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 and offers information on 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/


‘Ambrosia’ (‘Mennells Ambrosia’): (USPP#10,789). 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. ‘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 four months in 0°C air and six months in C.A. ‘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 percent. There are some indications that ‘Ambrosia’ is very site specific. ‘Ambrosia’ was harvested on 10/15/01 in Geneva. Fruits have 50 to 80 percent 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 17-18 pounds firmness just after storage. No storage disorders were noted other than one occurrence of brown core. ‘Ambrosia’ texture, firmness, storage life (except for some greasiness) and high pack-outs are all strengths, but the mild flavor may be a negative if it is considered to be 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’ good quality is no match for poor appearance due to russetting. Not recommended for trial.

‘Autumn Gold’ (‘Hein’): (USPP#9,907) 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 ground. ‘Autumn Gold’ matures about two 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 Goldens. 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 percent 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’ 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 some 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:

‘Braestar™’ (‘Braylee’): Limb mutation of ‘Braeburn’ discovered in Havelock North, New Zealand. Redder color and ripens 3 to 5 days earlier than standard ‘Braeburn’.


‘Eve™ Braeburn’: (USPP#11,604). Natural mutation of ‘Braeburn’ discovered in New Zealand with 90 to 100% red blush. Reported to have a slightly later maturity than standard ‘Braeburn’.

‘Kumeu Crimson Braeburn’: A new listing that is not yet in the patent database.

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

‘Mariri Red’: (USPP#11,604). A limb mutation of standard ‘Braeburn’ discovered in New Zealand. The dark red coloration is nearly 100 percent and it is a solid blush type.

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

‘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). A 1998 release from Summerland, British Columbia (Quamme et al., 1999). It is a hybrid of ‘Splendour’ x ‘Gala’ that was selected for its firmness, crispness and quality. Fruits are 80 to 90 percent 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 towards heavy cropping and small fruit size.

‘Corail’™ (formerly ‘Pinova’) (Pia 11, 24 ). (USPP#11, 601). 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; 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 towards soft scald development under their conditions.

‘Creston’: (USPP#10,739). Its 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. ‘Griever’) 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 one to two 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. Lentil 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 percent 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 pounds 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, Naga-fu 2, 6, and 12, Aki-fu #1, ‘Seiko-fu Red Fuji’, ‘Red Fuji T.A.C. 114’ (USPP#8,032) and ‘Yataka’ (USPP#7,001). Newer sports include:

‘Autumn Rose Fuji’: (USPPAF). A whole tree ‘Fuji’ mutation discovered in Oregon. Reported to have 90 to 100 percent red color without the muddiness typically associated with ‘Fuji’. Striping is similar to Nagafu 12.

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

‘Big Red Gala’ (USPP#9,645). Pinkish red color that extends over the entire fruit surface and overlain with slightly darker, pink-red stripes. ‘Myra Fuji’ is earlier coloring and earlier maturing.

‘September Wonder™ Fuji’ (Formerly ‘Jubilee Fuji™’ (‘Fiero’): (USPP#11,193). Discovered as a whole tree mutation of an early ‘Fuji’. 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’ Reported to color earlier and more fully.

‘Topexport® Fuji’ (‘Snyder’): (USPP#12,098). A sport of ‘BC#2 Fuji’ discovered by C&O Nursery. 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 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 scar skin. Darker sports may bear little resemblance to ‘Gala’ and should be avoided.

‘Autumn Gala’ (‘Harry Black’): (USPPAF). Discovered in Maryland, it is reported to ripen 5 to 6 weeks later than ‘Gala’ and is 18-23 pounds at harvest.

‘Big Red Gala’ (USPP#10,458). Discovered in Indiana as a limb sport of ‘Gala’. Distinct in its larger fruit size, attractive medium red blush, larger leaves and rounder fruit than standard ‘Gala’.

‘Brookfield Gala’ (‘Baigent’): (USPP#10,016). Discovered in New Zealand.Reported to have a bold red color earlier and more fully.


‘Desert Rose Fuji’ (USPPAF). A whole tree mutation of ‘Fuji’ discovered in Washington. Fruit color is 80 to 100 percent reddish/pink. Chosen for its excellent blush and coloration in shaded areas of the tree.

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

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

‘September Wonder™ Fuji’ (Formerly ‘Jubilee Fuji™’ (‘Fiero’): (USPP#11,193). Discovered as a whole tree mutation of an early ‘Fuji’. 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.

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

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‘Brookfield Gala’ (‘Baigent’): (USPP#10,016). Discovered in New Zealand. Reported to have a bold red stripe over a red background.

‘Buckee® Gala’ (‘Simmons’): (USPP#10,840). A sport of ‘Imperial Gala’ discovered in Ohio. Reported to have 100

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percent 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). 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) discovered in Washington. ‘Gale Gala’ is reported to be a one- or two-pick ‘Gala’. Fruit have 90 to 100 percent full red color with deep red striping.

‘Grand Galaxy™’ (‘Caitlin’): (USPPAF). 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 percent. Trees may bloom, and fruits may mature slightly earlier than ‘Royal Gala’.

‘Magnum® Gala’ (‘Stiekema 1’): (USPP #11,182). In comparison to Obragala, fruit is significantly larger, with a deeper, wider cavity. Stems are longer and thicker. There is intense red coloration on 90 to 100 percent 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). A whole tree mutation of ‘Royal Gala’ that is reported to have earlier coloring, an earlier harvest, and requires fewer picks.

‘Twin Bee Gala’: A sport of ‘Royal Gala’ that has early uniform color and pronounced stripes.

‘Ultima Gala’ (USPPAF). A limb mutation of ‘Imperial Gala’ discovered in Washington that has 95-100 percent red color with a strong stripe.

‘Ultrared Gala’ (‘Obragala’): (USPP #8,621). Solid navel red coloration over 90 to 100 percent of the fruit. Fruits of lower color intensity show hints of striping.

‘Gala Supreme’: Not a sport of ‘Gala’ as is commonly believed. Fruits are very oblate and can get very greasy. Not recommended for trial in New York.

‘Ginger Gold’: (USPP #7,063). Fruit have good quality for the early market, but price premiums have declined.


‘Golden Supreme’: A very attractive and aromatic ‘Golden Delicious’ type that 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). A chance seedling 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 percent burgundy red color with little or no striping. ‘Hampshire’ is reported to be very precocious and productive. It is not as sensitive to high temperatures as ‘McIntosh’.

Harvested on 10/22/01 in Geneva. It is 95 percent dull burgundy on green. 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 and 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 (Volume 34-October, 2001) to researcher, grower, and market perspectives on this cultivar.

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‘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) and ‘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). A sport of ‘Jonagold’ has better color intensity over 50 percent 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). A limb sport mutation of ‘Jonagold’ 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). Reported to differ from standard ‘Jonagored’ by better coloring and ripening seven 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 (four to five weeks earlier than standard ‘Jonagold’). 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 percent red blush at harvest. ‘Linda Mac’ 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 Mac’ 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 percent 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, 90 to 95 percent 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.

‘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 cavity and shoulder. Fruits may have 5 to 10 percent pink blush. ‘NJ 90’ 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 NE183 due to susceptibility to russetting. 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 fruit ripens about one week before ‘Gala’ and have a short storage life. ‘Pacific Beauty’ is only available through a licensing agreement.

‘Pacific Rose’: A ‘Gala’ x ‘Splendour’ hybrid developed in New Zealand that 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 percent of the f.o.b. 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. A medium sized attractive pink apple with good flavor and texture. Very late maturing ripening, 1 to 2 weeks after ‘Granny Smith’, so it will not mature in New York and is not recommended.


‘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. Recommended as an early apple.

‘Silken’ (BC 85-4-33): (USPP#10,740). A 1999 release from Summerland, BC, ‘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., 1998b). ‘Silken’ is said to have a storage life of about 10 weeks and is best suited for direct sales. PICO lists as one of the most promising early apples to test.

‘Shizuka’: 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.


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

‘Zestar!’(originally called ‘Zesta’, cv. Minnesota 1824): (USPP#11,367). Introduced by the University of Minnesota in 1998, ‘Zestar’ 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. Reported to be hardy to -25°F. Trees are above average in vigor, but are said offering from New Zealand is a hybrid of ‘Gala’ x ‘Braeburn’. This cultivar is not available for testing in the US at present and will probably be a franchise cultivar.
to settle down. Trees are susceptible to scab. Some fire blight has been observed. Trees bloom very early, with ‘Idared’, so an early pollinator is needed.

Blisters in the fruit was noted in Geneva, where ‘Zestar!’ was harvested on 8/31/01. Fruits are oblate, slightly lopsided, with 50-70 percent 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. For trial by those who have a market for an early variety. Fruits had some bird damage and some pre-harvest drop from this 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 Co-op and PRI selections was obtained from http://www.purdue.edu/newcrops/apples/.

**‘Sundancer’ (Co-op 29):** ‘Golden Delicious’ x 1050 NJ 1. Primarily a yellow/green apple with 20 to 60 percent 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 get slightly greasy in storage, have an open calyx and a short stem. 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 percent of fruits were free of storage disorders, with senescent breakdown, watercore and moldy core prevalent. Not recommended for trial due to storage disorders.

**CQR 10-T17 (PRI 3217-3):** A complex hybrid of a New Jersey selection x an Illinois selection. CQR10T17 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”.

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. Open calyx. 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 percent of fruits were free of storage disorders, with senescent breakdown, watercore and moldy core prevalent. Not recommended for trial due to storage disorders.

**CQR 12-T50 (PRI 3175-1):** Selected at Purdue. NJ 75 x DIR101T117 (a New Jersey selection). Moderately heavy frog eye leaf spot infection on foliage. May develop off flavor (aldehyde) in storage. Ripens September 15 in Indiana, where it is russet free.

CQR 12-50 was harvested 9/19/01 in Geneva. The fruits are yellow and oblate with 10 to 30 percent 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. Fruit were still juicy and slightly crisp following 32°F storage.

**‘Enterprise’ (USPP#9,193).** A scab resistant cultivar with fruit that resembles ‘Rome Beauty’. Fruits are large, but the quality is poor. Skins are very thick and objectionable. Can have calcium related surface corking. Not recommended for trial.

**‘Galarina’:** A hybrid of ‘Gala’ x ‘Florina’ developed at INRA in Angers, France, and 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). Excellent intense flavor (very acid) and storage life, but appearance is a limitation to commercialization. Does well in you-pick operations. Very susceptible to mildew.

**‘Pristine’ (Co-op 32):** (USPP#9,881). 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’ (Co-op 25).** (USPP#12,323). A scab resistant release from the PRI (Purdue, Rutgers, Illinois) cooperative (Janick et al., 2000). 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 susceptibility to fire blight and to moldy core are the two biggest concerns relative to commercialization.

### Literature Cited


Susan Brown is a professor in the Department of Horticultural Sciences in Geneva who heads the apple breeding program. Kevin Maloney assists her as a Research Support Specialist working in the Apple Breeding Program.