patent #11,313) and **Goldie** (cv. Graton Gold) (California, Plant Patent #7,625) are amber sports of Heritage, similar in all characteristics except fruit color. Fruit blushes pink when overripe with Goldie slightly darker. The fruit is medium-sized and has good flavor and firmness and ripens relatively late. They are resistant to most diseases. [*Editors Note: these varieties are no longer available.*]

#### **FLORICANE RED RASPBERRIES**

##### **Early Season**

**Boyne** and **Killarney** (sibling varieties from Manitoba) perform very similarly. Both have are early season with small to medium sized fruit with good eating and freezing quality but can be somewhat dark and soft. The plants are spiny and produce many suckers. They have excellent winter hardiness but are susceptible to anthracnose. Boyne is moderately resistant to late yellow rust and tolerant to Phytophthora root rot and crown gall, but is susceptible to raspberry fireblight. Killarney is moderately resistant to Phytophthora root rot and is susceptible to mildew.

**Prelude** (Cornell University-NYSAES, Plant Patent #11,747) is the earliest summer fruiting variety available. The fruit is medium sized, round, and firm with good flavor. It is very resistant to Phytophthora root rot and has

good cold hardiness. A moderate fall crop is large enough to warrant double cropping. It is the best early season variety available for the northeast.

##### **Mid Season**

**Canby** (Oregon) 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 cold hardiness, and buds may winter kill in cold climates. It is susceptible to Phytophthora root rot. It is also susceptible to powdery mildew making it unsuitable for tunnel production.

**Moutere** (New Zealand) is large fruited variety with very firm fruit. The canes are vigorous and tend to weep with the heavy fruit load. The fruit is light red with a waxy, dull appearance. The yields are very high but the flavor is poor. Hardiness in NY has been good.

**Nova** (Nova Scotia) 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** (Cornell University-NYSAES, 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** (Cornell University-NYSAES, Plant patent # 11,746) is one of the latest summer fruiting raspberry varieties available. It produces large, firm, slightly conical berries with very good, sweet flavor. The fruit quality is considered very good. It is moderately susceptible to Phytophthora root rot and has good cold hardiness.

**K81-6** (Nova Scotia) 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. It has shown good cold hardiness in NY trials.

**Octavia** (Great Britain) is a new late season variety that promises to close the summer gap before primocane varieties begin. The fruit is large and generally round shaped and light red. The flavor is poor to average with adequate sun. The canes are semi-spineless with good resistance to aphids and cane botrytis. It is susceptible to

spur blight, raspberry bushy dwarf virus and Phytophthora root rot.

#### **FLORICANE BLACK RASPBERRIES**

**Black Hawk** (Iowa State University) fruit is small and glossy with good firmness. Plants are vigorous, similar to wild types. The canes are relatively hardy, and resistant to anthracnose. Yields are moderate. This variety is generally falling out of favor due to its small fruit and wild growth habit.

**Bristol** (Cornell University-NYSAES) fruit is medium to large and firm, with excellent flavor. Plants are vigorous, high yielding for black raspberry and hardy. It is susceptible to anthracnose and tolerant to powdery mildew.

**Haut** (USDA-ARS, Maryland) fruit is large sized but soft. The dark shiny black color makes them very attractive. It ripens over a long period producing good yields. The plants are vigorous and upright with good productivity.

**Jewel** (Cornell University-NYSAES) fruit is large, firm, glossy, and flavorful. Plants are vigorous, erect, hardy, and productive. This variety appears to be more disease resistant than others including resistance to anthracnose.

**Mac Black** (Michigan) ripens medium large berries 7-10 days later than most varieties. The fruit is large, moderately firm and flavorful. The canes are vigorous, erect, and hardy.

#### **FLORICANE PURPLE RASPBERRIES**

**Brandywine** (Cornell University-NYSAES) ripens later than most red varieties and are large, reddish-purple, and quite tart. Berries are best used for processing. This is a high yielding variety. Canes 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.

**Royalty** (Cornell University-NYSAES, Plant patent # 5405) is the most widely planted purple variety. Fruit 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. It is excellent for processing and can be harvested when fruit is red for fresh eating. 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.

*The information, including any advice or recommendations, contained herein is based upon the research and experience of Cornell Cooperative Extension personnel. While this information constitutes the best judgment/opinion of such personnel at the time issued, neither Cornell Cooperative Extension nor any representative thereof makes any representation, endorsement or warranty, express or implied, of any particular result or application of such information, or regarding any product. Users of any product are encouraged to read and follow product-labeling instructions and check with the manufacturer or supplier for updated information.*

(Source: Cornell University Berry Production Webpage: <http://www.fruit.cornell.edu/berry/production/pdfs/raspcultreviw2012.pdf>)

### **Blackberry Variety Review**

*Courtney Weber, Cornell University*

#### **Cultivars**

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. No cultivar will work well in all locations, soil types, and production systems, but many have proven to be useful in many different situations. This list is by no means complete but should address most situations.

Blackberries come in many types with the three predominant types being thorny erect, thornless semi-erect and trailing (thorny and thornless). In newer varieties, the distinction between erect and semi-erect has become less pronounced. All varieties are floricane fruiting in the mid to late summer except for the new primocane fruiting varieties released in recent years from the University of Arkansas breeding program. The

primocane varieties are all thorny types but thornless varieties are under development. High temperatures (above 85°F) during primocane bloom tend to reduce fruit set in these varieties. In NY and regions of similar climate, most blackberry varieties will suffer cold injury on floricanes from low winter temperatures with thorny erect being generally most hardy followed by thornless semi-erect and trailing. Overwintering in closed high tunnels has been successful in avoiding winter damage in trials. A description of the types follows.

#### **Thorny blackberries (erect)**

Blackberries are more vigorous than red raspberries and benefit from summer pruning. Thorny blackberry (erect) canes are tipped when 0.9 to 1.2 m in height to stiffen the canes and encourage lateral branching. The laterals can be shorted in early spring to 30 to 40 cm in length and canes thinned to 5 canes per meter of 30 cm wide row. Longer laterals will produce more but smaller fruit. Alternate



year mowing can be used to avoid the difficult job of pruning thorny blackberries. In this procedure, half the planting is mowed each year with the other half allowed to fruit with only minimal pruning and row width management.

#### **Thornless blackberries (semi-erect)**

For two years after planting, many semi-erect blackberry varieties tend to grow close to the ground like a vine. The trailing canes may need to be moved into the row to allow for cultivation and mowing. After two years, the canes become more upright and naturally branched. Growers often take special precautions in colder growing regions to protect thornless cultivars because of their increased cold sensitivity. Some growers will tip the canes at 60 cm to better able to protect them from the cold. In the spring, the canes should be tied at least 90 cm about the ground to trellis wires. Fruiting canes can be shortened to the height of the top wire or woven around the wire with 60 to 80 cm of overlap with the next plant. Laterals should be shortened to 45 cm and lower ones removed. Thinning to 6 to 8 canes per hill will maintain acceptable production and aid in weed control.

#### **Trailing blackberries (thornless and thorny)**

Trailing blackberries are not cold hardy and generally not productive in most cold climate locations. These varieties produce canes that grow along the ground and must be physically tied to a trellis for production to keep the fruit off the ground. Overwintering in cold climates is done by removing the canes from the trellis and laying them on the ground and covering with an insulating material. Cold damage still occurs in many cases, reducing yields considerably. They are not recommended for NY and regions of similar climate. Varieties include Marion, Evergreen, Black Diamond, Obsidian, Olallie and others and will not be described further in this review.

#### **Thorny**

**Darrow** (Cornell University, NY) produces large, long conic and often irregular, black, glossy fruit in the late season. The fruit is mildly sub-acid with good quality. Secondary fruiting laterals produce fruit into the early fall. The erect canes are vigorous and winter hardy for a blackberry.

**Illini Hardy** (University of Illinois) fruit is medium sized with good flavor and quality but acidic until fully ripe. Ripens in the late season. Canes are erect and vigorous with good winter hardiness. It suckers mainly from the crown and is resistant to *Phytophthora* root rot.

**Kiowa** (University of Arkansas) produces large fruit on erect canes. Yield potential is moderate over a long harvest period (6 weeks).

**Shawnee** (University of Arkansas) produces high yields over an extended period late into the season. The fruit quality is good but tends to be soft and is suitable for local markets.

#### **Primocane varieties (thorny)**

**Prime Ark 45** (University of Arkansas) is a late season primocane fruiting variety. Harvest is too late for NY outside of tunnels (up to 2 weeks after Prime Jim) and may be too late in tunnels as well except in more southern locations. The canes are erect and produce firm, medium sized berries.

**Prime Jan** (University of Arkansas) is a late season primocane fruiting variety but is the earliest available at this time. It produces medium sized berries in September-October in Geneva, NY with only modest productivity. The fruit is generally too soft for shipping and is suitable for home growers and local markets. The canes are semi-erect and require trellising for good production.

**Prime Jim** (University of Arkansas) is a late season primocane fruiting varieties that produces a few days after Prime Jan. The fruit is medium sized and moderately firm but still only suitable for local markets and home growers. The canes produce in September-October in Geneva, NY with only modest productivity. The canes are semi-erect and require trellising for good production.

#### **Thornless**

**Apache** (University of Arkansas, USA) produces conical fruit with good quality and flavor and ripens mid-season with high production. Sunburn can be a problem following rain. The fruit is well presented for picking. Erect, strong canes are self-supporting. Canes are vigorous and prolific. It is resistant to orange rust. Winter hardiness is similar to other thornless varieties.

**Arapaho** (University of Arkansas) produces medium sized, firm berries with smaller seeds than most varieties. It produces in the early season with a concentrated harvest season. The canes are moderately vigorous and erect for a thornless type with reported good hardiness. It is reported to be resistant to orange rust.

**Black Satin** (USDA, Illinois, USA) ripens late with large, firm and dull black berries that are slightly tart. These plants are very vigorous, semi-erect, productive, and resistant to anthracnose. More winter hardy than 'Thornfree' but not outstanding. Fruit is excellent for jams, jellies, and pies and more suitable for the local market.

**Chester** (USDA/Southern Illinois University). The late ripening fruit is somewhat difficult to pick but is of high storage quality with little breakdown. It produces high yields of medium sized fruit with average flavor. The glossy black color and firmness holds well in hot weather, and the variety does well in high tunnels. Vigorous canes are semi-erect. Chester is considered the hardiest of the thornless cultivars. It is resistant to cane blight. Flowers are lavender colored.

**Dirksen Thornless** (USDA/Southern Illinois University) produces large berries with low acidity. The color can be slightly dull when fully mature. They ripen in the early

season. Canes are vigorous, semi-erect and moderately winter hardy. It grows mainly in a crown with few suckers. It is tolerant to Septoria leaf spot and anthracnose and moderately tolerant to powdery mildew.

**Doyle** (private breeder, Texas) is a very vigorous midseason cultivar capable of producing high yields. Fruit quality and size are average outdoors; quality is significantly higher in tunnels.

**Loch Ness** (SCRI, United Kingdom) produces large glossy black fruit with good quality suitable for local markets. The canes are semi-erect and moderately vigorous with hardiness equal to 'Chester'.

**Natchez** (University of Arkansas) is the earliest ripening thornless variety with high production potential. The fruit is large with good flavor. The canes are semi-erect and require trellising for good performance. Cold hardiness is unknown but expected to be only average.

**Navaho** (University of Arkansas) produces high yields of small fruit with very good flavor. The fruit is firm and stores well. The new canes (non-bearing primocanes) are very vigorous and benefit from tipping at 5-6 ft. several times during the season.

**Ouachita** (University of Arkansas) produces high yields of medium sized berries with good flavor and firmness.

The very erect canes show poor cold hardiness and are at risk for significant winter injury in northern regions. The plants are resistant to orange rust, anthracnose and double blossom/rosette disorder. Harvest starts a week after Arapaho and a week before Navaho.

**Triple Crown** (USDA, Maryland, USA) has large, sweet aromatic berries with excellent flavor and is very productive. Canes are semi-erect, vigorous and sturdy, but have insufficient cold hardiness for most northern regions except in tunnels where they do well.

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(Source: Cornell University Berry Production Webpage: <http://www.fruit.cornell.edu/berry/production/pdfs/blkvarietyreview.pdf>)

### Additional Bramble Variety Notes

*Sonia Schloemann, UMass Extension (adapted from C. Weber, Cornell Univ)*

#### **Primocane Fruiting:**

**BP-1** (Italy) – this cross between Polka and Tulameen yields large, firm fruit of high quality and excellent flavor. Plants are moderately vigorous with tall upright canes.

**Double Gold** (Cornell) – this gold variety has a deep peach colored blush and yields medium sized, firm fruit with excellent flavor. Plants are vigorous and hardy and show some disease resistance.

**Crimson Night** (Cornell) - produces medium to large dark colored fruit with excellent flavor. Flavor holds up well to freezing. Its canes are upright, highly pigmented and relatively short with heavy branching.

**Fall Gold** (Cornell) – produces large, light colored yellow fruit with good flavor. Plants are moderately vigorous and thorny.

**Imara®** (Netherlands) – highly productive variety with good fruit quality (though sometimes a bit dry), large, firm fruit (>5g) and excellent flavor. Harvest begins one week after Polka. Fruit has good shelf life. Plants are vigorous and show some resistance to spider mites.

**Kwanza®** (Netherlands) – productive variety with large fruit with light orange-red color and good-excellent

flavor. Canes are compact and upright with few spines making it easy to harvest.

**Kweli®** (Netherlands) – productive variety with large fruit and good flavor. This variety has notably long shelf life (up to 10 days). Plants are compact and vigorous, producing a lot of laterals and show some disease resistance.

**Niwot** (private, Colorado) – the most recent development in primocane fruiting is this new black raspberry variety. It is a vigorous productive variety with high yield of good sized fruit with moderate flavor. When growing this variety for a double crop (overwintering canes), primocanes should be tipped to encourage lateral branching.

**PrimeArk® Freedom** (Univ. of Arkansas) – productive thornless primocane blackberry variety ripening in August. Fruit large (10g) and have good flavor though not very firm for shipping.

**PrimeArk® Traveler** (Univ. of Arkansas) – vigorous thornless primocane blackberry variety ripening in August.

### **Floricanes Fruiting:**

**Cowichan** (British Columbia) – productive mid-season variety with firm fruit and excellent flavor. This variety is noted for its resistance to Raspberry Bushy Dwarf virus. Hardy only to Zone 5.

**TulaMagic®** (Switzerland) – cross between Autumn Bliss and Tulameen makes this variety capable of primocane fruiting in late fall, but it is primarily considered for its floricanes fruiting potential. It is an early mid-season variety fruiting just after Prelude. Fruit

are large and firm (from Tulameen) with very good flavor and shelf life. Plants are vigorous and show some tolerance to Phytophthora.

### **Reference:**

C. Weber, 2015. *Performance of New Berry Varieties at the NYAES in Geneva, NY*. New York Fruit Quarterly, Winter 2015.

N. Nourse. 2016. *Strawberry Trial Updates*. Nourse Farms Fall 2016 Newsletter.

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## **BLUEBERRY**

### **Blueberry Variety Review**

*Courtney Weber, Cornell University*

The most critical aspect of establishing a healthy berry planting is obtaining high quality planting stock that has a vigorous root system and is free from disease and insect pests. The plants should be obtained from a reputable nursery that participates in a certification program to ensure plants are free from diseases such as viruses and root diseases. Mother plants or stock plants derived from tissue culture for starting propagation fields provide the best source of disease and pest free plants. Plants should be ordered well in advance of planting to ensure an adequate supply the desired varieties and plant sizes.

Blueberry nursery plants come in a variety of types (bare root, container grown, tissue culture) and sizes (rooted cuttings, tissue culture plugs, and 2-3 year old plants). Larger plants will mature and produce a crop sooner than smaller plants. Container grown plants may have some advantage to bare root plants, especially if planting is delayed in the spring because they withstand temperature and moisture fluctuations better. However, shipping of containerized plants is more expensive and they may require root pruning if they are root bound when they arrive.

Several characteristics should be considered when selecting varieties including harvest season, yield, fruit quality, hardiness, growth habit, vigor, and disease resistance. The plants go dormant in late fall and over winter in the field. Storing capacity varies greatly among varieties but is considerably higher for blueberries than most other berries. The market has also shifted towards larger fruit for various reasons including greater consumer appeal and increased harvest efficiency, but there is a good market for small “wild type” blueberries from low bush types. Most of the processing market is machine-harvested fruit and some fresh market fruit is sorted from machine harvested lots as well.

### **Variety Descriptions**

#### **Early Season**

**Bluetta** is very hardy but has small dark berries that are difficult to machine harvest and somewhat unattractive in

the fresh pack. The large scar on the berry is also a problem. This variety has a weak growth habit and must be pruned carefully to maintain vigor and yield. Winter hardy to -35°C.

**Duke** is considered the best early season cultivar available. It has late bloom that avoids many frosts and still produces an early crop. 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. Winter hardy to -25°C.

**Hannah’s Choice** produces medium large fruit with high sugar content. The fruit is firmer with better flavor than Duke. Yields are moderate.

**Spartan** fruit is firm and very large with very good flavor. A late bloom date avoids many frosts, but it still produces a large, early crop. It does best on ideal sites but performs poorly in soils that have to be highly amended for blueberries. It harvests well mechanically and has some resistance to mummy berry. It requires cross pollination for best yields. Winter hardy to -25°C.

#### **Mid-Season**

**Berkley** berries are light blue, firm and very large with very good storage capacity. Fruit flavor is fair. Winter hardiness is moderate. The bush is moderately tall and spreading and suitable for machine harvesting. Care should be taken in pruning to maintain bush shape. Winter hardy to -25°C.

**Bluecrop** is the most widely planted mid-season cultivar in the world. It produces high yields of medium sized, firm fruit with good flavor. It is hardy in all but the coldest sites and can be machine harvested. The canes tend to be weepy so care should be taken to maintain the shape. It has very good disease resistance. Winter hardy to -25°C.

**Bluejay** has an upright open growth habit that grows rapidly. It produces moderate crops of medium sized, high quality fruit that can be machine harvested and ships well.

It is resistant to some viral diseases and moderately resistant to mummy berry. Winter hardy to -25°C.

**Blueray** is also a widely planted mid-season cultivar. Fruit size is very good with good flavor and high yield potential. Extra pruning is needed with this spreading bush, as canes tend to weep due to heavy bearing. It has very good winter hardiness. Winter hardy to -25°C.

**Cara's Choice** produces medium sized fruit with 30% more sugar than Duke and Bluecrop. The fruit can hold on the plant for an extended period before harvest. The bush is low to moderate in vigor. Yields are moderate compared to Bluecrop.

**Chippewa** is a very winter hardy half-high variety that is productive with large firm fruit. Winter hardy to -35°C.

**Draper** produces a concentrated harvest between Duke and Bluecrop that can be machine harvested, even for fresh market. The flavor is very good with good hardiness.

**Northland** is very winter hardy. It is an extremely productive half-high type with medium sized, dark, soft fruit. It can reach 1.25 m tall and produces many canes, which require heavy annual pruning. Winter hardy to -35°C.

**Patriot** is winter hardy but frost sensitive due to early bloom. The fruit is large and firm with a small blossom scar. Full ripeness is needed for good flavor and sweetness. The bush is small to medium and grows slowly but is still productive. It must be pruned hard for large fruit and be fully ripe for best flavor. Suspected susceptibility to tomato ringspot virus has limited its use in recent years, but it is more tolerant to heavier soils than most varieties. Winter hardy to -25°C.

**Sierra** is productive and has large firm berries that can be machine harvested. It has a medium sized bush and is less hardy than other cultivars. Winter hardy to -25°C.

**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 may be somewhat better in quality. Winter hardy to -25°C.

**Rubel** is a wild selection that can be grown for the natural foods market. The fruit is small, firm and dark like low bush varieties. The flavor is fair and yields are moderate. It has very good winter hardiness. Winter hardy to -35°C.

#### **Late Season**

**Aurora** is the latest variety available, producing 5 days after Elliot. The fruit is very firm and stores well. It colors

early and can be tart if picked too soon. The fruit size is large with very good yield.

**Bluegold** produces medium sized berries with small, dry blossom scars. It has good flavor and firmness. It is a low growing bush with many branches and very good hardiness. Winter hardy to -25°C.

**Brigitta** produces large, firm, 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. Winter hardy to -25°C.

**Chandler** produces very large berries with good flavor. It has a long ripening season over 6 weeks, which is better for hand harvesting. The bush is vigorous with a slightly spreading habit that can reach 1.5 to 2 m high. Winter hardy to -25°C.

**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 because it turns blue before ripe. It is a good producer. The bush has an upright habit and forms a dense center that should be pruned to promote air movement. Winter hardy to -25°C.

**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. The bush has an upright habit and forms a dense center that should be pruned to promote air movement. Winter hardy to -35°C.

**Liberty** produces fruit approximately 5 days before Elliot with better flavor. The plants are vigorous and upright with good hardiness. The fruit has very good storage capacity.

**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. Winter hardy to -25°C.

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(Source: Cornell University Berry Production Webpage: <http://www.fruit.cornell.edu/berry/production/pdfs/bbcultreview2012.pdf>)

## Additional Blueberry Variety Notes

*Sonia Schloemann, UMass Extension*

**Arlen** (N. C. State) – late season variety ripening just before Elliot. Good yield with medium to large sized fruit with good flavor. Fruit firm with small car. This variety has shown resistance to Anthracnose, and some stem blights. Hardy to Zone 5.

**Baby Blue** (wild selection, Michigan) – Very low growing (<6”) with large light blue fruit and hardy to Zone 3.

**Blue Boy** (wild selection, Michigan) – somewhat taller lowbush variety (12”) with light blue fruit with excellent flavor. Fall foliage color makes this appealing for landscape applications. Hardy to Zone 4.

**Elizabeth** (Heirloom from NJ) – Named for co-founder of American commercial blueberry industry, Elizabeth White. This mid to late-season variety is a shy yielder but

produces fruit with exceptional flavor. Plants are vigorous with an upright to slightly spreading habit. Hardy to Zone 5.

**Meader** (NH) – Vigorous early to mid-season variety with good flavor and quality. Hardy to Zone 4.

**Rancocas** (heirloom) – early to mid-season variety with small fruit with very good flavor. Plant moderately vigorous with moderate yield, and is the only variety shown to have tolerance to Witch’s Broom. May also have resistance to Blueberry Stunt Virus (BSV). Hardy to Zone 4.

**Reka** (New Zealand) – very vigorous highly adaptable early season variety will grow well in a variety of soil types. Fruit is large, somewhat dark in color and has excellent flavor. Hardy to Zone 4.

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## GRAPE

### Recent Releases and Numbered Selections from the Geneva Grape Breeding Program

*Bruce Reich, Cornell University*

#### Red Cultivars

'Corot Noir' (formerly NY70.0809.10 - SV 18-307 x Steuben) produces a highly ranked vinous, vinifera type wine. The vine is vigorous and very productive at Geneva. Some cluster thinning is usually required to avoid overcropping. Vines are healthy with good powdery mildew and Botrytis rot resistance and often maintain green leaves up until frost. Fruit maturity is late, with harvest Oct. 15-20 in Geneva. Predicted temperature of 50% primary bud kill in mid winter = -15.1 F \*

**Noiret** (formerly NY73.0136.17 - [(NY33277 x Chancellor) x Steuben]) produces an excellent full-bodied wine with a distinct pepper character and moderate tannin content. Vines have generally been vigorous and productive in the Finger Lakes of New York, though older vines occasionally show a slow decline in vigor that may be indicative of a need for grafting. The leaves show moderate resistance to powdery mildew, but both fruit and leaves require a regular spray program to control downy mildew. Fruit maturity is mid-season, approx. Oct. 1 in Geneva. Predicted temperature of 50% primary bud kill in mid winter = -14.3 F \*

'Geneva Red' ("GR 7") - (Buffalo x Baco noir) highly vigorous, highly productive and winter hardy, with moderate resistance to diseases. 'GR 7' makes dark red wines with a classical hybrid aroma. It has better tannin structure than Baco noir and De Chaunac. It still has a short finish. It is best made as a light (not heavily extracted) wine. Use hot pressing, short skin contact

time or some carbonic maceration. It has a place in traditional red hybrid blended wines, and is already in limited commercial production. Predicted temperature of 50% primary bud kill in mid winter = -17.1 F \*

'Arandell' (NY95.0301.01) - Red wine grape with high disease resistance and potential to produce red wines of good quality. Most years at Geneva, NY, fruit and foliage are free of downy and powdery mildew, and only a low level of black rot appears under fungicide-free conditions. In 2009, under season-long conditions conducive to downy mildew development, moderate foliar symptom appeared in September, but not prior to that. The vine is moderately productive (>13 lbs. fruit/vine) and winter hardy (estimated temperature of 50% primary bud kill in mid-winter is -14 F). Wine is very drinkable and enjoyable, with clean light aroma, and a very nice mouth feel, good structure, with blueberry fruit character. The color is dark red and it ranks low for hybrid character. Predicted temperature of 50% primary bud kill in mid winter = -14.1 F \*

#### White Cultivars

'Valvin Muscat' (formerly NY62.0122.01 - Muscat du Moulin x Muscat Ottonel) produces an excellent, high quality muscat wine that may be made into a dessert wine or used in blending. Own-rooted vines are small (1.4 lb./vine in Geneva), and therefore grafting is recommended. Though grafting improves vine size, planting at somewhat closer than normal spacing (approx. six feet between vines within rows) may also



improve vineyard productivity. The fruit is highly flavored, very juicy, and ripens mid-season. Predicted temperature of 50% primary bud kill in mid winter = -14.6 F \*

'Aromella' (NY76.0844.24) - (Traminette x Ravat 34) makes a top ranked floral, muscat wine. Own rooted vines have been highly productive, highly vigorous (24 lbs. of fruit/vine; 4.3 lbs. pruning weight average for '96-'03) and very winter hardy. Clusters are large and loose. Leaf phylloxera have been an occasional problem. Maturity is mid-season, ripening in mid-late September in Geneva.

Predicted temperature of 50% primary bud kill in mid winter = -16.8 F \*

**NY81.0315.17** - (Cayuga White x White Riesling) produces a floral and sometimes spicy light muscat wine. Highly rated for wine quality for several years. Only available grafted because own rooted vines have been small. *Botrytis* rot has been negligible and winter primary bud hardiness ranks better than Cayuga White, and with many French-American hybrids.

(Source: Cornell Grape Production Page: <http://www.hort.cornell.edu/reisch/grapegenetics/cultivars.html>)

### Additional resources for Cold Climate Grape Cultivar Descriptions

*Sonia Schloemann, UMass Extension*

There are a number of excellent resources with comprehensive listings of grape cultivars and their characteristics. Some are listed below:

- **Iowa State Cold Climate Cultivar Review:** <http://www.extension.iastate.edu/viticulture/cold-climate-cultivars>.
- **Minnesota Hardy Grape Page:** <http://mnhardy.umn.edu/varieties/fruit/grapes>
- **Midwest Grape Production Guide:** [http://www.oardc.ohio-state.edu/fruitpathology/Bulletins/mw\\_grape\\_12aug05%20S.pdf](http://www.oardc.ohio-state.edu/fruitpathology/Bulletins/mw_grape_12aug05%20S.pdf).
- **Missouri Cold Hardy Table Grape Variety Review** (ppt) - <http://extension.missouri.edu/greene/documents/Horticulture/TableGrapeCultivars.pdf>
- **Northern Grapes Project** - <http://northerngrapesproject.org/>

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## GENERAL INFORMATION

**Strawberry and bramble varieties for use in high or low tunnel production** – the Tunnel Berry Project is an excellent resource for selecting varieties for use in tunnel production can be found at: <http://www.tunnelberries.org/production-guides--variety-selection.html#strawberryvarieties>. This link includes information for strawberries, raspberries and blackberries, production recommendations and also has some good information for organic production practices. Check it out.

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## UPCOMING MEETINGS:

**January 6, 2017** – *New England Vegetable & Berry Growers Association 593<sup>rd</sup> Meeting*. 9:00am – 4:00pm. Hadley Farms Meeting House. 41 Russell St, Hadley, MA 01035. \$20 members, \$40 non-members (includes lunch). 2 pesticide credits awarded for this meeting. For more information go to: <http://nevbga.org>.

**January 9, 2017** – *CT Vegetable & Small Fruit Growers' Conference*. 8:00 AM, Maneley's Conference Center, South Windsor, CT. \$60. 3.5 pesticide recertification credit hours awarded. Contact: [MacKenzie.White@uconn.edu](mailto:MacKenzie.White@uconn.edu), 860-875-3331.

**January 11, 2017** – *Greenhouse Management and Production for 2017*. 9:30-3:30 Publick House, Sturbridge MA. Commercial growers of greenhouse crops are invited to learn about greenhouse management and production tips for the 2017 growing season. Topics will include managing light, temperature, relative humidity; irrigating greenhouse crops; greenhouse plant nutrition; and pest management. \$45 For more information go to: <https://ag.umass.edu/events/greenhouse-management-production-for-2017>.

**January 12, 2017** - *Hops School at the Maine Agricultural Trades Show*. 10:00 – 4:00. Augusta Civic Center, 76 Community Drive, Augusta ME. 2 PAT Credits. For program information and to register go to: <https://extension.umaine.edu/highmoor/blog/2016/12/02/hops-school-january-12-2017/>.

**January 17-19, 2017** – *Empire State Producers Expo*. Syracuse NY. For more info go to: <http://nysvga.org/expo/information/>

**January 23, 2017** – *Vermont Vegetable & Berry Growers Annual Meeting*. 8:00am - 4:00pm, Lake Morey Resort, 1 Clubhouse Road, Fairlee, VT 05045. For more information see: <http://www.uvm.edu/vtvegandberry/meetings/AnnualMeeting2017.pdf>.

**January 24, 2017** – *Vermont Vegetable & Berry Growers Cover Crop Conference*. 8:00am - 4:00pm, Lake Morey Resort, 1 Clubhouse Road, Fairlee, VT 05045. For more information see: <http://www.uvm.edu/vtvegandberry/meetings/AnnualMeeting2017.pdf>.

**February 4, 2017** - *New England Vegetable & Berry Growers Association 594<sup>th</sup> Meeting*. 9:00am – 4:00pm. Hudson-Concord Lodge of Elks, Hudson MA. \$20 members, \$40 non-members (includes lunch). For more information go to: <http://nevbga.org>.

**February 26, 2017** – *SEMAP Agriculture and Food Conference*. Bristol County Agricultural High School, 135 Center St. Dighton MA. For more information see: <http://semaponline.org/programs/ag-food-conference/>.

**March 6, 2017** – *Strawberry Grower School*. 8:00am - 4:00pm, Lake Morey Resort, 1 Clubhouse Road, Fairlee, VT 05045. More information coming soon.

**March 7-9, 2017** – *Harvest New England Agricultural Marketing Conference & Trade Show*. Sturbridge Host Hotel, Sturbridge MA. For more information go to: <http://www.harvestnewengland.org/events/>.

**March 9, 2017** – *2017 Northeastern NY and VT Grape School*. 8:30-5:00 Holiday Inn Lake George, 2223 Canada St. , Lake George, NY. AM: Viticulture Presentations, PM: Wine Faults Workshop. Registration information forthcoming.

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