

## A Horticultural Review of New Sweet Cherry Varieties

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Breeding programs in Canada, the United States, Germany and the Czech Republic have provided many of the new cherry varieties that Oregon growers have adopted in the last few years. These new varieties have several attributes that differentiate them from 'Bing', a variety that has been the standard for fresh production in Oregon for well over a century. Many of these new varieties are larger, firmer, more rain crack resistant and ripen in other harvest windows when compared to 'Bing'.

Research at Oregon State University has focused on evaluating many of these varieties to determine their potential for the fresh market. Attributes such as bloom and harvest timing, average size and firmness have been evaluated. In addition, some varieties have been tested for stem pull force and soluble solids content as well as skin and internal color at time of harvest. All fruit has been treated with 25 ppm GA<sub>3</sub>.

The following variety reviews incorporate information taken from our test plots in The Dalles, information provided by Dr. Matt Whiting, WSU Integrated Agricultural Research and Extension Center in Prosser and from personal experience. Not all new varieties are discussed and comments are limited to varieties where new information is available and relevant. Varieties are listed in approximate order of ripening.

*'Benton'* (formerly known as 'Columbia')

'Benton' is a mid-season dark red/mahogany cherry that ripens one to two days ahead of 'Bing'. Normally, the harvest timing alone would be enough to question its ability to compete with 'Bing', however, this variety has several attributes that commend it to the attention of growers. 'Benton' blooms several days after 'Bing' and therefore may be able to avoid some frost situations. Trees are self-fruitful and productive and the fruit is firm and larger than that of 'Bing'. Soluble solids are high, averaging 20 °brix with a flavor that has surpassed that of 'Bing' in taste trials. Finally, 'Benton' is less susceptible to rain cracking than 'Bing'.

*'Selah'* (formerly known as 'Liberty Bell')

Along with 'Benton', this variety was recently released from the Washington State University breeding program. It was originally believed that 'Selah' ripened with 'Lapins', but in the last couple of years it has ripened slightly earlier in Prosser, Washington, approximately seven to 10 days after 'Bing'. This is good news for those looking for a cherry to fill this niche. The fruit is firm and very large averaging 8.5 to 9.5 row. Although the tree is self-fertile, fruiting occurs in loose clusters, a trait that should help to improve harvest efficiency and reduce disease incidence compared to other self-fertile varieties. The tree blooms early to mid-season, has a moderately spreading growth habit and crops heavily. Rain cracking resistance is similar to 'Bing'.

*'Attika'* (known in Europe as *'Kordia'*)

This variety appears to ripen in the same harvest window as *'Selah'*, between *'Bing'* and *'Lapins'*. It is important to find a quality cherry that fills this gap. Unfortunately, *'Attika'* does not ripen midway, but just prior to *'Lapins'*. *Attika* produces very high quality fruit with 56% 9-row and larger and a firmness rating of 309 g/mm in 2003. One Oregon packing shed uses 250 g/mm as the demarcation between export and domestic sales. The flavor is very strong and pleasant. Rain crack resistance is high.

At this time it seems advisable to grow this cherry on mazzard rootstock. For some reason the mortality has been high when combined with Gisela 6. However, we are still evaluating this combination and should know more in the next year or two. In Germany, *'Attika'* is the most common pollinizer for *'Regina'*. Both cherries bloom late with *'Regina'* blooming nearly one week after *'Bing'* and *'Attika'* two to three days ahead of this. Although *'Attika'* blooms late, it has shown susceptibility to frost in the bud stage, therefore, it is not recommended to plant *'Attika'* in frost pockets.

*'Lapins'*

Although *'Lapins'* has been available to growers for many years, we are still learning more about this cherry. Most growers in the Mid-Columbia have harvested high quality *'Lapins'* crops the last couple of years. Hopefully, this is due to a greater understanding of the growing needs of the tree by area growers and a maturation of the trees, which Canadians maintain helps to stabilize and improve fruit quality. One of the mistakes that some growers were making was to harvest the fruit too early. *'Lapins'* seems to ripen fairly consistently, 10 to 14 days after *'Bing'*. In 2003 the fruit was 82% 9 row and larger with a firmness rating of 365 g/mm as compared to 241 g/mm in 2001.

Due to its self-fertile nature, *'Lapins'* fruit tends to clump in tight clusters, which favors incidence of diseases such as brown rot, results in misshapen fruit and makes it difficult to pick. To reduce this clustering tendency, it is important to head new shoots by about one-third each year. Heading removes the closely spaced tip buds that tend to have more flowers than basal buds.

*'Skeena'*

In the last few years *'Skeena'* has been widely planted in the Mid-Columbia. However, our test trees, although in their fifth leaf in 2003, had still not produced a crop that we were able to evaluate. Comments concerning *'Skeena'* are therefore only observational in nature. *'Skeena'* ripens with or immediately after *'Lapins'* and develops fruit that is similar in size to *'Lapins'* but in somewhat looser clusters. The flavor is strong and very good. In 2003 questions arose concerning the ability of *'Skeena'* to withstand hot weather. Temperatures above 100° F for a few days just prior to harvest caused a softening in the shoulder of this cherry in many orchards in Washington State. However, in one orchard in The Dalles fruit firmness remained at 300 g/mm even after several days of temperatures around 100° F. An experienced Canadian grower of *'Skeena'* commented that it has a very short harvest window of only about 2 days.

Dr. Anita Azarenko of Oregon State University has also found that *'Skeena'* has a very low stem pull force, potentially causing stems to fall off post-harvest. Due to the potential heat sensitivity of this variety, it may be best to grow *'Skeena'* with a training

system that protects the fruit from excessive exposure to direct sunlight. The Steep Leader or Spanish Bush system is probably better than Central Leader for this purpose.

### *'Regina'*

The harvest timing for 'Regina' is still not clear. Growers in Australia seem to be harvesting 'Regina' seven to eight days after 'Lapins', but it seems to ripen immediately after 'Lapins' in the Mid-Columbia. It seems to be important to wait until soluble solids approach 24° Brix. Prior to this time the cherry has little flavor, but is quite pleasant at the higher Brix levels. The cherry is relatively large, 34% were 9 row in 2003, although 8 row 'Regina' were seen in Australia in 2004 on lightly set young trees (L. Long). In 2003 the firmness was excellent at 353 g/mm. One of the most positive attributes of this cherry is its rain crack resistance. In one instance, this cherry endured a near 24-hour rain and showed only 15% cracked fruit (L. Long).

Low yields are often a problem with 'Regina' and the causes are not clearly understood. Production may be improved with the use of rootstocks such as Gisela 5, 6 or 12 and by interplanting more than one type of pollinizer. 'Regina' blooms about one week after 'Bing' therefore suitable pollinizers are limited. 'Sam', 'Schneiders' and 'Hedelfingen' are compatible and bloom at the right time. 'Starks Gold' begins to bloom several days ahead of 'Regina' but blossoms typically last into the 'Regina' bloom. As stated previously, 'Attika' blooms two to three days ahead of 'Regina' but may still be a viable option.

Preliminary work at the Mid-Columbia Agricultural Research and Extension Center in Hood River has shown unusual flowering dynamics for 'Regina', both in the field and in branches forced to bloom inside growth chambers. 'Regina' seems to bloom over a longer period than other varieties, but a high percentage of flowers open in only one or two days. It is possible that inadequate pollination conditions during a short period of intense flower opening is a factor in the low fruit set often reported for 'Regina'.

### *'Sweetheart'*

'Sweetheart' continues to produce a very high quality cherry in the Mid-Columbia. Fruit size ran 66% of 9 row and larger fruit on Gisela 6 rootstock in 2003. Due to the high productivity of this variety, there are reservations about growing 'Sweetheart' on a Gisela rootstock. However, large, high quality 'Sweetheart' fruit is being produced on trees grafted onto Gisela 6 rootstock in our test plot in The Dalles. Cherries from this plot averaged a very firm 348 g/mm in 2003. Ripening 21 days after 'Bing', 'Sweetheart' typically provides a higher return per pound than mid-season cherries.

Late ripening cherries also have the advantage of avoiding most of the rain that we receive in the Pacific Northwest, as late season rains are rare. This is fortunate, since 'Sweetheart' appears to be susceptible to cracking as soon as it begins to turn red, which occurs fairly early in the ripening process. On the other hand, 'Sweetheart' is highly susceptible to powdery mildew and growers need to be careful to spray against this disease on a regular basis.