

Sweet Cherry Varieties for Eastern U.S.: Cannery and Freezers

Published in "The Fruit Grower News" Vol. 42[2]:16-18

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Earlier this winter we wrote an article targeting Great Lakes Region growers choosing sweet varieties for brining. This article is the second in a series and deals with dark fleshed processing cherries. The processing industry's name for such dark fleshed sweet cherries is Cannery and Freezers (C & F). They market these as canned fruit for various manufactured products, such as bakery products, yogurt, ice cream, infant food and juice.

Processor Needs

C & F fruit is either punch pitted, pitted and halved, or pitted by partially smashing the fruit and squeezing the pits free from the flesh. For the latter type of pitting firmness is not an issue. However, it is the halved market that has grown in recent years, and fruit for this market must be firm to retain the desired character (integrity). Consequently, varieties for the future will need better firmness than Hedelfingen.

Processing yields are an important factor. In-plant yields and efficiencies are higher when fruit has few defects. Because the most common sweet cherry defect is fruit cracking, it is important to select varieties that do not crack readily. It is also extremely important to processors that the pits are readily extractable from the fruit without shattering. One example of a problem variety is Hartland. This new variety from the Cornell program has four very important, grower-friendly traits: rugged tree, early ripening, regular cropping and high tonnage, but in some years Hartland pits shatter in the processing plant. A second problem variety is Attika. It has a very oblong pit that is prone to shattering in a punch pitter.

This article will report our findings about C & F varieties from collaborative variety testing that has been supported by the Michigan Cherry Committee and by the states of Michigan and New York. Cornell University's Geneva Experiment Station and Michigan State University's NW Horticultural Research Station have collaborated for two decades in testing new sweet cherry varieties

Sweet cherry profitability was way down in 2002 in the Eastern U.S. due mostly to cold weather during spring. This article is intended to provide some hope about future prospects for this crop.

We urge readers to review our December article that focused on brine varieties, as it covers important information about unique features of Eastern North American sweet cherry industries and about self-fertile varieties as pollenizers. All these unique features also pertain to C & F. Key among them is that markets have differed dramatically for Eastern North American sweet cherries compared to cherries from the arid west. Processing markets have long been the mainstay for Eastern sweet cherry growers, especially in Michigan.

Whether acreage expansion in the East is warranted must remain the decision of individual producers. Certainly Eastern growers must consider the huge impact that is anticipated due to acreage expansion in fresh cherries in the arid west. Western fresh market culls will be shunted into both brining and C & F processing uses.

Current dark processing variety situation in Michigan

Ulster -- The popularity of this variety for processing has increased rapidly since the mid '80's, and it is now the leading variety in Michigan. It processes and yields well, is a hardy tree, but the fruit is somewhat susceptible to cracking.

Hedelfingen -- Soft fruit is causing this variety to decline, but the tree is very hardy and productive.

Schmidt -- Acreage is declining due to shy bearing and tree problems. It has excellent crack resistance.

Sam -- Acreage of this variety has increased steadily since the mid '80's. It has excellent crack resistance, good tree hardiness, and yield is above average. Sam generally does better on Mahaleb than on Mazzard rootstock.

Cavalier -- Acreage of this dual purpose (fresh and processing) variety is increasing.

Van -- Acreage is declining; it is too susceptible to cracking.

Kristin - Good processing variety out of Cornell that is gaining in popularity. Nice fruit quality, similar to Ulster. Very productive, exceptionally hardy tree. Resistance to cracking is fairly good. Expect acreage to increase.

Which Early Season C & F Varieties?

Problem: No early maturing variety for C & F type processing has proven to be successful in the Great Lakes Region. Why is an early C & F type needed? To get the season started and the kinks out of the harvesting and processing equipment and labor crews, and to lessen the risk of rain cracking losses by lengthening the season so that it covers three weeks prior to the onset of tart cherry harvest.

Following are candidate varieties for this early and mid-early season:

CavalierT ('Rynbrandt' cultivar) - early ripening, high quality, but very slow to begin to crop on full vigor rootstocks (often requires ten years or more to start to crop well) and remains a relatively shy bearer. It yields well on dwarfing and semi-dwarfing rootstocks. Its dual purpose potential is good due to excellent quality. The bloom time is early-mid, and it pollenizes nearly all early to mid-season varieties except Vega. Bacterial canker tolerance and winter hardiness are both good. This is likely the best choice for an early season processing variety if planted on a dwarfing rootstock. Good resistance to cracking.

Chelan - early ripening, high quality, heavy yielding, but blooms very early and would require another early blooming variety to pollenize it since it is self-incompatible. Index, Lapins, Viscount and Somerset are the only dark varieties that we have tested that bloom in synchrony with Chelan. Another possibility for pollenizing Chelan would be to plant whole rows of NY 518, an early blooming, brining-type that has fruit that is all gold. Resistance to cracking is fairly good.

Hartland - ripens mid-early, pollenizes Ulster and Kristin well, and yields well. Rugged tree, but fruit has pit-shattering problems in some seasons. Bacterial canker tolerance is very good. Unfortunately, tolerance to rain-induced fruit cracking is quite poor.

Hedelfingen / Sam problems

C & F market outlets for Hedelfingen are declining in the Great Lakes Region of Eastern USA. While Hedelfingen is a rugged tree, produces regular, mid-late season crops and pollenizes Sam effectively, it is too soft for efficient handling and pitting. So, one major need in the Great Lakes dark cherry processing industry is for a new dark pollenizer for Sam. Ulster and Kristin will not pollenize each other at all, nor will they pollenize Sam effectively. In some seasons their blossoms emerge too early for the late blooming Sam. Gold and Sam pollenize each other well, but Gold is not the answer when an all dark variety planting is desired. For dark processing blocks in which Sam is a major variety,

consider any combination of Sylvia, Star, and BlackGoldT. All bloom late and have pollen that is genetically compatible with Sam, but none of these are proven enough to justify major plantings. Consequently, we feel the preferred strategy for an all dark variety processing block with Sam is to plant a third variety that blooms mid-season (ahead of Sam) with compatible pollen, such as Ulster or Kristin, along with one of the three following selections. This will provide adequate pollination with a minimum number of trees of less proven varieties.

Here is a brief description of these three selections:

BlackGoldT(NY 13791)- late blooming, self-fertile and universally pollinizes every other sweet cherry with similar bloom time. Ripens with Hedelfingen (about 7 days after Sam), high yielding like its parents (Gold x Stella), firmness and flesh color similar to Sam. Bacterial canker tolerance is mediocre in problem sites. Crack tolerance is only moderate, which is likely to be its biggest potential problem.

Star - late bloom, self-incompatible pollen that will pollinize Sam and vice-versa, but will not pollinize Ulster, Kristin, Bing, or Somerset. About even with Sam in ripening season. A regular bearer with heavy crops of medium-small fruit. Tolerance to bacterial canker is similar to that of Ulster and Sam. Lack of tolerance to cracking may be a potential constraint.

Sylvia - mid-late bloom, self-incompatible pollen that will pollinize Sam and vice-versa. It blooms too late to pollinize Ulster, Kristin, Bing and Somerset effectively, although it is genetically compatible with each of them. Ripens with Hedelfingen and BlackGold™, about 7 days after Sam. Fresh market potential is better than that of Sam, BlackGold™ or Star because it is larger. Tree is about 15 to 20 percent naturally dwarfed. Bacterial canker tolerance is similar to that of Ulster and Sam. It was found to have good crack tolerance at Geneva, N.Y., and in Denmark and Belgium. At Traverse City Sylvia cracked badly the first years of cropping. (It was not further tested, as it was in a planting that was removed.) This cherry warrants further limited planting.

The Ulster, Kristin, Emperor Francis, Napoleon pollination problem

All of these varieties are important processing sweet cherries in the Great Lakes Region but they are all self-incompatible and hence, they will not pollinize each other. The question is what to use as their pollinizer? We suggest the following for pollinizing the dark C & F-types in this group, if you want to use a dark C & F type as the pollinizer(s):

BlackYorkT (NY 1725) -- New release by Cornell University in 2003. Mid-season bloomer, self-incompatible, pollinizes Ulster and Kristin very effectively and visa-versa. The tree is hardy and tolerant to bacterial canker as proven by long-time grower trials in the Mid-Atlantic region of Eastern USA, where canker is a serious problem unless the variety has good tolerance. Fruit ripens with Ulster and Kristin. Fruit size and firmness are similar to Ulster and Kristin. Yield capacity is very good because the tree is vigorous and has good lateral branching. Tolerance to rain-induced fruit cracking is fairly good, similar to that of Kristin.

Index -Early bloom and self-fertile. Will also pollinize all other varieties that bloom at the same time. Fruit ripens with Sam and would usually be harvested prior to Ulster and Kristin. Fruit has dual purpose potential since it is larger than Ulster and Kristin and tastes much better than Sam. Bacterial canker tolerance is similar to that of Ulster and Kristin. Tolerance to rain-induced fruit cracking is medium, about like Lapins .

Nelson -- This old variety has many good traits for processing, such as excellent crack tolerance and good fruit quality (equal to Schmidt), with better tree hardiness and yield. No virus-free budwood is available, so propagating and growing young trees has been a serious problem. Virologists at Washington State University's Prosser Research Center are in the process of cleaning up the virus-infected budwood. When virus-free trees become available, this old variety deserves planting. It blooms mid- to mid-late and will pollinize Kristin and Ulster.

We suggest the following for pollenizing the dark C & F-types in this group if you are willing to use a briner-type, light fleshed cherry:

BlushingGoldT (NY8182) - blooms early-mid to mid-season, self-incompatible but fully compatible with Ulster, Kristin, Emperor Francis and Napoleon, and vice-versa.. This newly released variety is a brining type that has had excellent evaluation records in trials at the research stations in Traverse City and Geneva, and at a grower trial in Niagara County, N.Y. Planting it in alternate rows with Ulster or Kristin will provide effective pollination.

Late C & F varieties

Generally, late-ripening C & F varieties are not of interest in the Great Lakes Region because growers and processors are busy with tarts at the same time they ripen. Nonetheless we offer the following suggestions for late C & F-types:

Hudson - late blooming, self-incompatible, but pollenizes most varieties effectively, except for Rainier. Very high quality, medium sized fruit, good tolerance to rain-induced cracking. Hudson trees are very hardy and their tolerance to bacterial canker is very good. Hudson's lateral branching is not very good, so it requires heading type pruning cuts to induce good yields, which delays filling the orchard space.

Sweetheart - mid-early bloom emergence, self-fertile, precocious, heavy cropping on all rootstocks, Sweetheart trees are spreading with many laterals. The fruit ripens with or slightly after Gold. Fruit size is similar to that of Sam and Sylvia. Cracking tolerance similar to Ulster. To date, trees have survived the winters in Traverse City, and along Lake Ontario in New York. We have received reports of hardiness problems, however, from others in the east.

Rootstocks for processing sweet cherries in Eastern North America

Comprehensive discussion of this important topic deserves more attention than we can provide in this article. The most important point that we want to make here is that yield is a super-important key to the successful processing cherry grower. The 2002 frost damage showed that trees on Mazzard were much less frost tolerant than on Mahaleb, 'Gisela 5', or 'Gisela 6'. Since large fruit size is not required for C & F and can be, in fact, a negative feature for large-fruited varieties, we suggest that Great Lakes processing growers should not be planting Mazzard rootstocks. Additionally, we advise that semi-commercial scale trial plantings of precocious, vigorous rootstocks should be investigated.

Next month we'll discuss [fresh market sweet cherry varieties](#) and cultural options that make Eastern North American fresh production and marketing more promising.

Please send any comments or suggestions regarding this site to:

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Last Revised: 3-18-03