

Early Twenty-first Century Cherry Varieties for the Great Lakes and Eastern North America

Jim Nugent, Greg Lang, and Bill Shane

Department of Horticulture
Michigan State University

The Great Lakes and Eastern North America cherry-growing regions are characterized by highly variable soils and seasonal climates that can vary widely, day to day, even across short distances. For this reason, cherry-variety performance data from either university research plots or experiences from fellow growers' orchards can constitute neither absolute endorsements of certain success nor guaranteed prophecies of abject failure. In particular, relative bloom sequences among varieties (and thus susceptibilities to cold and flower/fruit diseases) can vary widely from year to year. Successful growers in these regions have come to realize that such cherry variety test reports are usually excellent guidelines, but nothing beats on-site orchard experimentation with varieties that have traits of potential interest for specific markets. That is, the 'perfect' sweet cherry variety clearly has not yet been found; for every positive set of traits (self-fertile, large fruit size, reduced rain-cracking or disease susceptibilities, etc.), there is always an accompanying set of questionable traits (small fruit size, winter cold or spring frost susceptibility, light cropping, etc.). Individual orchard sites, microclimates, and target markets can tend to enhance or minimize certain variety traits and make all the difference between success and marginal returns.

With those caveats plus a few listed at the end of this article, we will provide some key details and comments on sweet and tart cherry varieties for Eastern North American production during the early twenty-first century – that is, older varieties that we expect to remain important for at least the next decade, as well as new varieties that hold promise for existing and/or new market

opportunities, especially for regional fresh markets. In general, the varieties discussed below are listed in order of ripening.

Dark-Fleshed Sweet Cherry Varieties for Fresh Marketing

Early Season

Cavalier™ (Rynbrandt cv.) – Extensively tested. Early ripening, high quality, firm, medium-sized, dark-red fruit. Low productivity on vigorous rootstocks, but a good match for precocious, productive, vigor-controlling clonal rootstocks. Bacterial canker tolerance and winter hardiness are both good, as is resistance to cracking. Self-infertile, in Pollen Group IV (S_2S_3), with an early bloom season; multiple pollenizers are recommended to boost productivity.

Chelan® – Promising, limited test trials. Moderately good quality, dark mahogany red, firm fruit having moderate to large size and early season ripening. For best flavor, fruit must be allowed to ripen fully. Productivity is very good, resistance to cracking is fairly good, and trees are resistant to powdery mildew. Self-infertile, in Pollen Group XVI (S_3S_9), with an early bloom season. May not be large enough under eastern growing conditions.

Tieton® – Promising, limited test trials. Fruit are dark red, firm, very large, with a mild flavor and very attractive appearance, along with an early season ripening time. Very low productivity on vigorous rootstocks, but a good match for precocious, productive, vigor-controlling clonal rootstocks. Very susceptible to rain-induced fruit cracking. Self-infertile,

Performance of cherry varieties across Eastern North America can vary widely due to soil and climatic differences. Nevertheless in this article we give our recommendations on sweet and tart cherry varieties for Eastern North American production during the early twenty-first century – that is, older varieties that we expect to remain important for at least the next decade, as well as new varieties that hold promise for existing and/or new market opportunities, especially for regional fresh markets.

in Pollen Group XVI (S_3S_9), with an early bloom season.

Early Robin® - Promising, limited test trials. Fruit are light yellow-fleshed with an orange red-on-yellow skin blush, firm, with large size, good flavor, and an early-to-mid-season ripening time. Self-infertile (Pollen Group as-yet unknown), with a mid bloom season.

Sam – Extensively tested. Early-to-mid season ripening, moderately large, very dark red to black fruit, with poor flavor until fully ripe and dark. The fruit are borne in relatively tight clusters, which favors brown rot incidence. Winter hardiness and resistance to bacterial canker, as well as fruit resistance to rain-cracking, are among the best. Should only be grown for fresh market if fruit can ripen fully. Self-infertile, in Pollen Group XIII (S_2S_4), with a late bloom season.

Kristin - Extensively tested. Early-to-mid season ripening, moderate sized, firm dark red, flavorful fruit. Winter hardiness is excellent, and fruit have moderate to good resistance to rain-

induced fruit cracking. Self-infertile, in Pollen Group III (S_3S_4), with an early-to-mid bloom season.

Mid-Season

Benton® (Columbia) – Promising, limited test trials. Fruit are dark mahogany red, firm, with large size, very good flavor, and a mid-season ripening time. Consumer taste panels in Washington state picked ‘Benton’ over ‘Bing’ in three of four years, and performance has been rated consistently high in trials in New York as well as Europe. Resistance to cracking is fairly good. Self-fertile, with a mid-to-late bloom season.

WhiteGold® - Promising, limited test trials. Fruit are light yellow-fleshed with a red-on-yellow skin blush, firm, with moderate-to-large size, good flavor, and an early mid-season ripening time. Trees are very productive, cold hardy and well-adapted to the growing conditions of eastern North America, with a very low susceptibility to cherry leaf spot and bacterial canker. Fruit are moderately tolerant of rain. Self-fertile, with a mid-to-late bloom season.

Glacier® - Promising, limited test trials. Impressively large fruit size, dark mahogany red with very good flavor but less firmness than other fresh market varieties; ripens mid-season. ‘Glacier’ could be an outstanding fruit for local fresh markets and may be a good candidate for matching with precocious, size-controlling rootstocks. Moderately susceptible to rain-cracking. Self-fertile, with a mid-to-late bloom season.

Ulster - Extensively tested. Fruit are dark red, moderate-to-large, with good quality and a mid-season ripening time. A very productive variety, hence is prone to overproduction on precocious rootstocks if not managed properly. Winter hardiness and wood resistance to bacterial canker are good, though fruit are moderately susceptible to both *Pseudomonas* infection and rain-cracking. Self-infertile, in Pollen Group III (S_3S_4), with a mid-bloom season.

Rainier – Extensively tested. The excellent quality fruit are light yellow-fleshed with a red-on-yellow skin blush, firm, with large size, very good flavor, and a mid-season ripening time. In the Great Lakes, winter cold damage (particularly in young trees) and its associated disease problems, such as bacterial canker, can be a challenge for maintaining tree health, and in some orchards, ‘Rainier’ fruits have been noted

to be particularly susceptible to *Alternaria* infection. Fruit are also susceptible to rain-induced cracking. Self-infertile, in Pollen Group IX (S_1S_4), with an early-to-mid-bloom season.

Emperor Francis – Extensively tested. The fruit are light yellow-fleshed with a red-on-yellow skin blush, firm, nice quality though of only medium size, and a mid-season ripening time slightly after ‘Rainier’ and ‘WhiteGold’. Productive, with good tree survival of cold winters and endemic diseases, and having better resistance to fruit cracking than ‘Rainier’. Self-infertile, in Pollen Group III (S_3S_4), with an early-to-mid bloom season.

Sandra Rose® - Promising, limited test trials. Fruit are dark red, moderately firm, large, with very good flavor and appearance, and a mid-season ripening time. Young trees have been productive and healthy thus far in Michigan trials. Self-fertile, with a mid-bloom season.

BlackGold® – Promising, limited test trials. Fruit are moderately large, dark red and heart-shaped, firm, ripen in mid-season, and moderately tolerant of rain. Trees are productive, cold hardy, and well-adapted to the growing conditions of Eastern North America, though resistance to bacterial canker is only mediocre. Self-fertile, with a late bloom season.

Summit - Extensively tested. Impressively large, bright red, heart-shaped fruit size, with good flavor but less firmness than other fresh market varieties. Ripens mid-season, but often is picked earlier, especially by pick-your-own customers due to remarkable size. Moderately susceptible to rain-cracking, and tree winter-hardiness may be marginal in some years, but impressive fruit size is worth a trial. Self-infertile, in Pollen Group I (S_1S_2), with a mid-to-late bloom season.

Schmidt - Extensively tested. Fruit quality is moderately good (in terms of size and firmness) with very good flavor, ripening mid-season with excellent resistance to rain-induced fruit cracking. The traditional drawback with ‘Schmidt’ is low productivity, but the potential for matching with a new clonal rootstock to impart higher productivity is worthy of further testing. Self-infertile, in Pollen Group XIII (S_2S_4), with a mid-to-slightly late bloom season.

Olympus® - Promising, limited test trials. Fruit are moderate-to-large, firm, with a mahogany red skin and dark red flesh, and a mid-to-late ripening time.

A somewhat spreading tree habit, with precocious cropping, very good productivity, and above average resistance to rain-induced fruit cracking. Self-infertile, in Pollen Group II (S_1S_3), with a mid-to-late bloom season.

Attika™ (Kordia) - Extensively tested. Fruit are large, very firm, heart-shaped and mahogany red with a very long stem, have excellent flavor, and a mid-to-late ripening time. Winter hardiness is good, with moderate-to-good tolerance of rain, but the flowers are more frost-sensitive than other varieties. Self-infertile, in Pollen Group VI (S_3S_6), with a mid-to-late bloom season.

Late Season

Sylvia - Promising, limited test trials. Fruit are dark red, large and firm, with good flavor and a mid-to-late season ripening time. Bacterial canker tolerance is good, and the tree has a lower vigor than normal, even on vigorous rootstocks. Tolerance to rain-cracking has varied widely, from excellent tolerance in some locations to excessive cracking on young trees at other locations. Self-infertile, in Pollen Group IX (S_1S_4), with a late bloom season.

Selah® (Liberty Bell) - Promising, limited test trials. A dark red to mahogany, round fruit having impressively large fruit size, excellent flavor, and a mid-to-late season ripening time. Fruit are borne in loose clusters and have average susceptibility to rain-induced cracking. Superior size and cropping habit to ‘Lapins’ under western conditions, but little performance data yet available in Eastern North America. Self-fertile, with an early-to-mid bloom season.

Skeena® - Promising, limited test trials. A dark red to mahogany, impressively large and attractive high quality fruit, having good flavor and a late ripening time. Superior to ‘Lapins’ for both fruit traits and tree growth (spreading and precocious) under western conditions, with moderate tolerance to rain, but little performance data in Eastern North America. Self-fertile, with a mid bloom season.

Regina® - Promising, limited test trials. Good quality, mahogany red fruit, having large size, good firmness, a mild flavor, and a late ripening time. Cold hardy and well-adapted to the growing conditions of Eastern North America, with good tolerance of rain and low susceptibility to cherry leaf spot. Productivity is low-to-moderate, making

this a good candidate for matching to new clonal rootstocks that impart higher productivity. Self-infertile, in Pollen Group II (S₁S₃), with a very late bloom season; multiple pollenizers are recommended to boost productivity.

Sweetheart - Promising, limited test trials. Very good quality, bright red, firm fruit having moderate to large size, good flavor, and very late ripening. A very grower-friendly tree, with a spreading tree form and precocious, heavy cropping on all rootstocks. Reports on winter hardiness and bacterial canker susceptibility have been variable, and fruit are moderately susceptible to cracking. Self-fertile, with an early-to-mid bloom season (though bloom date has varied widely in Northwest Michigan).

Hudson - Extensively tested. Good quality, mahogany red, firm fruit having moderate to large size, good flavor, and very late ripening. Very good winter hardiness and tolerance to bacterial canker, as well as good resistance to fruit cracking. Productivity is quite delayed, suggesting better potential with a clonal rootstock to impart precocity and productivity. Self-infertile, in Pollen Group IX (S₁S₄), with a late bloom season.

Sweet cherry varieties that are likely to be unsuitable for eastern production for fresh markets due to poor tree (i.e., cold or disease susceptibilities, etc.) or fruit (i.e., soft or small, excessive cracking, etc.) characteristics include: Burlat, Brooks, Cashmere, Index, Van, Bing, Royalton, Somerset, Napoleon (Royal Ann), Gold, Hartland, Sonata, Lambert, Hedelfingen, Lapins.

Tart Cherry Varieties for Fresh Marketing

Recent Great Lakes region marketing research (G. Lang and B. Behe, personal communication) has demonstrated favorable acceptance, by both consumers and retailers, for certain dark-fleshed, high sugar content (Morello-type) tart cherry varieties grown or under test in Michigan. Premium produce retailers handled the fresh tart cherries in protective clamshell packaging, fully ripe with stems off. Most consumers reported eating the fruit fresh, with some limited use for cooking and baking.

Jubileum™ (Érdi jubileum) - Promising, limited test trials. Fruit skin, flesh, and juice are dark mahogany red, relatively large (~5.5 to 6 g) and relatively

firm for a tart cherry, with an excellent sweet-tart flavor and an early mid-season (tart cherry) ripening time. The highest sugar levels (18 to 19 °Brix) of the three fresh market sweet-tart cherries. Much less productive than Montmorency, thus is a good candidate for a precocious rootstock. Self-fertile, with a mid-bloom season.

Danube™ (Érdi bôtermô) - Promising, limited test trials. Fruit skin, flesh, and juice are dark mahogany red, large and firm for a tart cherry, with an excellent sweet-tart flavor and an early mid-season (tart cherry) ripening time. The largest fruit size of the three fresh market sweet-tart cherries. Much less productive than Montmorency, thus is a good candidate for a precocious rootstock. Self-fertile, with an early-mid bloom season.

Balaton™ (Ujfehértói fűrtös) - Promising, limited test trials. Fruit skin, flesh, and juice are dark mahogany red, relatively large (~ 5.5 to 6 g) and firm for a tart cherry, with an excellent sweet-tart flavor (~16 °Brix) when fully ripe, and a late season (tart cherry) ripening time. Tree has an upright habit and can be less productive than Montmorency in some locations, thus can be a good candidate for a precocious rootstock. Also, not as cold-hardy as Montmorency. Self-fertile, with a mid-bloom season. Excellent potential for not only a fresh market tart cherry, but also desirable for niche processed products such as cherry wine, dried pitted fruit, and its firmness and complex flavor makes it very good for baking, chocolate-covered liquor cherries, etc.

Cherry Varieties for Processing

The sweet cherry industry in Michigan is dominated by production for processing markets. Light-fleshed sweet cherries (primarily 'Gold', 'Emperor Francis', and 'Napoleon') grown for the maraschino market represent 64% of Michigan's 9,000 acres of sweets. The remaining 36% of the acreage are dark-fleshed sweets grown primarily for processing. The overwhelming majority of Michigan's tart cherry acreage is a single variety for processing, 'Montmorency', which will not be discussed here.

Light-Fleshed Sweet Cherry Varieties for Processing

Napoleon - An old variety, no longer recommended.

Emperor Francis - See above. Plantings for processing will likely continue.

Blushing Gold® (NY8182) - Promising, limited test trials. Fruit size is small on heavily-cropped trees, with a red-blushed skin, good firmness and excellent crack resistance. Fruit are readily detached from the stem at maturity for ease of mechanical harvest. Trees are precocious and very productive, with a bit less cold hardiness than-'Gold', 'Emperor Francis', or 'WhiteGold', but adequate for good sites. Self-infertile, in a currently un-named Pollen Group (S₁S₆), with an early-to-mid bloom season.

WhiteGold® - see above.

NY518 (not yet named) - Promising, limited test trials. Fruit is similar to 'Gold', being solid yellow with no red blush, and appears to have better resistance to rain-induced cracking. Self-infertile, in a currently un-named Pollen Group (S₁S₆), with an early bloom season.

Gold - Extensively tested. The dominant sweet cherry variety grown in Michigan, with continued planting. The fruit are solid yellow (no blush), small, and firm. Trees have excellent cold hardiness. Yields are generally disappointing on Mazzard, but better on Mahaleb. Self-infertile, in Pollen Group VI (S₃S₆), with a late bloom season.

Dark-Fleshed Sweet Cherry Varieties for Processing

Ulster - See above.

Sam - See above.

BlackYork® - Promising, limited test trials. Fruit are dark red, firm, moderate to large in size, with good quality, fairly good tolerance of rain, and a mid-season ripening time. The tree is productive, hardy and tolerant to bacterial canker. Self-infertile, in Pollen Group IX (S₁S₄), with a mid-bloom season.

BlackGold® - See above.

Other considerations that can influence variety success include the increasing understanding of when to use (and how to manage) dwarfing and/or highly precocious/productive rootstocks in the variety picture. Similarly, the potential use of plastic covers or tunnels can change the relative importance of such challenging factors as rain-cracking, bacterial canker or brown rot, spring

frost, etc. The use of gibberellic acid (GA₃) early in the season to reduce blind wood and/or pre-harvest to improve fruit firmness can improve the performance of some varieties. Additional information on these and other varieties, as well as other aspects of cherry production, can be found at the websites for Michigan State University (www.hrt.msu.edu/faculty/list_langg.htm) and the MSU Northwest Horticultural Research Station (www.maes.msu.edu/nwmihort/).

Jim Nugent is a district fruit and marketing agent who is superintendent of the MSU cherry research station at Travers City, MI and who specializes in cherry culture. Greg Lang is a research and extension professor in the Dept. of Horticulture stationed in East Lansing who specializes in cherry culture and breeding. Bill Shane is a district fruit and marketing agent who is stationed at the Southwest Michigan Research Station who specializes in stone fruit breeding and culture.



Jim Nugent



Greg Lang



Bill Shane