

Apple Cultivars: A Geneva Perspective

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Funding from the New York Apple Research and Development Program (ARDP) and the New York Apple Association (NYAA) aids our evaluation research on the performance of new cultivars and breeding selections. This article features some of the cultivars we have evaluated in New York and offers information on many other cultivars that are either not available for testing or are not recommended for our region, particularly in regard to having too long a growing season requirement. Selections from the Cornell program will be featured in a subsequent article. Growers interested in additional information on any of the cultivars listed are encouraged to contact the authors or to access the US Patent and Trademark office at <http://patents.cnidr.org/access/search-bool.html/>. A search using "apple tree," the patent number or the cultivar name provides access to a summary or a full text version of the patent application. The home page is at <http://www.uspto.gov>.

Information on cultivars being tested as part of the NE-183 regional project "Multidisciplinary evaluation of new apple cultivars" is available at the virtual orchard website <http://www.virtualorchard.net/NE183/>. The 1995 and 1999 plantings were established at Geneva, Ithaca and Highland, NY. The Highland site is for assessment of disease and pest susceptibility. The 1995 planting includes the following varieties and advanced selections: Arlet, Braeburn (control), Creston, Cameo, Enterprise, Fortune, Fuji (BC#2), Yataka Fuji (control), Gala Supreme, Ginger Gold, Golden Delicious (control), Golden Supreme, Goldrush, Honeycrisp, NY 75414-1, Orin, Pristine, Sansa, Shizuka, Sun-crisp and Sunrise. Information on the performance of these cultivars was reviewed in the *New York Fruit Quarterly* (Brown et al., 1999). The 1999 NE-183 planting features Ambrosia, Autumn Gold, BC 8S-26-50, Chinook, Sundancer (Coop 29), Coop 39, CQR 10-T17, CQR 12-T50, Delblush, Jubilee Fuji, Hampshire, NJ 90, NJ 109, NY 79507-49, NY 79507-72, Pink Lady, Pinova, Runkel, Silken and Zestar. Golden Delicious (Gibson) was the control cultivar.

AMBROSIA (MENNELL'S AMBROSIA) (USPP #10,789)

Ambrosia is a chance seedling discovered in the 1980s in Cawston, British Columbia, in an area where both Delicious and Golden Delicious trees were growing. The name Ambrosia was chosen to denote its unique, honey-like flavor.

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Ambrosia's shape, appearance and harvest are similar to Delicious, but the fruits are slightly square. It has been described as very attractive, of good size, crisp, sweet, low acid, very juicy, distinct but mild, with a pleasant aroma. It has been rated well in test trials. Trees are productive, upright, spur-type and grower friendly. Trees should not be overcropped early. Two harvests are recommended. The high sugar content can cause splitting following autumn rains. Storage life is reported to be 4 months in 0°C air and 6 months in CA. Ambrosia was reported to have a slight tendency to sunburn. Fruits have a pink/red blush on a cream/yellow background, with exposed fruits coloring 70 to 80%. There are some indications that Ambrosia is very site specific.

Ambrosia was harvested on 10/15/01 in Geneva. Fruits have 50 to 80% dull orangish pink/red on yellow and are oblate to conic in shape with slight lobing. Fruits have long stems and an open calyx. They were judged as still crisp and firm after storage to mid-December and after a 7-day shelf life test but had little flavor or a slightly musty flavor. Fruits were 12.5% Brix and 17 to 18 lbs firmness just after storage. No storage disorders were noted other than one occurrence of brown core. Ambrosia's texture, firmness, storage life (except for some greasiness) and high packouts are all strengths, but the mild flavor may be a negative if it is considered too bland. Limited test planting is recommended for

those who have a market for mild-flavored yet crisp apples.

ARLET (SWISS GOURMET) (USPP #6,689)

Arlet's good quality is no match for poor appearance due to russetting. It was not recommended for trial.

AUTUMN GOLD™ (HEIN) (USPP #9,907)

Autumn Gold is a chance seedling discovered in Tieton, Washington, in 1985. It is a late maturing Golden Delicious type with an attractive red blush on a yellow/green background. Autumn Gold matures about 2 weeks later than Golden Delicious. Fruit size and shape are reported to be uniform and fruits are not prone to russetting. It is said to have better than average storage life when compared to other Golden's. The tree is of medium vigor with spreading branches.

Fruits were prone to russetting at Geneva in 2000. Autumn Gold was harvested on 10/10/01 and found to pick hard. Fruits had an attractive appearance, being 30% salmon-colored blush on green, with slight russet in the stem cavity and some on the lenticels. Fruits have long stems but are difficult to harvest. The calyx was open on some fruits and closed on others. Fruits did not store well for quality, had thick skins and were chalky and mild. No storage disorders were noted.

BC 8S-26-50

A hybrid of Gala x Splendour, BC 8S-26-50 was developed in Summerland, British Columbia. It ripens one week after Delicious. It has been in advanced trials in Canada since 1990. At Geneva this selection was harvested on 10/25/01. Fruit appearance was very poor with extensive russet and some cracking. Fruits were a dull, pale reddish-brown, and some were irregular in shape. Following storage, BC 8S-26-50 was still crisp and slightly juicy, but some fruit shrivel occurred. Many rots developed in storage, with some fruits having slight brown core. BC 8S-26-50 is not recommended for trial due to russetting, poor fruit appearance and susceptibility to storage rots.

BRAEBURN

Braeburn. Although a challenging variety to grow, its excellent quality following storage and

its ability to retain firmness on the shelf are reasons to give this cultivar a test. Sports include the following.

Braestar™ (Brayleet). This limb mutation of Braeburn was discovered in Havelock North, New Zealand. It has redder color and ripens 3 to 5 days earlier than standard Braeburn.

Joburn™ Braeburn (Aurora) (USPP #11,992). Joburn Braeburn is a sport of standard Braeburn that was discovered in New Zealand.

Eve™ Braeburn (USPP #11,604). Eve Braeburn is a natural mutation of Braeburn discovered in New Zealand with 90 to 100% red blush. It is reported to have a slightly later maturity than standard Braeburn.

Kumeu Crimson Braeburn. This is a new listing that is not yet in the patent database.

Lochbuie Braeburn (USPP #11,266). This is a highly colored, blushed sport of Braeburn discovered in New Zealand. It is distinct in that it does not have the standard stripe and fleck but instead is a blush.

Mariri Red (USPP #11,604). This is a limb mutation of standard Braeburn that was discovered in New Zealand. The dark red coloration is nearly 100% and it is a solid blush type.

Rocket Red™ Braeburn (USPPAF). This is a sport of standard Braeburn that was discovered in New Zealand. It is distinct in having a very intense blush and narrow and intense stripes. All other characteristics are the same as standard Braeburn.

CAMEO (CAUDLE) (USPP #9,068)

This cultivar offers mild flavor, good storage and good crispness. Its appearance is similar to Hawkeye, the original Delicious. Cameo sets five fruits per cluster, so overcropping is a concern, especially to prevent biennial bearing. The flavor on young bearing trees is poor but improves as the trees age. Young trees are susceptible to bitter pit.

CHINOOK (8S-27-51) (USPP #10,740)

Chinook is a 1998 release from Summerland, British Columbia (Quamme et al., 1999a). It is a hybrid of Splendour x Gala that was selected for its firmness, crispness and quality. Fruits are 80 to 90% bright red on yellow and have excellent appearance, texture, quality and storage attributes. It is harvested about 5 days after Delicious. Over 3,000 trees of Chinook have been planted in Canada. Skin and stem bowl russet, skin shrivel and moldy core have been reported.

Chinook tends to overset. Fruit size has been very small at Geneva, even after thinning. Fruits are pale brownish-red and 2.5 inches or less in size. Fruits have prominent lenticels and the fruit russet resembles scarf skin. Some fruit cracking was observed. After storage, Chinook was still crisp, firm and sweet. In 2001 fruits were free from storage disorders. Only growers willing to gamble on their ability to thin Chinook should test plant this variety. It appears to be worse than Gala in having a genetic tendency toward heavy cropping and small fruit size.

CORAIL™ (PIA 11, 24) (USPP #11,601)

Corail (formerly Pinova) is a hybrid of (Duchess of Oldenberg x Cox's Orange Pippin) x Golden Delicious that was introduced by the Fruit Research Institute in Dresden, Germany, in 1986. Corail has a spicy flavor and fruits are small to medium in size. Corail is reported to have outstanding flavor, matures with Golden

Delicious, medium size, fluorescent pinkish-red, very productive and crops regularly every year. The medium to low vigor may necessitate a more vigorous rootstock than M.9. Its susceptibility to diseases is similar to that of Golden Delicious. Initial tests in Europe suggest this variety might have good market acceptance and some resistance to winter and spring frosts.

Preliminary tests at Geneva indicate that Corail may be prone to necrotic leaf blotch and fruits may develop soft scald. Trees are very precocious. Corail was harvested on 10/5/01 in Geneva. Some fruits had extensive russet and fruit acidity is high (0.45). The skin is aromatic, but some testers considered it astringent. Fruits had 12+ seeds and also very long stems. The cream flesh was still crisp but becoming soft after storage until January, yet they were still slightly spicy. Fruits held up well with only slight shrivel following storage. Limited test planting is recommended due to quality, productivity and prospects for hardiness, but growers need to assess the size potential and tendency toward soft scald development under their conditions.

CRESTON (USPP #10,739)

Creston's similarity to Jonagold in being a triploid, having poor coloration and fruit that soften and get greasy in storage are disadvantages.

DELBLUSH™ (USPP #10,276)

A hybrid of Golden Delicious x Blushing Golden (cv. Grifer), Delblush was developed by the Delbard Nursery in France. The patent states that the attractive fruits are of excellent flavor and texture and that the orange blush is dependent on adequate sun exposure. The flesh of the fruit resists browning. The harvest time is mid-to late season (about 1 to 2 weeks after Golden Delicious) and the storage life is good. Delblush is being marketed through a club, with growers licensed and paying a production-based royalty. Lenticel russet has been observed in Washington State. Delblush is susceptible to storage scald.

Delblush was harvested on 10/19/01 in Geneva. While the quality is very good, the appearance can be quite poor due to russetting. The slightly oblong fruits had 40% orange-red blush, long stems and a slightly open calyx. Fruits were still crisp and slightly spicy just after storage with 16.6% Brix and 17 to 21 lbs firmness. Fruit acidity was high. Some shriveling was observed in storage. In 2001 russet was less than in 2000, with only a few fruits with extensive russet and cracking. Some fruits had an off flavor but were still firm and crisp. Sectors of color and russet were evident on some fruits. Test planting is recommended due to the good fruit quality but only if russet can be managed by site selection or by the use of appropriate cultural methods or sprays.

FORTUNE (USPP #11,000)

This hybrid of Empire x Schoharie Spy has some of the Spy problems (large fruit and tree size, bitter pit and biennial bearing) but still is of interest as a true dual-use variety that has some of the Spy spiciness and quality.

FUJI: NEW SPORTS

Some of the older sports of Fuji include BC#2, Nagafu 2, 6 and 12; Akifu #1, Seikofu Red Fuji, Red Fuji TAC 114 (USPP #8,032) and Yataka (USPP #7,001). Newer sports include the following.

Autumn Rose Fuji (USPPAF). This whole tree Fuji mutation was discovered in Oregon. It is reported to have 90 to 100% red color without the muddiness typically associated with Fuji. Striping is similar to Nagafu 12.

Auvil Early Fuji™ (Fuji 216) (USPP #10,141). In Washington State this sport was harvested the first week of September, several weeks ahead of standard Fuji.

Beni Shogun Fuji (USPP #7,997). This Fuji originated in Japan in 1988. Exposed fruits have an overall pinkish color.

Blaze™ Fuji (USPPAF). This sport of Nagafu 6 shows blush and stripes on the back of the fruit. Blaze Fuji is bright pink, not the liver color of some sports.

Coe Fuji (Ebbourcoe) (USPPAF). Coe Fuji was discovered as a whole tree sport of BC Fuji in Washington. It has a solid red blush.

Desert Rose Fuji (USPPAF). This whole tree mutation of Fuji was discovered in Washington. Fruit color is 80 to 100% reddish-pink. It was chosen for its excellent blush and coloration in shaded areas of the tree.

Fuji Lynd Spur (Fuji Spike) (USPP #9,508). This mutation of Fuji with a spur type and semi-growth habit was discovered in Ohio by Mitch Lynd.

Myra Fuji (USPP #9,645). A pinkish-red color extends over the entire fruit surface of Myra Fuji and is overlain with slightly darker, pink-red stripes. Myra Fuji is earlier coloring and earlier maturing.

September Wonder™ Fuji (USPP #11,193). September Wonder Fuji (formerly Jubilee Fuji™ [Fiero]) was discovered as a whole tree mutation of an early Fuji. It is reported to mature 30 to 40 days earlier than standard Fuji, to have typical Fuji flavor but keeping qualities similar to Gala. Fruits were harvested on 9/19/01 in Geneva and were very pale, brownish-pink and of poor quality. Fruits had a closed calyx and not much russet. After storage until December, fruits were found to have slight brown core, very bad off flavor and undesirable texture. This sport should be marketed early and not stored late, if grown at all.

Sun Fuji. Sun Fuji is reported to color earlier and more fully.

Topexport® Fuji (Snyder) (USPP #12,098). Topexport Fuji is a sport of BC#2 Fuji discovered by C&O Nursery. It was selected for its deep color and heavy stripes.

Triple E Fuji (Torres Fuji) (USPP #12,219). This sport is characterized by fruit almost solid red in color with no striping. It matures earlier than BC#2.

GALA: NEW SPORTS

The interest in new and improved sports of Gala is all too reminiscent of Delicious. As we increase color, we may be lessening the characteristic aroma and quality. Also as color increases, so does the prevalence of stem cavity and shoulder russet and scarf skin. Darker sports may bear little resemblance to Gala and should be avoided.

Autumn Gala (Harry Black) (USPPAF). Autumn Gala was discovered in Maryland. It is reported to ripen 5 to 6 weeks later than Gala and is 18 to 23 lbs at harvest.

Big Red Gala (USPP #10,458). Big Red Gala was discovered in Indiana as a limb sport of Gala. It is distinct in its larger fruit size, attractive medium-red blush, larger leaves and rounder fruit than standard Gala.

Brookfield Gala (Baigent) (USPP #10,016). Brookfield Gala was discovered in New Zealand. It is reported to have a bold red stripe over a red background.

Buckeye® Gala (Simmons) (USPP #10,840). This sport of Imperial Gala was discovered in Ohio. It is reported to have 100% red with an understripe. In Geneva the fruit coloration was too dark and there was extensive scarf skin and shoulder russetting.

Crimson Gala® (Waliser) (USPP #8,673). This is an early coloring blush type, but lesser colored fruits show light red pinstripes.

Gale Gala (Malaga) (USPP #10,114). A whole tree sport of Tenroy Gala (USPP #4,121) was discovered in Washington State. Gale Gala is reported to be a one- or two-pick Gala. Fruits have 90 to 100% full red color with deep red striping.

Grand Galaxy™ (Caitlin) (USPPAF). Grand Galaxy was discovered as a partial tree mutation of Royal Gala in Tennessee. Fruit size is stated to exceed that of the parent on the original mutation by 50%. Trees may bloom and fruits may mature slightly earlier than Royal Gala.

Magnum® Gala (Stiekema 1) (USPP #11,182). In comparison to Otragala, fruit is significantly larger, with a deeper, wider cavity. Stems are longer and thicker. There is intense red coloration on 90 to 100% of the fruit. Young leaves are bronze in color. Trees are slightly less vigorous, with smaller leaves and thinner branches that tend to terminate sooner.

Pacific Gala™ (Olsentwo) (USPP #9,681). This whole tree mutation of Royal Gala is reported to have earlier coloring, an earlier harvest and requires fewer picks.

Twin Bee Gala. This sport of Royal Gala has early uniform color and pronounced stripes.

Ultima Gala (USPPAF). Ultima Gala is a limb mutation of Imperial Gala that was discovered in Washington State. It has 95 to 100% red color with a strong stripe.

Ultrared Gala (Otragala) (USPP #8,621). Ultrared Gala has solid nopal red coloration over 90 to 100% of the fruit. Fruits of lower color intensity show hints of striping.

Gala Supreme. Gala Supreme is not a sport of Gala as is commonly believed. Fruits are very oblate and can become extremely greasy. It is not recommended for trial in New York.

GINGER GOLD (USPP #7,063)

Fruits have good quality for the early market, but price premiums have declined.

GOLDEN DELICIOUS STRAINS

A non-russetting Golden Delicious type is still being sought for New York. Golden Delicious demonstration plantings were established in commercial orchards and in cooperation with processors in New York in 1998. Golden Delicious was the control. Cultivars tested included Smoothie Golden Delicious (Gibson), Autumn Gold, Elliot, Golden Glory, Golden Supreme, Goldrush, Shizuka, Stark Ultragold and Suncrip. These trials will provide additional information from commercial sites.

Golden Supreme. This very attractive and aromatic Golden Delicious type is often of low productivity. Poor pollination may be the cause. It is not recommended for trial but its productivity in the demonstration plantings will be evaluated.

HAMPSHIRE (GOULD) (USPP #8,519)

This chance seedling was found in a Delicious block in New Hampshire in the late 1980s. Hampshire ripens with Empire or early sports of Delicious. It has a semi-spur growth habit. Fruits are very attractive with 90 to 100% burgundy red color with little or no striping. Hampshire is reported to be very precocious and productive. It is not sensitive to high temperatures as is McIntosh.

It was harvested on 10/22/01 in Geneva. It is 95% dull burgundy on green with some surface russet and stem and shoulder russet. Hampshire often has high sugar levels, good firmness and good storage but can have off flavors, some stem end cracks and open calyx, some skin cracks and weather checking. Hampshire may work for niche markets in the late season, but its appearance is too similar to Empire to be distinctive.

HONEYCRISP (USPP #7,197)

This cultivar continues to generate great interest and great challenges. Our program identified its susceptibility to soft scald prior to its increase commercially and cautioned growers about this problem, its poor coloration, bitter pit and mild flavor. Its texture, crispness, juiciness and storage attributes are strengths. Its crispness and juiciness are superior to most cultivars. Consumer acceptance has been outstanding. Rosenberger et al. (2001) reviewed research in New York, and the IDFTA (International Dwarf Fruit Tree Association) dedicated an entire volume of the *Compact Fruit Tree* journal (Vol. 34, October 2001) to researcher, grower and marketer perspectives on this cultivar.

JONAGOLD: NEW SPORTS

The Jonagold bulletin (Brown, 1997) highlighted some of the earliest sports: Jonagored (USPP #5,937), Jonica (USPP #7,146), Rubinstar (USPP #7,590), DeCoster Jonagold (USPP #8,049) and Nicolai's King Jonagold (USPP #8,851). The Jonagold demonstration plantings in New York will add to our information on some of these sports.

Excel (USPP #10,314). This sport of Jonagold has better color intensity over 50% or more of the surface. The fruit has a higher acidity and a longer and thinner stem. Faint stripes are barely visible.

Jonagold (Romagold) (USPP #9,541). This limb sport mutation of Jonagold was discovered in 1983. Fruits are early coloring with a broadly striped color pattern of bright red stripes on a yellow ground.

Morren's Jonagored Supra (USPP #10,401). Morren's Jonagored Supra is reported to differ from standard Jonagored by better coloring and its ripening 7 days earlier, and the trees are less vigorous.

Red Jonaprince (USPP #11,112). Fruits are bright to dark red, non-greasy and very early ripening (4 to 5 weeks earlier than standard Jonagold). It is reported to have firmer flesh that has more sugar and more acid than standard Jonagold.

MCINTOSH SPORTS

LindaMac. Fruits start coloring in early July and have 100% red blush at harvest. LindaMac was discovered in Michigan as a sport of Redmax and is said to be a typical McIntosh in all other respects.

Other new releases include Miracle Max from Connecticut and Gunny Mac (not the

official name), a new sport discovered by the Gunnisons at Crown Point, NY, in the Champlain Valley.

Scotian Spur McIntosh (USPP #10,770). This is a spur type McIntosh with a solid blush. The tree is about 60% the size of non-spur McIntosh.

NJ 90

This selection is being tested as a highly colored alternative to McIntosh in warmer regions. It is a hybrid of (NJ 15 x Red Melba) x Spartan. Notes from the Pacific Northwest Fruit Testers Association indicate it is "fatally flawed with many faults, with a skin as thick as leather" (2/2000).

NJ 90 was harvested on 10/12/01 in Geneva. Fruits are oblate, slightly lobed and 90 to 95% burgundy on green. The skin thickness is objectionable. In January it was at the end of its storage life but holds up okay. Fruits have a short stem, a deep closed calyx, and fruit size is large. The similarity of NJ 90 to McIntosh and Empire could cause marketing problems. While NJ 90 offers better fruit color, the quality suffers. NJ 90 was subject to preharvest drop at many of the NE-183 sites in 2001. It is not recommended for trial.

NJ 109

A hybrid of Golden Delicious x NJ 88 from Rutgers University, NJ 109 ripens 3 weeks before Golden Delicious, is very productive and crops annually. Fruits are much less prone to russet than Golden Delicious but are susceptible to bruising. Reports on fruit quality have varied from fair to good. NJ 109 may not store very well.

Fruits were harvested in mid-September and were very susceptible to doubling at Geneva in 2001. Fruits are conic and slightly lopsided. The surface is clear yellow with almost no russet on the body and very slight russet on the cavity and shoulder. Fruits may have 5 to 10% pink blush. NJ 109 is probably too close to Ginger Gold in fruit type, has a later harvest and as such is not competitive and not recommended for trial.

ORIN

A Japanese cultivar noted for its unusual texture and sweet flavor, Orin received poor ratings in the NE-183 due to susceptibility to russetting. It is recommended for niche market only.

PACIFIC BEAUTY

A new variety from New Zealand, Warner (2002) describes this cultivar as vigorous, prone to biennial bearing and sensitive to frost. The large fruits ripen about one week before Gala and have a short storage life. Pacific Beauty is available only through a licensing agreement.

PACIFIC ROSE

Pacific Rose, a Gala x Splendour hybrid developed in New Zealand, is being grown in Washington State under a franchise agreement with ENZA. While there are no tree royalties, growers must pay a franchise fee of \$2,000/acre and 11% of the FOB price as a production royalty (Warner, 2002). Pacific Rose is prone to vascular nodules, biennial bearing and russet.

PINK LADY (CRIPPS PINK CV.) (USPP #7,880)

Introduced in the early 1980s by a breeding program in Australia, this medium-size,

attractive pink apple has good flavor and texture. It is very late maturing, ripening 1 to 2 weeks after Granny Smith, so it will not mature in New York and is not recommended.

RUNKEL (RIP VAN RUNKEL)

This is a chance seedling ripening in the early Fuji season. It is not recommended for planting in New York due to its poor fruit quality.

SANSA (USPP #6,519)

A hybrid of Gala x Akane, this cultivar has good fruit color and quality for the early season. Growers must insist on virus-free trees since Sansa has a genetic mottle that weakens the tree if viruses are also present. It is recommended as an early apple.

SCIFRESH (JAZZ)

The newest offering from New Zealand is a hybrid of Gala x Braeburn. This cultivar is not available for testing in the US at present and probably will be a franchise cultivar.

SILKEN (BC 8S-4-33) (USPP #10,740)

A 1999 release from Summerland, B.C., Silken is a hybrid of Honeygold x Sunrise that has a unique creamy pale yellow skin color. It ripens in the early McIntosh season and is very aromatic. In preference tests, it is equal to Gala and rated better than McIntosh in flavor and texture (Quamme et al., 1999b). Silken is said to have a storage life of about 10 weeks and is best suited for direct sales. PICO lists it as one of the most promising early apples to test.

Silken was harvested 9/10/01 in Geneva. The fruits were very attractive to birds and had early damage. Fruits were mostly clean, but some stem cavity russet extended over the shoulders of the fruit and some body russet occurred. Fruits are slightly lobed, conic and have a slightly open calyx, long stems and a very small core. Sunburn was noted on some fruits before harvest but it was not extensive. A few fruits were cracked or doubled. Silken is not for long storage. The unique appearance is a plus, but its harvest with McIntosh is not.

SHIZUKA

Shizuka is a sister seedling of Mutsu that received interest because it might be less susceptible/resistant to blister spot. Fruits are similar but sweeter in taste. Growers with Shizuka are encouraged to report their findings relative to blister spot resistance.

SUNCRISP (USPP #8,648)

This cultivar's intense flavor is unique, but its susceptibility to mildew, blister spot and soft scald may restrict its commercialization.

SUNDOWNER (USPP #8,477)

Sundowner, another late maturing hybrid of Golden Delicious x Lady Williams, was released by breeders in Australia. It matures too late to ripen in New York.

SUNRISE

Sunrise is an early-season apple from the Summerland program that has too short a storage and shelf life to be recommended for trial.

ZESTAR!™ (USPP #11,367)

Zestar! (originally called Zesta, cv. Minnesota 1824), introduced by the University of

Minnesota in 1998, is a hybrid of State Fair x Minn. 1691 that ripens with Paulared. It may overlap in harvest with Gala. It has a good sugar/acid balance and is juicy with white flesh. Its short shelf life may limit it to local marketing only. It is reported to be hardy to -25°F. Trees are above average in vigor but are said to settle down. Trees are susceptible to scab. Some fire blight has been observed. Trees bloom very early, with Idared, so an early pollenizer is needed.

Blister spot of the fruit was noted in Geneva, where Zestar! was harvested on 8/31/01. Fruits are oblate, slightly lopsided, with 50 to 70% blotchy red blush on a yellow/green background. Russet occurred in the stem cavity, over the shoulders and on some lenticels. Fruits have a short stem, a very large core and a slightly open calyx. The texture is not like Honeycrisp, as Zestar! is very fine textured (slightly soft), very light in density and not as crisp. Zestar! has good sugar levels and high acidity (0.62) and large fruit size. It is for trial by those who have a market for an early variety. Fruits have some bird damage and some preharvest drop from that damage. Zestar! should be planted away from areas with heavy fire blight, black rot or blister spot inoculum.

SCAB RESISTANT CULTIVARS AND SELECTIONS

Some of the information in the description of Coop and PRI selections was obtained from <http://www.purdue.edu.newcrops.apples/>.

Sundancer (Coop 29). Sundancer (Golden Delicious x 1050 NJ 1) is primarily a yellow/green apple with 20 to 60% mottled pink/orange blush. Sundancer is reported to have resistance to scab, cedar apple rust and mildew. Sundancer was harvested on 10/24/01 in Geneva. After storage it was still firm, dense, of good quality (spicy) and held up well, though fruits were slightly dry. The fruits become slightly greasy in storage, have an open calyx and a short stem. Fruits had extensive russet over the shoulders, body and lenticels, and there was some cracking in russeted areas. No storage disorders were noted, but Sundancer is not recommended due to extensive russet development in our region.

Coop 39 (CLR20T14, PRI 2712-7). Coop 39 is a complex hybrid that is scab immune but moderately susceptible to mildew and to foliar cedar apple rust and is susceptible to fire blight. The very attractive red fruits are ovate and 2 1/2 to 3 inches in size. The texture is extremely crisp. Moldy core and calyx end rot have been observed. The fruits are not susceptible to preharvest drop and hang well on the tree. Coop 39 ripens from September 7-21 in Indiana. The very rich flavor of the fruit may weaken in storage.

In Geneva fruits were harvested on 10/3/01. Fruits may become greasy in storage. The fruits were oblate with russet on the calyx end and the body of the fruit. Some fruits had extensive russet. Fruits also had a very open calyx and a short stem. Flesh is cream colored and still firm after storage but with a slightly moldy off flavor. Coop 39 is only for limited testing for those with a strong interest in scab resistant cultivars.

CQR 10-T17 (PRI 3217-3). A complex hybrid of a New Jersey selection x an Illinois selection, CQR 10-T17 is cedar apple rust susceptible. It is also very susceptible to watercore, which may disappear in storage. Fruit size is 2 1/2 to 3 inches.

In Geneva the bright orange-red stripe/blush could be attractive, but fruits were

irregular in shape, slightly lopsided and ribbed. The very short stems resulted in many stem pulls. Fruits had a russeted stem cavity, tough skin, open calyx and were very greasy out of storage but were of good flavor and firmness. Only 40% of the fruits were free of storage disorders, with senescent breakdown, watercore and moldy core prevalent. It is not recommended for trial due to storage disorders.

CQR 12-T50 (PRI 3175-1). This cultivar was selected at Purdue (NJ 75 x DIR101T117), a New Jersey selection. Moderately heavy frog eye leaf spot infection was observed on foliage. It may develop an off flavor (aldehyde) in storage. It ripens September 15 in Indiana where it is russet free.

CQR 12-T50 was harvested 9/19/01 in Geneva. The fruits were yellow and oblate with 10 to 30% pinkish orange blush. Fruits have a very short stem and a small open core. The stem end russet is very dark and unappealing, and the body of the fruit sometimes has russet. No storage disorders were noted. Fruits were still juicy and slightly crisp following 32°F storage.

Enterprise (USPP #9,193). Enterprise is a scab-resistant cultivar with fruit that resembles Rome Beauty. Fruits are large, but the quality is poor. Skins are very thick and objectionable. It can have calcium-related surface corking and is not recommended for trial.

Galarina. Galarina, a hybrid of Gala x Florina developed at INRA in Angers, France, was released cooperatively with breeders from Quebec, Canada. When tested at Geneva, this selection had one occurrence of stem russet that was so pronounced and raised as to be objectionable. Information is available at http://www.pgris.com/partners/apple/galarina_descriptions/html.

Goldrush (USPP #9,932). Goldrush has an excellent intense flavor (very acid) and storage life, but its appearance is a limitation to commercialization. It does well in you-pick operations but is very susceptible to mildew.

Pristine (Coop 32) (USPP #9,881). Pristine is an early yellow apple that ripens with Lodi and has high acidity. It can be strongly biennial and has a poor shelf life.

Scarlet O'Hara (Coop 25) (USPP #12,323). Scarlet O'Hara is a scab-resistant release from the PRI (Purdue, Rutgers, Illinois) cooperative (Janick et al., 2000). It is late ripening and of good quality, good firmness and stores well. Scarlet O'Hara can be biennial. Several trees were lost to fire blight in 2001 at Geneva. Its susceptibilities to fire blight and moldy core are the two biggest concerns relative to commercialization.

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