

# Sweet Cherry Varieties for Eastern U.S.

By: [Robert L. "Bob" Andersen](#), Professor of Horticulture, Dept. of Horticultural Sciences, N.Y.S.A.E.S., Cornell University, Geneva, NY 14456

**Briners** - Sweet cherry profitability was way down in 2002 and 2003 in the Eastern U.S. due mostly to cold weather events. But there is hope for profitability for this crop. Even though there are over 50,000 acres of sweet cherries in the three major western states prospects are still good for sweet cherries in some Great Lakes and EUSA sectors of the cherry industry. There is no doubt that fresh market prospects in EUSA are improving with Gisela rootstocks and rain and bird covers. Briner prospects for Michigan also have some bright spots. Jim Nugent asked me to review the variety picture for briners with special attention to new developments that offer hope for solutions to some old problems with existing varieties. He and Greg Lang collaborated with me late in 2002 when we published a rather detailed report in Fruit Growers News about briners. I'll review and up-date that report here today.

Cornell University's Geneva Experiment Station and Michigan State University's NW Michigan Horticultural Research Station have been collaborating steadily for two decades in testing the world collection of new sweet cherry varieties. Light fleshed varieties and test selections that we have tested are mostly from Summerland, British Columbia and our Geneva program. The B.C. light cherries are by-products of their project to breed Rainier-type cherries to expand the fresh marketing season in the West. Geneva's project has specifically targeted development of new briners that will live and crop regularly in the Great Lakes fruit belt.

## **Unique features of Eastern North American sweet cherry industries**

What's unique? In a word, weather. Cold climate deciduous fruit production has always brought challenges that demand knowledge and management skills to remain profitable. Sweet cherries are near the top of the tree fruit crop list for challenges. Early bloom emergence and frost, winter cold hazards, especially to young trees, fruit cracking, and diseases like bacterial canker, brown rot, and cherry leaf spot all factor into site selection, variety & rootstock choices. A host of cultural imperatives must be learned.

Processing markets have long been the mainstay for Eastern sweet cherry growers, especially in Michigan, due in part to differential freight costs favoring the central USA. Also, mechanical harvest technology and capital investments in harvesters that serve dual roles for tarts and sweets give us another huge efficiency advantage. Whether acreage expansion in the East is warranted must remain the decision of individual producers.

Specifically, I'll suggest ideas for better pollination of Emperor Francis and Gold, the two mainstays of Great Lakes' brining industry. I believe that Napoleon is just too susceptible to bacterial canker for EUSA, so I intend to explain why I think that adding two new pollenizer varieties for Emperor Francis will solidify its production. I'll do the same for Gold by suggesting two other interesting prospects for pollenizing it more effectively.

**Self-fertile varieties** - Are they a curse for Eastern growers due to cluster setting and greater brown rot management challenges? Or, are they one of the keys to solving pollination problems? Remember, all self-fertile varieties not only pollinate themselves they will pollinate all other sweet cherry varieties that bloom at the same time. I think that self-fertile pollinator varieties are now available that can safely be recommended for planting as pollinators for both Emperor Francis and Gold. Remember, MSU Extension recommends at least 25% of an EF or a Gold block should be well mixed with abundant pollen producer varieties that are compatible with these primary briner varieties. These pollenizers must match up in bloom emergence timing. The difference in bloom emergence time between EF and

Gold is too great to use one of them to pollinate the other. Since this is true, it means that at least one different pollinator will be needed for each of them.

**Emperor Francis' Problem** - This old variety remains as the reliable tree that crops well for Eastern brine cherry growers. But EF will only do this if they have the right pollenizing variety. Unfortunately EF falls into the same pollination group as Napoleon, Ulster, Kristin, Somerset, Bing, and Lambert, so it is incompatible with these varieties. Our suggestion is that the use of self-fertile varieties for pollenizers for new processing blocks of EF may make good sense for the Great Lakes. Preferably, the pollenizing variety should be chosen so that it will be sprayed and harvested in the same timing as EF. Geneva's new WhiteGoldT; (abbreviated WG) fits these criteria. WG was tested as NY 13688. It is self-fertile. Its parents were EF and the self-fertile, red cherry, Stella. WG blossoms emerge with EF. Its ripening time overlaps or may start a day or two earlier. It is cold hardy in both mid-winter and spring frost situations. It is highly tolerant to cherry leaf spot and similar to EF in bacterial canker situations. WG yields heavily. The biggest unknown about it is its cracking tolerance. In Niagara County, NY it has been similar to EF in cracking in a commercial site at Jim Bittner's Singer Farms.

Choosing WG to be part of your new pollenizer plan for EF is probably a good decision. However, Jim Nugent and I don't suggest planting solid blocks of WG and dropping EF from future plantings. WG is just too new to take that risk. In fact, we suggest instead that WG could best serve you when you employ it as one of two pollenizing varieties for new EF blocks. Choosing a second pollenizer for EF that will bloom with EF but which is a later ripening briner would decrease cracking risks in some seasons. While this strategy may make harvest less convenient, there is merit to selecting pollenizer varieties that ripen either distinctly earlier or later than EF and WG.

As of 2004 I have not discovered any early ripening, brining-type cherry variety(ies) that will live and produce heavily around the Great Lakes. We are looking for them. Fortunately we have found a very good new variety that ripens a little after EF and WG. It is BlushingGoldT; (abbreviated BG). Formerly tested as NY 8182, it blooms at the same time to slightly earlier than EF and WG. Although it is not self-fertile, it pollinates EF and visa-versa. We have more experience with BG in the Traverse City Region than with WG. We feel confident in stating that BG will be equal in its rain cracking tolerance to that of EF. BG has excellent crop-set and yield performance records in Lelanau County, MI and Niagara County, NY during the past five years. BG fruit size is slightly smaller than Emperor Francis. It harvests well with stems off. With the use of ethephon it may be possible to harvest BG simultaneously with EF, but this has not been tested.

Since WG will pollinate BG you may want to consider planting new blocks to BG with WG pollenizers. Remember a minimum of one-fourth of the trees should be pollenizers. Since these are both new varieties such blocks should be modest in scale.

**Gold's problem** - Gold is a corner-stone of the Great Lakes sweet cherry brining industry, but it has pollination difficulties in some sites due mostly to its late bloom emergence. Two pollenizer prospects for Gold seem quite interesting-NY 7855 from Geneva, and StardustT from British Columbia.

**NY 7855** is a late-mid-season, blushed cherry that blooms somewhat later than EF, WG and BG. Its pollination timing will overlap that of Gold. It is not self-fertile. It belongs to the same compatibility group as Hedelfingen, so it is incompatible with Hedelfingen, but it will pollenize Gold and visa-versa. The NY 7855 tree is naturally dwarfed by about 15 to 20 percent and is regularly productive at Geneva and in Niagara County, NY trials. We have not done pilot tests to check its pitting-efficiency yet, but will do so in 2004 if Mother Nature cooperates. NY 7855 fruit ripens with BG but blooms too late to pollenize BG effectively.

**StardustT = 13N-07-70** (abbreviated SD) blooms nearly as late as Gold and it is self-fertile, making it highly likely that it will pollenize Gold very well. It is a blushed skin, yellow-white flesh, large, firm fruited, accession with very good to excellent fresh eating quality. Reports from several sources

indicate that it is both frost tolerant in the spring and has a cold hardy tree. It has definite fresh market potential for MI as a Rainier-type fruit that ripens a few days before Gold. Stardust's late season availability for marketing fresh MI cherries deserves attention. More about it below under Fresh Market Varieties. Its brining potential depends on whether a market exists for large size marachinos. We have tested Stardust Tin the Great Lakes Region and believe it to be well adapted here. It is much more tolerant to bacterial canker and fruit cracking than Rainier.

Geneva has three other briners that are elite test selections that deserve your attention. These are:

**NY 518**, which is an all-gold fruit that ripens late, about with Gold, but blooms early. It has a very limby tree that yields very well. It has been making a very good evaluation record at Singer Farms, Niagara County where we have about 150 trees on mahaleb that are about 8 years old. It belongs to the same pollination group as BlushingGoldT, so BG will not pollinate it. Emperor Francis will pollinate it.

**NY 9295**, which is an all red skinned type with yellow flesh. It ripens between BlushingGoldT and Gold. It tends to bear fruit as singles with big thick stems. They would make fine cocktail-type marachinos. The tree is strange in that it is considerably more weepy than Gold and Hedelfingen, but it is plenty vigorous and Jim Bittner of Singer Farms has found that it shakes well with ethephon. He has about 150 eight year old trees of it.

**NY 9127** is a late ripening briner (about with Gold) which is just getting started in grower trials, so we don't have it fruiting yet anywhere except Geneva. It has blushed skin and it has fruit with similar size to that of Gold. Rainier is one of its parents, so we must be somewhat cautious about its hardiness evaluations. We do not yet know what will pollinate it effectively, but expect to have this information after the 2004 bloom season. John McManus planted some of it in 2003, so he and the NW Station will be the first in MI to evaluate it for your conditions.

**Canners and Freezers** - Positive changes in the variety picture for this category of processing sweet cherries are:

**BlackYorkT = NY 1725** was released by Geneva in 2003 with the marketing help of International Plant Management, Inc. This mid-season, dark cherry ripens right with Ulster and Kristin and has similar size and quality to them. Its big advantage that deserves your attention is that it will pollinate both of them as well as Emperor Francis. Its trees have an excellent record for annual cropping without bacterial canker in a 50 acre sweet cherry pick-your-own operation in Pennsylvania. This farm belongs to Richard and Tom Haas who have 30 year old trees of NY 1725 and are planting new orchards of this cherry this year.

Finding an early dark variety that crops heavily and has a rugged tree that will withstand shakers and cold winters is a goal of Jim Nugent and his staff. Of course pitting efficiency is important for canner/freezer candidates. New test selections from Geneva that deserve your attention in the early, dark, canner /freezer category are:

**NY 101** - ripens about 10 days before Sam, Kristin and Ulster. It has Van as one parent which has apparently given this selection its high crop setting trait. We don't know its pollination compatibility requirements yet. We do know that it blooms with Ulster and Kristin in the middle of sweet cherry bloom emergence.

**NY 290** - ripens about 8 days before Sam, Kristin and Ulster. It gets its earliness and heavy cropping capacity from its male parent, Valera, which is an older variety from Ontario. Since Valera is quite soft pitting efficiency tests with NY 290 are essential and have not been done yet. We don't know the pollination compatibility requirements yet for NY 290. We do know that its bloom emergence timing is early with Chelan, Somerset and NY 518 (the late briner that I described above).

**NY 8139** - ripens about a week before Sam, Kristin and Ulster. This selection has Vernon as one of its parents. I mention this because Vernon has a very rugged tree in trials at Geneva and we expect NY 8139 to share this trait. We don't yet know the pollination timing or the pollen compatibility category for this selection.

How about late, dark, canner/freezers? We have a really interesting one in **NY 9165**. It ripens with Gold and has excellent quality and heavy crop setting. It hangs on the tree exceptionally well. It ripens so late that it would interfere with the onset of Montmorency harvest. So, maybe none of you will want to try it. We are hopeful that it will prove to be self-fertile because its male parent was Lapins, a self-fertile. We will know more about this after the 2004 bloom season. This was a 2001 selection so it is quite new and we don't know yet if it will have a rugged tree. We do know that its female parent is very hardy in Geneva.

**Fresh Market Varieties** - rootstocks for smaller, more precocious, sweet cherry trees that will fit into rain-covered, bird-netted, plantings in EUSA have kindled interest in locally grown, fresh market sweet cherries. Key points to focus decision making about this crop are: 1) can your area organize an orderly harvest of both processing sweet and tart cherries while it develops fresh market production and packing capacity when it is well recognized that the late ripening, fresh sweet cherry is your forte?, 2) will the trees of fresh market varieties live in your environment (with special attention to bacterial canker/winter injury complex)?, 3) will the variety set at commercial levels annually?, and 4) is fruit cracking tolerance adequate?.

There are many new sweet cherry varieties that look enticing in catalogs, but our tests at Geneva have shown that many varieties bred for arid climates do not live well for us. Jim has the same experience here. Hence, I assert that EUSA growers must assume that Geneva and Traverse City trial evaluations provide their best bets for successfully choosing adapted varieties. 'Bing' is problem for local, wholesale, marketing of sweet cherries in the EUSA because it and its look-alikes ('Chelan', 'Lapins', and 'Skeena') dominate chain-store sales. But none of these four WUSA dark varieties fits EUSA growing conditions. Another problem for fresh market wholesaling of sweets by you Grand Traverse region growers is your late position in the supply chain. You have a big advantage in being late and close to EUSA markets, but hand harvesting late sweet cherries simultaneously to machine harvesting Golds and Montmorencys makes management skill crucially important.

Another key consideration about EUSA fresh market cherries - *I strongly believe that you should be providing both dark and light flesh varieties because the increased availability of Rainiers in chain-stores is creating lots of interest in light cherries.* Neither Jim nor I believe that the Grand Traverse growers can successfully produce Rainier due its history of serious winter damage to trees and fruit cracking in Traverse City tests. I don't believe that Emperor Francis has large enough fruit to succeed in major fresh market outlets, so what other light cherry options make sense? I like Stardust's chances of success for you as a fresh market light variety. I mentioned it earlier as large, high quality and hardier and has less cracking than Rainier. Its mid-late ripening time would position you well to follow WUSA Rainiers in EUSA cities. But taking advantage of this opportunity would place grower management skill at an even greater premium than for late, dark fresh marketing. This is true because bruising and blemishes on light, fresh market, cherries are much more difficult to hold down than with dark cherries. Again, I feel sure that you have a big advantage in being late and close to EUSA markets, but hand harvesting late sweet cherries simultaneously to machine harvesting Golds and Montmorencys makes management skill crucially important.

A key point about successful sweet cherry growing potential for non-arid regions is that rain-cover technologies are looking promising and may prove cost effective in some situations. But remember, all sweet cherry varieties crack. They even crack some under rain covers. I have emphasized below in the "Bob's Best Bets" list those varieties that have lowest cracking levels at Geneva. They are not necessarily the largest fruited.

**"BOB'S BEST BETS" SWEET CHERRIES FOR NE-USA FRESH MARKET GROWERS:**

**Varieties by**

**Maturity Season**

**Key Evaluation Traits \***

**negatives**

**positives**

**Early**

Cavalier (d) Shy Q+, BCT+

Cristalina (d) Hardy?, New Sz, Q

**Mid-early**

Sam (d) Q-, Soft LoCrk, Rel, Pol(L), Pro

Summit(d) Soft Sz+

BlackYorkT (d) Sz- Rel, Pol(M), Pro,BCT+

Emp. Francis (w) Sz- Rel, BCT+

WhiteGoldT (w) New Pol(M), Hardy, Pro, BCT

**Mid-late:**

Attika (d) OvS, Frost,Pit? Q+, BCT+, Pol(L)

**Late:**

Regina (d) Shy, Pol? Q, LoCrk, Sz, BCT+

Gold (w) Pol? , Sz- Pro, Bird Tol+, Pol(L)

Hudson(d) Sz- Q+,Hardy,LoCrk,Pol(L)

Sweetheart (d) OvS Rel, Pol(M)

**\*Abbreviations :**

Bob Andersen's professional opinions about positive and negative traits (as determined by at least 8 seasons' observations at Geneva)

BCT+ = bacterial canker tolerance is above average at Geneva

(d)= dark fleshed

Bird Tol = bird tolerance is due to complete lack of red pigment

Hardy = wood hardiness above average at Geneva

Hardy? = wood hardiness has shown signs of weakness @ GES

LoCrk = low fruit cracking

New = variety has been tested & proven to be very good at Geneva for 7 or more seasons but it has not yet been grower-tested in NY or similar climates

OvS = over-sets causing reduced size, variable ripening, less Q

Pit? = poor pit characteristics for processing uses

Pol = pollinate other varieties well if same season bloom time

Pol? = sometimes difficult to pollinate effectively

Pol(M) = good pollinator for mid-season bloom time  
Pol(L) = good pollinator for late-season bloom time  
Pro = processing-type, meaning heavy yielding, but fruit size medium or less  
Q = high quality (a combination of taste & texture)  
Q - = inferior quality for fresh use  
Q+ = best quality fruit of varieties we have tested  
Red = red, not mahogany or black skin  
Rel = reliable, consistently crops very well @GES  
Shy = shy cropping, meaning slow to crop & needs extra pollenizer trees  
Soft = soft flesh  
Sz- = size is questionable for fresh uses  
(w) = white fleshed

All of the Geneva numbered selections can be obtained from International Plant Management, Inc., of Lawrence, MI. Wally Heuser and Wanda Heuser Gale represent Cornell University in marketing our stone fruit test selections to North American nurseries. Jan Melvin is here at Acme representing IPM, Inc. and Summit Sales at this Orchard Show.

**Please send any comments or suggestions regarding this site to:**

Bill Klein, [kleinw@msu.edu](mailto:kleinw@msu.edu)

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