



Introduction

For Pacific Northwest sweet cherry growers, the most important considerations when deciding upon new cultivars are fruit size, firmness, rain-cracking resistance and shipping potential. Ripening time is also a factor due to the potential of higher returns outside the main production window.

Early harvest in the Pacific Northwest starts immediately after California finishes its harvest. This time changes from year to year, and sometimes the California harvest extends into the PNW harvest. That overlap can repress early market PNW returns. However, in most years the early season brings higher prices than the midseason harvest, which is when “Bing” cherries are typically harvested. This first peak of harvest increases the amount of fruit on the market and forces prices down. A second peak begins with the “Skeena” and “Lapins” harvest, which usually keeps the price depressed during this harvest window. Growers in a later production area can see prices bounce back during the “Sweetheart” harvest, although that rebound depends on the year, fruit quality and total crop size.

Growers in early production areas often choose mostly early ripening cultivars. This allows them to take advantage of early season market prices. Midseason growers typically choose cultivars that ripen throughout the production season, and growers in late-production areas often concentrate on late-ripening cultivars. Nevertheless, many growers spread out their harvest over a longer period to reduce labor demands and moderate the risk of rain cracking.

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All growers should choose cultivars best able to withstand harvest, packing and long-distance shipping demands. Most fruit grown in the PNW is sold to domestic markets, but approximately one-third of the crop is exported each year. Exports can take several weeks to arrive at an international destination, and even fruit for the domestic market may take several days to reach East Coast destinations. For these reasons, growers should consider a cultivar's firmness (minimum of 275 g/mm) and resistance to pitting when choosing what to grow.

It is also important to match the cultivar to the right rootstock and training system. For example, productive cultivars such as "Sweetheart" and "Lapins" may overset and have a tendency to produce poor quality, small, soft fruit if combined with a productive rootstock, such as those of the 'Gisela' series. On the other hand, less productive cultivars such as "Regina" and "Early Robin" may be profitable only when grown on a productive rootstock. Fortunately, the recently introduced Corette™ series of rootstocks from Michigan State University may offer growers the ability to consistently produce profitable yields of these low-yielding, but high-quality cultivars. In a 2019 trial in The Dalles, Oregon, Corette rootstocks 'Cass', 'Clare' and 'Clinton' had statistically higher yields with "Regina" compared with 'Gisela 6' and 'Krymsk 6'.

New training systems also offer growers the ability to obtain early, high yields. The super slender axe (SSA) and the upright fruiting offshoots (UFO) systems are precocious systems that can provide a small yield in the second leaf, with increasing yields in



Photo: Corianne Denby

Figure 1.



Photo: Lynn E. Long, © Oregon State University

Figure 2. Workers harvesting cherries in Oregon.

subsequent years. However, not all cultivars are right for all training systems. The SSA system produces almost all fruit at the base of 1-year-old wood. Cultivars, such as 'Regina' and 'Attika', that produce moderate amounts of fruit on this wood, to ensure that this system is successful. The UFO and Kym Green Bush training systems produce fruit only on spurs, as lateral branches are removed. Cultivars such as "Regina" and "Attika", that produce fruit on the base of 1-year-old wood, will not do well on these systems.

New cultivars provide PNW cherry growers with many options, such as increased fruit size, rain-cracking resistance, and harvest timing, that have not been available in the past. Still, there is no perfect cherry. The key is to choose cultivars that will maximize returns under each grower's specific set of growing conditions and markets.

Additional reading:

Cherry Training Systems (PNW 667), at catalog.extension.oregonstate.edu/pnw667, Oregon State University.

Four Simple Steps to Pruning Cherry Trees on Gisela and Other Productive Rootstocks (PNW 592), at catalog.extension.oregonstate.edu/pnw592. Oregon State University.

Sweet Cherry Rootstocks for the Pacific Northwest (PNW 619), at catalog.extension.oregonstate.edu/pnw619. Oregon State University.

Cherries of the Pacific Northwest

Listed in approximate order of ripening

'Chelan'



Figure 3. 'Chelan'. (Photo: Corianne Denby)

Harvest timing: 10–12 days before 'Bing'

Color when ripe: Mahogany

Allele combination: S_3S_9

Suggested pollinizers: 'Black Pearl', 'Burgundy Pearl', 'Bing'

Suggested rootstocks: Gisela 12 (with proper management), Krymsk 5, Krymsk 6 or Mazzard. Incompatible with Mahaleb.

'Chelan' has proven successful as the earliest ripening major cultivar for Pacific Northwest growers. It is very firm, ships well, has moderate rain-crack resistance, and resistance to powdery mildew. Tree vigor is moderate to low. Fruits are relatively small, averaging 10½ row or smaller if crop load is high. The flavor is somewhat mild. For this reason, it is important to wait until mahogany color develops before harvesting, in order to achieve acceptable flavor. Oversetting can be a problem on both productive and seedling rootstocks, so careful management is needed to prevent inferior fruit size. In order to produce high-quality fruit, weak and pendant wood should be removed, and

in order to properly balance the leaf-to-fruit ratio, lateral branches should be headed each year (see PNW 592, *Four Simple Steps to Pruning Cherry Trees On Gisela and Other Productive Rootstocks* at <https://catalog.extension.oregonstate.edu/pnw592>).

'Royal Hazel'



Figure 4. 'Royal Hazel' (Photo: Lynn E. Long)

Harvest timing: 9–10 days before 'Bing'

Color when ripe: Mahogany

Allele combination: S_4S_6

Suggested pollinizers: 'Royal Lynn', 'Royal Tioga'

Suggested rootstocks: Gisela 6, Gisela 12

'Royal Hazel' is a high-quality, early ripening cherry. It is large, averaging $9\frac{1}{2}$ row, firm, with moderate rain-cracking resistance and an excellent sweet-acid flavor. Fruit pedicels are short, averaging about 1 inch. This cultivar is recommended for frost-protected areas, since it blooms very early (about seven days before 'Bing'). Finding a pollinizer for this cherry can be challenging, but this cultivar can be an early ripening standout in the right location.

'Black Pearl'



Figure 5. 'Black Pearl' (Photo: Corianne Denby)

Harvest timing: 7–9 days before 'Bing'

Color when ripe: Dark mahogany

Allele combination: S_4S_{13}

Suggested pollinizers: 'Chelan' or 'Burgundy Pearl'

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 5, Krymsk 6

This early season cherry boasts a good, mild, but mostly sweet flavor, great firmness and nice size. Ripening a few days after 'Chelan', it provides PNW growers another opportunity to take advantage of the early season market. Low pitting potential and moderate resistance to rain cracking are additional reasons to consider this cherry.

Although 'Black Pearl' can be grown on Gisela 6 or 12, it will need to be pruned hard to properly balance this productive variety.

'Santina'



Figure 6. 'Santina' (Photo: Corianne Denby)

Harvest timing: 5–7 days before 'Bing'

Color when ripe: Mahogany

Allele combination: S_1S_4

Suggested pollinizers: N/A, self-fertile

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 6

'Santina' has gained significant popularity in Chile and arrives well at distant markets in China. There has been some interest by PNW growers due to its large size and an interesting harvest time between 'Chelan' and 'Bing'. However, fruit flavor tends to be mild. For this reason it is important to wait until mahogany color develops in order to obtain an acceptable flavor. Due to a naturally forming tip crack that can occur on some fruit, this cultivar is considered susceptible to cracking during rain events.

'Coral Champagne'



Figure 7. 'Coral Champagne' (Photo: Lynn E. Long)

Harvest timing: 4–6 days before 'Bing'

Color when ripe: Light mahogany to mahogany

Allele combination: S_1S_3

Suggested pollinizers: 'Black Pearl', 'Burgundy Pearl'

Suggested rootstocks: Krymsk 5, Krymsk 6 or Mazzard

'Coral Champagne' was developed at the University of California many decades ago, but has only become well established in the California cherry industry in recent times. Since then, a few plantings have expanded into the PNW. This early-to-midseason cherry may harvest a few days closer to 'Bing' in the PNW than California, due to stricter color requirements for the PNW industry. The fruit is moderately large and the flesh is firm. Stem attachment, however, can be weak. The tree is very productive, so Krymsk 5 or Mazzard are the preferred rootstocks.

'Burgundy Pearl'



Figure 8. 'Burgundy Pearl' (Photo: Lynn E. Long)

Harvest timing: 3–5 days before 'Bing'

Color when ripe: Mahogany

Allele combination: S_3S_4

Suggested pollinizers: 'Black Pearl', 'Ebony Pearl', 'Chelan'

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 5, Krymsk 6

Ripening a few days ahead of 'Bing', 'Burgundy Pearl' can provide growers with the ability for a continuous early season harvest from 'Chelan' through 'Bing'. The mild, sweet-acid flavor could be a bit stronger for the best flavor experience. However, the fruit is crunchy, firm and large. The fruit provides moderate rain-cracking resistance, important for an early-to-midseason cherry, and 'Burgundy Pearl' expresses some bacterial canker resistance. The tree is productive and needs to be carefully managed if grown on a productive rootstock.

'Benton'



Figure 9. 'Benton' (Photo: Corianne Denby)

Harvest timing: 2–3 days before 'Bing'

Color when ripe: Mahogany

Allele combination: S_4S_9

Suggested pollinizers: N/A, self-fertile

Suggested rootstocks: Cass, Gisela 6, Gisela 12, Lake

'Benton' harvests just ahead of 'Bing', but is larger and has more rain-cracking resistance. It is firm and has an excellent flavor. Although self-fertile, 'Benton' productivity is low. This trait, more than any other, has limited the popularity of this cultivar. Matching it with a highly productive rootstock such as Cass may allow for more profitable yields.

'Bing'



Figure 10. 'Bing' (Photo: Corianne Denby)

Harvest timing: Midseason

Color when ripe: Light mahogany to mahogany

Allele combination: S_3S_4

Suggested pollinizers: 'Van', 'Rainier', 'Black Republican'

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 5, Krymsk 6

'Bing' has been the standard for PNW fresh cherry producers for more than a century. Firm texture, excellent flavor and long-term storage capability that allows fruit to be shipped to distant markets, have made 'Bing' among the world's leading cherries. However, a midseason harvest window, moderate fruit size and high rain-cracking susceptibility have caused some growers to plant other cultivars in recent years.

'Ebony Pearl'



Figure 11. 'Ebony Pearl' (Photo: Lynn E. Long)

Harvest timing: With 'Bing'

Color when ripe: Mahogany to dark mahogany

Allele combination: S_1S_4

Suggested pollinizers: 'Bing', 'Black Pearl', 'Ebony Pearl'

Suggested rootstocks: Cass, Gisela 6, Gisela 12, Lake

Although ripening with 'Bing', 'Ebony Pearl' has a number of attributes that make it worthy of consideration as a midseason cherry. The fruit is very large and firm, and the flavor is excellent, with a strong, sweet, tangy flavor. The rain-cracking resistance is good and the tree displays some resistance to bacterial canker. Moderate productivity means that the tree is best combined with Gisela 6, Gisela 12 or even Cass or Lake rootstocks.

'Tamara'



Figure 12. 'Tamara' (Photo: Lynn E. Long)

Harvest timing: 4–7 days after 'Bing'

Color when ripe: Mahogany

Allele combination: S_1S_9

Suggested pollinizers: 'Selah', 'Skeena', 'Radiance Pearl'

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 5, Krymsk 6

This large, firm cherry ripens up to a week after 'Bing'. It is important to harvest 'Tamara' on the early side due to weak stem pull force and the rapid loss of fruit quality of overripe fruit. Uneven ripening has also been reported. However, even with these limitations, properly harvested fruit are very attractive and eat well. In addition, both the cracking and pitting potential are relatively low. For those interested in mechanical harvest, Selah or 'Skeena' are good pollinizer choices for 'Tamara', due to low stem pull force of all cultivars.

'Attika' (Kordia)



Figure 13. 'Attika' (Photo: Corianne Denby)

Harvest timing: 6–7 days after 'Bing'

Color when ripe: Mahogany

Allele combination: S_3S_6

Suggested pollinizers: 'Skeena', 'Benton', 'Tamara'

Suggested rootstock: Cass, Gisela 6, Gisela 12, Lake

Ripening between 'Bing' and 'Skeena', 'Attika' fills an important harvest window. Just as important, however, is its low rain-crack susceptibility and its ability to arrive in distant markets in excellent condition due to its low susceptibility to impact damage. Fruit are large, the flesh is firm, and the flavor is strong and pleasant. Although 'Attika' blooms late, flower primordia are susceptible to spring frosts.

'Royal Edie'



Figure 14. 'Royal Edie' (Photo: Lynn E. Long)

Harvest timing: 9–12 days after 'Bing'

Color when ripe: Mahogany

Allele combination: S_1S_4

Suggested pollinizers: N/A, self-fertile

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 6.

'Royal Edie' is a large, mid- to late-season cherry. Fruit size averages 9 to 8½ row and for that reason alone it is worth consideration. The fruit are crunchy-firm with a rather meaty texture, somewhat lacking the juiciness found in most cherries. Flavor is mild. In two-hour soaking tests, rain-cracking potential was moderately high, which was confirmed by two natural rain events where cracking was high.

'Royal Helen'



Figure 15. 'Royal Helen' (Photo: Lynn E. Long)

Harvest timing: 9–12 days after 'Bing'

Color when ripe: Mahogany

Allele combination: S_1S_4

Suggested pollinizers: N/A, self-fertile

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 6.

Much of what was said about 'Royal Edie' can be repeated here. Fruit size is large, averaging 9-row and larger. The firmness is excellent and the flavor is good, although somewhat mild with a sweet-acid tang. Rain-cracking potential is moderately high, but somewhat lower than 'Royal Edie' and 'Skeena'.

'Lapins'



Figure 16. 'Lapins' (Photo: Corianne Denby)

Harvest timing: 10–14 days after 'Bing'

Color when ripe: Light Mahogany to Mahogany

Allele combination: S_1S_4

Suggested pollinizers: N/A, self-fertile

Suggested rootstock: Krymsk 5, Mazzard

Although widely planted throughout the PNW due to its large fruit size and high productivity, 'Lapins' has fallen out of favor among many growers and commercial buyers due to its relatively low packout percentage and its propensity for pitting while in transit. Careful handling during picking and packing help to reduce the incidence of pitting. 'Lapins' crops heavily and tends to form tight fruit clusters that are difficult to harvest or penetrate with fungicides. To reduce this clustering tendency, it is important to head all new shoots by one-third each year. Prune hard to avoid overcropping.

'Skeena'



Figure 17. 'Skeena' (Photo: Corianne Denby)

Harvest timing: 12–14 days after 'Bing'

Color when ripe: Light mahogany to mahogany

Allele combination: S_1S_4

Suggested pollinizers: N/A, self-fertile

Suggested rootstock: Gisela 6, Gisela 12, Krymsk 5, Krymsk 6

'Skeena' is a high-quality cherry that has become the most widely planted cultivar in the mid-late harvest season. One reason is that 'Skeena' has a better arrival history than 'Lapins'. The open, branching tree produces very large, firm fruit. Due to heat stress sensitivity,

when temperatures approach 100°F, pendant wood should be eliminated as fruit on hanging branches tend to sunburn. Rain cracking can also be a problem with this cultivar.

‘Regina’



Figure 18. ‘Regina’ (Photo: Corianne Denby)

Harvest timing: 14–15 days after ‘Bing’

Color when ripe: Mahogany to dark mahogany

Allele combination: S_1S_3

Suggested pollinizers: ‘Sam’, ‘Schneiders’, ‘Attika’, ‘Starks Gold’

Suggested rootstocks: Cass, Gisela 6, Gisela 12, Lake

‘Regina’ is a high-quality, late-season cherry that exhibits excellent rain-crack resistance. The fruit are large and firm, with a mild, pleasant flavor. When ripe, this cherry is darker than most. Reports on international deliveries indicate that ‘Regina’ is consistently one of the best shipping cherries produced by PNW growers. ‘Regina’ is naturally low in productivity and can benefit from a high-yielding rootstock, such as Cass. ‘Regina’ is moderately resistant to powdery mildew.

‘Sweetheart’



Figure 19. ‘Sweetheart’ (Photo: Corianne Denby)

Harvest timing: 18–20 days after ‘Bing’

Color when ripe: Light mahogany

Allele combination: S_3S_4

Suggested pollinizers: N/A, self-fertile

Suggested rootstock: Krymsk 5, Mazzard

‘Sweetheart’ is the latest cherry commonly grown by PNW growers. The fruit are moderately large and very firm with a strong but agreeable flavor. The tree form is open, precocious and productive. Without proper pruning, including heading all new shoots each year, the tree can overset even on Mazzard rootstock. Pitting has been a problem upon arrival at distant markets. To prevent this disorder, it is important that trees are not allowed to overset. Careful handling during picking and packing can also help reduce the incidence of pitting. ‘Sweetheart’ is susceptible to powdery mildew. Timely application of control measures throughout the season is critical for production of disease-free fruit.

Blush sweet cherries for the Pacific Northwest fresh market

To produce a red blush on the following cultivars, reduced rates of gibberellic acid should be applied at 10 ppm or less. Standard rates (20 ppm) significantly reduce the red blush and detrimentally affect packout. Keep in mind that blush cultivars tend to experience more bruising and pitting than dark-sweet varieties.

'Early Robin'



Figure 20. 'Early Robin' (Photo: Corianne Denby)

Harvest timing: 10–14 days before 'Rainier'

Color when ripe: Blush

Allele combination: S_1S_3

Suggested pollinizers: 'Chelan', 'Bing', 'Rainier', 'Lapins'

Suggested rootstocks: Cass, Gisela 6, Gisela 12

'Early Robin' is a high-quality blush cherry with excellent flavor that exhibits the same sub-acid flavor as 'Rainier'. Fruit size and appearance are also similar to 'Rainier', but it ripens 10–14 days before 'Rainier'. Limiting its wider acceptance in the PNW is its low cropping potential, coupled with a high susceptibility to rain cracking. Matching 'Early Robin' with Cass can help to increase productivity. Fruit doubling can be a problem in some years.

'Radiance Pearl'



Figure 21. 'Radiance Pearl' (Photo: Lynn E. Long)

Harvest timing: 4–7 days before 'Rainier'

Color when ripe: Blush

Allele combination: S_1S_{13}

Suggested pollinizers: 'Ebony Pearl', 'Rainier'

Suggested rootstocks: Gisela 6, Gisela 12, Lake

This excellent-eating, 'Rainier'-type cherry ripens between 'Early Robin' and 'Rainier' to provide a more complete harvest of blush cherries. The fruit are firm, with low pitting potential. Rain-cracking potential is moderate, but still somewhat less than 'Rainier'. The spreading tree habit provides for good light penetration and a nice fruit blush. Trees are moderately productive and do well on Gisela 12.

'Rainier'



Figure 22. 'Rainier' (Photo: Corianne Denby)

Harvest timing: -

Color when ripe: Blush

Allele combination: S_1S_4

Suggested pollinizers: 'Lapins', 'Royal Edie', 'Royal Helen'

Suggested rootstocks: Gisela 6, Gisela 12, Krymsk 5, Krymsk 6

'Rainier' is the standard for blush cherries. The flavor is outstanding with an excellent sub-acid taste. Due to its color and unique flavor, it commands a premium price when compared with the dark red sweets. That premium, however, comes at a price. As with all blush cherries, careful handling at harvest and packing is required to prevent bruising and unsightly brown marks. In addition, 'Rainier' is highly susceptible to powdery mildew and rain cracking.

Table 1. Dark red sweet cherry cultivars for the PNW fresh market

Cultivar	1st bloom relative to 'Bing' ¹ (days)	Pollen alleles ²	Harvest date relative to 'Bing' (days)	Skin color when ripe ³	Flesh color when ripe	Total soluble solids (% brix)	Fruit diameter (Row size & mm)	Firmness ⁴	Cropping potential on Mazzard	Pitting potential ⁵	Cracking potential ⁶
'Chelan'	- 2 to - 3	S ₃ S ₉	- 10 to -12	Light mahogany to mahogany	Light mahogany to mahogany	17-20	10½-10 (25 to 27 mm)	Excellent	High	Moderate	Moderate
'Royal Hazel'	- 7	S ₄ S ₆	- 9 to -10	Mahogany	Light mahogany	17-19	9 row (30 mm)	Excellent	Moderate	Moderate	Low to moderate
'Black Pearl'	-1 to 0	S ₄ S ₁₃	- 7 to - 9	Dark mahogany	Mahogany	17-19	9½-9 (28-30 mm)	Excellent	High	Low	Low
'Santina'	+2 to +3	Self-fertile	- 5 to - 7	Light mahogany to mahogany	Light mahogany	16-17	9½-8½ (29.5 to 32 mm)	Excellent	Moderate to low	Moderate	High
'Coral Champagne'	+1 to +3	S ₁ S ₃	-4 to - 6	Light mahogany to mahogany	Light mahogany	17-20	9½-9 (29-31 mm)	Excellent	High	Low	Moderate
'Burgundy Pearl'	-2 to 0	S ₃ S ₄	- 3 to - 5	Mahogany to dark mahogany	Mahogany	18-20	9½-8½ (28-31 mm)	Excellent	High	Moderate	Moderate
'Benton'	+5 to +7	Self-fertile	- 2 to - 3	Mahogany	Light mahogany	18-21	9½-9 row (29-31 mm)	Excellent	Low	Low	Moderate
'Bing'	-	S ₃ S ₄	-	Mahogany	Light mahogany	18-20	10½-9½ (25.4-28.17 mm)	Good	Moderate	Low	High
'Ebony Pearl'	0 to +2	S ₁ S ₄	- 3 to + 2	Mahogany	Light mahogany	17-21	8½ (31-32 mm)	Excellent	Moderate to low	Moderate	Moderate
'Tamara'	- 3 to - 5	S ₁ S ₉	+ 4 to + 7	Mahogany	Light mahogany	18-21	8½ (32 mm)	Excellent	Moderate	Low	Moderate
'Attika' (Kordia)	+ 6 to + 7	S ₃ S ₆	+ 6 to + 7	Mahogany	Light mahogany	18-19	9½ - 9 row (28-30 mm)	Good	Moderate	Low	Low
'Royal Edie'	+ 1 to + 2	Self-fertile	+ 9 to + 12	Mahogany	Light mahogany to mahogany	19-21	9-8½ row (30-33 mm)	Excellent	Moderate	Low	High
'Royal Helen'	+ 1 to + 2	Self-fertile	+ 9 to + 12	Mahogany	Light mahogany to mahogany	19-20	9-8½ row (30-33 mm)	Excellent	Moderate	Moderate	Moderate to high

Cultivar	1st bloom relative to 'Bing' ¹ (days)	Pollen alleles ²	Harvest date relative to 'Bing' (days)	Skin color when ripe ³	Flesh color when ripe	Total soluble solids (% brix)	Fruit diameter (Row size & mm)	Firmness ⁴	Cropping potential on Mazzard	Pitting potential ⁵	Cracking potential ⁶
'Lapins'	- 2 to -4	Self-fertile	+ 10--+14	Light mahogany to mahogany	Light mahogany to mahogany	17-19	9½-9 (28 to 31 mm)	Good	High	High	Moderate
'Skeena'	+4 to +5	Self-fertile	+ 12--+14	Mahogany	Light mahogany	18-20	9½-8½ (29 -32 mm)	Excellent	Moderate	Moderate	High
'Regina'	+ 9 to +10	S ₁ S ₃	+ 14--+15	Mahogany to dark mahogany	Mahogany to dark mahogany	18-21	9½-9 (29-31 mm)	Good	Low	Low	Low
'Sweetheart'	- 2 to -3	Self-fertile	+ 18--+20	Light mahogany to mahogany	Light mahogany	20-22	10-9 (27-30 mm)	Excellent	High	High	Moderate

¹Bloom and harvest times vary with location and year.

²Self-sterile cultivars require a pollinizer from a different compatibility group that blooms at the same time in order for pollination to occur. Self-fertile cultivars can be pollinated with their own pollen and consequently do not need a pollinizer cultivar.

³Skin color is generally the best indicator of ripeness; however, this and other attributes may vary from year to year. Other traits such as total soluble solids and firmness should also be taken into consideration when determining harvest date.

Mahogany color is defined by Webster's dictionary as "a moderate brownish red."

⁴All fruit treated with 20 ppm gibberellic acid. Readings based on Firmtech II instrument. < 275 g/mm = marginal; 276-319 g/mm = good; > 320 g/mm = Excellent

⁵Pitting potential is determined by the level of susceptibility to pitting as compared to 'Bing'. Pitting levels equal to or less than 'Bing' are considered low. Levels higher than 'Bing' are considered moderate unless there is a history of high pitting levels in commercial shipments, in which case a rating of high is assessed.

⁶Cracking potential is estimated by comparing data obtained from both natural cracking and a two-hour soak test.

Table 2. Blush cultivars for the PNW fresh market

Cultivar	1st bloom relative to 'Bing' ¹ (days)	Pollen alleles ²	Harvest date relative to 'Rainier' (days)	Total soluble solids (% brix)	Fruit diameter (row size & mm)	Firmness ³	Cropping potential on Mazzard	Pitting potential ⁴	Cracking potential ⁵
'Early Robin'	0	S ₁ S ₃	- 10--14	18-20	9½-9 (29-31 mm)	Excellent	Low	Moderate	High
'Radiance Pearl'	+2--+4	S ₁ S ₁₃	- 4--7	19-21	9½-8½ (29-32 mm)	Excellent	Moderate	Low	Moderate
'Rainier'	0	S ₁ S ₄	-	18-20	9½-9 (30-31 mm)	Good	Moderate	Low	High

¹Bloom time varies with location and year.

²Self-sterile cultivars require a pollinizer from a different compatibility group that blooms at the same time in order for pollination to occur. Self-fertile cultivars can be pollinated with their own pollen and consequently do not need a pollinizer cultivar.

³All fruit treated with 20 ppm gibberellic acid (GA). Readings based on Firmtech II instrument. < 275 g/mm = marginal; 276-319 g/mm = good; > 320 g/mm = Excellent. Caution should be taken when applying GA to blush cherries as percentage blush may be reduced with treatment. Maximum rate of GA should be 10 ppm or less.

⁴Pitting potential is determined by the level of susceptibility to pitting as compared to 'Bing'. Pitting levels equal to or less than 'Bing' are considered low. Levels higher than 'Bing' are considered moderate unless there is a history of high pitting levels in commercial shipments, in which case a rating of high is assessed.

⁵Cracking potential is estimated by comparing data obtained from both natural cracking and a two-hour soak test.

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Table 3. Relative bloom timing and pollen S alleles for 76 standard and new international sweet cherry cultivars.

Bloom timing is a compilation of relative data from several growing regions and may vary somewhat across different locations and climates. Self-sterile cultivars require a pollinizer. The pollinizer must be from a different compatibility group and must bloom at the same time in order for pollination to take place. Self-fertile cultivars can be pollinated with their own pollen and consequently do not need a pollinizer cultivar.

S alleles	Bloom timing				
	Early	Early-mid	Midseason	Mid-late	Late
S ₁ S ₂		'Black Tartarian'	'Tulare'	'Canada Giant', 'Summi't	
S ₁ S ₃		'Samba'	'Black Star', 'Coral Champagne', 'Early Robin', 'Satin', 'Van'	'Cristalina', 'Sonnet'	'Regina'
S ₁ S ₄	Royal Lynn		Bada, Black Republican, 'Ebony Pearl', Garnet, 'Rainier', 'Sweet Gabriel'	Sylvia	
S ₁ S ₉			'Brooks'	'Tamara'	
S ₁ S ₁₃				'Radiance Pearl'	
S ₂ S ₄				'Suite Note'	'Sam'
S ₃ S ₄	'Somerset'		'Bing', 'Burgundy Pearl', 'Royal Ann'	Lambert'	
S ₃ S ₅					'Hedelfingen'
S ₃ S ₆				'Attika' (Kordia), 'Starks Gold', 'Techlovan'	
S ₃ S ₉		Burlat	'Chelan', 'Tieton'		
S ₃ S ₁₂				'0900 Ziraat', 'Schneiders'	
S ₄ S ₆	'Royal Hazel'				
S ₄ S ₉				'Kiona'	
S ₄ S ₁₃			'Black Pearl'		
Self-fertile					
S ₁ S _{4'}	'Royal Tioga'		'Lapins', 'Royal Edie', 'Royal Helen', 'Santina', 'Symphony'	'Celeste', 'Skeena', 'Stardust'	
S ₃ S _{4'}	'Sweet Aryana'		'Index', 'Selah', 'Sentennial', 'Staccato', 'Stella', 'Sweetheart'	'Sandra Rose', 'Sonata', 'Sovereign', 'Sunburst'	
S ₄ S ₆			'Blaze Star'		'Black Gold'
S ₄ S ₉			'Early Star', 'Grace Star'	'Benton', Cashmere, Glacier	
S ₄ S _{unknown}		'Sabrina'	'Big Star'	'White Gold'	

Note: Adapted from Schuster, Mirko: Self-incompatibility (S) genotypes of cultivated sweet cherries – An overview 2017. Quedlinburg 2017. OpenAgrar-Repositoryum. DOI: [10.5073/20171213-111734](https://doi.org/10.5073/20171213-111734)

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