**Update on New Apple Varieties, Managed Varieties and Clubs**

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This is the third in a series of updates on club varieties. Readers are encouraged to review the earlier series for additional information (Brown and Maloney 2009, 2013). In this article, we are stressing some of the managed or new varieties being tested in New York, or those gaining attention on an international scale. Those gaining attention on an international scale (such as the scab-resistant apples ‘Natyra’ and ‘Bonita’). The trademarked or marketing names of the apples are used, and the varietal names follow, as the trademarked names are best known by consumers and growers. If you are interested in testing some of these selections, we encourage you to read the plant patent, which is available and may be downloaded from the US plant patent database at www.uspto.gov. Plant patents provide details that are not always featured in variety release notices. Where possible, the US plant patent number is included in the write-up. Anyone with comments on varieties they are testing, that differ from these reports, are encouraged to contact Susan at skb3@cornell.edu.

There are two commercialization entities detailed below, which provide information on new offerings on their website. **Midwestern Apple Improvement Association (MAIA):** This group is best known for their ‘EverCrisp’ apple, but recently released more varieties. Contracts require a one-time payment, a $1 per tree royalty and trademark fees of 20 cents per tree in years four through 10; and 30 cents per tree in years 11 through 20. The website offers candid discussions on the strengths and weakness of the selections and varieties, and testers are encouraged to stay informed.

It is important to stress that brief descriptions of each variety may be based on MAIA test plot experiences over the last five years, so any discussions about field resistances should be interpreted with caution. Their Ortet newsletters are an excellent source of information. [http://www.midwestapple.com/midwest-apple-improvement-association-about.htm](http://www.midwestapple.com/midwest-apple-improvement-association-about.htm)

**Arctic Apples:** The first transgenic apples offered in the US, these apples have silencing of polyphenol oxidase (PPO), to reduce flesh browning after cutting. Three apples are available: ‘Arctic Granny’, ‘Arctic Golden’, ‘Arctic Fuji’, and an ‘Arctic Gala’ is in development. Further information is available at [www.arcticapples.com/arctic-apples-r/arctic-apples-varieties/](http://www.arcticapples.com/arctic-apples-r/arctic-apples-varieties/). A New York Fruit Quarterly article reviewed this technology (Xu 2013).

**Apples in the News**

- **‘Antietam Blush’**: US plant patent 28,595 was granted in 2017. University of Maryland Professor Chris Walsh and then graduate student Julia Harshman were the creators. This apple is a hybrid of ‘Cripps Pink’ x an unknown advanced selection of ‘McIntosh Wijcik’ (columnar habit) x ‘Gala’. It ripens about the first week of October and seems to tolerate the heat. The narrow canopy may reduce pruning needs.

- **‘Autumn Glory’** (‘Huaguan’): A cross of ‘Fuji’ x ‘Golden Delicious’ made in 1976. ‘Autumn Glory’ is bi-color, with a striped red blush over yellow. The fruits are large and slightly ribbed. The flavor is sweet, with some reports of cinnamon and black pepper notes, while others do not perceive those flavors. ‘Autumn Glory’ is exclusive to Domex Superfresh Growers® in Washington State. [https://www.superfreshgrowers.com/our-fruit/apples/autumn-glory](https://www.superfreshgrowers.com/our-fruit/apples/autumn-glory). Unfortunately, two samples purchased in Geneva NY on April 17 had internal disorders, yet this was traced back by the company to very young trees and a late harvest. Their customer service was excellent.

- **‘Baker’s Delight’** (MAIA8): A ‘Goldrush’ x ‘Sweet 16’ cross, with a different flavor profile, with some suggesting a flavor similar to cherry or strawberry milkshakes. This apple tends to set a heavy crop, which may negatively impact its unique flavor profile. Fruits are medium in size and reported to have a tender texture. Fruits are said to hang well on the tree and be good for baking, due to sufficient acidity (Herrick 2017). MAIA8 ripens in early to mid-September — about a week after ‘Honeycrisp’. Trees are available from Gurney’s Seed and Nursery for the home market and commercially from Wafler Nursery (NY) and Early Morning Star Nursery (WA).

- **‘Bonita’**: This scab-resistant variety from the Czech Republic is a hybrid of ‘Topaz‘ x ‘Cripps Pink’ (‘Pink Lady’); it is being planted in Italy and represents 10% of new plantings. Bonita has 13°Brix and 0.7% titratable acidity and it ripens close to ‘Golden Delicious’.

- **‘Bravo’** (ANABP-1): The marketing tag-line is “like no other”. ‘Bravo’ is a cross of ‘Royal Gala’ x ‘Cripps Red’ (aka ‘Sundowner’) developed in Manjimup, Australia. ‘There are 60 producers in Australia and testing is beginning in Singapore. ‘Bravo’ is an unusual, deep burgundy to black in color and has reduced acidity flesh browning after cutting. It is sweet but with an acid balance. ‘Bravo’ is also late ripening, maturing about 2 weeks before ‘Cripps Pink’. ‘Bravo’ has a narrow harvest window. The thicker skin is suggested to reduce bruising. [https://www.fruitwest.com.au/bravo.htm](https://www.fruitwest.com.au/bravo.htm)

- **‘Cosmic Crisp’** (WA 38): USPP# 24,210 in 2014. This hybrid of ‘Honeycrisp’ x ‘Enterprise’ from Washington State University is set to make history in terms of rapid commercialization of an
apple variety. 2019 will be the first commercial debut in supermarkets. The production goal of 10 million boxes within the first 5 years requires a massive push of new plantings. WA 38 has excellent storage and quality attributes. A team of researchers are aiding growers with recommendations on best practices for ‘Cosmic Crisp’. All of this is detailed on the website.  

https://

www.cosmiccrisp.com/the-facts/ Stay tuned!

‘Crimson Snow’: (AU): (MC28*) “Great Feeling” is the marketing tag-line. This chance seedling found in Australia will be managed by Kiku. Reported to have great coloration, white flesh and slow fresh browning after cutting. ‘Crimson Snow’ needs special production techniques to ensure annual bearing.  

http://

www.kiku-partner.com/en/crimson-snow-mc38s/

‘Crunch-a-Bunch’ (MAIA7): USPP 29,126, granted in 2018. This yellow apple is an open-pollinated ‘Honeycrisp’ seedling, with ‘Goldrush’ suggested as a potential parent. Trees are prone to oversetting and can become biennial, but the quality is said to be retained with a heavy crop. That statement needs to be confirmed. This apple’s flavor is said to have hints of pineapple and tropical fruits, and the fruits have a light texture. The patent for MAIA7 indicated that it is susceptible to powdery mildew and to soft rot (Penicillium) in storage.

‘Dazzle’ (PremA129): The US plant patent application was filed in 2016. The pedigree of PremA129 is ‘NZ Queen’/’Scired’ (which is a cross of ‘Gala’ x ‘Splendour’) x ‘Sweetie’ (a hybrid of ‘Royal Gala’ x ‘Braeburn’). The cross was made in 1997. FruitCraft in New Zealand, formed by three of NZ’s largest growers (Mr. Apple, Bostock and Freshmax) obtained the worldwide rights to premA129 from Prevar, Ltd. Fruitcraft is forecasting that 1 million cartons will be exported from NZ by 2028. ‘Dazzle’ is a large red and very sweet apple (Figure 1), with about 14.5°Brix and low acidity (0.26–0.32). More information may be found at www.dazzleapple.com.

Figure 1. ‘Dazzle’ apple (PreA129) [photo: FruitCraft, NZ]

‘Envy’ (‘Scilate’): USPP in 2008. Tag line: “Bite and believe” and also “When you are this good they call you Envy.” Envy has won the US Apple playoffs each year, yet many ask where can they find ‘Envy’ in the US. In searching the literature, ‘Scilate’ is not the easiest apple to grow, with reports of susceptibility to Neuroectria, with infected trees sometimes symptomless (Amponsah et al. 2015). Reports submitted to Enza by researchers also mention russet and shrivel (Breen et al. 2008), bitter pit, and internal browning. Bulls eye rot infections are not frequent, but given it is a quarantine pathogen, it was studied proactively (Everett et al. 2017). Van Hooijdon et al. (2014) suggested specific pruning techniques to maximize fruit quality.  


‘EverCrisp’ (MAIA1): USPP 24,579, granted in July 2014. This hybrid of ‘Honeycrisp’ x ‘Fuji’, resembles ‘Fuji’ and the quality is a mix of the parents, with excellent storage life. Comments from the patent and website include: russet extending out over stem cavity, with tendency to crack, modest susceptibility to watercore, susceptible to scab, powdery mildew, soft rot (Penicillium). Fire blight was reported in Massachussetts with MAIA1 on B9. Fruit are late ripening and tree vigor is low to medium. Calyx cracking (about 30%) was reported on 3rd-leaf trees in Maryland. There is excellent information on issues to watch for, as well as suggestions for mitigation, on the website. MAIA is partnering with the International Pome Fruit Alliance for global marketing rights.

‘Gala’ sports


‘Wildfire Gala’ (PPAF): This sport is said to ripen 3 weeks earlier than standard ‘Gala’. It is available from Helios Nursery.

‘First Kiss’ (MN 55): The name for MN 55 when grown in Minnesota. More details on this apple are covered in the ‘Rave’ section, the name used outside of Minnesota.

‘Franklin’ (‘Mayo’): USPP 28,791. This partially russeted apple was named for its discovery in Franklin, VT. It is suggested for use by the sweet and hard cider industry, yet it is unclear how extensively it has been tested for horticultural attributes and cider production, so those interested in ‘Franklin’ might want to start with a small test planting.

‘Honeycrisp’ sports

‘Cameron Select Honeycrisp’: From Cameron Nursery in Washington State, this sport has redder color.

‘Firestorm Honeycrisp’: This sport is reported to color well, even in heat. Tree loss has been reported on Geneva 935 rootstock (Courtney 2017).

Honeycrisp (MINB42): USPP#26,644. This sport originated as a limb mutation in the University of Minnesota’s research block. It is said to allow excellent red coloration in regions not prone to good coloring of ‘Honeycrisp’, with the patent indicating southern NY and Southern Pennslyvania as two such regions.

‘New Zealand Honeycrisp’: For retailers wanting ‘Honeycrisp’ at the end of the domestic crop, it is said to be superior to other sources (Wheat 2016).

‘Premier Honeycrisp’ (DAS 10): This sport received its US plant patent #24,833 in 2011. This sport ripens three weeks before ‘Honeycrisp’. Available from Adams County Nursery.

‘Royal Red Honeycrisp’ (IJ-1000): This sport was discovered in Washington State and was granted USPP# 22,244 in November 2011. IJ-1000 is said to color earlier and have higher sugar than standard ‘Honeycrisp’. ‘Royal Red Honeycrisp’ is offered exclusively by Willow Drive Nursery, and sales started in
A hybrid of ‘Honeycrisp’ x ‘Braeburn’. Oneonta Starr USPP 18,730. A scab-resistant apple USPP 26,412 (Feb, 2016). ‘Honeycrisp’ x ‘Goldrush’ have been used as pollinators in some plantings. ‘Evereste’ needs good pollination to prevent misshapen fruits. ‘Modi’ is also said to be scald-susceptible. ‘Modi’ needs good pollination to prevent misshapen fruits. ‘Evereste’ and ‘Goldrush’ have been used as pollinators in some plantings. ‘Modi’ is being grown in Australia and has been introduced to the United States.

‘Natyra’ (SQ159, also branded as ‘MagicStar’” in Belgium): The name ‘Natyra’ is only used for SQ159 apples grown in organic production. This scab-resistant apple from Plant Research International in Wageningen, the Netherlands, is a hybrid of ‘Elise’ x ‘Goldrush’ and has a slightly yellow/creamy flesh color. A bulk display at a local store in Geneva, NY in April had fruits with some lenicel rots and skin shrivel, but this might have been an isolated incidence. Two-pound bags of organic ‘Lady Alice’ purchased at Geneva on April 20 had clipped stems on fruits that were slightly greasy, but the quality and flavor (very sweet, balanced with acid) were good, especially for late April. ‘Lady Alice’: A chance seedling discovered in Washington State in 1978, this apple stores well and is marketed in March–May due to its quality after storage. Fruits are bicolor, attractive and have a slightly yellowish/creamy flesh color. A bulk display at a local store in Geneva, NY in April had fruits with some lenicel rots and skin shrivel, but this might have been an isolated incidence. Two-pound bags of organic ‘Lady Alice’ purchased at Geneva on April 20 had clipped stems on fruits that were slightly greasy, but the quality and flavor (very sweet, balanced with acid) were good, especially for late April. www.rainierfruit.com/ladyalice/

‘Ludacrisp’ (MAIA-L): This apple with a name that is either loved or hated, is from the Midwestern apple Improvement group, MAIA. ‘Ludacrisp’ is an open-pollinated ‘Honeycrisp’ offspring that ripens a week before ‘EverCrisp’. The flavor is described as similar to “Juicy Fruit” gum. Further information is available at the MAIA website and in their newsletters.

‘Modi’ (Civg198): USPP 18,730. A scab-resistant apple named as a hybrid of ‘Liberty’ x ‘Gala’ in the south Tyrol and named after the artist. ‘Modi’ is said to have perfect balance of sugar and acid. Fruits are red on a yellow background. Research from an organic apple planting at Cornell, found that ‘Modi’ is resistant to cedar apple rust but prone to russet (Agnello et al. 2015, 2017). ‘Modi’ is also said to be scald-susceptible. ‘Modi’ needs good pollination to prevent misshapen fruits. ‘Evereste’ and ‘Goldrush’ have been used as pollinators in some plantings. ‘Modi’ is being grown in Australia and has been introduced to the United States.

‘Natyra’ (SQ159, also branded as ‘MagicStar’” in Belgium): The name ‘Natyra’ is only used for SQ159 apples grown in organic production. This scab-resistant apple from Plant Research International in Wageningen, the Netherlands, is a hybrid of ‘Elise’ x a scab-resistant selection. SQ159 is said to be difficult to grow, due to low vigor. Sooty blotch is an issue, as are concerns about its susceptibility to canker (Poldervaart 2017).

‘Pazazz’ (DS-41): USPP# 24,698P3 granted in 2014. This apple can be grown by anyone obtaining a license. This apple is from ‘Honeycrisp’ open-pollinated, and was developed by Doug Shefelbine in Wisconsin. ‘Pazazz’ is being grown in Minnesota, Wisconsin, New York, Washington State and in Nova Scotia, Canada. Fruit size is large and fruits have a pale striped overcolor. There have been some reports of fire blight susceptibility and scald. Tree losses have been reported for trees of ‘Pazazz’ on Geneva 935 rootstocks (Courtney 2017). This tree loss is being investigated by researchers at Cornell University and Washington State. More information on the apple and growers is at www.pazazzapple.com

‘Rave’ (MN 55): USPP 26,412 (Feb, 2016). ‘Honeycrisp’ x AA44, an unnamed breeding selection from Arkansas. MN 55 matures about a month before ‘Honeycrisp’, which in Washington State will mean the end of July. The harvest time in Minnesota will be in August. MN55, marketed as ‘Rave’, is exclusive to Stemilt, with the assumption that it will be grown primarily in Stemilt-owned orchards (Mertz 2017). Minnesota growers also can grow MN 55, but it must be marketed under the name ‘First Kiss’. The patent suggests that pre-harvest drop may be an issue with MN 55.

‘Red Romance’” (Stark™): This hybrid of ‘Honeycrisp’ x ‘Buckeye Gala’ was bred in Illinois by the Elliots (2002). This apple ripens in mid-October and is described as reminiscent of ‘Honeycrisp’. Trees were first available in 2018. The extent of testing of this variety prior to release is not clear.

Red fleshed apples: Van Nocker and Gotschalk (2017) provide an excellent review of some of the red fleshed apples.

‘Riverbelle™’*: A seedling of ‘Honeycrisp’ open-pollinated, developed by Doug Shefelbine in Wisconsin. ‘Riverbelle™’ is well suited to being grown in the upper midwest and could be regionally significant, according to its commercial developer, the Apple Varietal Development LLC. (Lehnert 2013)

‘Rockit’ (PremA96): USPP # 24,946P3, granted in 2014. “Nature’s little treat”. A ‘Gala’ x ‘Splendour’ hybrid out of NZ that was launched in 2010. Innovative packaging, similar to a tennis ball package, with either 3 or 6 washed apples, each about 1.5 times the size of a golf ball. ‘Rockit’ is also available as juice and puree. Chelan Fresh and Borton Fruit are currently the growers in the US. Seventy-seven containers were shipped last year. Consumers tend to react both positively and negatively to the plastic tube packaging, with some finding them difficult to open and others feeling they are wasteful, despite being recyclable. ‘Rockit’ is now offering 3 pounds of apples in a plastic tub, which seems to have good market acceptance. Some studies on consumer reaction to small apples, summarized in the European Fruit Magazine, suggests that the market for small fruits may be a niche market (with only 9% of consumers preferring small apples), but time (and sales) will tell. www.rockitapple.com

‘Rosalee’ (MAIA 11): A ‘Honeycrisp’ x ‘Fuji’ hybrid that matures in late September. Harvested about one week after ‘Golden Delicious’. Long harvest window and storage life. Tends towards biennial bearing, so it should be thinned similar to ‘Golden Delicious’. Fire blight susceptibility of ‘Rosalee’ is worse than its parents. The presence of micro-cracks had MAIA members suggesting there might be benefits of using a Provide spray regime, to prevent/minimize summer and storage rots subsequent...
to cracking. This information was obtained from the Autumn 2016 edition of The Ortet newsletter.

‘Ruby Darling’ (Stark): ‘Ruby Darling’ is a ‘Honeycrisp’ x ‘Buckeye Gala’ hybrid with 3 to 4", cherry red, aromatic apples. Fruits are described as having a sweet, refreshing finish. This apple also is said to not readily brown and appears to grow well as far south as Zone 7 (Mertz 2017). The extent of testing prior to the release of this apple is not known.

‘RubyFrost’ (NY 2): Developed by Cornell University, this variety is exclusive to New York growers who joined Crunchtime Apple Growers (http://www.crunchtimeapplegrowers.com/). This group was previously named New York Apple Growers (NYAG). ‘RubyFrost’ is gaining a loyal following. In 2017, drought and very high temperatures for a month prior to harvest resulted in some sunburn and water core (Sazo and Chang 2017). Dr. Chris Watkins, post-harvest at Cornell, is researching the best storage regime for NY 2. The website (http://rubyfrostapple.com/) shows where ‘RubyFrost’ apples are being grown and sold. New marketing, including brochures featuring RubyFrost — “Get caught red-handed” — are found on the web site (Figure 2).

‘Scarlet Crush’ (Stark): This new ‘Honeycrisp’ x ‘Cripps Pink’ hybrid is said to ripen in late September and to be sweet with citrus notes, plus good crispness and juiciness. The red fruit is reported to be uniform, conical and attractive and suitable for cooking and fresh-eating. The tree is reported to be more vigorous than ‘Honeycrisp’ with an upright, spreading growth habit. This apple was developed by private breeders from Winchester, Illinois in 2000. The extent of testing prior to commercialization is not known.

‘Smitten’ (PremA17): USPP 22,356, granted in 2011. The marketing tag line is “Once bitten, forever smitten” and it is also described as “wild apple”. This Prevar variety from New Zealand has a pedigree of a ‘Falstaff’ x ‘Fiesta’ sibling and ‘Braeburn’ x ‘Shinano Gold’ in Japan. Released in 1999. Fruits may get stem end cracks, similar to its ‘Senshu’ parent. Trees are moderately end cracks, similar to its ‘Senshu’ parent. Trees are moderately resistant to Alternaria blotch, but susceptible to scab (Abe 2010). In 2015, 10 metric tons of ‘Yello’ were sold in Europe as a test case. ‘Yello’ will be grown in Italy, where it is purposely being differentiated from ‘Golden Delicious’, since it is yellow, not golden. Harvest is in the middle of October. The color is pale green becoming yellow and has excellent storage for 4 months in cold storage. ‘Yello’ has a good balanced taste. http://www.yello-apple.com/en/yello.

‘SnapDragon’ (NY 1): Bred at Cornell University, and exclusive to members of Crunchtime, previously New York Apple Growers (NYAG), NY 1 continues to generate strong demand and consumer excitement. The http://snapdragonapple.com/ website provides information on the variety, its growers and sales outlets and new promotional material featuring “The Snap is Back”.

‘SnowSweet’ (‘Wildung’ MN): USPP#19,946. “Savor the sweet” is the marketing tag-line. This hybrid of ‘Connell Red’ x ‘Sharon’ is hardy (Zone 4a). Its white flesh has reduced flesh browning after cutting. ‘Wildung’ has an interesting licensing plan, with separate nursery and fruit growing licenses. License forms and the terms of the agreement for ‘Wildung’ are available at http://license.umn.edu/technologies/z03140_snowsweet-apple-cold-hardy-with-sweet-tart-taste.

‘Summerset’ (MAIA 12): An apple ripening in late August/ early September. Growers are suggested to consider whether this fits within their marketing plans. Information is from the MAIA newsletter, The Ortet 2017.

‘Sunrise Magic’ (WA 2): Available only to Washington State growers, this ‘Splendor’ x ‘Gala’ hybrid is described as having a refreshing, light flavor and crisp texture. http://www.sunrise-apple.com/

‘SweetCheeks’: This apple is exclusive to Hess brothers in Pennsylvania. This hybrid of ‘Honeycrisp’ x ‘Cripps Pink’ is crisp, juicy, and sweet, as its name suggests (Figure 3).

‘Sweetie’ (PremA280): Prem.A280 is distributed by First Fruits Marketing and grown by Broetjes Orchard. This bicolor hybrid of ‘Royal Gala’ x ‘Braeburn’ is a very sweet apple, with very little acidity. Some on-line reviews commented on a lack of apple flavor, while others were enthusiastic about the quality.

‘Sweet Zinger’ (MAIA-Z): A hybrid of ‘Goldrush’ x ‘Sweet Sixteen’. Fruits are sweet and tart. The apples are red and at times burnt-orange in color on a yellow background. MAIA-Z has a short harvest and storage window. (Herrick 2017a).

‘Yello’: ‘Yello’, the color of taste”. A yellow-fruited cultivar, as its name suggests, yet not prone to surface russetting. This 1983 cross of ‘Golden Delicious’ x ‘Senshu’ was made at the Nagano Experiment Station in Japan, and the apple is called ‘Shinano Gold’ in Japan. Released in 1999. Fruits may get stem end cracks, similar to its ‘Senshu’ parent. Trees are moderately resistant to Alternaria blotch and mildew, but susceptible to scab (Abe 2010). In 2015, 10 metric tons of ‘Yello’ were sold in Europe as a test case. ‘Yello’ will be grown in Italy, where it is purposely being differentiated from ‘Golden Delicious’, since it is yellow, not golden. Harvest is in the middle of October. The color is pale green becoming yellow and has excellent storage for 4 months in cold storage. ‘Yello’ has a good balanced taste.


References


Susan Brown is the Herman M. Cohn Professor of Agriculture and Life Sciences. She leads the apple-breeding program at Cornell University. Kevin Maloney is a Research Support Specialist who works with Dr. Brown.
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20% savings when you hedge sides, top, and bottom. It takes the guess work out for those factors. You set the box, then they do big cuts and uprights. Also, by hedging you can fill the space better and have a consistent canopy.
- Management, Green Tree Orchards, Michigan

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