

Register of New Fruit and Nut Cultivars List 48

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Crop Listings². Almond, Apple, Apricot, Apricot rootstock, Banana/Plantain, Blackberry, Blueberry, Cacao, Cactus Pear, Cactus Pear—Xoconostle, Cherry rootstock, Cherry—Sweet, Citrus, Elderberry, Nectarine, Peach, Pineapple, Pitahaya, Plum, Plum rootstock, Pomegranate, Pomegranate rootstock, Raspberry, Strawberry, Tejocote

ALMOND

Thomas Gradziel, Dept. of Plant Sciences, University of California, Davis, CA

Folsom. Self-incompatible, soft-shelled nut with a medium to large kernel. **Origin:** Fresno, CA by A. Folsom. Chance seedling of unknown parentage; introd. 2006; USPP 19,555; 9 Dec. 2008. **Nut:** ovate, tapering to a blunt point at apex with moderate wing; harvest 3 to 4 weeks after Nonpareil; kernel average length, 2.1 cm; width, 1.2 cm; medium thick; kernel to nut ratio ~63%; low number of doubles. **Tree:** moderately vigorous, spreading; blooms with to just after Nonpareil; petals white, somewhat undulating.

Kester. Self-incompatible pollinizer for the late Nonpareil almond bloom, with improved frost tolerance. **Origin:** University of California, Davis, CA by D. Kester, M. Viveros and T. Gradziel. Tardy-Nonpareil × Arbuckle. Tested as 2-19E; introd. 2015; USPP applied for. **Nut:** medium to large, medium light brown; elongated; width/thickness medium, similar to Nonpareil; shell paper-type, easily cracked; pits few, large, deep, and round; base ventrally oblique; scar medium, round to ovate; apex blunt, falcate; wing broad and thin, tapered toward base; kernel to nut ratio ~66%. **Tree:** upright to spreading; vigor moderate; ~80% Nonpareil size when mature; produces on spurs and terminal shoots; may tend to alternate-bear after years of very heavy crop; blooms ~4 d after Nonpareil; petals medium size, white with light pink developing at

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the petal claw; resistance to insects, alternaria leaf spot, and scab comparable to Nonpareil; susceptibility to noninfectious bud failure low; moderately susceptible to hull rot (*Rhizopus stolonifer*, *Monilinia fructicola*).

APPLE

James J. Luby and David S. Bedford, Dept. of Horticultural Science, University of Minnesota, St. Paul, MN

ASFARI. Early season, yellow clean skin, with aromatic, sweet flavor. **Origin:** Better3Fruit, Rillaar, Belgium, by I. De Wit, H. Eyssen, J. Keulemans, J. Nicolai, E. Pauwels and P. Van Laer. Elstar × Delcorfi; crossed 1997; USPP 25,007; 28 Aug. 2014. **Fruit:** globose with weak crowning at calyx end; skin yellow, sometimes with a small amount of pink blush; soluble solids moderate, 12.1 °Brix; acidity high, 7.9 g/l malic acid, at harvest; moderately firm, crisp and juicy, with strong aroma; sensitive to bruising; stores for 3 months in controlled atmosphere. **Tree:** vigor low, with upright to spreading habit, annual bearing on long shoots and spurs with good productivity; low susceptibility to powdery mildew (*Podosphaera leucotricha*).

B. Thome Gala. Whole tree mutation of Simmons Gala distinguished by prominent wide-striped red fruit and heavy pink coloration on petals. **Origin:** Comstock Park, MI, by B.J. Thome. Discovered 2003; USPP 24,639; 15 July 2014.

CN B110. Late season similar to Honeycrisp but with more red overcolor, firmer flesh, higher soluble solids and lower acidity. **Origin:** Worthington, MN by C. Nystrom. Honeycrisp O.P.; planted 1994; selected 2004; USPP 24,419; 6 May 2014. **Fruit:** flat and round, occasionally asymmetrical; 66 mm height × 80 mm diameter; striped red over yellow-green ground color; flesh firm, crisp, melting, juicy, sweet and subacid; stores up to 4 months in ambient atmosphere refrigeration; susceptibility to bitter pit similar to Honeycrisp. **Tree:** vigor medium; upright-spreading; productivity high.

DAS-10. Whole tree mutation of Honeycrisp distinguished by fruits that ripen 21 d earlier. **Origin:** Biglerville, PA by D.A. Slaybaugh. USPP 24,833; 2 Sept. 2014.

Delcored. Late season, large, bright red-purple fruit, very firm, juicy and sweet. **Origin:** Malicorne, France by A. Delbard of Societe Nouvelle Pepinieres et Roseraies Georges Delbard. Co-op 30 × Delblush; crossed 1994; selected 2003; USPP 25,222; 13 Jan 2015. **Fruit:** cylindrical shape; 74 mm height × 84 mm diameter; 90% red-purple over yellow ground color; flavor fruity, refreshing; very juicy; soluble solids moderately high, 14 °Brix; ripens 2 weeks after Golden Delicious. **Tree:** medium-to-large; semi-upright to spreading; resistant to apple scab (*Venturia inaequalis*) presumably due to *Vf* (*Rvi6*); moderately susceptible to powdery mildew; moderate incidence of bitter pit.

DS-41. Fruit similar to Honeycrisp but larger, more stripy, higher in acidity, later ripening. **Origin:** Holman, WI by D. Shefelbine. Honeycrisp O.P.; planted 1991; selected 2002; USPP 24,698; 29 July 2014. **Fruit:** irregularly round-conical; 75 mm height × 85 mm diameter; 80-95% red stripe over yellow-green ground color; flesh moderately firm, crisp, melting and juicy; similar soluble solids and greater acidity than Honeycrisp; stores up to 5 months in ambient atmosphere. **Tree:** vigor moderate; upright to upright-spreading; spur development moderately heavy; precocious; productivity moderately high.

Foxtrot. Whole tree mutation of Tenroy Gala distinguished by having fruits that are large, more intensely red colored and earlier ripening than other forms of Gala. **Origin:** Quincy, WA by R. Wyles. Discovered 2004; USPP 24,664; 22 July 2014.

Gaia. Similar to Gala but larger fruit more intensely flavored and less subject to cracking, with resistance to apple scab. **Origin:** Consorzio Italiano Vivaisti, Comacchio, Italy by M. Leis, A. Martinelli, F. Tagliani, D. Azzolini, P. Castagnoli, and A. Castagnoli. Gala × A3-7; selected 2004; USPP 24,550; 17 June 2014. **Fruit:** rounded and slightly flattened; 66 mm height × 83 mm diameter; skin smooth, with little bloom or greasiness; solid red blush with weak stripes over yellow-green ground color; firm, crisp, juicy; flavor sweet, intense; stores up to 6 months in controlled atmosphere. **Tree:** vigor medium; spreading; bearing on long shoots and spurs on 2-3-year-old shoots; precocious and highly productive; resistant to apple scab.

Gala Perathoner. Limb mutation of Mitchgla Gala distinguished by having fruits with a unique coloring patterns of both light and dark stripes overlapping and covering 95-100% of the skin. **Origin:** Ora, Italy by S. Perathoner. USPP 25,407; 7 Apr. 2015.

Hwangok. Yellow-green, low-acid fruit. **Origin:** The Rural Development Administration, Republic of Korea, by M.J. Kim, S.I. Kwon, J.C. Nam, P.N. Paek. Kogetsu × Yataka; crossed 2009; USPP 25,068; 18 Nov. 2014. **Fruit:** globose; medium-sized; 77 mm height × 70 mm diameter; yellow-green with variable red patches covering about 10% of surface area; soluble solids high, 15 °Brix; acidity low, 4.8 g/l malic acid. **Tree:** upright; semi-spreading; resistant to bitter rot (*Glomerella cingulata*) and leaf spot (*Botryosphaeria obtusa*).

Imara. Late season, bicolor fruit with aromatic, sweet flavor and multiple gene scab and powdery mildew resistance. **Origin:** Better3Fruit, Rillaar, Belgium by I. De Wit, H. Eyssen, J. Keulemans, J. Nicolai, E. Pauwels and P. Van Laer. Liberty × Granny; crossed 1990; USPP 25,006; 28 Oct. 2014. **Fruit:** cylindrical, globose with crowning at calyx end; weak striping over 50-75% blush; soluble solids moderate to high, 13.9 °Brix; acidity moderate, 6.5 g/l malic acid at harvest; moderately firm and juicy, with hint of citrus aroma; stores for 5 months in controlled atmosphere with at least 1 week shelf life. **Tree:** vigor high; habit drooping; annual bearing on spurs only, with good productivity; resistant to apple scab from *Vf* (*Rvi6*) and at least one additional gene; low susceptibility to powdery mildew and fire blight (*Erwinia amylovora*).

Ladina. Midseason, attractive, sweet and juicy, resistant to apple scab, with low susceptibility to powdery mildew and fire blight.

Origin: Wadenswil, Switzerland at Agroscope Changins-Wadenswil, by M. Kellerhals. Topaz × Fuji; crossed 1999; selected 2004; USPP 25,671; 7 July 2015. **Fruit:** obloid with moderate ribbing and crowning at calyx end; 76 mm diameter; red blush, striped with weak stripes over light yellow ground color, no bloom or greasiness; flesh firm; texture fine; moderately sweet, 12.5 °Brix, and very juicy. **Tree:** vigor medium; spreading; resistant to scab (*Vf*/*Rvi6*); low susceptibility to fire blight and powdery mildew.

Lewis. Limb mutation of Honeycrisp distinguished by more complete blush coloration and lower susceptibility to bitter pit. **Origin:** Rock Island, WA, by B. Lewis. Discovered 2005; USPP 25,406; 7 Apr. 2015.

Ligolina. Midseason, winter hardy, good eating quality apple, resistant to apple scab and powdery mildew. **Origin:** Skierniewice, Poland by S. Zagaja, A. Przybyla, and J. Krzewiński. Linda × Golden Delicious; selected 1972; HortScience 50:1265-1267. **Fruit:** cylindrical, 72 mm height × 78 mm diameter; skin smooth, generally lacks russeting; 60-80% bright red blush; flesh crunchy, juicy with slight aroma; stores up to 5 months in controlled atmosphere. **Tree:** vigor moderate; low branching; spindle shaped crown; fruit borne mainly on spurs; very precocious; highly productive; tendency to biennial bearing; moderate resistance to apple scab and powdery mildew, susceptible to fire blight.

MAC 2137. Early ripening, small fruited, very crispy, similar to Honeycrisp but sweeter. **Origin:** Fairhaven, MI by D. Macgregor. Parentage unknown; selected 1998; USPP 25,453; 21 Apr. 2015. **Fruit:** oblate without ribbing; 47 mm height × 57 mm diameter; skin smooth, with pronounced bloom and some greasiness; 70% bright red blush over yellow ground color; flesh crisp, juicy; slow to brown; sweet, 14 °Brix, and low acid. **Tree:** vigor moderate to strong; moderately susceptible to apple scab and cedar apple rust (*Gymnosporangium juniperi-virginianae*).

MAIA1. Late blooming and ripening, very crisp, sweet with long storage and shelf life potential. **Origin:** Wabash, IN by W. Dodd, D. Doud, J.M. Lynd and G. Miller of Midwest Apple Improvement Assn. Honeycrisp × Fuji; selected 2001; USPP 24,579; 21 July 2014. **Fruit:** shape roundish oblate, regular; 65-70 mm height × 75-80 mm diameter; russet extending out of stem cavity with tendency to crack; orange-red striped over orange-white ground color; sweet, very crisp with excellent storage life; susceptible to soft rot (*Penicillium expansum*). **Tree:** vigor low to medium; habit round, spreading; very productive; annual bearing; susceptible to apple scab and powdery mildew; resistance to fire blight slight.

Majesty. Similar to Gala but larger, more intensely flavored, fruit less prone to cracking, with resistance to apple scab. **Origin:** Consorzio Italiano Vivaisti, Comacchio, Italy by M. Leis, A. Martinelli, F. Tagliani, D. Azzolini, P. Castagnoli, and A. Castagnoli. Co-op 25 × CIVCP-142; selected 2000; USPP 25,890; 15 Sept. 2015. **Fruit:** globose, regular; 87 mm height × 80 mm diameter; skin smooth or slightly rough, with little bloom or greasiness; solid red blush with weak stripes over yellow-green ground color; very firm; crisp; juicy; soluble solids high, 14 °Brix; aroma intense; stores up to 7 months in controlled atmosphere. **Tree:** vigor medium to low, with spreading habit, bearing on long shoots and spurs on 2-3-year-old shoots; precocious and highly productive.

PremA96. Attractive fruit with excellent texture and long shelf life. **Origin:** Plant and Food Research, Havelock North, New Zealand by A. White. Royal Gala × GS 2184; USPP 24,946; 7 Oct. 2014. **Fruit:** globose; 66 mm height × 70 mm diameter; ~90% blush over yellow ground color; very juicy. **Tree:** vigor medium; spreading; bears on spurs and shoots; flowers in midseason.

Regal 13-82. Late season, attractive fruit with firm, melting texture and long storage life. **Origin:** Ephrata, WA by K.P. Adams.

APRICOT ROOTSTOCK

Thomas G. Beckman, USDA-ARS Southeastern Fruit and Tree Nut Research Lab, Byron, GA

Braeburn × Honeycrisp; selected 2004; USPP 25,189; 30 Dec. 2014. **Fruit:** oblate, round and conical with slight crowning; 73 mm height × 82 mm diameter; skin glossy and slightly rugose, and streaky red; flesh firm, sweet, 13.4 °Brix; moderately acid, 5 g/l malic acid, at harvest. **Tree:** moderate vigor; upright; spreading; productivity moderately heavy.

REGALYOU. Ripens with Fuji, producing large, red, very firm fruit with long shelf life. **Origin:** Elne, France by A. Maillard and L. Maillard. RAKURAKU × Ariane 6407 RT. USPP 25,827; 25 Aug. 2015. **Fruit:** obloid, round to slightly flattened shape; 78-80 mm height × 75-85 mm diameter; 80-90% red to orange-red overcolor; crunchy; texture melting; shelf life at 18 °C of ~2 months. **Tree:** vigor high; spreading; productivity moderate to high; annual bearing.

RENOIRCIV. Russeted, yellow-green fruit with intense aroma and long storage life. **Origin:** Consorzio Italiano Vivaisti, Comacchio, Italy by M. Leis, A. Martinelli, F. Tagliani, D. Azzolini, P. Castagnoli, and A. Castagnoli. FG-88 × B9-5; selected 2004; USPP 24,570; 24 June 2014. **Fruit:** conical, obloid, slightly flattened; 73 mm height × 84 mm diameter; skin with little bloom or greasiness; yellow-green ground color with 50-60% russet coverage; flesh yellow; firm and juicy, with intense aroma similar to Reinette Blanche du Canada; stores up to 6 months in controlled atmosphere. **Tree:** vigor medium; spreading; bearing on long shoots; precocious and highly productive; resistant to apple scab.

Sinfonia. Midseason, large bicolor fruit with very firm, fine texture, juicy and slightly acidic. **Origin:** Consorzio Italiano Vivaisti, Comacchio, Italy by M. Leis, A. Martinelli, F. Tagliani, D. Azzolini, P. Castagnoli, and A. Castagnoli. Co-op 25 × CIVCP-142; selected 2000; USPP 25,861; 8 Sept. 2015. **Fruit:** conical; 78 mm height × 87 mm diameter; skin slightly rough, with little bloom or greasiness; solid red blush over yellow-green ground color; flesh firm, crisp, and juicy; soluble solids high, 14-14.5 °Brix; acidity moderately high, 7.0 to 7.5 g/l malic acid; aroma intense; stores up to 6 months in controlled atmosphere with up to 2 weeks shelf life. **Tree:** vigor low; spreading; bearing on long shoots and spurs on 2-3-year-old shoots; precocious and highly productive.

Stark Gugger. Limb mutation of Starking Delicious distinguished by fruits with purple red coloration over 100% of the skin, a long conic shape with pronounced crowning, and coloration 10 d earlier. **Origin:** Bressanone, Italy, discovered by W. Nussbaumer. USPP 25,387; 31 Mar. 2015.

Thome Red. Limb mutation of Caudle McIntosh distinguished by redder skin coloration and red coloration of the leaf petiole and veins. **Origin:** Comstock Park, MI, by S.J. Thome. Discovered 2003; USPP 25,362; 24 Mar. 2015.

Wiltens Star. Whole tree mutation of Red Jonaprince distinguished by an upright tree habit, high productivity and fruits with dark red skin and less prominent lenticels. **Origin:** Weert, Netherlands by W.J.F.A. Princen and A.F.M.J. Princen. Discovered 1998; USPP 24,692; 14 July 2015.

APRICOT

Craig A. Ledbetter, USDA-ARS San Joaquin Valley Agricultural Sciences Center, Parlier, CA

Twocot. White-fleshed aromatic fruit for fresh marketing and dry production. **Origin:** Parlier, CA, USDA-Agricultural Research Service, by C. Ledbetter. New Jersey Apricot No. 73 × P301-110; crossed 1994; selected 1998; tested as Y103-253-94; USPP 24,933; 30 Sept. 2014. **Fruit:** elliptic; freestone; flesh white, fine-textured and aromatic; hangs well through full maturity. **Tree:** vigorous, upright and spreading; flowers self-incompatible; bloom late.

APRIDWARF. Clonal plum-apricot hybrid rootstock for apricot. **Origin:** Barcelona, Spain by J. Pinochet. Sapalta (*Prunus besseyi* × *P. salicina*) × (*P. armeniaca* × *P. cerasifera*); selected 1999; USPP 22,209; 28 Oct. 2014. **Plant:** propagated clonally; unbudded tree has a chilling requirement of 400-600 h; flowers with pistils and stamens present but only sparse fruiting. **Rootstock performance:** vigor low, 10-20% lower than trees on VVA-1, with good productivity; induces earlier ripening than other plum or apricot rootstocks; non-suckering; resistant to root-knot nematode; high tolerance to root asphyxia; resistant to *Rosellinia necatrix*; less sensitive to *Agrobacterium tumefaciens* than Sapalta. Good compatibility with apricot cultivars tested, similar to VVA-1, and with European and Japanese plum cultivars.

APRIMED. Clonal plum-apricot hybrid rootstock for apricot. **Origin:** Barcelona, Spain by J. Pinochet. (*Prunus besseyi* × *P. armeniaca*) × *P. cerasifera*; selected 2000; USPP 25,008; 28 Oct. 2014. **Plant:** propagated clonally; unbudded tree has a chilling requirement of 600-800 h; flowers with pistils and stamens present but non-fruiting. **Rootstock performance:** vigor medium, 20-30% lower than trees on Marianna 2624, with good productivity; non-suckering; resistant to root-knot nematode (*Meloidogyne spp.*); better tolerance to iron chlorosis than Marianna 2625; high tolerance to root asphyxia; resistant to Phytophthora; resistant to *Rosellinia necatrix*. Compatibility with apricot and plum cultivars tested.

BANANA/PLANTAIN (*Musa spp.*)

Brian M. Irish and Ricardo Goenaga, USDA-ARS, Tropical Agriculture Research Station, Mayaguez, PR

FHIA 01 (Goldfinger). Subacid synthetic tetraploid hybrid (AAAB). **Origin:** Fundación Hondureña de Investigación Agrícola, Cortés, Honduras. Santa Catarina Prata × SH-3142. **Fruit:** bunch 36.2 kg; 8.8 hands, 152 fruits; third hand 3.8 kg; flavor subacid. **Plant:** pseudostem 3.34 m high; diameter 22.2 cm; functional leaves at harvest 8.0; resistant to black leaf streak (*Mycosphaerella fijiensis*).

FHIA 17. Large-fruited, dessert synthetic tetraploid hybrid (AAAA). **Origin:** Fundación Hondureña de Investigación Agrícola, Cortés, Honduras. Highgate × SH-3437. **Fruit:** bunch 41.4 kg; 13.2 hands, 239 fruits; third hand 4.1 kg; flavor good. **Plant:** pseudostem 3.5 m high; diameter 25.7 cm; functional leaves at harvest 5.0; tolerant to black leaf streak.

FHIA 23. Large-fruited, dessert synthetic tetraploid hybrid (AAAA). **Origin:** Fundación Hondureña de Investigación Agrícola, Cortés, Honduras. Highgate × SH-3437. **Fruit:** bunch 40.3 kg; 12.9 hands, 240 fruits; third hand 4.0 kg; flavor good. **Plant:** pseudostem 3.6 m high; diameter 26.1 cm; functional leaves at harvest 4.4; tolerant to black leaf streak.

Yangambi Km 5. Excellent-flavored small dessert fruit. **Origin:** Selection (AAA) found on side of road in the Democratic Republic of Congo. The Km5 part of the name refers to the kilometer marker on the highway where the plant was found. **Fruit:** bunch 22.8 kg; 10.5 hands, 234 fruits; third hand 2.5 kg; flavor excellent. **Plant:** pseudostem 3.5 m high; diameter 18.2 cm; functional leaves at harvest 4.4; tolerant to black leaf streak.

BLACKBERRY

John R. Clark and Andrew Jecmen, Dept. of Horticulture, University of Arkansas, Fayetteville, AR

Chad E. Finn, USDA-ARS, Horticultural Crops Research Laboratory, Corvallis, OR

Amara. Thornless, primocane-fruiting, erect plant that ripens early, has excellent flavor, firmness and a low incidence of

reversion to red drupelets. **Origin:** Hortifrut, Nogales, Fifth Region, Chile by M.P. Bañados, A.A. Salgado, and J.R. Clark. APF-77 × A-2293T; crossed 2006; selected 2008; tested as HFM-2; USPP applied for. **Fruit:** round; medium to large, 7-9 g on primocanes; medium, 6-7 g on floricanes; medium drupelet, 0.34 cm; sweet without bitter aftertaste; soluble solids 11.2% for floricane fruit, 10.9% for primocane fruit; titratable acidity 0.9% citric acid for primocane fruit; ripens with Prime-Jan® (APF-8), about 10 d after Camila; low color reversion postharvest; very firm; recommended for fresh market. **Plant:** erect; thornless; vigor good; productivity medium to low in first primocane crop but then high with each successive crop cycle; cold hardiness unknown, resisted lows of -7 °C without damage.

APF-190 (Prime-Ark® Traveler). Thornless, primocane-fruiting, erect plant with good handling potential and postharvest storage performance for shipping. **Origin:** University of Arkansas Division of Agriculture, Fayetteville, AR by J.R. Clark. A-2293T × APF-49T; crossed 2004; selected 2008; tested as APF-190T; introd. 2014; USPP applied for. **Fruit:** conical elongated to blocky; large, 4.7-7.5 g depending on cane fruit borne on and climatic conditions; uniform drupelet size; flavor very good; soluble solids 9.7-10.5% for floricane fruit, up to 13.2% for primocane fruit; titratable acidity 0.5-0.9% citric acid; ripens in early June in Arkansas, 6 d after APF-45 (Prime-Ark® 45), later in more temperate locations, continuing with appropriate environmental conditions until frost; storage potential good, recommended for commercial shipping as well as for local markets. **Plant:** erect; thornless; primocane fruiting; vigorous, prolific; moderate resistance to anthracnose (*Elsinoe veneta*), and no orange rust (*Gymnoconia nitens*) was observed; floricanes cold hardy to -17 °C or possibly lower; moderate yield potential on floricanes in Arkansas, productivity substantially better for primocanes in areas with more moderate summers.

Black Jack. Thornless plant with large, firm fruit, productive. **Origin:** Five Aces Breeding, Oakland, MD by H.J. Swartz, Oakland, MD, and P.E. Vinson, Hernhill, Faversham, Kent, Great Britain. Loch Ness × Sweet Peter; crossed 2008; selected 2010; tested as CPC-1VB; introd. 2013; USPP 25,433; 14 Apr. 2015. **Fruit:** ovate to slightly oblong; very large, 10-24.0 g; shiny black; low acid; high in soluble solids, 9-14%; berry cohesive, firm; ripens last week in July to late August in UK, comparable to Loch Ness; produced commercial quantities of fruit greater than 13 tons per acre on two-year-old potted plants; suitable for premium fresh fruit marketing in commercial temperate zone production areas. **Plant:** thornless; semi-upright; moderately vigorous; very high yielding, minimum chilling requirement 500 h, cold hardy to -7 °C.

Camila. Thorny, primocane-fruiting erect blackberry that ripens early, with large, elongated fruit that have excellent flavor and are sweet without a bitter aftertaste. **Origin:** Hortifrut, Nogales, Fifth Region, Chile by M.P. Bañados, A.A. Salgado, and J.R. Clark. APF-77 × APF-109T; crossed 2006; selected 2009; tested as HFM-5; USPP applied for. **Fruit:** elongated to oblong; large, 8-10 g on primocanes; medium, 6-7 g on floricanes; drupelets medium, 0.39 cm; flavor excellent, sweet; soluble solids 11.3% for floricane fruit, 15.1% for primocane fruit; titratable acidity 0.6-0.7% citric acid; ripens ~35 d before Navaho on floricane crop; low color reversion; firmness medium; recommended for fresh market. **Plant:** erect; thorny; vigor good; productivity high; cold hardiness unknown, resisted lows of -3 °C without damage.

Columbia Giant. Thornless trailing plant with very large, uniformly shaped and sized fruit that are machine harvestable and have excellent flavor. **Origin:** USDA-ARS, Corvallis, OR by C.E. Finn, B.C. Strik, B.M. Yorgey, M.E. Peterson, J. Lee, and R.R. Martin. NZ 9629-1 × ORUS 1350-2; crossed 2005; selected 2008; tested as ORUS 3447-2; introd. 2015; USPP applied for. **Fruit:** conical; uniformly sized, shaped and arranged drupelets; uniform, attractively

shaped and rated better than Marion; very large, 12.0 g; bright, glossy black; machine harvests easily; very good, but acidic, fresh fruit flavor; good sweet/acidic balance and aroma typical of western blackberries; as a processed product rated similar to Marion and Columbia Star; fruit texture comparable to Marion and less crunchy than Chester Thornless; soluble solids good, 11.3%; pH 3.3; titratable acidity 16.5 g·L⁻¹ as citric acid; ripens in a similar season to Black Diamond with a similar 21 d duration; firm enough to be sold fresh in regional markets. **Plant:** trailing; thornless with the Lincoln Logan source of thornlessness; vigorous; high yield; less susceptible to UV damage than Marion or Black Diamond; medium-long lateral length; machine harvests easily with clean fruit; not particularly susceptible to septoria leaf spot (*Mycosphaerella rubi*) and purple blotch (*Septocytia ruborum*); cold hardiness not well tested but in a planting that experienced a decline in minimum temperature from -8 °C on 16 Nov. to -12 °C on 24 Nov. it had injury but was scored as having similar bud injury to Marion.

DrisBlackFive. Thorny, semi-upright plant, large fruit, with improved storage life, excellent flavor and appearance. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by G.R. Sills, J.R. Alcazar, J.M. Rodriguez, and A.M. Pabon. BG837-2 × BH917-6; selected 2005; USPP 24,701; 29 July 2014. **Fruit:** long conical; large; soluble solids 14.0%; titratable acidity 1.41% citric acid; very firm; season of ripening medium, late January through mid-March in Los Reyes, Mexico. **Plant:** semi-upright; thorny; productivity medium.

DrisBlackFour. Thorny, upright plant that flowers late and has excellent fruit flavor and appearance. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by G.R. Sills, J.R. Alcazar, J.M. Rodriguez, and A.M. Pabon. Sleeping Beauty × BH917-6; selected 2005; USPP 24,609; 8 July 2014. **Fruit:** long conical; large; soluble solids 16.0%; titratable acidity 0.89% citric acid; very firm; season of ripening medium, mid-January through mid-March in Los Reyes, Mexico. **Plant:** upright; thorny; productivity medium.

DrisBlackSeven. Thorny, upright to semi-upright, high-yielding, self-fruitful plant, with long, conical, sweet, early ripening berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by G.R. Sills, J.M. Rodriguez, J.R. Alcazar, and A.M. Pabon. BJ111-2 × BH917-6; selected 2006; USPP 24,878; 16 Sept. 2014. **Fruit:** long conical; large; soluble solids 9.7%; titratable acidity 0.89% citric acid; very firm; season of ripening early, early October through mid-June in La Isla Grande, Mexico. **Plant:** upright to semi-upright; thorny; productivity high.

DrisBlackSix. Thornless, semi-upright, vigorous plant with a long production season. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by G.R. Sills, A.M. Pabon and S.B. Moyles. BF785-1 × Driscoll Cowles; selected 2005; USPP 25,502; 5 May 2014. **Fruit:** narrow ovate; medium; soluble solids 10.2%; titratable acidity 1.3% citric acid; medium to firm; season of ripening medium, early June to late July in Santa Cruz County, CA. **Plant:** semi-upright; thornless; productivity medium to high.

Emilia. Thornless, floricane-fruiting erect plant that has large sweet fruit without bitterness that ripens early, resists color reversion and performs well in storage. **Origin:** Hortifrut, Nogales, Fifth Region, Chile by M.P. Bañados, A.A. Salgado, J.M. Gonzalez, and J.R. Clark. A-2240T × A-1689T; crossed 2005; selected 2007; tested as HMF-7; USPP applied for. **Fruit:** elongated to oblong; medium, 6.1 g; drupelets medium, 0.44 cm; flavor sweet; soluble solids 12.6%; titratable acidity 0.75% citric acid; firm; ripens 5 weeks before Navaho; almost no red-drupelet color reversion and very little leakage of juice postharvest; recommended for fresh market sales due to its excellent postharvest potential. **Plant:** habit erect; thornless; floricane fruiting; vigorous; resisted midwinter lows of -7 °C without damage.

Prime-Ark® Traveler. See APF-190.

Von. Thornless, floricanefruiting erect plant with firm fruit, high yield and a late harvest season, recommended for fresh market. **Origin:** North Carolina State University, Raleigh, NC by J.R. Ballington, G.E. Fernandez, and P.M. Perkins-Veazie. O.P. seedling from bulked seeds from F₁s of Navaho × NC 194; seeds collected 1995; selected 1998; tested as NC430; introd. 2013; USPP applied for. **Fruit:** attractive; glossy black; medium, 6.6 g, comparable to Ouachita; flavor excellent; soluble solids 10.5%; leaky berries 9.7%; moldy berries 1.6%; soft berries 7.7%; overall rating 90.4; minimal softening during rainy weather. **Plant:** erect; thornless; vigorous; high yield and harvest season comparable to Navaho; winter hardiness similar to Navaho; susceptibility to orange rust (*Gymnoconia nitens*) not observed; virus susceptibility comparable to Navaho.

BLUEBERRY

Mark K. Ehlenfeldt, USDA-ARS, Genetic Improvement of Fruits and Vegetables Laboratory, Beltsville, MD

06-04 (MegasBlue™). High-yielding midseason northern highbush for fresh markets or processing. **Origin:** Oregon Blueberry Farms and Nursery, Silverton, OR, by R. Gabriel. Parentage unknown; crossed 2004; selected 2007; tested as 06-04; introd. 2014; USPP applied for. **Fruit:** large; light blue; firm; flavor mild; ripening concentrated; fruit detaches nicely. **Plant:** vigorous; moderately spreading; wood red; high yielding; recommended for machine or hand harvest; self-fertile.

06-22 (Titanium™). Midseason northern highbush for the fresh market. **Origin:** Oregon Blueberry Farms and Nursery, Silverton, OR by R. Gabriel. Parentage unknown; crossed 2004; selected 2007; tested as 06-22; introd. 2014; USPP applied for. **Fruit:** large; light blue; firm, crispy; flavor sweet-tart; ripening concentrated; fruit detaches nicely; quality extremely high. **Plant:** vigorous; upright; wood red; recommended for machine or hand harvest; self-fertile.

Baby Blues. Very high-yielding plant with small, very blue, excellent-flavored berries that machine harvest very easily. **Origin:** USDA-ARS, Corvallis, OR by C.E. Finn, B.C. Strik, B.M. Yorgey, T.A. Mackey, J.F. Hancock, J. Lee, and R.R. Martin. US 647 × US 645; crossed 1993; selected 1999; tested as ORUS 10-1; introd. 2015; USPP applied for. **Fruit:** small, 0.8 g; uniform, round, bright blue; picking scar small, dry; calyx attractive; firmer than Bluecrop and Aurora; intense blueberry flavor with strong aromatics, both fresh and when frozen and thawed; can split after rain in low humidity environments; machine harvests very easily; ripens 3 d after Bluecrop and Draper. **Plant:** vigorous and dense; canes numerous, thin; upright; yield high, comparable to Aurora and Draper.

BB05-185GA (Bliss™). Late midseason, very productive, low-chill southern highbush with very large fruit size, excellent appearance, fruit quality and flavor for the fresh market. **Origin:** Berry Blue, Grand Junction, MI by E. Wheeler and J. Hancock. Cooper × Draper; crossed 2005; selected 2008; tested as BB05-185GA; introd. 2012; USPP 24,875; 16 Sept. 2014. **Fruit:** very large; medium blue; slightly flattened; small, dry picking scar; flavor excellent, with balanced sugar and acidity; very firm; texture very crunchy and juicy; ripens 7 d after Star in Waycross, GA; concentrated ripening. **Plant:** very vigorous; habit medium upright, with a medium-sized crown; good mechanical harvest potential; excellent leafing in spring; blooms moderately early; requires cross-pollination for maximum yields; chilling requirement ~500 h.

BB05-251MI-14 (Keepsake™). Late midseason, very productive high-chill northern highbush with very large fruit, excellent appearance, fruit quality and flavor, and long storability for the fresh market. **Origin:** Berry Blue, Grand Junction, MI by E. Wheeler and

J. Hancock. Liberty × Nelson; crossed 2005; selected 2008, tested as BB05-251MI-14; introd. 2012; USPP 24,807; 26 Aug. 2014. **Fruit:** very large; medium light blue; slightly flattened; picking scar very small, dry; flavor very good, with balanced sugar and acidity; very firm; texture very crunchy and juicy; ripens 7-10 d before Elliott in Grand Junction; ripening concentrated. **Plant:** very vigorous; habit upright, with a medium-small crown; good mechanical harvest potential; excellent leafing in spring; blooms midseason; very self-fertile, but will attain maximum yields with cross-pollination; chilling requirement 800-1000 h.

BB05-274MI-139 (Sensation™). Late season, very productive high-chill northern highbush with very large fruit, excellent appearance, fruit quality and flavor, and long storability for the fresh market. **Origin:** Berry Blue, Grand Junction, MI by E. Wheeler and J. Hancock. Brigitta Blue × Nelson; crossed 2005; selected 2008; tested as BB05-274MI-139; introd. 2012; USPP 24,809; 26 Aug. 2014. **Fruit:** very large; light blue; slightly flattened; picking scar very small and dry; flavor good, with balanced sugar and acidity; very firm; texture crunchy and juicy; ripens with Elliott in Grand Junction; medium concentration of ripening. **Plant:** very vigorous; habit medium upright with a medium-large crown; good mechanical harvest potential; excellent leafing in spring; blooms midseason; very self-fertile but will attain maximum yields with cross-pollination; chilling requirement 800-1000 h.

BB05-58GA-1 (Robust™). Early season, very productive, low-chill southern highbush with very large size, good flavor and fruit quality for the fresh market. **Origin:** Berry Blue, Grand Junction, MI by E. Wheeler and J. Hancock. Draper × Emerald; crossed 2005; selected 2008; tested as BB05-58GA-1; introd. 2012; USPP 24,808; 26 Aug. 2014. **Fruit:** very large to jumbo; medium blue; slightly flattened; picking scar small, dry; flavor good, with balanced sugar and acidity; very firm; texture very crunchy and juicy; ripens 7-10 d before Star in Waycross, GA; ripening concentrated. **Plant:** vigorous; habit medium upright, with a medium-sized crown; good mechanical harvest potential; excellent leafing in spring; blooms moderately early; requires cross-pollination for maximum yields; chilling requirement ~300 h.

BB05-61GA-61 (Temptation™). Early season, very productive, low-chill southern highbush with very large fruit size, excellent appearance and fruit quality, and good flavor for the fresh market. **Origin:** Berry Blue, Grand Junction, MI by E. Wheeler and J. Hancock. Draper × Jewel; crossed 2005; selected 2009; tested as BB05-61GA-61; introd. 2012; USPP 24,874; 16 Sept. 2014. **Fruit:** very large; medium light blue; slightly flattened; picking scar small, dry; flavor very good, with balanced sugar and acidity; very firm; texture very crunchy and juicy; ripens 7 d before Star in Waycross, GA; ripening concentrated. **Plant:** very vigorous; habit medium upright, with a medium-sized crown; good mechanical harvest potential; excellent leafing in spring; blooms medium late; requires cross-pollination for maximum yields; chilling requirement ~400 h.

BB06-540FL-12 (Prelude™). Very early season, productive, low-chill southern highbush with excellent flavor and fruit quality for the fresh market. **Origin:** Berry Blue, Grand Junction, MI by E. Wheeler and J. Hancock. Sapphire × Snowchaser; crossed 2006; selected 2008; tested as BB06-540FL-12; introd. 2012; USPP 24,831; 2 Sept. 2014. **Fruit:** very large; medium blue; spherical; picking scar very small, dry; very sweet and subacid; very firm; texture crunchy and juicy; ripens 21 d before Star in Gainesville, FL; ripening concentrated. **Plant:** moderately vigorous; habit very upright, with a small crown; good mechanical harvest potential; good leafing in spring; blooms early; requires cross-pollination for maximum yields; chilling requirement ~150 h.

BB07-210FL-18 (Daybreak™). Early season, productive, low-chill southern highbush with very large size, very good flavor and fruit quality for the fresh market. **Origin:** Berry Blue, Grand Junction, MI

by E. Wheeler and J. Hancock. Springhigh × Springwide; crossed 2007; selected 2009, tested as BB07-210FL-18; introd. 2012; USPP 24,876; 16 Sept. 2014. **Fruit:** very large to jumbo; medium light blue; slightly flattened; picking scar small, dry; flavor very good, with balanced sugar and acidity; firm; texture crunchy and juicy; ripens 5 d before Star in Gainesville, FL; ripening concentrated. **Plant:** vigorous; habit medium upright, with a medium-sized crown; good mechanical harvest potential; excellent leafing in spring; blooms moderately early; requires cross-pollination for maximum yields; chilling requirement ~250 h.

Bliss™. See BB05-185GA.

Bluesfest. A mid-to-late-season rabbiteye with exceptionally light blue fruit and superior berry size. **Origin:** USDA-ARS, Poplarville, MS by S.J. Stringer and A.D. Draper. T142 (Tifblue × Woodard) × Powderblue; crossed 1981; selected 1984; tested as MS 282; introd. 2015. **Fruit:** large; round, firm, very light blue and very attractive; flavorful; picking scar small, dry; attains light blue color before berries are fully ripe; recommended for shipping or local market use; ripens late June in Mississippi. **Plant:** vigorous; semi-upright; productive; easy to propagate; blooms in late March, with Powderblue.

C00-09. Large-fruited, late ripening, evergreen production system cultivar for fresh markets and home gardens. **Origin:** CostaExchange, Ravenhall, Australia and Florida Foundation Seed Producers, Gainesville, FL by G. Wright and P. Lyrene. F92-52 × F84-38; crossed 1998; selected 2000; USPP 22,778; 12 June 2012. **Fruit:** large to very large, 5.0 g; oblate; dark blue; picking scar small, dry; firm; sweet; acidity low to medium; ripens late, mid-late October, when grown as an evergreen in Australia; stores well. **Plant:** vigorous; upright to bushy growth habit; 1.9 m (h) × 1.2 m (w); vegetative budbreak late, mid-September when grown as an evergreen in Australia; flowering late, early September when grown as an evergreen in Australia; yield 3-4 kg/plant; cold tolerance expected to be low; typically grown as an evergreen crop where chilling hours are not important; estimated chilling requirement 250 h; moderate resistance to root disease (*Phytophthora* spp.); good resistance to blueberry rust and to anthracnose fruit rot.

C03-038. Late ripening, low chill southern highbush with quality fruit. **Origin:** Florida Foundation Seed Producers, Mariana, FL and CostaExchange, Corindi, Australia by G. Wright and P. Lyrene. F93-368 × C97-390; crossed 2001; selected 2003; USPP applied for. **Fruit:** medium; 2 g (range 1.7-2.5); oblate; firm; flavor good; suited to handling, early ripening. **Plant:** vigorous; semi-upright; chilling requirement low.

C03-158. Southern highbush with high quality for fresh markets. **Origin:** Florida Foundation Seed Producers, Mariana, FL and CostaExchange, Corindi, Australia by G. Wright and P. Lyrene. Emerald × F97-169; crossed 2001; selected 2003; USPP applied for. **Fruit:** medium; firm; suited to handling; flavor good; ripening midseason. **Plant:** vigorous; semi-upright; low chilling requirement.

C04-014. Late ripening southern highbush with high quality fruit for fresh markets. **Origin:** Florida Foundation Seed Producers, Mariana, FL and CostaExchange, Corindi, Australia by G. Wright and P. Lyrene. Star × C96-97; crossed 2002; selected 2004; USPP applied for. **Fruit:** medium to large (3 g); RHS blue group 103A; firm; suited to handling; flavor good; sweetness medium to high, 15 °Brix; acidity medium to high; ripening late. **Plant:** vigorous; semi-upright; productivity medium to high; chilling requirement low to medium.

C04-051. Southern highbush with high quality fruit for fresh markets. **Origin:** Florida Foundation Seed Producers, Mariana, FL and CostaExchange, Corindi, Australia by G. Wright and P. Lyrene. FL02-043 × FL89-118; crossed 2002; selected 2004, USPP applied for. **Fruit:** large, 2.8 g; RHS blue group 103A; waxy; firm; fruit

suited to handling with low scarring; flavor good; sweetness medium, 14 °Brix; good balance of acidity and sweetness; ripening midseason. **Plant:** vigorous; upright to semi-upright; chilling requirement low.

C05-178. Late ripening southern highbush with high quality fruit for fresh markets. **Origin:** Florida Foundation Seed Producers, Mariana, FL and CostaExchange, Corindi, Australia by G. Wright and P. Lyrene. Early Crisp × FL03-061; crossed 2003; selected 2005; USPP applied for. **Fruit:** large, 2.8 g (range 2.6-3 g); dark; scar medium; very firm; suited to handling; sweetness medium; flavor good; crispy; ripening midseason; stores for very long periods. **Plant:** vigorous; upright to semi-upright; chilling requirement low; flowering early to medium.

C05-190. Late ripening southern highbush with high quality fruit for fresh markets. **Origin:** Florida Foundation Seed Producers, Mariana, FL and CostaExchange, Corindi, Australia by G. Wright and P. Lyrene. Early Crisp × FL03-061; crossed 2003; selected 2005; USPP applied for. **Fruit:** large, 2.9 g (range 2.7-3.2 g); firm; suited to handling; good balance of acidity and sweetness; ripening medium to late. **Plant:** vigorous; upright; chilling requirement low.

C95-12. Late season, high quality southern highbush. **Origin:** Florida Foundation Seed Producers, Gainesville, FL and CostaExchange, Ravenhall, Australia by G. Wright and P. Lyrene. F93-29 × F84-35; crossed 1993; selected 1995; USPP 23,684; 25 June 2013. **Fruit:** large; dark blue; oblate; picking scar dry; firmness medium or better; soluble solids good; acidity medium; ripening late to very late. **Plant:** vigorous; upright to bushy; foliage evergreen; vegetative budbreak medium to late; flowering late.

C97-390. Early ripening southern highbush with quality fruit. **Origin:** CostaExchange, Corindi, Australia by G. Wright. F92-84 × F95-54; crossed 1994; selected 1997; USPP 20,642; 12 Jan. 2010. **Fruit:** large; dark blue; picking scar small; firm; fruit suited to handling; early ripening. **Plant:** vigorous; upright to bushy; foliage evergreen; flowering early.

C97-41. Large-fruited, early-mid-ripening, evergreen production system cultivar for fresh markets and home gardens. **Origin:** CostaExchange, Ravenhall, Australia, and Florida Foundation Seed Producers, Gainesville, FL by G. Wright and P. Lyrene. F95-52 × E12; crossed 1995; selected 1999; USPP 22,757; 29 May 2012. **Fruit:** large, ~2.8 g; oblate; dark blue; picking scar very small, dry; medium firm to firm; sweetness medium; acidity low to medium; ripens early to midseason (mid-September) when grown as an evergreen in Australia; stores well. **Plant:** vigorous; bushy; 1.9 m (h) × 1.2 m (w); vegetative budbreak early to medium, mid-late August when grown as an evergreen in Australia; early flowering, mid-August when grown as an evergreen in Australia; yield 3-4 kg per plant; cold tolerance expected to be low; typically grown as an evergreen crop where chilling hours are not important; estimated chilling requirement 250 h; low resistance to root disease (*Phytophthora* spp.); low resistance to blueberry rust; moderate to low resistance to anthracnose fruit rot (*Colletotrichum gloeosporoides*).

C99-42. Southern highbush for fresh markets and home gardens. **Origin:** Florida Foundation Seed Producers, Gainesville, FL and CostaExchange, Corindi, Australia by G. Wright and P. Lyrene. F97-47 × F88-53; crossed 1996; selected 1999; USPP 20,695; 2 Feb. 2010. **Fruit:** medium; dark blue; scar dry; firm to very firm. **Plant:** habit spreading; vegetative budbreak mid- to late season; flowering early to midseason.

Calypso. Highly productive, late/midseason northern highbush with excellent fresh fruit quality. **Origin:** Michigan State University, East Lansing, MI by J. Hancock. Draper × Elliott; crossed 2002; selected 2006; tested as MSU 70; introd. 2014; USPP 25,995; 20 Oct. 2015.

Fruit: large; picking scar small, dry; medium light blue; firmness and flavor excellent; post-season storage excellent; harvest overlaps Jersey and Legacy. **Plant:** vigorous and upright, with numerous, moderately branched canes; self-fertile but likely benefits from cross-pollination.

Daybreak™. See BB07-210FL-18.

DrisBlueEight. Southern highbush with small plant size, medium productivity and firm fruit. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. MS 315 × MS 122; selected 2000; USPP 24,568; 24 June 2014. **Fruit:** medium to large, 2.2 g; RHS 107C (light blue); firm; sweet; acidity low; 5 berries/cluster; ripening early to medium. **Plant:** small; vigor weak to medium; semi-erect to upright; 81 cm (h) × 93 cm (w); cane renewal weak; productivity medium; chilling requirement very low, 150-250 h; hardy to USDA hardiness zone 8B or higher; vegetative budbreak early; flowering early.

DrisBlueEleven. Late-season southern highbush with small, firm berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. MS 122 × G 455; selected 2001; USPP applied for. **Fruit:** small, 2.2 g; firm; RHS 98C (medium violet-blue); 3.7 berries/cluster; ripening late. **Plant:** vigor medium; size medium; semi-erect; 149 cm (h) × 181 cm (w); cane renewal strong; productivity medium; cold hardiness medium; chilling requirement high; flowering late.

DrisBlueFive. Early-season southern highbush with good productivity, firm, sweet berries and aromatic flavor. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. FL97-16 × Windsor; selected 1999; USPP 24,489; 27 May 2014. **Fruit:** medium to large, 1.8 g; RHS 107D (light blue); firm; sweetness medium; acidity low; flavor aromatic; 9 berries/cluster; ripening early. **Plant:** medium, 126 cm (h) × 157 cm (w); cane renewal strong; chilling requirement very low, 150-250 h; productivity medium to high; cold hardiness medium; flowering early.

DrisBlueFour. Highly productive, midseason southern highbush with firm, sweet, aromatic berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. FL97-26 × MS 139; selected 2000; USPP 24,407; 29 Apr. 2014. **Fruit:** medium to large, 2.5 g; RHS 98D (light blue); firm; sweetness medium; acidity low; flavor aromatic; 7 berries/cluster; ripening midseason. **Plant:** vigor medium to strong; semi-erect; size medium, 109 cm (h) × 130 cm (w); cane renewal medium; chilling requirement very low, 150-250 h; productivity high; cold hardiness medium; flowering early.

DrisBlueNine. Late-season southern highbush with high productivity and large, firm berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. MS 122 × G 292; selected 2004; USPP applied for. **Fruit:** large, 3.2 g; RHS 98D (light violet-blue); firm; sweetness low; acidity high; 6.6 berries/cluster; ripening late. **Plant:** vigorous; small; semi-erect; 113 cm (h) × 130 cm (w); cane renewal medium; productivity high; chilling requirement high; cold hardiness medium; vegetative budbreak late; flowering late.

DrisBlueOne. Midseason southern highbush. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. MS 7 × Jubilee; USPP 20,449; 3 Nov. 2009. **Fruit:** large; RHS 104D (blue); slightly oblate; very firm; sweetness medium; acidity medium; ripening midseason. **Plant:** vigorous; bushy; 55 cm (h) × 63 cm (w); cane renewal medium; chilling requirement medium.

DrisBlueSeven. Very early-season southern highbush with good productivity and very firm, large, sweet berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper.

MS 122 × FL92-166N; selected 2001; USPP 24,605; 8 July 2014. **Fruit:** large, 3.0 g; RHS 98D (light blue), very firm; sweetness medium; acidity medium; 7 berries/cluster; ripening very early; stores 1-2 weeks at 4.4 °C; for fresh markets. **Plant:** vigor medium; semi-erect; large to very large, 164 cm (h) × 124 cm (w); cane renewal weak to medium; chilling requirement very low, 150-250 h; productivity high; cold hardiness medium; vegetative budbreak very early; flowering very early.

DrisBlueSix. Very early-season southern highbush with good productivity and firm, sweet, medium acid berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. MS 122 × FL92-166N; selected 2001; USPP 24,569; 24 June 2014. **Fruit:** medium to large, 3.2 g; RHS 98D (medium violet-blue); firm; sweetness medium; acidity medium; 6 berries/cluster; ripening very early. **Plant:** vigor medium to strong; large; semi-erect, 191 cm (h) × 170 cm (w); chilling requirement very low, 150-250 h; productivity high; hardy to USDA hardiness zone 8B or higher; flowering early.

DrisBlueTen. Early-season southern highbush with large, firm berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. Nui × MS 122; selected 2003; USPP applied for. **Fruit:** large, 3.0 g; RHS 104D (light blue); medium firm to firm; sweetness medium to high; acidity low to medium; 7.2 berries/cluster; ripening early. **Plant:** vigorous; small; semi-erect to spreading; 84 cm (h) × 82 cm (w); productivity medium; cold hardiness medium; chilling requirement high; flowering early.

DrisBlueThirteen. Southern highbush with very long harvest season. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. FL 84-40 × FL 96-26; selected 1997; USPP applied for. **Fruit:** medium; oblate; RHS 98C (medium violet-blue); firm; sweetness medium; acidity low; harvest season very long, early June to mid-December. **Plant:** vigor medium; size medium; upright to semi-erect; 145 cm (h) × 166 cm (w); productivity low to medium; chilling requirement very low; cold hardiness high; flowering very early.

DrisBlueThree. Early-season southern highbush with sweet, medium-large berries. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. FL98-11 × FL89-152; selected 2000; USPP 20,436; 20 Oct. 2009. **Fruit:** medium, 1.5 g; nearly spherical; waxy; RHS 98D (blue); very firm; sweetness strong; acidity weak; ripening early. **Plant:** vigorous; strongly erect; cane renewal strong; chilling requirement low; flowering early.

DrisBlueTwelve. Late-season southern highbush with very low chilling requirement and sweet berries, selected for cultivation in Guzman, Mexico. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. Jewel × FL95-54; selected 2004; USPP applied for. **Fruit:** medium, 2.0 g; oblate; RHS 97B (light violet-blue); firm; sweet; acidity very low; 8.2 berries/cluster; ripening late. **Plant:** vigorous; upright; very large; 184 cm (w) × 182 cm (h); cane renewal strong; productivity high; chilling requirement very low, 100-200 h; cold hardiness medium; vegetative budbreak early; time of flowering medium.

DrisBlueTwo. Midseason southern highbush. **Origin:** Driscoll Strawberry Associates, Watsonville, CA by B. Caster and A. Draper. Magnolia × MS 189; selected 2000; USPP 20,488; 17 Nov. 2009. **Fruit:** medium, 1.5 g; nearly spherical; low wax; RHS 102C (blue); firm; sweetness medium; acidity medium; ripening early to midseason. **Plant:** vigorous; spreading to ascending; 129 cm (h) × 133 cm (w); cane renewal medium; chilling requirement medium, ≤ 500-600 h; hardy to USDA Zone 9b; budbreak medium.

EB 8-1. Early-season cultivar with large, medium sweet fruit suitable for Western Australia. **Origin:** Prunus Persica, Joondalup, Australia by V.D. Mazzardis. 03-6 × 99-41; crossed 2005; selected

2007; USPP 25,859; 8 Sept. 2015. **Fruit:** large, ~21 mm; oblate; sweetness medium; acidity average; ripening very early. **Plant:** vigor medium; spreading; 1.2 m (h) × 1.2 m (w); vegetative budbreak very early; flowering very early.

EB 8-17. Early-season cultivar with large, medium sweet fruit suitable for Western Australia. **Origin:** Prunus Persica, Joondalup, Australia by V.D. Mazzardis. SB-1 × 03-6; crossed 2005; selected 2008; USPP 25,860; 8 Sept. 2015. **Fruit:** large, ~20 mm; oblate; medium firm to firm; sweetness medium to high; acidity low to medium; ripening very early. **Plant:** vigorous; semi-upright; ~1.8 m (h) × ~1.2 m (w); vegetative budbreak very early; flowering very early.

EB 8-30. Very early cultivar with medium to large, very sweet fruit suitable for Western Australia. **Origin:** Prunus Persica, Joondalup, Australia by V.D. Mazzardis. Compact 36 × 99-12; crossed 2005; selected 2008; USPP 25,889; 15 Sept. 2015. **Fruit:** medium to large, ~18 mm; oblate; firm; sweetness high; acidity low; ripening very early. **Plant:** vigor average; semi-upright; compact; ~1.6 m (h) × ~1.2 m (w); vegetative budbreak very early; flowering very early.

EB 8-42. Early-season cultivar with large, very firm fruit suitable for Western Australia. **Origin:** Prunus Persica, Joondalup, Australia by V.D. Mazzardis. 03-2 × SB-1; crossed 2005; selected 2008; USPP 25,858; 8 Sept. 2015. **Fruit:** large, ~19 mm; oblate; picking scar small, dry; firm; flavor good; sweetness medium to high; acidity low to medium; ripening very early. **Plant:** vigor medium to strong; semi-upright; ~1.5 m (h) × 1.2 m (w); vegetative budbreak very early; flowering very early.

FF04-14. Large-fruited southern highbush intended for the hand-harvest fresh market; low chill or evergreen production. **Origin:** Fall Creek Farm and Nursery, Lowell, OR by D.M. Brazelton, A.L. Wagner, P.S. Boches, and A.A.A. Bermudo. FL00-45 × FL97-130; selected 2006; USPP applied for. **Fruit:** large, 2.9 g in OR; oblate; Pantone color Dapple Gray 16-3907; sweet, low acidity; ripens ~15 Jan. in Colima, Mexico and 5 May near Delano, CA. **Plant:** vigorous; upright, ~112 cm (h) × ~86 cm (w); evergreen in OR; chilling requirement ~300-500 h; hardy to USDA zones 7-9; flower and vegetative budbreak occur at approximately the same time in Lowell; flowers from mid- to late April through late May in Lowell; 6-7 flowers/cluster; moderate self-compatibility, ~55% of self-pollinated flowers reach maturity.

FL98-325 (Indigocrisp™). Midseason southern highbush cultivar with extremely firm, crisp texture. **Origin:** Florida Foundation Seed Producers, Marianna, FL by P. Lyrene. FL96-27 × Windsor; crossed 1996; selected 1998; tested as FL98-325; introd. 2013; USPP applied for. **Fruit:** large; medium blue; firmness and picking scar excellent; flavor sweet when fruit first turns blue; ripens early to midseason. **Plant:** vigorous; growth habit upright; chilling requirement 300 h; blooms with Star; requires cross-pollination; propagation by softwood stem cuttings often results in low percentage rooting; moderately susceptible to Botryosphaeria stem blight and Phytophthora root rot.

Heintooga. Fruitful pentaploid ($2n=5x=60$) cultivar that ripens late-midseason to late season, and averages less than 1 fully developed seed per berry. **Origin:** North Carolina State University, Raleigh, NC by J.R. Ballington and W.T. Bland. Bluechip ($2n=4x=48$) × NC 1827 [PI 346603 (*V. constablaei*) × Premier (*V. virgatum*)] ($2n=6x=72$); crossed 1978; selected 1984; tested as NC 2701; introd. 2015; USPP applied for. **Fruit:** medium to large; very good color, picking scar, and flavor (often pleasantly perfumed); firmness superior to Premier and sufficient for shipping; shelf life similar to Legacy following 7 d at 4°C; ripening season similar to Legacy; generally <1% fruit cracking following rain. **Plant:** moderately vigorous; semi-upright; size similar to highbush; yield <rabbiteye

cultivars due to smaller plant size; appears broadly adapted to varied soils; requires cross-pollination by rabbiteye/hexaploid hybrids (preferably), or by northern highbush or southern highbush cultivars; readily propagated by softwood or hardwood cuttings; chilling requirement 800-1000 h.

Indigocrisp™. See FL98-325.

Keepsake™. See BB05251MI-14.

Krewer™. See T-1101.

MegasBlue™. See 06-04.

Miss Alice Mae™. See TH-921.

Miss Jackie™. See TH-917.

Miss Lilly™. See TH-948.

MNPink1 (Pink Popcorn™). Pink-fruited highbush-lowbush hybrid. **Origin:** University of Minnesota, by J.L. Luby. Parentage unknown; crossed 1983; selected 1987; USPP 25,792; 11 Aug. 2015. **Fruit:** medium-sized, pink-cream to pink, ripening early to mid-season, self-pollinating. **Plant:** slightly upright and bushy, 1.25 m (h) × 1.4 m (w) at 25 yrs, hardy to USDA zone 4, maroon fall color.

Nene. An ohelo berry (*V. reticulatum*) selected for ornamental and edible berry production. **Origin:** USDA-ARS, Hilo, HI by F. Zee. From native collected seed; selected in 2006 from population of 200 ohelo seedlings. **Fruit:** dark red in color, ~1 cm in diameter. **Plant:** growth habit compact, with distinctive reddish young leaves; mature foliage waxy and shiny; flowers prolifically when in season; propagation by tissue culture or by cuttings; suitable as a potted ornamental plant.

Norman. High quality, firm-fruited southern highbush. **Origin:** University of Arkansas Division of Agriculture, Fayetteville, AR by J.R. Clark, J.N. Moore and A.D. Draper. G-566 × Legacy; crossed 1985; selected 1989; tested as A-272; introd. 2015; USPP applied for. **Fruit:** medium-large to large, 1.5-2.2 g; size uniform; oblate; light blue with whitish waxy bloom; appearance outstanding; flavor very good, sweet and aromatic; less acidic than Ozarkblue; ripens near Bluecrop, but before Ozarkblue; firmness >Bluecrop or Ozarkblue, and remains firm after storage. **Plant:** vigorous; habit upright; medium, similar to other highbush blueberry cultivars; chilling requirement ~500 h.

Osorno. Highly productive, midseason northern highbush with exceptional fresh fruit quality; adapted to northern highbush production areas where winters are less severe. **Origin:** Michigan State University, East Lansing, MI by J. Hancock. Draper × Legacy; crossed 2002; selected 2006; tested as MSU 67; introd. 2014; USPP 26,031; 3 Nov. 2015. **Fruit:** large; light blue; picking scar small, dry; firmness excellent; flavor superior; fruit hold up extremely well in hot weather; harvest overlaps Bluecrop and Draper. **Plant:** vigorous; upright; canes can be lax when loaded with fruit; numerous moderately branched canes; self-fertile, but likely benefits from cross-pollination.

Pink Popcorn™. See MNPink1.

Pinnacle. Early ripening southern highbush with yield equal to or better than O'Neal. **Origin:** USDA-ARS, Chatsworth, NJ and North Carolina State University, Raleigh, NC by A.D. Draper, J.R. Ballington, C.M. Mainland and W.T. Bland. NC 1408 (Elizabeth × US 75) × Bluechip; selected 1987; tested as US 508; intro. 2014; USPP applied for. **Fruit:** large, with a higher percent large berries than O'Neal, New Hanover, or Duke; light blue; firm; picking scar,

flavor and shelf life good; ripens between O'Neal and New Hanover. **Plant:** vigor average; semi-upright; appears best adapted to good highbush blueberry soils; self-fruitful; readily propagated by softwood cuttings; chilling requirement 600-700 h.

Prelude™. See BB06-540FL-12.

Ridley 1104. Midseason southern highbush for evergreen production systems. **Origin:** Mountain Blue Orchards, New South Wales, Australia by R. Bell. C97-390 × C97-41; crossed 2003; selected 2005; USPP 23,326; 15 Jan. 2013. **Fruit:** medium to large; dark blue; picking scar small, dry; firm; suited to handling; sweetness medium to high; ripeness early to medium. **Plant:** vigorous; spreading; foliage evergreen, with broad leaves; flowering early to medium.

Ridley 1111. Early season southern highbush for evergreen production systems. **Origin:** Mountain Blue Orchards, New South Wales, Australia by R. Bell. C99-42 O.P.; crossed 2001; selected 2003; USPP 23,572; 30 Apr. 2013. **Fruit:** medium; dark blue; picking scar small, dry; firm; suited to handling; ripening very early. **Plant:** vigorous; upright to bushy; foliage evergreen; flowering very early.

Ridley 1403. Early season southern highbush with very large fruit, for evergreen production systems. **Origin:** Mountain Blue Orchards, New South Wales, Australia by R. Bell. S02-25-05 × S03-08-02; crossed 2006; selected 2008; USPP 25,432; 14 Apr. 2015. **Fruit:** very large; dark blue; picking scar small, dry; firmness medium; suited to handling; flavorful; sweetness medium; acidity medium to high; ripening early to medium. **Plant:** vigorous; upright to semi-upright; foliage evergreen; flowering very early.

Ridley 3402. Early to midseason southern highbush for evergreen production systems. **Origin:** Mountain Blue Orchards, New South Wales, Australia by R. Bell. S03-04-02 × S03-09-01A; crossed 2007; selected 2009; USPP applied for. **Fruit:** medium; dark blue; picking scar small, dry; moderately firm; suited to handling; sweetness medium to high; acidity medium; storage quality good; ripening early to midseason (early to mid-July; peaks early to mid-October) when grown as an evergreen in Australia. **Plant:** vigorous; upright to semi-upright; ~2.0 m (h) × ~1.2 m (w); foliage evergreen; cold tolerance expected to be low; chilling requirement low, 200-250 h; typically grown as an evergreen crop where chilling hours are not important; flowering early to medium (begins mid-May; peaks mid-August) when grown as an evergreen in Australia; productivity >5 kg per season.

Ridley 4514. Early season southern highbush with large, very firm fruit, for evergreen production systems. **Origin:** Mountain Blue Orchards, New South Wales, Australia by R. Bell. C99-42 × C00-008; crossed 2006; selected 2008; USPP applied for. **Fruit:** large to very large, ~20 mm; oblate; dark blue; picking scar small, dry; very firm; sweetness medium to high; acidity low; ripening early; stores 10 weeks at 2°C. **Plant:** very vigorous; upright; 2.0 m (h) × 1.2 m (w); foliage evergreen; cold tolerance expected to be low; chilling requirement low, 200-250 h; typically grown as an evergreen crop where chilling hours are not important; vegetative budbreak late; flowering very early; productivity >5 kg per season; suitable for mechanical harvesting.

Robust™. See BB05-58GA-1.

Sensation™. See BB05-274MI-139.

T-1101 (Krewer™). Very large, high-yielding rabbiteye. **Origin:** University of Georgia, Athens, GA by D.S. NeSmith. Vernon × O.P. seed obtained in 2004; selected in 2007; introd. 2015; USPP applied for. **Fruit:** very large, 2.9 to 3.5 g; medium to light blue; picking scar small, dry; firmness good; flavor good; ripens before Vernon and Titan in south GA, after in middle GA. **Plant:** very vigorous;

semi-spreading; high yielding; flowers 5 to 7 d before Titan and Vernon; estimated chilling requirement 400-450 h; suitable for fresh market and machine harvest; propagation by softwood cuttings or *in vitro*; planting with other rabbiteye blueberry cultivars such as Titan or Vernon for cross-pollination highly recommended.

Temptation™. See BB05-61GA-61.

TH-917 (Miss Jackie™). A late season southern highbush. **Origin:** University of Georgia, Athens, GA by D.S. NeSmith. TH-653 × Millennia; crossed 2002; selected 2005; introd. 2014; USPP applied for. **Fruit:** medium to medium-large, 1.6-1.9 g; medium to light blue; picking scar small, dry; firmness and flavor good; generally ripens with Camellia in south and middle GA. **Plant:** vigorous, but not overly vigorous like Camellia; upright bush with a medium crown; flowers with Camellia; yield greater than Star and Camellia in south and middle GA; good leafing, estimated chilling requirement ≤500-550 h; suitable for fresh market; propagation via softwood cuttings or *in vitro*; self-fertile, but Camellia recommended for cross-pollination.

TH-921 (Miss Alice Mae™). A highly flavorful, early to midseason southern highbush. **Origin:** University of Georgia, Athens, GA by D.S. NeSmith. TH-647 × Windsor; crossed 2002; selected 2005; introd. 2014; USPP applied for. **Fruit:** large, 1.7-2.1 g; medium to light blue; picking scar small, dry; firmness very good; flavor excellent; generally ripens with Star in south and middle GA. **Plant:** vigorous; habit semi-upright with a medium crown; flowers 4-6 d after Star and Suziblu; yield ≥Star in south and middle GA; good leafing, estimated chilling requirement ≤500-550 h; suitable for fresh market; propagation via softwood cuttings or *in vitro*; self-fertile, but Camellia or Suziblu recommended for cross-pollination.

TH-929 (Victoria™). An early to midseason southern highbush. **Origin:** University of Georgia, Athens, GA by D.S. NeSmith. TH-622 × Millennia; crossed 2002; selected 2005; introd. 2013; USPP 25,994. **Fruit:** very large, 2.3-3.1 g; very light blue; picking scar small, dry; firmness very good; flavor excellent; generally ripens after Star but 4-6 d before Camellia in south and middle GA; has demonstrated evergreen fruiting in limited trials in Mexico and Peru. **Plant:** vigorous; semi-spreading; crown medium; flowers after Star but before Camellia; yield >Star in south and middle GA; good leafing; estimated chilling requirement ≤500-550 h; suitable for fresh market; propagation via softwood cuttings or *in vitro*; self-fertile, but Camellia or Suziblu recommended for cross-pollination.

TH-948 (Miss Lilly™). An early to midseason southern highbush with a very short fruit development period. **Origin:** University of Georgia, Athens, GA by D.S. NeSmith. Camellia × Reveille; crossed 2002; selected 2005; introd. 2014; USPP applied for. **Fruit:** very large, 2.1-3.1 g; medium to light blue; picking scar medium, semi-dry; firmness and flavor good; generally ripens with Star in south and middle GA. **Plant:** highly vigorous; strongly upright with a very narrow crown; flowers 12-14 d after Star and Suziblu; per plant yields medium, but suitable for high density plantings; good leafing; estimated chilling requirement ≤500-550 h; suitable for fresh market; propagation via softwood cuttings or *in vitro*; self-fertile, but Camellia recommended for cross-pollination.

Titanium™. See 06-22.

Victoria™. See TH-929.

CACAO

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ICS 45. Trinitario/Criollo hybrid. **Origin:** Derivation of name, Imperial College Selection. Selected on local farms in Trinidad

and Tobago. Parentage unknown; introduced into the National Plant Germplasm System (NPGS) in 1956. **Fruit:** seed/pod 33.4; pod index 25.7; 65% chocolate; flavor smooth chocolate, silky; color great. **Tree:** yield, ~702 kg/ha dry beans.

RIM 52. Productive, Trinitario hybrid. **Origin:** Derivation of name, Rozario, Izapa Mexico, collected by del Arco and Spencer in Tuxclacihco, Chiapas, Mexico. Parentage unknown; introduced into the National Plant Germplasm System (NPGS) in 1961. **Fruit:** seed/pod 37.0; pod index 18.1; 65% chocolate; strong cocoa flavor. **Tree:** high yielding, ~2,228 kg/ha dry beans.

SPA 10. Productive, upper Amazon hybrid. **Origin:** Derivation of name, Selección Palmira, Colombia by J.F. Pound. Parentage unknown; introduced into the National Plant Germplasm System (NPGS) in 1988. **Fruit:** seed/pod 38.3; pod index 24.6; 65% chocolate; flavor strong cocoa, with citrus and floral perfume. **Tree:** high yielding, ~2,839 kg/ha dry beans.

TARS 27. Productive, upper Amazon hybrid. **Origin:** USDA-ARS, Tropical Agriculture Research Station, Mayaguez, PR by R. Goenaga, H. Irizarry and B. Irish. EET 400 × SCA 12; crosses made at Centro Agronómico Tropical de Investigación y Enseñanza, Turrialba, Costa Rica; selected in Puerto Rico in 1997; introd. 2002. **Fruit:** seed/pod 41.7; pod index: 29.3; flavor (65% chocolate): soft with flower notes and light brown color. **Tree:** high yielding, ~2,960 kg/ha dry beans.

TARS 30. Productive, upper Amazon hybrid. **Origin:** USDA-ARS, Tropical Agriculture Research Station, Mayaguez, PR by R. Goenaga, H. Irizarry, and B. Irish. SCA 6 × EET 62; crosses made at Centro Agronómico Tropical de Investigación y Enseñanza, Turrialba, Costa Rica; selected in Puerto Rico in 1997; introd. 2002. **Fruit:** seed/pod 44.6; pod index 29.3; 65% chocolate; flavor with wood notes, faint flora with some astringency. **Tree:** high yielding, ~2,656 kg/ha dry beans.

TARS 34. Productive, upper Amazon hybrid. **Origin:** USDA-ARS, Tropical Agriculture Research Station, Mayaguez, PR by R. Goenaga, H. Irizarry, and B. Irish. UF 668 × POUND 7; crosses made at the Centro Agronómico Tropical de Investigación y Enseñanza, Turrialba, Costa Rica; selected in Puerto Rico in 1997; introd. 2002. **Fruit:** seed/pod 35.8; pod index 27.2; 65% chocolate; flavor moderate chocolate with some fruits. **Tree:** high yielding, ~1,480 kg/ha dry beans.

CACTUS PEAR (*OPUNTIA FICUS-INDICA*)

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Amarilla Jarro. Late ripening, highly productive with yellow fruit. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez. Parentage unknown; tested as O-317; selected 2009; CNVV (Mexican National Catalog of Plant Varieties) NOP-038-160709; July 2009. **Fruit:** large, 9.9 cm long, 204 g;

elliptical to round; scar of receptacle sunken; peel uneven, yellow, thick; flesh yellow, sweet, 13.4 °Brix; ratio of flesh to peel high, 1.69; number of completely developed seeds high, 307; abortive seeds few; ripens early August to late September in Southern Tamaulipas, northeastern Mexico; transports well. **Plant:** growth habit upright; very vigorous; cladodes elliptical, dark green; 2-3 short spines in central areole; central spine short and erect, white and strong.

Amarilla Miquihuana. Late ripening, highly productive with orange fruit for fresh consumption. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez. Parentage unknown; tested as O-312; selected 2004; CNVV (Mexican National Catalog of Plant Varieties) NOP-002-221104; Nov. 2004. **Fruit:** large, 10.8 cm long, 172.5 g; narrow elliptical; glochids few, brown; scar of receptacle slightly depressed; peel uneven orange, thin; flesh orange, very juicy, sweet, 14.5 °Brix, of medium consistency; ratio of flesh to peel high, 1.45; number of completely developed seeds medium, 230; presence of abortive seeds high; ripens early July to late August in Southern Tamaulipas; transports well. **Plant:** growth habit upright; cladodes medium and narrow obovate, with 3-4 spines in central areole; central spine of intermediate and erect posture, smooth and firm.

Amarilla Montesa. Large, orange, juicy, sweet fruit for fresh consumption, intermediate vigor and productivity. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez. Parentage unknown; tested as O-024; selected 2002; CNVV (Mexican National Catalog of Plant Varieties) NOP-003-221104; Nov. 2004. **Fruit:** large, 9.2 cm long, 172 g; elliptical; peel orange, flesh yellow, with firm texture, highly juicy and sweet, 13.7 °Brix; ratio of flesh to peel high, 1.33; number of completely developed seeds medium, 265; ripens early July to late August in Mexican plateau region, central northern Mexico; resistance to transport medium. **Plant:** growth habit spreading, height low; cladodes medium, narrow, and oblong with medium number of spines; central spine intermediate and semi-erect, surface barbed.

Amarilla Plátano. Late ripening, highly productive, medium juicy fruit. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez. Parentage unknown; tested as O-089; selected 2002; CNVV (Mexican National Catalog of Plant Varieties) NOP-004-221104; Nov. 2004. **Fruit:** large, 9.4 cm long, 119.2 g; elliptical to obovate; glochids few; peel dark red, flesh purple; peduncle short; scar of receptacle moderately sunken; flesh medium juicy, soft; ratio of flesh to peel high, 1.63; number of completely developed seeds low, 204; presence of abortive seeds low; soluble solids intermediate, 12.3 °Brix; ripens early June to late September in Mexican plateau region; resistance to transport medium. **Plant:** growth habit spreading, tall; cladodes large and narrow with obovate shape; 2 spines in the central areole; central spine short and erect, curved and brittle.

Mango. Highly productive, very sweet yellow fruit with intermediate ripening season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez and A.F. Barrientos-Priego. Parentage unknown; tested as O-018; CNVV (Mexican National Catalog of Plant Varieties) and Plant Breeders Rights Title 0913; Jan. 2013. **Fruit:** large, 8.3 cm long, 161 g; obovate; peel medium thick, light yellow; ratio of flesh to peel medium, 1.098; flesh yellow, medium in juiciness and texture, very sweet, 15 °Brix; number of completely developed seeds low, 168; ripens in August to September in Zacatecas, Mexico; fruit can remain on plant for at least 2 months while retaining its quality. **Plant:** growth habit upright; cladodes broad obovate, light green; 3 medium spines per areole, white; central spine intermediate in size, 2.3 cm, semi-erect, acicular and flexible.

Roja San Martín. Early ripening, medium productive with dark red fruit. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by J. A. Reyes-Agüero. Parentage unknown; tested as O-209;

selected 2004; CNVV (Mexican National Catalog of Plant Varieties) NOP-023-221104; Nov. 2004. **Fruit:** medium to large, 7.9 cm long, 119.2 g; elliptical to obovate; glochids few, yellow; peel dark red; flesh purple, medium in juiciness and texture; peduncle short, and scar of receptacle moderately sunken; ratio of flesh to peel medium, 0.963; number of completely developed seeds low, 204; soluble solids intermediate, 11.3 °Brix; ripens late June to early September in Central Highlands of Mexico (Mexico and Hidalgo states); resistance to transport medium. **Plant:** growth habit bushy; cladodes long and narrow obovate; 2 spines in central areole; central spine short and erect, curved and brittle.

Venustiana. Highly productive, large, very sweet juicy red fruit with intermediate ripening season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez and A.F. Barrientos-Priego. Seedling from a population of Rosa de Castilla; tested as O-045; CNVV (Mexican National Catalog of Plant Varieties) and Plant Breeders Rights Title 0912; Jan. 2013. **Fruit:** large, 8.2 cm long, 147 g; elliptical; peel uniform red, thick; flesh medium red, juicy, firm and very sweet, >15.5 °Brix; ratio of flesh to peel medium, 0.812; number of completely developed seeds low to intermediate, 204; abortive seeds few; ripens early July to late August in Zacatecas, Mexico; fruit can remain on plant for at least 2 months, while keeping its characteristic firmness; resistance to transport high. **Plant:** growth habit upright; cladodes broad obovate, light green; 2-3 medium spines, 2.3 cm, in central areole; central spine intermediate and semi-erect, acicular and brittle.

CACTUS PEAR—XOCONOSTLE

Native to the highlands of Central Mexico, xoconostles are a type of cactus pear (*Opuntia sp.*) bearing fruits with thick, edible, acidic mesocarps, and hard-coated seeds clustered in the center. They are distinguished from common cactus pears, which bear fruits with sweet, juicy and seedy endocarps. Traditional farmers consume xoconostles with vegetables, and in salsas, sweets, refreshing drinks, and liquors.

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Cambray. *Opuntia duranguensis* Britton & Rose with medium productivity, late season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez. Selected from a wild population of crasicaule scrub; tested as O-364; selected 2010; CNVV (Mexican National Catalog of Plant Varieties): XOC-010-031111; Nov. 2011. **Fruit:** small, 59.2 g; spherical; peduncle short to medium, 6.9 mm; scar of receptacle moderately sunken, 5.3 mm; external coloration pink at maturity; peel internal coloration pink; internal peel thickness medium to high, 7.7 mm, typical of xoconostle, although thinner than Cuaresmeño Zacatecano (*Opuntia matudae*), the reference cultivar; ratio of internal peel weight to total fruit weight high, 72.24%; juiciness and texture medium; funiculus

pink; sugar content low, 7.5 °Brix; ripens in October of the same year of blossom in Zacatecas, central northern Mexico; fruits can remain 4 months after maturation. **Plant:** bushy; short; broad obovate; cladodes yellowish green, with spines in all areolas; 4 spines in the central areola; central spine short, 11.6 mm, with semi-erect posture, white and brittle.

Cuaresmeño Zacatecano. *Opuntia matudae* Scheinvar, with edible acidic peel, high productivity, late season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez. Selected from wild population of crasicaule scrub; tested as O-374; selected 2010; CNVV (Mexican National Catalog of Plant Varieties): XOC-012-031111; Nov. 2011. **Fruit:** small, 64.11 g; broad obovate to spherical; scar of receptacle moderately sunken, 5.3 mm; external color uniform light green at maturity; internal peel light green, 10.9 mm thick, typical of xoconostle; ratio of internal peel weight to total weight high, 77.55%; acidic, pH 3.03; funiculus light green, dry and insipid, 7.04 °Brix; ripens in March, one year after flowering in Zacatecas, central northern Mexico; fruits can remain more than one year after maturation. **Plant:** small, with bushy growth habit; cladodes broad obovate, light green, with spines in all areolas; areolas show an external red ring as a trait of distinctness; 4-5 spines in the areola; central spine short, 13.5 mm, erect, white, flexible.

Cuerón. *Opuntia matudae*, with edible acidic peel, high productivity, late season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by N.A. Gallegos-Luevano. Selected from wild population of crasicaule scrub; tested as O-339; selected 2010; CNVV (Mexican National Catalog of Plant Varieties): XOC-013-031111; Nov. 2011. **Fruit:** small, 81.55 g; obovate; scar of receptacle moderately sunken, 5.7 mm; external coloration uneven green with reddish tonalities at maturity; internal peel red with greenish tonalities, thickness 11.5 mm, typical of xoconostles; high ratio of internal peel weight to total weight, 81.67%; acidic, pH 3.14; funiculus pink, dry, and insipid, 6.92 °Brix; ripens in March, one year after flowering in Zacatecas, central northern Mexico; fruits can remain more than one year after maturation. **Plant:** small, with bushy growth habit; cladodes obovate, light green; areolas grey; 3 spines in the areola; central spine short, 11.1 mm, erect, white, smooth and flexible.

Invierno. *Opuntia tezontepecana* Gallegos-Vázquez & Scheinvar, with edible acidic peel, medium productivity, late season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico, by C. Gallegos-Vázquez. Selected in a home garden in Tezontepec, Hidalgo, Mexico; tested as O-334; selected 2010; CNVV (Mexican National Catalog of Plant Varieties): XOC-018-031111; Nov. 2011. **Fruit:** small, 71.2 g; obovate; scar of receptacle moderately depressed, 3.6 mm; external peel uneven medium green; internal peel pink; internal peel thick, 10.3 mm, typical of xoconostle; ratio of internal peel weight to total fruit weight high, 82.28%; acidic, pH 4.3; funiculus orange, firm; juiciness medium; sugar content low, 4.4 °Brix; ripens in April, one year after flowering in Hidalgo, Central Mexico; fruits can remain more than 2 years after maturation. **Plant:** bushy, short; cladodes yellowish green, with spines in all areolas; areolas grey; 4 to 5 spines in central areola; central spine short, 13.7 mm, erect, white, strong.

Sainero. *Opuntia matudae*, with edible acidic peel, high productivity, late season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by C. Gallegos-Vázquez. Selected from wild population of crasicaule scrub; tested as O-367; selected 2002; CNVV (Mexican National Catalog of Plant Varieties): XOC-023-031111; Nov. 2011. **Fruit:** small, 63.9 g; broad obovate; peduncle large, 14.4 mm; scar of receptacle moderately depressed, 5.3 mm; external coloration uniform medium red at maturity; internal peel reddish to whitish, with green tonalities; internal peel thickness high, 11.4 mm, typical of xoconostle; ratio of internal peel weight to total weight high, 84.66%; acidic, pH 3.1; funiculus pink, dry, and insipid; sugar content low, 6.3 °Brix; ripens in March, one year after

flowering in Zacatecas, central northern Mexico; fruits can remain more than one year after maturation. **Plant:** bushy, short; cladodes broad obovate, yellowish green; 4-6 spines in central areola; central spine short, brittle, erect.

Virgen. *Opuntia duranguensis*, with edible acidic peel, high productivity, early season. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by N.A. Gallegos-Luevano. Selected from wild population of crasicaule scrub; tested as O-378; selected 2010; CNVV (Mexican National Catalog of Plant Varieties): XOC-029-290212; Feb. 2012. **Fruit:** small, 57.85 g; spherical; external coloration uniform medium red at maturity; internal peel red with greenish tonalities, 11.3 mm thick, typical of xoconostle; ratio of internal peel weight to total weight high, 85.77%; acidic, pH 3.45; funiculus pink, dry and insipid, 6.63 °Brix; ripens in February, one year after flowering in Zacatecas, central northern Mexico; fruit can remain on the plant 6 months after maturation. **Plant:** small, with bushy growth habit; cladodes broad obovate, medium green; 4-5 spines in the areola; central spine short, 11.1 mm, semi-erect, white and brittle.

CHERRY ROOTSTOCK

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Gi14813. Semi-vigorous, precocity-inducing, productive triploid rootstock. **Origin:** Giessen, Germany by S. Franken-Bembenek. *Prunus cerasus* Schattenmorelle × *Prunus canescens*; USPP 26,117; 24 Nov. 2015. **Plant:** growth habit spreading to semi-spreading; susceptible to brown rot. **Rootstock performance:** semi-vigorous (comparable to Gi148/1 [Gisela®6]); induces early fruiting, horizontal branching, and higher yields of sweet cherry compared to Mazzard; anchorage good; grafted plants produce no root suckers.

Gi31817. Vigorous, precocity-inducing, productive rootstock. **Origin:** Giessen, Germany by S. Franken-Bembenek. *Prunus canescens* × *Prunus avium*; USPP 26,118; 24 Nov. 2015. **Plant:** growth habit semi-upright to upright; tolerant to ilarviruses prune dwarf (PDV) and Prunus necrotic ringspot (PNRSV), as well as to brown rot (*Monilia laxa*). **Rootstock performance:** vigorous (higher vigor than Gi148/1 [Gisela®6]); induces early fruiting, horizontal branching, and higher yields of sweet cherry compared to Mazzard; anchorage good; grafted plants produce no root suckers.

Gisela 13®. See Gi14813.

Gisela 17®. See Gi31817.

NEWROOT-1. Semi-vigorous, precocity-inducing rootstock. **Origin:** Modesto, CA, by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. *Prunus salicina* × *Prunus avium*; USPP 21,723; 22 Feb. 2011. **Plant:** growth habit upright; vigor medium. **Rootstock performance:** induces early fruiting, somewhat lower vigor, and higher yields of sweet cherry compared to Mazzard; cuttings root quickly; grafted plants produce few or no root suckers.

STO1. Semi-dwarfing, precocity-inducing, productive rootstock. **Origin:** Kressbronn, Germany, by P. Stoppel. *Prunus cerasus* × O.P.; USPP 25,891; 15 Sept. 2015. **Plant:** growth habit upright; vigor weak. **Rootstock performance:** induces early fruiting, lower vigor (40%), and higher yields of sweet cherry compared to Mazzard; good adaptation to hot, dry conditions; grafted plants produce no root suckers.

STO2. Dwarfing, precocity-inducing, productive rootstock. **Origin:** Kressbronn, Germany by P. Stoppel. *Prunus cerasus* × (*P. avium* × *P. canescens*); USPP 25,892; 5 Mar. 2015. **Plant:** growth habit weeping. **Rootstock performance:** induces early fruiting, lower vigor (30%), and higher yields of sweet cherry compared to Mazzard; good adaptation to hot, dry conditions.

STO3. Semi-vigorous, precocity-inducing, productive rootstock. **Origin:** Kressbronn, Germany by P. Stoppel. *Prunus cerasus* × (*P. avium* × *P. canescens*); USPP 25,912; 22 Sept. 2015. **Plant:** growth habit upright; vigor moderate, pubescent one-year-old shoots. **Rootstock performance:** induces early fruiting, moderately lower vigor (60%), and higher yields of sweet cherry compared to Mazzard; good adaptation to hot, dry conditions; grafted plants produce no root suckers.

WeiGi1®. See STO1.

WeiGi2®. See STO2.

WeiGi3®. See STO3.

Weiroot 720. Dwarfing, precocity-inducing, productive rootstock. **Origin:** Technische Universität München, Germany by H. Schimmelpfeng. Purportedly a whole plant mutation of Weiroot 72 (*Prunus cerasus*); USPP 22,867; 24 July 2012. **Plant:** growth habit upright; vigor weak. **Rootstock performance:** induces early fruiting, lower vigor, and higher yields of sweet cherry compared to Mazzard; better rooting than Weiroot 72; soil adaptation good.

CHERRY—SWEET

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Aramat. Dark red fruit, large, very productive, late midseason. **Origin:** Horice, Czech Republic, by J. Blazkova. Krupnoplodnaja × Van; USPP 24,529; 10 June 2014. **Fruit:** large; cordate; skin dark red; flesh firm, dark red; sweet; stem length medium, 41 mm; ripens late midseason. **Tree:** vigor medium; spreading; very productive; self-incompatible; blooms early.

Arvin Glen. Dark red skin with pink flesh, large, very productive, early midseason. **Origin:** Le Grand, CA by L.G. Bradford. Parentage unknown; USPP 23,721; 9 July 2013. **Fruit:** large; oblate; skin dark red; flesh firm, pink; sweet, 19 °Brix; stem medium-short, 35 mm; ripens third to fourth week of May in Le Grand. **Tree:** vigor medium; upright; branching habit dense; very productive; self-incompatible; blooms second to fourth week of March in Le Grand.

Cowiche™. See PC7903-2.

El Capitan. Dark red skin with reddish pink flesh, sweet, medium large, early midseason. **Origin:** Le Grand, CA by L.G. Bradford. Glenrock O.P.; USPP 26,315; 19 Jan. 2016. **Fruit:** medium to large; oblate; skin dark red; flesh red to pink; very firm; very sweet, 24 °Brix; stem length short, 29 mm; ripens third to fourth week of May in Le Grand. **Tree:** vigor moderate; upright; branching habit dense; very productive; self-incompatible; blooms midseason, 4 d before Bing, last week of March in Le Grand.

Firelam. Dark red fruit, large with very firm flesh, late midseason. **Origin:** Elne, France by A. Maillard and L. Maillard. INRA 3364 O.P.; tested as 02.14.52CE-ASF0607; USPP 25,564; 19 May 2015. **Fruit:** large; reniform to cordate; skin dark red; flesh very firm, medium red; sweet, 18 °Brix; stem length medium, 38 mm; ripens late midseason, first week of June, in Elne. **Tree:** vigor medium; spreading to semi-upright; blooms semi-early, end of March in Elne, very productive, low sensitivity to brown rot (*Monilinia laxa*), tolerates hot summer temperatures.

Glenealy. Dark red fruit, sweet, medium large, early season. **Origin:** Le Grand, CA by L.G. Bradford. Brooks × Glenred; USPP 24,744; 12 Aug. 2014. **Fruit:** medium to large; somewhat oblate; skin very dark purplish-red; flesh very firm, dark red; very sweet,

22 °Brix; stem length short, 29 mm; ripens early, second week of May in Le Grand. **Tree:** vigor moderate; upright and open branching habit; moderately productive; self-incompatible; blooms early, 4 d before Bing, mid-March in Le Grand; less susceptible to rain-induced cracking than Brooks.

Glory™. See Goodwin.

Goodwin. Dark red fruit, very late; disputed as possibly genetically the same as the patented cultivar 13S2009 (Staccato™). **Origin:** Wenatchee, WA by G.C. Goodwin. Purportedly a whole-tree mutation of Sumleta (Sonata™); USPP 22,693; 1 May 2012. **Fruit:** large; cordate; skin red-purple; flesh medium firm, red-purple; very sweet, 22 °Brix; stem length medium, 37 mm; ripens very late, 30 d after Bing in Wenatchee. **Tree:** vigorous; growth habit spreading to upright; very productive; self-compatible; blooms midseason, with Bing.

Kiona™. See PC8007-2.

Kootenay. Dark red fruit with firm flesh, very late season. **Origin:** Creston, British Columbia by W.L. Truscott. Purportedly a whole-tree mutation of Lapins; USPP 18,849; 27 May 2008. **Fruit:** large, reniform; flesh firm, red-purple; skin grey-purple; sweet; stem length medium-long, 43 mm. **Tree:** vigorous, upright and spreading; density moderate; self-compatible, blooms early midseason, 3-5 d after Lapins; ripens very late, 9-18 d after Lapins; very productive.

Korvik. Dark red fruit, large, late season. **Origin:** Horice, Czech Republic by V. Ludvik. Kordia × Vic; USPP 22,245; 15 Nov. 2011. **Fruit:** large, rounded cordate; medium firm; flesh and skin grey-purple; sweet, 18 °Brix; stem long, 52 mm. **Tree:** vigor medium, upright; blooms moderately late, fourth week of April in Horice; ripens late, second week of July; yields very good on dwarfing rootstocks; tolerant to brown rot and cherry leaf spot (*Blumeriella jaapii*), resistant to rain-induced cracking.

Maddison. Dark red fruit, large, with firm flesh, early season. **Origin:** Malaga, WA by E. Gooch. Purportedly a whole-tree mutation of Bing; USPP 20,752; 16 Feb. 2010. **Fruit:** large, cordate; flesh firm, red-purple; skin red-purple; sweet, 19 °Brix; stem medium-long, 44 mm; minor susceptibility to doubling. **Tree:** vigorous, spreading to upright, dense; self-incompatible (S₃S₄); blooms third week of April in Malaga; ripens midseason, June 20; very productive; possibly resistant to mildew (*Podosphaera clandestina*).

MG200. Red-blushed yellow fruit, very large, early season. **Origin:** Orondo, WA by M.J. Griggs. Purportedly a whole-tree mutation of Rainier; USPP 18,825; 20 May 2008. **Fruit:** very large, rounded reniform; flesh yellow, not as firm as Rainier; red-orange blush on yellow-orange ground color; sweet, 19 °Brix; stem medium-long, 44 mm. **Tree:** moderately vigorous; spreading, rounded canopy, drooping; self-incompatible, blooms second week of April in Orondo; ripens midseason, third week of June, 4 d before Rainier; productive, susceptible to rain-induced cracking.

PA1UNIBO. Shiny dark red fruit, large, with firm flesh, early season. **Origin:** University of Bologna, Italy by S. Lugli, R. Correale and M. Grandi. Parentage unknown; tested as DCABO A1A1; USPP 25,996; 20 Oct. 2015. **Fruit:** large, rounded cordate; flesh firm, dark red; skin shiny, very dark red; sweet, 18 °Brix; stem medium-short, 35 mm. **Tree:** vigorous, spreading, drooping; self-compatible (S₃S₄); blooms second to third week of April in Vignola, Italy; ripens 14 d before Bing and 4 d after Burlat; very productive.

PA2UNIBO. Shiny dark red fruit, very large, with firm flesh, moderately early season. **Origin:** University of Bologna, Italy by S. Lugli, R. Correale and M. Grandi. Parentage unknown; tested as

DCABO A1C27; USPP 25,982; 13 Oct. 2015. **Fruit:** very large, cordate; flesh firm, rose; skin shiny, very dark red; sweet, 18 °Brix; stem length medium, 37 mm. **Tree:** vigorous; growth habit semi-spreading, branching; self-incompatible (S₃S₄), blooms second to third week of April in Vignola, Italy; ripens 8 d before Bing; very productive.

PA3UNIBO. Bright red fruit, very large, with firm flesh, early midseason. **Origin:** University of Bologna, Italy by S. Lugli, R. Correale and M. Grandi. Parentage unknown; tested as DCABO A1C40; USPP 25,997; 20 Oct. 2015. **Fruit:** very large, cordate; flesh firm, rose; skin bright purplish-red; sweet, 17 °Brix; stem medium-short, 34 mm. **Tree:** vigor moderate to high; habit spreading; self-incompatible (S₁S₄), blooms second to third week of April in Vignola, Italy; ripens 4 d before Bing; very productive.

PA4UNIBO. Bright red fruit, very large, with firm flesh, midseason. **Origin:** University of Bologna, Italy by S. Lugli, R. Correale and M. Grandi. Parentage unknown; tested as DCABO B5D23; USPP 25,981; 13 Oct. 2015. **Fruit:** very large, cordate; flesh firm, rose; skin bright red; very sweet, 21 °Brix; stem length medium, 40 mm. **Tree:** vigorous, semi-spreading; self-incompatible (S₃S₄); blooms second to third week of April in Vignola, Italy; ripens 1 day after Bing; very productive.

PA5UNIBO. Bright red fruit, very large, with firm flesh, late midseason. **Origin:** University of Bologna, Italy by S. Lugli, R. Correale and M. Grandi. Parentage unknown; tested as DCABO B5A87; USPP 25,972; 6 Oct. 2015. **Fruit:** very large, cordate; flesh firm, red; skin bright red; sweet, 18-19 °Brix; stem length medium, 37 mm. **Tree:** vigorous, spreading; self-compatible (S₃S₄); blooms second week of April in Vignola, Italy; ripens 5 d after Bing; very productive.

PC7903-2. Dark red fruit, large, with very firm flesh, midseason. **Origin:** Washington State University by T. Toyama, E. Proebsting, G. Lang and M. Whiting. PC7147-4 (Stella × Early Burlat) × PC7146-11 (Stella × Beaulieu); tested as PC7903-2; USPP 21,073; 22 June 2010. **Fruit:** large, cordate; flesh very firm, dark red; skin red-purple; flavor sweet-tart; stem length medium, 40 mm. **Tree:** vigorous, upright; self-incompatible (S₅S₉); blooms midseason, just after Bing; ripens midseason, with Bing; very productive.

PC8007-2. Dark red fruit, large, early season. **Origin:** Washington State University by T. Toyama, E. Proebsting, G. Lang and M. Whiting. PC7144-7 (Stella × Early Burlat) × PC7144-3 (Stella × Early Burlat); tested as PC8007-2; USPP 20,526; 8 Dec. 2009. **Fruit:** large, round; flesh firm, red-purple; skin red-purple; flavor excellent; stem medium-long, 43 mm. **Tree:** semi-vigorous, spreading; self-incompatible (S₄S₉); blooms late, 6 d after Bing; ripens early, 6 to 10 d before Bing; productive.

Regal Lee. Red fruit, with very firm flesh, low chilling requirement, early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 17H143 O.P.; USPP 12,417; 26 Feb. 2002. **Fruit:** medium to large, round to slightly oblate; flesh very firm, pale red to red; skin red to garnet red; sweet, 18 °Brix; flavor good; stem short, 25 mm; ripens early, second week of May, 6 d after Burlat, in Modesto. **Tree:** vigorous, upright; self-incompatible; productive; blooms early, first week of March in Modesto, 11 d before Burlat; chilling requirement 500 h.

Rosie Rainier. Blushed yellow fruit, large, productive, early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 181LB359 (Bing × Earlisweet) O.P.; USPP 19,307; 7 Oct. 2008. **Fruit:** large, round to slightly oblate; flesh very firm, yellow; skin yellow with extensive red blush; moderately sweet, 15 °Brix; stem medium-long, 45 mm. **Tree:** moderately vigorous, upright; self-incompatible; blooms early midseason, second week of March

in Modesto; ripens later early season, 8 d before Bing; productive; chilling requirement about 850 h.

Rosilam. Blushed creamy pink fruit, large, very productive, early midseason. **Origin:** Elne, France by A. Maillard and L. Maillard. Bigalise® Enjidel × Rainier; USPP 23,797; 6 Aug. 2013. **Fruit:** large, rounded reniform, very firm; flesh creamy yellow; skin shiny yellow with orange-red blush; sweet, 17 °Brix; flavor very good; stem medium-short, 30 mm. **Tree:** vigor medium, spreading to semi-upright; blooms early, late March in Elne; ripens early midseason, end of May; very productive; moderate sensitivity to brown rot.

Royal Bailey. Bright red fruit, large, with firm flesh, early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 22ZB383 (Royal Dawn × Minnie Royal) O.P.; USPP 21,835; 5 Apr. 2011. **Fruit:** large, cordate; flesh firm, red; skin bright red; sweet, 18 °Brix; flavor very good; stem length medium-long, 45 mm. **Tree:** vigorous, upright; self-incompatible; blooms early midseason, early March in Modesto; ripens early, second week of May, 6 d after Burlat; productive, chilling requirement about 750 h.

Royal Belle. Red fruit, medium to large, with firm flesh, low chilling requirement, early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 20ZD807 (Bing O.P. × Royal Lee) × 26MA629 (6GK67 × 21ZA1072); USPP 25,069; 18 Nov. 2014. **Fruit:** medium to large, cordate; flesh very firm, red; skin red; sweet, 15 °Brix; flavor good; stem length medium, 37 mm. **Tree:** vigorous, upright; self-incompatible; blooms early, second week of March in Modesto; ripens early, first week of May, 20 d before Brooks; productive, chilling requirement 550 h.

Royal Brynn. Red fruit, large, with firm flesh, midseason. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner, and G.G. Zaiger. 23ZD1031 (Royal Edie × O.P.) × O.P. USPP 22,950; 14 Aug. 2012. **Fruit:** large, round; flesh firm, red; skin red; sweet, 19 °Brix; flavor very good; stem length medium, 39 mm; ripens midseason, fourth week of May. **Tree:** vigorous, upright; productive; self-incompatible; blooms late midseason, third week of March in Modesto; chilling requirement 750 h.

Royal Edie. Red fruit, very large, with firm flesh, late season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 92LB341 (Bing O.P. × Royal Dawn) O.P.; USPP 19,365; 21 Oct. 2008. **Fruit:** very large; round; flesh very firm, red; skin red; sweet, 19 °Brix; flavor very good; stem medium-long, 47 mm; ripens late, first week of June, 10 d after Bing, in Modesto. **Tree:** vigorous, upright; self-incompatible; productive; blooms late midseason, third week of March in Modesto; chilling requirement 750 h.

Royal Elaine. Red fruit, medium to large, very productive, mid-season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 17H177 49G1093 O.P. (Bing O.P.); USPP 22,603; 27 Mar. 2012. **Fruit:** medium to large, nearly round; flesh firm, red; skin red; sweet, 21 °Brix; flavor good; stem length medium, 37 mm; ripens midseason, last week of May, with Bing. **Tree:** vigorous, upright and semi-spreading; very productive; self-incompatible; blooms late midseason, third week of March in Modesto; less susceptible to rain-induced cracking and heat-induced doubling than Bing; chilling requirement 850 h.

Royal Hazel. Red fruit, large, with very firm flesh, low chilling requirement, early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 25Z116 (Bing O.P. × Bing O.P.) O.P.; USPP 19,920; 14 Apr. 2009. **Fruit:** large, round to slightly oblate; flesh firm, red; skin red; sweet, 16 °Brix; flavor very good; stem medium-short, 30 mm; ripens early, second week of May, 12 d before Bing, in Modesto. **Tree:** vigorous, upright; very productive; self-incompatible; blooms midseason, second week of March in Modesto, 10 d before Bing; chilling requirement 500 h.

Royal Helen. Red fruit, very large, very sweet, late midseason. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 92LB341 (Bing O.P. × Royal Dawn) O.P.; USPP 19,595; 23 Dec. 2008. **Fruit:** very large, round; flesh firm, red; skin red; very sweet, 22 °Brix; flavor very good; stem long, 53 mm; ripens late midseason, first week of June, 8 d after Bing, in Modesto. **Tree:** vigorous, upright; self-incompatible; productive; blooms late mid-season, third week of March in Modesto; chilling requirement 750 h.

Royal Lee™. See Regal Lee.

Royal Lydia. Red fruit, large, with firm flesh, low chilling requirement, early midseason. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 48.5GG273 (Bing × Earlisweet) × Royal Lee; USPP 24,776; 19 Aug. 2014. **Fruit:** large, round to slightly elongated; skin red; flesh firm, pale red; sweet, 18 °Brix; stem medium-short, 32 mm; ripens early midseason, third week of May, 13 d after Burlat, in Modesto. **Tree:** vigorous, upright; self-incompatible; productive; blooms early, first week of March in Modesto, 11 d before Burlat; chilling requirement 500 h.

Royal Lynn. Red fruit, medium to large, with firm flesh, low chilling requirement, early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 91LA460 × Royal Lee; USPP 19,589; 23 Dec. 2008. **Fruit:** medium to large, round to slightly elongated; skin red; flesh firm, mottled red; sweet, 18 °Brix; stem length medium, 41 mm; ripens early, first week of May, 4 d after Burlat, in Modesto. **Tree:** vigorous, upright and semi-spreading; productive; self-incompatible; blooms early, late February / early March in Modesto; chilling requirement 500 h.

Royal Marie. Red fruit, large, with firm flesh, low chilling requirement, early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 21ZC114 (Bing O.P. × Minnie Royal) O.P.; USPP 21,906; 10 May 2011. **Fruit:** large, round to slightly elongated; skin red; flesh very firm, red; sweet, 18 °Brix; stem length medium, 42 mm; ripens very early, first week of May, 23 d before Bing, in Modesto. **Tree:** vigorous, upright; productive; self-incompatible; blooms early, late February / early March in Modesto, 10 d before Bing; chilling requirement 500 h.

Royal Tioga. Red fruit, medium to large, with firm flesh, low chilling requirement, very early season. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 25Z134 (Bing O.P. × Minnie Royal) × 6GM73 (Bing O.P. × Minnie Royal); USPP 22,779; 12 June 2012. **Fruit:** medium to large, round; skin red; flesh very firm, red; sweet, 16 °Brix; flavor good; stem length medium, 40 mm; ripens very early, late April / early May, 24 d before Brooks, in Modesto. **Tree:** vigorous, upright; productive; self-compatible; blooms early, late February / early March in Modesto, 10 d before Bing; chilling requirement 500 h.

RR2a. Dark red fruit, large, with firm flesh, very late season. **Origin:** Wenatchee, WA by R. Riker. Chance seedling of unknown parentage; USPP 20,500; 24 Nov. 2009. **Fruit:** large, cordate; skin dark red-purple; flesh very firm, dark red-purple; sweet, 18 to 19 °Brix; stem length medium, 43 mm; ripens third week of August in Wenatchee, similar to Staccato. **Tree:** moderately vigorous; upright and spreading; productive; self-compatible; blooms last week of April.

Rubilam. Pink-red fruit, large, very productive, early midseason. **Origin:** Elne, France by A. Maillard and L. Maillard. Bigalise® Enjidel O.P.; USPP 23,798; 6 Aug. 2013. **Fruit:** large; rounded reniform; skin bright red; flesh very firm, pink red; sweet, 15 °Brix; stem medium-short, 33 mm; ripens early midseason, end of May in Elne. **Tree:** vigor medium; spreading to semi-upright; very productive; blooms semi-early, end of March in Elne; moderate sensitivity to brown rot.

Skyler Rae®. See Tip Top.

SR500. Dark red fruit, with moderately firm flesh, ripening very late. **Origin:** Wenatchee, WA by T. Shiflett. Purportedly a whole-tree mutation of Bing; USPP 21,200; 17 Aug. 2010. **Fruit:** large; reniform; skin dark red-purple; flesh dark red-purple; sweet, 23 °Brix; stem short, 25 mm; ripens third week of August in Wenatchee, with Staccato. **Tree:** vigorous; upright; self-incompatible; blooms second week of May.

Sweet Aryana™. See PA1UNIBO.

Sweet Fruitful. Dark medium sized fruit, firm flesh, very productive, late early season. **Origin:** Le Grand, CA by L.G. Bradford. Chance seedling of unknown parentage; USPP 21,926; 24 May 2011. **Fruit:** medium, oblate; skin dark red; flesh firm, dark red; moderately sweet, 18-22 °Brix; stem length medium, 35 mm; ripens one week after Glenred. **Tree:** vigorous, upright; very productive; self-compatible, blooms early.

Sweet Gabriel™. See PA3UNIBO.

Sweet Lorenz™. See PA2UNIBO.

Sweet Saretta™. See PA5UNIBO.

Sweet Valina™. See PA4UNIBO.

Tip Top (Skyler Rae®). Yellow-fleshed fruit with red-blushed yellow skin, large, very sweet, with very firm flesh, ripening late early season. **Origin:** Wenatchee, WA by T.M. Toftness. Chance seedling of unknown parentage; USPP 21,006; 25 May 2010. **Fruit:** large; round; skin yellow with orange-to-red blush; flesh crisp, firm, yellow; very sweet, 23-27 °Brix; reduced tendency to flesh browning due to bruising; stem length medium, 40 mm; ripens third week of July in Wenatchee, 11 d before Rainier. **Tree:** upright; self-incompatible; blooms first week of May.

CITRUS

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B9-65. Late maturing Valencia sweet orange for processing. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by J.W. Grosser, F.G. Gmitter Jr. and W.S. Castle. Somaclone of standard Valencia sweet orange, plant regenerated from an in vitro-induced adventitious shoot from a nucellar seedling of Valencia (organogenesis); planted 1991; selected 2010; introd. 2015; USPP applied for. **Fruit:** typical high quality Valencia fruit and juice characteristics; yields consistently high; soluble solids high; ripens in March in central Florida. **Tree:** typical sweet orange tree with good vigor, but also exhibits precocious bearing.

N13-32. Early-midseason Hamlin sweet orange for processing. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by J.W. Grosser, F.G. Gmitter Jr. and W.S. Castle. Protoclone (somaclone) of Hamlin sweet orange regenerated from embryogenic suspension culture protoplasts in 1989; planted 1991; selected 2000; USPP applied for. **Fruit:** produces juice with a superior color

score of 36 if harvested late in the Hamlin season (January); yield and productivity similar to traditional Hamlin.

N2-28 (Summer Gold). Cybrid Ruby grapefruit. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by J.W. Grosser, F.G. Gmitter Jr. and W.S. Castle. Regenerated from protoplast fusions of diploid protoplasts isolated from an embryogenic suspension culture of Dancy tangerine (*Citrus reticulata* Blanco) with haploid tetrad-derived protoplasts isolated from staged anthers of Ruby grapefruit that apparently contained contaminant diploid Ruby pollen wall protoplasts; N2-28 has a Ruby nucleus combined with the mt and cp genomes of Dancy; USPP applied for. **Fruit:** higher °Brix and sweeter flavor than standard Ruby grapefruit; holds quality into late summer (no granulation or seed germination); extended harvest season for several months; pink flesh fades to gold as the season progresses, thus the nickname 'Summer Gold' grapefruit.

N40W-6-3 (Seedless Snack). Early-maturing, nearly seedless mandarin for fresh market. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by J.W. Grosser, F.G. Gmitter Jr. and W.S. Castle. Diploid hybrid produced from a seedy hybrid of unknown parentage via budwood irradiation; planted 2007; selected 2010; introd. 2014; USPP applied for. **Fruit:** medium nearly-seedless thin-skinned mandarin, peelable (but not a zipperskin); rind dark orange, with unique pleasant fragrance when peeled; ripens in November in central Florida with exceptional sweet flavor. **Tree:** exhibits obloid dense bushy canopy, does not droop with heavy cropping.

OLL – 4. Late maturing sweet orange for fresh market or processing. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by J.W. Grosser, F.G. Gmitter Jr. and W.S. Castle. OLL (Orie Lee Late) sweet orange somaclone; regenerated from embryogenic callus culture; planted 2004; selected 2012, introd. 2014; USPP applied for. **Fruit:** round with exceptional juice quality and flavor, and juice color that usually exceeds that of Rhode Red Valencia; ripens in March in central Florida, but can hold on the tree into June; highest yielding among original OLL somaclones. **Tree:** typical sweet orange tree with good vigor; apparently better stress tolerance than Valencia.

Seedless Snack. See N40W-6-3.

Summer Gold. See N2-28.

UF 411. High-quality large-fruited mandarin, with January-February maturity. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by F.G. Gmitter Jr., J.W. Grosser and W.S. Castle. LB8-9 (Sugar Belle™) × Murcott tangor; cross made 1991; planted 1993; selected 2007. **Fruit:** very attractive; large, average weight 253 g; average length 67-72 mm; average width 71-82 mm; round; peel firm, can be easily and cleanly removed; peel and flesh orange; flavor excellent; seed number 10-22, occasionally <10. **Tree:** vigorous with dense canopy; prone to alternate bearing.

UF 711. A mid-late season, easy to peel mandarin. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by J.W. Grosser, F.G. Gmitter Jr. and W.S. Castle. LB8-9 (Sugar Belle™) × Murcott tangor; crossed 1991; planted 1993; selected 2007. **Fruit:** very attractive; size good; peel color deep orange-red; easy to peel; flesh dark orange; flavor excellent; good segment structure, can be eaten cleanly; generally ripens in January - February; average seed number 6, range 1-12. **Tree:** growth habit vigorous and upright; canopy dense; very high yielding, but can exhibit some degree of alternate bearing.

UF 900. A very early maturing, easy peeling mandarin for fresh market. **Origin:** University of Florida-Institute of Food and Agricultural Sciences-Citrus Research and Education Center, Lake Alfred, FL by F.G. Gmitter Jr., J.W. Grosser and W.S. Castle. Robinson mandarin × Fairchild mandarin; crossed 1991; planted 1993; selected 2006. **Fruit:** length 58-65 mm; width 68-73 mm; round and slightly pyriform; average weight 240-270 g; average seed number 12, range 2-25; quality far superior to Fallglo ripens in the same early season in Florida, routinely begins to develop orange color in mid- to late September, and generally will be naturally and fully colored by mid-November in central Florida **Tree:** vigor typical for mandarin hybrids. Unlike many such hybrids, UF 900 has not been prone to alternate bearing.

ELDERBERRY

Patrick L. Byers, Greene County Extension Office, University of Missouri Extension, Springfield, MO

Ranch. Moderate yielding, early ripening American cultivar adapted to the Midwestern US. **Origin:** University of Missouri/Missouri State University by A.L. Thomas and P.L. Byers. Selected from wild bushes of *S. nigra* ssp. *canadensis* by Marge Millican before 1990 near Howard, KS; tested as Ranch; introd. 2010. **Fruit:** medium, 64.5 mg; skin dark; quality high; juice TSS 11.8 °Brix, pH 4.81; cyme medium, 103.8 g; ripens uniformly; resistant to shattering; upright to decumbent position when ripe. **Plant:** medium, 1.0–2.2 m; growth habit upright; budbreak and bloom time consistent with other American elderberry cultivars; harvest time 5-7 d earlier than Wyldewood; yields lower than Wyldewood and Bob Gordon in several trials; inconsistent cropping noted among trials at multiple sites. Moderate incidence of eriophyid mite damage in several trials.

NECTARINE

Ralph E. Burrell and Ksenija Gasic, Dept. of Plant and Environmental Sciences, Clemson University, Clemson, SC

Amber Fire. Early-maturing, yellow-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 58ZA720 (2LG119 × 374LH278) × 56ZC700 (57ZA1067 O.P.); USPP 25,010; 28 Oct. 2014. **Fruit:** medium to large; skin dark red; flesh yellow, firm, meaty, clingstone; holds on the tree 7 d after maturity; flavor good; moderately juicy; ripens 29 Apr. to 5 May in Modesto. **Tree:** large; vigorous; upright; medium density; productive; flowers large; self-fertile; chilling requirement 150 h; leaf glands large, reniform.

Andes Nec-3. Yellow-fleshed, melting, clingstone fruit. **Origin:** ANA Chile-Andes Nursery Association, Paine, Chile by R. Infante. Flavortop × A67-03; USPP 25,893; 15 Sept. 2015. **Fruit:** medium; round; 90% to 98% blush; flesh yellow, slow softening, melting, clingstone; 13.1-16.1 °Brix; acidity medium; postharvest life potential up to 50 d at 0 °C; ripens 10-12 d before August Red in Paine. **Tree:** size medium; vigor moderate; growth habit horizontal; productive; flowers showy; leaf glands reniform.

Autumn Pearl. White-fleshed, melting, clingstone fruit. **Origin:** Le Grand, CA by L.G. Bradford and J.M. Quisenberry. Giant Pearl × September Bright; USPP 25,829; 25 Aug. 2015. **Fruit:** medium, uniform; shape slightly variable, mostly globose; dark red blush over a dark pink background with some yellowish white areas where protected from the sun; flesh white, firm, crisp, melting, clingstone; very sweet with low acid balance; 18-20 °Brix; ripens 1-11 Sept. in San Joaquin Valley, CA. **Tree:** size medium; vigor moderate; productive; spreading and dense; flowers non-showy; self-fertile; chilling requirement 600 h; leaf glands medium, reniform.

Burnectthirty. Yellow-fleshed, non-melting, clingstone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and

T.J. Gerdt. Burnecttwentytwo × Burnecttwentythree; tested as Q56.074; USPP 25,863; 8 Sept. 2015. **Fruit:** large, uniform; rounded to slightly oblate; medium to dark red blush covers 85-95% of yellow ground color; flesh yellow, firm, dense, non-melting, clingstone; flavor sweet, acidic; 13 °Brix; ripens 18-25 May in San Joaquin Valley, CA. **Tree:** medium-large; moderately vigorous; extremely upright; heavy fruit sets; flowers showy; self-fertile; chilling requirement 350 h; leaf glands reniform.

Burnecttwentyfive. Yellow-fleshed, melting, clingstone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerdt. Burnectseven × E25.071; tested as N8.068; USPP 24,140; 7 Jan. 2014. **Fruit:** large, uniform; rounded to slightly elongated; 70-85% red blush; flesh yellow, firm, melting, clingstone; sweet and acidic; moderately juicy; ripens 14-21 July in San Joaquin Valley, CA. **Tree:** medium-large; moderately vigorous; productive; upright; flowers showy; chilling requirement 650 h; leaf glands small, globose.

Burnecttwentyseven. White-fleshed, melting, freestone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerdt. Burnecttwentyone × unnamed white-fleshed nectarine; tested as Q62.081; USPP 25,128; 2 Dec. 2014. **Fruit:** large, uniform; rounded to oblate; 85-95% medium to dark red blush; flesh white, flavor sweet, subacidic, moderately juicy melting, clingstone; ripens 20-28 Aug. in San Joaquin Valley, CA. **Tree:** medium-large; vigorous; productive; fruit set moderate; upright; flowers showy; self-fertile; chilling requirement 650 h; leaf glands globose, occasionally senescent on mature leaves.

Burnecttwentysix. Yellow-fleshed, non-melting, clingstone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerdt. i9.045 O.P.; tested as N11.033; USPP 24,139; 7 Jan. 2014. **Fruit:** large, uniform; rounded to slightly elongated; 70-85% red blush; flesh yellow, firm non-melting, clingstone; flavor acidic, moderately juicy; ripens 1-12 Aug. in San Joaquin Valley, CA. **Tree:** medium-large; moderately vigorous; upright; fruit set heavy; productive; density medium; flowers non-showy; chilling requirement 650 h; leaf glands small, reniform.

Cakedelice. White-fleshed, melting, semi-clingstone flat fruit. **Origin:** Argo Selection Fruits, Elne, France by L. Maillard and A. Maillard. Nectamagie × ASFNBF0688 (USPP 22,492); tested as 03.5E.125NBPL; USPP 25,632; 23 June 2015. **Fruit:** medium to large; flesh very firm when shipping ripe; 90-95% blush; flesh white, very juicy at complete maturity, melting, semi-clingstone; 13-17 °Brix; long shelf life both on the tree and after harvest; flavor semi-sweet; ripens 22 July to 4 Aug. in Pyrenees-Orientales Dep., France. **Tree:** large; vigor medium; very productive; growing habit semi-spreading to semi-upright; cold hardy; flowers showy; self-fertile; chilling requirement 350-1200 h; leaf glands reniform.

Hahong. Orange-yellow-fleshed, clingstone, melting fruit. **Origin:** National Institute of Horticultural & Herbal Science, RDA, Suwon, Republic of Korea by J.H. Jun, J.H. Kim, E.Y. Nam, K.H. Chung, I.K. Yun, S. K. Yun, Y.B. Kwack, S.J. Kim and S.J. Kang. Sun Glo × Cheonhong; tested as Wonkyo Da-26; PVP in Rep. of Korea; June 2011. **Fruit:** large; ovate; uniform; creamy yellow ground color with 99% red overcolor; flesh orange-yellow, firm, subacid; ripens 14 Aug. in Suwon. **Tree:** large, vigorous; semi-upright; flowers showy; self-fertile; chilling requirement 800 chill h; leaf glands reniform.

Honey Spring. Yellow-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 387LU177 (58ZA720 × 396LN445) O.P.; USPP 25,983; 13 Oct. 2015. **Fruit:** large; globose; flesh yellow, firm, meaty, clingstone; flavor mild, sweet, low-acid; 15 °Brix; ripens 1-8 June in Modesto. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 250 h; leaf glands reniform.

Honeylicious. Yellow-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 228LP484 (52LD434 × Honey Royale) × Honey Gem; USPP 26,056; 10 Nov. 2015. **Fruit:** large; globose; flesh yellow firm, meaty, clingstone; very juicy; eating quality excellent; sugar/acid balance good; 12.9 °Brix; storage and shipping quality good; ripens 9-19 July in Modesto. **Tree:** large; vigorous; upright; productive; density medium; flowers large; self-fertile; chilling requirement 1000 h; leaf glands small to medium, reniform.

Nectabingo. Yellow-fleshed, melting, clingstone fruit. **Origin:** Argo Selection Fruits, Elne, France by L. Maillard and A. Maillard. Nectagala × Nectaprima; tested as 03.8W.31NJ; USPP 25,633; 23 June 2015. **Fruit:** uniform; round; very firm when shipping ripe; 90-95% red blush; flesh yellow, very juicy at complete maturity, melting, clingstone, ripens very slowly; shelf life long; 10-11 °Brix; ripens 5-26 July in Pyrenees-Orientales Dept., France. **Tree:** large; vigor moderate; very productive; shape semi-flared to semi-upright; cold hardy; flowers showy; self-fertile; chilling requirement 350-1200 h; leaf glands reniform.

Nectadiva. Yellow-fleshed, melting, clingstone fruit. **Origin:** Argo Selection Fruits, Elne, France by L. Maillard and A. Maillard. Redpearl × Nectalady; tested as 4N.03.120 NJ ASF 0619; USPP 24,117; 31 Dec. 2013. **Fruit:** large, uniform; 75-90% red blush; flesh yellow, very firm, dense, crunchy, melting, clingstone, juicy at harvest maturity; semi-sweet; very aromatic; ripens 25 Aug. to 12 Sept. in Pyrenees-Orientales Dept., France. **Tree:** medium to large; vigor medium to high; semi-flared to semi-upright; productive; dense; cold hardy; flowers showy; self-fertile; chilling requirement 350-1200 h; leaf glands medium to large, reniform.

Nectafest. Yellow-fleshed, melting, freestone fruit. **Origin:** Appalachian Fruit Research Station, USDA, Kearneysville, WV by R. Scorza. (Flavoritop × Italian Pillar) O.P.; tested as KV970512; USPP 25,694; 14 July 2015. **Fruit:** medium to large, 145.1 g; globose to slightly ovate; 80% red blush; flesh yellow, flavorful and firm until full-ripe, melting, freestone; juiciness moderate; 12-13 °Brix; ripens with Redhaven, John Boy, and White Lady in Kearneysville. **Tree:** vigorous; upright; productivity good; flowers showy; self-fertile; leaf glands reniform.

Nectasia. Yellow-fleshed, melting, semi-clingstone fruit. **Origin:** Argo Selection Fruits, Elne, France by L. Maillard and A. Maillard. Nectagala × Nectachief; tested as 05.05.05 NJ ASF 0712; USPP 24,118; 31 Dec. 2013. **Fruit:** large, uniform; round; 85-95% purple red blush; flesh yellow, very firm, dense, crunchy, melting, semi-clingstone; flavor semi-sweet, aromatic, with a high level of sugars, generally higher than 13 °Brix; very juicy; shipping and keeping quality good; ripens 14 Aug. to 7 Sept. in Pyrenees-Orientales Dept., France. **Tree:** large; vigorous; shape semi-flared to semi-upright; dense; very productive; resistant to spring freezes; flowers showy; self-fertile; chilling requirement 350-1200 h; leaf glands medium; reniform.

Pearlicious XVI. White-fleshed, melting, clingstone fruit. **Origin:** Le Grand, CA by L.G. Bradford. Regal Pearl × unnamed yellow-fleshed parent; USPP 25,828; 25 Aug. 2015. **Fruit:** large, somewhat variable; globose; very deep red over dark pink background, with some pale yellow areas where protected from the sun; flesh white, firm, crisp, meaty, melting, clingstone; flavor sweet, subacidic; 20-22 °Brix; ripens 10-20 Aug. in San Joaquin Valley, CA. **Tree:** small; moderately vigorous; spreading and dense; flowers showy; self-fertile; chilling requirement 550 h; leaf glands medium, globose.

Pearlicious XVII. White-fleshed, melting, clingstone fruit. **Origin:** Le Grand, CA by L.G. Bradford. 28P1130 × 1P861 (Bright Pearl × Diamond Ray); USPP 24,835; 2 Sept. 2014. **Fruit:** large, uniform; shape rounded; flesh white firm, crisp, melting, clingstone; typically 20 °Brix; acidity low; juice abundant; dark red mottled with

moderate pink over yellowish white background, with some pale orange-yellow freckling; ripens 2-16 Sept. in San Joaquin Valley, CA. **Tree:** medium; moderately vigorous; spreading and dense; flowers showy; self-fertile; chilling requirement 650 h; leaf glands globose on young leaves, becoming reniform with age.

Pearlicious XXII. White-fleshed, melting, semi-freestone fruit. **Origin:** Le Grand, CA by L.G. Bradford. 6P740 × Diamond Pearl; USPP 25,298; 24 Feb. 2015. **Fruit:** medium, uniform; shape globose to slightly compressed axially; flesh white, crisp, melting, semi-freestone; skin dark red with areas of pale pink where protected from sunlight; 16-18 °Brix; ripens 24 May to 2 June in San Joaquin Valley, CA. **Tree:** medium size; moderately vigorous; spreading and dense; very productive; flowers showy; self-fertile; chilling requirement 525 h; leaf glands small, globose.

Pearlicious XXIII. White-fleshed, melting, clingstone fruit. **Origin:** Le Grand, CA by L.G. Bradford. Grand Pearl × 53P129; USPP 25,232; 20 Jan. 2015. **Fruit:** medium, uniform; globose; flesh white, firm, crisp, melting, clingstone; moderately juicy; nice balance of light acid and sugar; 16-18 °Brix; eating quality very good; skin nearly fully red; remains in good condition for 21 d at 2 °C (36 °F); shipping quality good; ripens 28 May to 8 June in San Joaquin Valley, CA. **Tree:** medium; vigorous; spreading and dense; productive; flowers showy; self-fertile; chilling requirement 425 h; leaf glands medium, reniform.

Polar Sweet. White-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 215LV498 (120LH142 × 381LN4) O.P.; USPP 25,092; 25 Nov. 2014. **Fruit:** large; globose; flesh white, firm, meaty, clingstone; moderately juicy; eating quality excellent; 14 °Brix; flavor mild, sweet, subacid; shipping quality good; ripens 2-10 Aug. in Modesto. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 800 h; leaf glands medium, reniform.

R82358. Yellow-fleshed, clingstone fruit. **Origin:** Dinuba, CA by M.S. Reimer. Sport of Burnectffifteen; USPP 24,297; 11 Mar. 2014. **Fruit:** large; firm; flesh yellow, clingstone; eating quality very good; aroma mild; ripens 1-5 Aug. in Dinuba. **Tree:** vigor very good; upright and spreading; production very good to excellent; flowers showy; leaf glands reniform.

Sierra Pearl. White-fleshed, clingstone fruit. **Origin:** Le Grand, CA by L.G. Bradford and J.M. Quisenberry. Giant Pearl × September Bright; USPP 25,848; 1 Sept. 2015. **Fruit:** medium; globose, slightly asymmetrical; dark red over light yellowish pink background, with pale yellow-green freckling throughout; flesh white, firm, tough, meaty, clingstone; a tasty blend of sugar and acids; 19 °Brix; ripens 26 July to 10 Aug. in San Joaquin Valley, CA. **Tree:** medium; vigorous; spreading and dense; productive; flowers showy; self-fertile; chilling requirement 550 h; leaf glands globose.

Smooth Texan One. Yellow-fleshed, melting clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Crimson Baby × TX2C104N (Suncoast O.P.); tested as TX3B298N; introd. 2014; USPP applied for. **Fruit:** large, melting, clingstone; flesh yellow; flavor excellent; 70-90% blush; occasional skin cracking and splits; 10.3 °Brix; ripens 13 May in Fairfield, TX. **Tree:** vigorous; semi-spreading; flowers non-showy; self-fertile; chilling requirement medium; leaf glands reniform.

Smooth Texan Three. Yellow-fleshed, melting clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Diamond Ray × Danmo; tested as TX4C189LN; introd. 2014; USPP applied for. **Fruit:** large, melting, clingstone; 70-90% blush; flesh yellow; flavor excellent; acidity low; 13.8 °Brix; ripens 2 June in Fairfield, TX. **Tree:** vigorous; semi-spreading; flowers non-showy; self-fertile; chilling requirement 600 h; leaf glands reniform.

Smooth Texan Two. Orange to yellow-fleshed, melting clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Crimson Baby × Bradley; tested as TX3B195N; introd. 2014; USPP applied for. **Fruit:** large; 70-90% blush; flesh orange to yellow, melting, clingstone; flavor excellent, tangy-sweet; 9.3 °Brix; ripens 19 May in Fairfield, TX. **Tree:** vigorous; semi-spreading; flowers showy; self-fertile; chilling requirement 550 h; leaf glands reniform.

Smooth Zest One. White-fleshed, melting, clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. TX3D75W (white peach × Sunraycer) × Texfirst; tested as TX2B300WN; introd. 2015; USPP applied for. **Fruit:** large; round to slightly ovate; attractive; 70-90% light to dark red blush; flesh white, firm, melting, clingstone; flavor tangy-sweet; 11.4 °Brix; ripens 5 May in Floresville, TX. **Tree:** vigorous; semi-spreading; flowers showy; self-fertile; chilling requirement 250 h; leaf glands small, reniform.

Smooth Zest Two. Yellow-fleshed, melting, clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. TX1B38N (Sunraycer O.P.) × TX95128N; tested as TX1B261N; introd. 2015; USPP applied for. **Fruit:** large; round to slightly ovate; attractive; 40-70% light to dark red blush; flesh yellow, firm, melting, clingstone; acidic; 11 °Brix; ripens 9 May in Floresville, TX. **Tree:** vigorous; semi-spreading; flowers showy; self-fertile; chilling requirement 250 h; leaf glands globose.

Sunectwentryfour. Yellow-fleshed, melting, clingstone fruit. **Origin:** Sun World International, Bakersfield, CA by T.A. Bacon. 94-018N × low-chill pollen mix; tested as NE338; USPP 25,284; 10 Feb. 2015. **Fruit:** large; rounded; nearly 100% dark red blush; flesh yellow, firm, melting, clingstone, moderately juicy; flavor bland, tart-sweet; 11-12 °Brix; eating quality fair; stores nearly 5 weeks at 0 °C; slight tendency to crack in wet seasons; ripens 10-20 May in Wasco, CA. **Tree:** large; vigor strong; spread normal; dense; productive; flowers non-showy; self-fertile; chilling requirement 200 h; leaf glands medium; reniform.

PEACH

Ralph E. Burrell and Ksenija Gasic, Dept. of Plant and Environmental Sciences, Clemson University, Clemson, SC

Alisio 15. Yellow-fleshed, melting, clingstone fruit. **Origin:** La Alberca (Murcia), Spain by A. Carrillo Navarro, A. Guevara-Gazquez, M. Perez-Jimenez, L. Ruiz-Garcia and J. Cos-Terrer. S2099 (Candor × Floridaprince) O.P.; introd. 2015. **Fruit:** medium; oblate; entire fruit surface is attractive mottled dark red; flesh yellow, melting, clingstone; eating quality good; 10.6 °Brix; ripens 12 May in Murcia, Spain. **Tree:** flowers showy; self-fertile; chilling requirement 400-600 h; leaf glands globose.

Burpeachthirty. Late ripening, yellow-fleshed, non-melting, clingstone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerds. Fayette × unnamed yellow-fleshed clingstone peach; tested as C9.053; USPP 24,836; 2 Sept. 2014. **Fruit:** large, uniform; globose; yellow ground color with 35-45% red overcolor; flesh yellow, firm, dense, non-melting, clingstone, very sweet with moderate acidity; moderately juicy; 14.5-17 °Brix; keeping quality excellent; ripens 7-17 Oct. in San Joaquin Valley, CA. **Tree:** medium to medium-large; vigor moderate; productive; upright; density moderate; flowers showy; self-fertile; chilling requirement 650 h; leaf glands small, reniform.

Burpeachthirtyfive. White-fleshed, non-melting, freestone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerds. Unnamed white-fleshed freestone peach × Red Jim nectarine; tested as E48.050; USPP 25,744; 28 July 2015. **Fruit:** large, uniform, round, truncate; 35%-45% red blush; flesh white, firm, juicy, dense, non-melting, freestone, very sweet, acidity

moderate; taste pleasant and balanced; 15%-18 °Brix; keeping quality excellent; shipping quality good; ripens 17-23 July in San Joaquin Valley, CA. **Tree:** medium to medium-large; vigor moderate; productive; upright; density moderate; flowers showy; self-fertile; chilling requirement 500 h; leaf glands small, globose.

Burpeachthirtyfour. Yellow-fleshed, non-melting, freestone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerds. N9.120 O.P.; tested as Q59.112; USPP 25,764; 4 Aug. 2015. **Fruit:** large, uniform; globose; 65-85% red blush; flesh yellow, firm, juicy, dense, non-melting, freestone, very sweet with moderate acidity; 11.5-13 °Brix; keeping quality excellent; shipping quality good; ripens 16-23 Aug. in San Joaquin Valley, CA. **Tree:** medium to medium-large; vigor moderate; productive; upright; density moderate; flowers showy; self-fertile; chilling requirement 650 h; leaf glands small, reniform.

Burpeachthirtyone. White-fleshed, non-melting, freestone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerds. Burpeacheighteen × white-fleshed freestone peach; tested as P7.102; USPP 24,571; 24 June 2014. **Fruit:** large, uniform; globose; 65% red blush; flesh white, firm, dense, non-melting, freestone, very sweet with moderate acidity; 15-19 °Brix; moderately juicy; ripens 10-17 Sept. in San Joaquin Valley, CA. **Tree:** medium to medium-large; vigor moderate; productive; upright; density moderate; flowers showy; self-fertile; chilling requirement 600 h; leaf glands small, reniform.

Burpeachthirtythree. Yellow-fleshed, non-melting, clingstone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerds. N7.045 O.P.; tested as Q18.065; USPP 25,725; 21 July 2015. **Fruit:** large; globose, occasionally has tips; 65-75% light red blush; flesh yellow, firm, juicy, dense, non-melting, clingstone, very sweet with moderate acidity; moderately juicy; 13-16 °Brix; shipping and keeping qualities good; ripens 25 Aug. to 3 Sept. in San Joaquin Valley, CA. **Tree:** medium to medium-large; vigor moderate; productive; upright; density moderate; flowers showy; self-fertile; chilling requirement 650 h; leaf glands small, reniform.

Burpeachthirtytwo. White-fleshed, non-melting, freestone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerds. Burpeachfour × white-fleshed clingstone peach; tested as N54.112; USPP 24,580; 1 July 2014. **Fruit:** large, uniform; globose; 55-70% red blush; flesh white, firm, dense, non-melting, freestone; very sweet with moderate acidity; 14-16 °Brix; moderately juicy; ripens 3-9 Aug. in San Joaquin Valley, CA. **Tree:** medium to large; vigor moderate; productive; upright; density moderate; flowers showy; self-fertile; chilling requirement 650 h; leaf glands small, reniform.

Burpeachtwenty-nine. White-fleshed, non-melting, freestone fruit. **Origin:** The Burchell Nursery, Oakdale, CA by J.K. Slaughter and T.J. Gerds. Unknown parentage; tested as M37.028; USPP 24,810; 26 Aug. 2014. **Fruit:** large, uniform; globose; 70-80% red blush; flesh white, firm, dense, non-melting, freestone, very sweet with moderate acidity; moderately juicy; 15-19 °Brix; keeping quality excellent; shipping quality good; ripens 10-17 Aug. in San Joaquin Valley, CA. **Tree:** medium to medium-large; vigor moderate; productive; upright; density moderate; flowers showy; self-fertile; chilling requirement 750 h; leaf glands small, reniform.

Crisplate. Yellow-fleshed, melting, clingstone fruit. **Origin:** Argo Selection Fruits, Elne, France by L. Maillard and A. Maillard. Julienice × Nectalady; tested as 01.29E.100PJ; USPP 25,634; 23 June 2015. **Fruit:** large, uniform; round; semi-sweet, with a high level of sugars; 90-100% luminous purple-red blush; flesh yellow, very firm, dense, crunchy, melting, clingstone, juicy at harvest maturity; aroma pronounced; 14-17 °Brix; remarkable keeping quality both on the tree and in storage; shipping quality very good;

not very sensitive to powdery mildew or brown rot; ripens 8-24 Sept. in Pyrenees-Orientales Dept., France. **Tree:** large; moderately vigorous; very productive; form semi-flared to semi-upright; dense; resistant to spring freezes; flowers showy; self-fertile; chilling requirement 350-1200 h; leaf glands medium, reniform.

Crispsun. Yellow-fleshed, melting, clingstone fruit. **Origin:** Argo Selection Fruits, Elne, France by L. Maillard and A. Maillard. Crispregal O.P.; tested as 4S.12W.49PJ; USPP 25,656; 30 June 2015. **Fruit:** large, uniform; round; 80-90% luminous red blush; flesh yellow, very firm, dense, crunchy, melting, clingstone, semi-sweet, with a high level of sugars, juicy at harvest maturity stage; aroma pronounced; 12-15 °Brix; remarkable keeping quality both on the tree and in storage; shipping quality very good; not very sensitive to powdery mildew and brown rot; ripens 21 July to 2 Aug. in Pyrenees-Orientales Dept., France. **Tree:** large; vigor moderate; very productive; form semi-flared to semi-upright; dense; resistant to spring freezes; flowers showy; self-fertile; leaf glands medium, reniform.

FA 1566. Yellow-fleshed, melting, freestone fruit. **Origin:** Coloma, MI by A. Bjorge and R. Bjorge. Fayette × Newhaven; USPP 25,130; 2 Dec. 2014. **Fruit:** large, 210 g; oblate; 80-90% red blush; flesh yellow, firm, somewhat rubbery, melting, freestone; storage and shipping quality excellent; susceptibility to brown rot moderate; flavor excellent, with high sweetness and medium acidity; very aromatic; ripens 20 Aug. in Coloma; usually harvested in one picking. **Tree:** vigorous; density medium; form upright and spreading; productive; moderately susceptible to peach canker and bacterial leaf spot; flowers semi-showy; self-fertile; leaf glands reniform.

Fire Gem. Yellow-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 21LD51 (Vista × 7HB287) O.P.; USPP 24,581; 1 July 2014. **Fruit:** large; globose; flesh yellow, firm, meaty, crisp, clingstone; holds on tree 8-10 d after maturity; flavor good; moderately juicy; 12 °Brix; shipping and storage qualities good; ripens 17-24 May in San Joaquin Valley, CA. **Tree:** vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 800 h; leaf glands medium, reniform.

Flatop. White-fleshed, melting, clingstone to semi-clingstone flat fruit. **Origin:** Argo Selection Fruits, Elne, France by L. Maillard and A. Maillard. Nectarmargie × ASFPBF0492 (USPP 21,143); tested as 01.29E.42 PBPL ASF 0797; USPP 24,490; 27 May 2014. **Fruit:** uniform, 120-180 g; oblate and round to slightly cardioid; flat; 75-90% luminous red blush; flesh white, very firm, very dense, crunchy, melting, smooth, clingstone to semi-clingstone, very juicy at complete maturity; flavor semi-sweet, aromatic, generally 13 °Brix or higher; ripens 19 July to 15 Aug. in Pyrenees-Orientales Dept., France. **Tree:** large; vigorous; productive; dense; flowers showy; self-fertile; leaf glands reniform.

Golden Zest. Yellow-fleshed, non-melting, clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Crimson Lady × Agata (i.e. Conserva 458); tested as GZ, TX4E220C; introd. 2014; USPP applied for. **Fruit:** large, ovate uniform; golden yellow ground color with a 20-30% red overcolor; flesh yellow, firm; non-melting, clingstone; flavor good to excellent; 13-16 °Brix; ripens 20 May at College Station. **Tree:** vigorous; semi-spreading; flowers showy; self-fertile; chilling requirement 600 h; leaf glands small, globular.

Gulfsnow. White-fleshed, non-melting, clingstone fruit. **Origin:** Attapulugus, GA by T.G. Beckman, J.X. Chaparro and P.J. Conner. AP98-30 × AP99-20W; tested as AP06-09W; USPP 25,299; 24 Feb. 2015. **Fruit:** large, uniform; nearly round; 50-60% red blush; flesh white, firm, juicy, non-melting when fully ripe, clingstone, moderately sweet, slightly acid; 10.6 °Brix; abundant juice; high resistance to bacterial spot; keeping quality excellent; shipping quality good;

ripens 15-22 June in Attapulugus, GA. **Tree:** medium; vigor moderate; density light to medium; semi-upright; productive; flowers showy; self-fertile; chilling requirement 400 h; leaf glands globose.

Ice Queen. White-fleshed, melting, freestone fruit. **Origin:** Le Grand, CA by L.G. Bradford; Snow Princess × yellow-fleshed nectarine; USPP 24,700; 29 July 2014. **Fruit:** large, uniform; globose; very dark red over moderate pink background with some yellowish white areas protected from the sun; flesh white, firm, crisp, melting, freestone, moderately juicy; a tasty balance of light acid and sugar; 16-20 °Brix; shipping and keeping qualities good; ripens 20-30 July in San Joaquin Valley, CA. **Tree:** large; vigorous, spreading and dense; productive; flowers showy; self-fertile; chilling requirement 450 h; leaf glands medium, reniform.

P.F. 8 Ball White. White-fleshed, non-melting, freestone fruit. **Origin:** Coloma, MI by P.J. Friday. Parentage unknown; USPP 25,616; 9 June 2015. **Fruit:** large; spherical; 96% red blush; flesh white, firm, non-melting, freestone; flavor excellent; 14 °Brix; resistant to brown rot and bacterial fruit spot; shipping and keeping qualities very good; ripens 25-30 July in southwestern Michigan. **Tree:** medium; vigorous, spreading; density medium; very productive; resistant to bacterial leaf spot; flowers non-showy; leaf glands globose.

P.F. Late 8 Ball. Yellow-fleshed, non-melting, freestone fruit. **Origin:** Coloma, MI by P.J. Friday. Parentage unknown; USPP 26,058; 10 Nov. 2015. **Fruit:** medium; spherical; 85% red blush; flesh yellow, firm, non-melting, freestone; flavor very good; 12 °Brix; shipping and keeping qualities very good; resistant to brown rot and bacterial fruit spot; ripens 9-15 Aug. in southwestern Michigan. **Tree:** small; vigor moderate, spreading; density medium; production good; resistant to bacterial leaf spot; flowers showy; leaf glands oval.

P.F. Legendary. Yellow-fleshed, non-melting, freestone fruit. **Origin:** Coloma, MI by P.J. Friday; Parentage unknown; USPP 25,765; 4 Aug. 2015. **Fruit:** medium to large; round; 70-75% red blush; flesh yellow, firm, non-melting, freestone; flavor very good, sweet; 12 °Brix; shipping and keeping qualities very good; resistant to brown rot and bacterial fruit spot; ripens 16-22 Sept. in southwestern Michigan. **Tree:** large; vigorous; density medium; upright; very productive; very resistant to bacterial leaf spot; flowers showy; self-fertile; leaf glands globose.

P.F. Paramount 24. Yellow-fleshed, non-melting, freestone fruit. **Origin:** Coloma, MI by P.J. Friday. Parentage unknown; USPP 25,094; 25 Nov. 2014. **Fruit:** large; spherical; 80% dark red blush; flesh yellow, firm, non-melting, freestone; eating quality and aroma excellent; 12 °Brix; shipping and keeping qualities very good; resistant to brown rot; ripens 24-30 Aug. in southwestern Michigan. **Tree:** medium; vigor moderate; spreading; density medium; productive; very resistant to bacterial spot; flowers non-showy; self-fertile; chilling requirement 750 h; leaf glands oval.

Pearl Princess XII. White-fleshed, melting, freestone fruit. **Origin:** Le Grand, CA by L.G. Bradford and J.M. Quisenberry. Parentage unknown; USPP 25,745; 28 July 2015. **Fruit:** very large; uniform; globose; dark red, smoothly blending to light grayish red, with yellowish white areas where protected from the sun; flesh white, firm, crisp, melting, freestone; moderately juicy; delicious balance of slight acid and strong sugar; 16-18 °Brix; shipping and keeping qualities good; ripens 20-30 Aug. in San Joaquin Valley, CA. **Tree:** medium to large; vigor moderate; productive; spreading and dense; flowers showy; self-fertile; chilling requirement 600 h; leaf glands medium, reniform.

Red Princess. Yellow-fleshed, melting, clingstone fruit. **Origin:** Le Grand, CA by L.G. Bradford. Snow Princess × yellow-fleshed

nectarine; USPP 24,729; 5 Aug. 2014. **Fruit:** large, uniform; globose; very dark red mottled over a moderate red background; abundant, rich juicy; flesh yellow, firm, melting, clingstone; classic peach flavor, acidic and sweet; 14 °Brix; ripens 27 June to 4 July in San Joaquin Valley, CA. **Tree:** medium; vigor moderate; spreading and dense; productive; flowers showy; self-fertile; chilling requirement 600 h; leaf glands medium, reniform.

Rich Fire. Yellow-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 177LE421 (Rich Lady × 57EE47) O.P.; USPP 25,831; 25 Aug. 2015. **Fruit:** large; globose; flesh yellow, firm, meaty, crisp, clingstone; good balance between acid and sugar; moderately juicy; 12.8 °Brix; skin attractive red; shipping and keeping qualities good; ripens 25 May to 4 June in San Joaquin Valley, CA. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 750 h; leaf glands large, reniform.

Rich Snow. White-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. Snow Lady O.P.; USPP 25,812; 18 Aug. 2015. **Fruit:** medium to large; globose; flesh white, firm, meaty, clingstone; flavor good, mild, sweet, subacid; moderately juicy; 14.5 °Brix; shipping and keeping qualities good; skin attractive red; ripens 25 May to 7 June in San Joaquin Valley, CA. **Tree:** large; vigorous; upright; productive; density medium; flowers medium to large; self-fertile; chilling requirement 400 h; leaf glands medium to large, reniform.

Royal Zest Four. Yellow-fleshed, melting fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Rich Lady × Victor; tested as RZ4, TX4E169; introd. 2014; USPP applied for. **Fruit:** large, round, uniform; yellow ground color with a 60-90% red overcolor; flesh yellow, firm; melting; flavor good; ripens 19 May at College Station. **Tree:** vigorous; semi-spreading; flowers showy; self-fertile; chilling requirement 600 h; leaf glands reniform.

Royal Zest One. Yellow-fleshed, non-melting, clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. TX2293-1 (Flordaking O.P.) × Rich Lady; tested as RZ1, TX4B235; introd. 2014; USPP applied for. **Fruit:** large, round, slight tip, uniform; yellow ground color with a 60-90% red overcolor; flesh yellow, firm, non-melting, clingstone; flavor good; ripens 16 May at College Station. **Tree:** vigorous; semi-spreading; flowers non-showy; self-fertile; chilling requirement 600 h; leaf glands small, globular.

Royal Zest Three. Yellow-fleshed, melting, freestone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Rich Lady × Victor; tested as RZ3, TX4E218; introd. 2014; USPP applied for. **Fruit:** large, round, uniform; yellow ground color with a 60-90% red overcolor; flesh yellow, firm, melting, freestone; flavor good to excellent; ripens 9 June at College Station. **Tree:** vigorous; semi-spreading; flowers showy; self-fertile; chilling requirement 550 h; leaf glands small, globular.

Royal Zest Two. Yellow-fleshed, melting, freestone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Rich Lady × Victor; tested as REZ2, TX4D165; introd. 2014; USPP applied for. **Fruit:** large, round, uniform; yellow ground color with a 60-90% red overcolor; flesh yellow, firm, melting, freestone; flavor good to excellent; ripens 23 May at College Station. **Tree:** vigorous; semi-spreading; flowers showy; self-fertile; chilling requirement 500 h; leaf glands reniform.

Sauzee Gem. White-fleshed, clingstone flat fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 155LE403 (originated from crosses among May Grand, Redwing, O'Henry, June Crest, and Sugar May) × Sauzee Queen; USPP 24,167; 21 Jan. 2014. **Fruit:** medium to large; shape flat; flesh white, firm, meaty, clingstone; flavor very good, sweet, subacidic; 15.1 °Brix; shipping

and storage qualities good; ripens 2-10 June in Modesto. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 900 h; leaf glands small, reniform.

Sierra Princess. White-fleshed, melting, freestone fruit. **Origin:** Le Grand, CA by L.G. Bradford and J.M. Quisenberry. Diamond Princess × unnamed white flesh peach; USPP 25,830; 25 Aug. 2015. **Fruit:** large, uniform; globose; very deep red, smoothly blending into a deep pink background; moderately juicy; flesh white, crisp, melting, very firm, freestone; can hang on the tree for 2 weeks during harvest period; very slight acid balanced with strong sugar; 18 °Brix; keeping and storage qualities good; ripens 2-16 Aug. in San Joaquin Valley, CA. **Tree:** large; vigorous; spreading and dense; very productive; flowers showy; self-fertile; chilling requirement 600 h; leaf glands small, globose.

Snow Bliss. White-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 175LE263 (Zee Diamond × Earlrlich) × 58ZA508 (Super Rich × 159LE553); USPP 24,141; 7 Jan. 2014. **Fruit:** large; globose; skin has high degree of attractive red; flesh white, firm, meaty, crisp, clingstone, moderately juicy; flavor very good, sweet, low-acid; 14 °Brix; holds firm on tree 6 to 7 d past maturity; shipping and storage qualities good; ripens 27 June to 5 July in Modesto. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 850 h; leaf glands medium to large, reniform.

Snow Lady Rose. White-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 42ZG460 (204LK484 × Zee Pride) O.P.; USPP 25,093; 25 Nov. 2014. **Fruit:** large; globose; flesh white, firm, meaty, clingstone with good firmness, comparable to other commercial varieties; flavor very good, mild, sweet, low-acid; moderately juicy; 12 °Brix; storage and shipping qualities good; ripens 19-26 May in San Joaquin Valley, CA. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 300 h; leaf glands medium to large, reniform.

Snow Pride. White-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 237LP27 (September Snow, 55GF90 and 66EG140) × 370LU525 (Sweet September, 32LG569, 58EG528 and 66EG140); USPP 24,420; 6 May 2014. **Fruit:** large; globose; skin attractive red; flesh white, firm, meaty, crisp, clingstone; flavor very good, sweet, low to subacid flavor; moderately juicy; 11.1 °Brix; storage and shipping qualities good; ripens 5-12 Sept. in Modesto. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 850 h; leaf glands small, reniform.

Summer Amelia. Yellow-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. Sweet Henry O.P.; USPP 24,777; 19 Aug. 2014. **Fruit:** large; globose; skin has high degree of attractive red; flesh yellow, firm, meaty, crisp, clingstone; aroma heavy; moderately juicy; flavor good; 12.2 °Brix; holds firm on tree 8 to 10 d after maturity; ripens 13-23 Aug. in San Joaquin Valley, CA. **Tree:** large; vigorous; upright; productive; density medium; flowers showy; self-fertile; chilling requirement 800 h; leaf glands small to medium, reniform.

Summer Fire. Yellow-fleshed, semi-clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. Zee Lady × 175LE265 (Zee Diamond × Vista); USPP 24,582; 1 July 2014. **Fruit:** very large; globose; flesh yellow, firm, meaty, semi-clingstone; holds on tree for 10 d past shipping maturity; eating quality very good; moderately juicy; 10.5 °Brix; shipping and storage qualities good; ripens 9-16 July in San Joaquin Valley, CA. **Tree:** large; vigorous; upright; productive; density medium; flowers non-showy; self-fertile; chilling requirement 900 h; leaf glands large, reniform.

Summer Frost. White-fleshed, clingstone fruit. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 348LN91 (245LK134 O.P.) × 184LT327 (211LK86 × 226LK505); USPP 25,951; 29 Sept. 2015. **Fruit:** large; globose; skin attractive red; flesh white, firm, meaty, clingstone, moderately juicy; 11.1 °Brix; flavor good; keeping and shipping qualities good; ripens 21-31 July in San Joaquin Valley, CA. **Tree:** medium; vigorous; upright; productive; density medium; flowers large; self-fertile; chilling requirement 750 h; leaf glands medium, reniform.

Summer Princess. Yellow-fleshed, clingstone fruit. **Origin:** Le Grand, CA, by L.G. Bradford. August Pearl × yellow-fleshed peach; USPP 25,793; 11 Aug. 2015. **Fruit:** large, uniform; globose; very deep red smoothly blending to moderate reddish orange, with some dark red mottling or tiger stripping; abundant juice; flesh yellow, firm, crisp, meaty, clingstone; flavor classic peach, acidic and sweet; 14 °Brix; keeping and shipping qualities good; ripens 25 Aug. to 10 Sept. in San Joaquin Valley, CA. **Tree:** large; vigorous; spreading and dense; productive; flowers showy; self-fertile; chilling requirement 600 h; leaf glands small, globose.

Supecheighteen. Yellow-fleshed, non-melting, semi-freestone fruit. **Origin:** Sun World International, Bakersfield, CA, by T.A. Bacon. Supechthirteen × O.P.; tested as PE133; USPP 24,491; 27 May 2014. **Fruit:** large, 200 g; rounded; bluish medium red; flesh yellow, firm, non-melting, semi-freestone; flavor mild, with good eating quality; 13 °Brix; moderately juicy; slight tendency to split in wet seasons; ripens 15-18 May in Wasco, CA. **Tree:** medium; vigor moderate; spread normal; semi-upright; productive; dense; flowers showy; self-fertile; chilling requirement 350 h; leaf glands medium, reniform.

TexFirst. Yellow-fleshed, clingstone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson. Thai Tiger low-chill peach TXW1193-1 O.P.; tested as TX1A95; USPP 26,119; 24 Nov. 2015. **Fruit:** medium to medium-large for the season, uniform; ovate; 40-65% attractive, orange-red blush; flesh yellow, firm, clingstone; texture fine at commercial maturity; flavor very sweet, rich, slightly acidic; shipping and keeping qualities good; ripens 17 May in San Joaquin Valley, CA. **Tree:** size average to above average; vigor high; density medium to high; productive; spreading; flowers showy; chilling requirement 150-200 h; leaf glands reniform.

UFBest. Yellow-fleshed, non-melting, low-chill, clingstone fruit. **Origin:** Gainesville, FL by J.X. Chaparro and W.B. Sherman. FloridaBest × UFSun; tested as Fla. 07-05C; USPP 25,129; 2 Dec. 2014. **Fruit:** medium large, uniform; nearly round; 90-100% dark red blush; flesh yellow, firm, fine, juicy, non-melting when fully ripe, clingstone; flavor good, sweet, with light acidity; abundant juice; 12 °Brix; shipping and keeping qualities good; highly resistant to bacterial spot; ripens 20 Apr. to 2 May in Gainesville, FL. **Tree:** large; vigorous; semi-spreading; productive; density light to medium; flowers showy; self-fertile; chilling requirement <100 h; leaf glands small, reniform.

UFGem. Low-chill, early season, yellow-fleshed, non-melting, clingstone fruit. **Origin:** Gainesville, FL by J.X. Chaparro and W.B. Sherman. FloridaBest × AP99-20c [Fla. 94-40wc (Improved Diamante × Snowflake) × Springbaby]; tested as Fla. 06-08c; USPP 26,057; 10 Nov. 2015. **Fruit:** medium to large, uniform; slightly squat; 90-100% bright red blush; flesh yellow, firm, non-melting, clingstone; abundant juice; flavor excellent, sweet and slightly acidic; keeping quality excellent; highly acceptable for shipping; resistance to bacterial spot high; ripens 19-30 Apr. in Gainesville, FL. **Tree:** large; vigorous; density light to medium; semi-upright; productive; flowers showy; self-fertile; chilling requirement 175 h; leaf glands small, reniform.

White Zest One. White-fleshed, melting, semi-freestone fruit. **Origin:** College Station, TX by D.H. Byrne and N. Anderson;

TX3D45W (Texroyal × complex seedling) × Tropicprince; tested as TX3C331W; introd. 2015; USPP applied for. **Fruit:** medium-large; round to slightly ovate; may develop small tips; 60-70% light to dark red blush; flesh white, melting, freestone; flavor sweet-acid; ripens 8 June in Fairfield, TX. **Tree:** vigorous; semi-spreading; flowers showy; chilling requirement 500-550 h; leaf glands reniform.

PINEAPPLE

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53-116. High yield and cannery recovery, low-acid fresh fruit used for breeding. **Origin:** Pineapple Research Institute of Hawaii (PRI), Honolulu, HI. 10619 × 10670 (C4SG2Q1P1*); selected 1953; tested 1955; released 2 Nov. 1962. Briefly commercialized in Hawaii, discontinued by 1966 due to internal fruit disorder gland base defect. **Fruit:** skin orange; medium large, 1.5-2.7 kg with crown, consistently heavier than Smooth Cayenne in Hawaii; globular, more so than Smooth Cayenne, eyes flat; flesh more yellow and less porous than Smooth Cayenne, high incidence of translucency; more fibrous than Smooth Cayenne, core small, TSS 15%, acidity 0.5% in summer, both <Smooth Cayenne, vitamin C 1.5x higher than Smooth Cayenne; resistant to internal browning. **Plant:** moderately vigorous, D leaf 940 × 58 mm, piping leaf with sandpaper tip, anthocyanin mid to proximal end; good slip production in Hawaii; resistance to *Phytophthora cinnamomi* and *P. parasitica* comparable to Smooth Cayenne.

59-656. Highly resistant to fungal rots and an important source of genetic resistance to *Phytophthora* spp. **Origin:** PRI, Honolulu, HI. 11732 × 10861 (C9P2SG2Q2A1*); selected 1959. **Fruit:** skin orange; yields comparable to Smooth Cayenne; globular to round, eyes flat, core small; flesh pale, slightly porous; 15 °Brix, less than Smooth Cayenne, flavor unexceptional. **Plant:** vigor moderate, D leaf 930 × 48 mm, piping leaf with anthocyanin towards proximal end; 2 suckers, 4-5 slips; long thin peduncle, 250 × 23 mm; resistant to *P. cinnamomi* and *P. parasitica*.

Aus-Festival. Yellow, medium-sweet fresh market fruit in Australia. **Origin:** Department of Agriculture & Fisheries (DAF), Nambour, Australia by G.M. Sanewski. Smooth Cayenne × CO-2; tested as 1-13026; PBR 9 Aug. 2012. **Fruit:** skin yellow to orange; size medium, 1.5-1.6 kg without crown; globular, similar to Smooth Cayenne in general appearance, eyes flat; flesh slightly more yellow than Smooth Cayenne, with low incidence of translucency and low fibrosity; TSS 16-17%, acidity low, flavor sweet with coconut overtones. **Plant:** vigorous, D leaf 846 × 58 mm, piping leaf with some anthocyanin at distal end; moderately susceptible to *P. cinnamomi* and natural floral initiation.

Dole 14. Fruit with high flesh carotenoids, distinct fruit flavor, and reduced sensitivity to natural floral initiation. **Origin:** Dole Food Corp., Westlake Village, CA by R. Young and J. Gonzales. MD-2 (Doles MG-03, seed parent) × P-1972; crossed 1997; selected 2000; tested as 9700MC- 03/02-003 from 2002 to 2007; USPP 20,885; 23 Mar. 2010. **Fruit:** yellow when ripe; medium large, 1.7 kg, 15.1 cm long, 13.2 cm diameter, 15 cm crown, 101.5 eyes per fruit; fruit shell thin; conical to cylindrical, larger fruit tapered at top; flesh orange-yellow to golden yellow due to higher carotenoids; compact and smooth textured, lower pulp fiber content; TSS 17.1%, acidity 0.57%, ascorbic acid 43 mg/100 mL juice, aromatic with distinct sweet flavor; less susceptible to fruitlet core rot and internal browning than Smooth Cayenne. **Plant:** vigor comparable to Smooth

Cayenne; piping leaves, D leaf length 110-120 cm, width at mid length 5.9-6.3 cm, limited production of vegetative shoots, produces 0.0 to 2.0 slips; less sensitive to natural floral initiation than Smooth Cayenne; peduncle length 21.5 cm; more susceptible to *Phytophthora* and *Dickeya* rots than Smooth Cayenne.

Franklynn. Fruit with exceptionally high °Brix and excellent flavor. **Origin:** Frankies Nursery, Frank F. Sekiya, Waimanalo, HI by F.F. Sekiya. Dry Sweet (Smooth Cayenne clone) × Hilo White; crossed 1997; selected 2002; introd. 2010; USPP 23,193; 20 Nov. 2012. **Fruit:** skin greyed-purple (RHS 187A) when immature, greyed-orange (RHS 167B) when ripe; small to medium, 1.5 kg without crown, up to 120 fruitlets; near globular; flesh pale yellow (RHS 8D), low fiber with edible core, TSS 20-26%; acidity 7.7 mg/100 mL juice, ascorbic acid 11.8 mg/100 mL juice. **Plant:** vigorous, piping leaves less erect than Smooth Cayenne, grey-green with anthocyanin-pigmented mid-section, D leaf length 74.4 ± 7.5 cm, width at mid-length 5.3 ± 2.9 cm, weight 51.7 ± 9 g, longitudinal undulations run the full length and across the adaxial surface of all leaves; 3.9 ± 2.4 slips/plant; sucker development slow; resistance to *Phytophthora* rots comparable to Smooth Cayenne.

P-1972. Fruit with high carotene content, improved aroma distinct fruit and flesh colors and low incidence of fruitlet core rot and marbling. **Origin:** Dole Food Corp., Westlake Village, CA by J. Gonzales and J. Vriesenga. PRI hybrids 64-337 (C12Q2SG1P1*) × 59-443 (C9P3SG2R2*); crossed 1972; planted 1974; tested as 75-80; selected 2001; USPP 16,396, 28 Mar. 2006. **Fruit:** golden yellow; medium-large, 1.9-2.4 kg, diameter 12.1 cm; skin smooth and thin; eyes flat; fruitlets/fruit 113 to 146; uniformly cylindrical with a slight taper; flesh compact, orange-yellow to golden yellow, smooth, small amount of fibers; aroma distinctly mango-like; incidence of fruitlet core rots and marbling low, TSS 15.3%, acidity 0.53%, ascorbic acid 25 mg/100 mL juice. **Plant:** leaves piping, 107-130 cm long, 6.3-7.6 cm wide, 44-55 leaves at forcing; peduncle 20.6±3.9 cm long, 7.5±1.4 cm in diameter; moderate tolerance to *Dickeya* and *Phytophthora* rots.

PQM-1. Multipurpose Queen-type fruit suitable for canning or fresh use. **Origin:** ICAR Research Complex, NEH Region, Tripura Centre, Tripura, India by J. Prakasha, S. Bhattacharyab, K. Chattopadhyay, S. Royb, S.P. Dasa and N.P. Singha. Mutation of Queen, selected and multiplied vegetatively prior to 2002; ISSR banding patterns showed stable differences from Queen; announced in 2008. **Fruit:** Deep orange; length 14.7 cm, diameter 17.7 cm; 1.3 kg, larger than Queen but smaller than Smooth Cayenne; crown large, 0.33 kg; cylindrical; eyes large, flatter than Queen; flesh yellow-golden, TSS 17.5%, acidity 0.61%; matures 2 weeks after Queen. **Plant:** vigorous; leaves spiny like Queen, but reddish, unlike Queen; D leaf length 108 cm; 1.8 suckers and 2.3 slips per plant; less susceptible to *Phytophthora* heart rot than Smooth Cayenne.

Rosé. Genetically modified cultivar with increased lycopene content and, possibly, reduced sensitivity to natural floral initiation. **Origin:** Del Monte Fresh Produce, Coral Gables, FL by E. Firoozbady and T.R. Young. MD-2 shoot cultures of crown tissue genetically transformed Aug. 2005; tested 2010 to 2014; USPP 25,763; 4 Aug. 2015. **Fruit:** “tiger trait” skin green, yellow, orange and red due to expression of carotenoid genes; fruit weight and shape are as for MD-2; flesh, light red with yellow spots due to increased lycopene content; other fruit characteristics as for MD-2. **Plant:** vigor and other characteristics are, with one exception, as for MD-2. Rosé was transformed to reduce natural biosynthesis of ethylene and, yet to be confirmed, plant sensitivity to natural floral initiation.

Tainung No. 21 (TN 21; Golden pineapple). Golden-fleshed fruit with higher TSS than Smooth Cayenne. **Origin:** Chiayi Agricultural Experiment Station, Chiayi, Taiwan, Taiwan Agricultural Research Institute by C.-S. Kuan, et al. C64-4-117 (Smooth Cayenne × TN 4) × C64-2-56 (Smooth Cayenne × Rough); crossed 1986; selected 1999;

tested as C75-2-25; introd. 2006; patented (A00541) 2007. **Fruit:** yellow; medium, 1.2-1.3 kg with crown; cylindrical; skin thickness medium; blossom cup medium; flesh golden; TSS 18-19%; titratable acidity 0.6-0.7%; medium fibrous; core medium; tolerant to internal browning. **Plant:** moderately vigorous, average plant height 80 cm; leaf edge smooth with spiny tips; more tolerant to mealybug wilt than Tainung 17 and Smooth Cayenne.

Tainung No. 22 (TN 22; Honey Fragrance pineapple). Fruit with better flavor and lower acidity than Smooth Cayenne. **Origin:** Chiayi Agricultural Experiment Station, Chiayi, Taiwan, Taiwan Agricultural Research Institute by C.-S. Kuan, et al. Smooth Cayenne × Tainung 8; crossed 1986; selected 1999; tested as C65-7-187; introd. 2011; patented (A00541) 2012. **Fruit:** orange yellow; medium, 1.6-1.7 kg with crown; cylindrical; skin thin; blossom cup shallow; flesh yellow, soft; TSS 16-18%; titratable acidity 0.4-0.5%; medium fibrous; core medium. **Plant:** moderately vigorous, average plant height 87 cm; leaf edge smooth with spiny tips.

TN21. See Tainung No. 21

TN22. See Tainung No. 22

*PRI parent composition: C, Smooth Cayenne; P, Pernambuco; R, Ruby; SG, Smooth Guatemalan; Q, Queen; A, *Ananas comosus* var. *ananassoides*.

PITAHAYA (DRAGON FRUIT)

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American Beauty (*Hylocereus guatemalensis*). Very flavorful fruit with fuchsia-colored flesh and reddish green skin. Thin rind and soft pulp make it susceptible to bruising; suitable for local marketing. **Origin:** Parentage unknown; introd. from Guatemala to Florida, and then to California. **Fruit:** round; medium, 380 g, ideal for market; skin greenish-red; flesh fuchsia-colored; quality exceptional, pulp very juicy, lacking firmness; rind thin, with scattered compact bracts; 18.51 °Brix; 43 d from bloom to harvest in Southern California; harvest June to November. **Plant:** stems triangular, with 3 well-defined ridges, relatively thin and short; mature stems dark green and brittle, producing numerous shoots; pruning essential; areoles have 1-2 spines, 1-5 mm long; segment between areoles quite convex, 36.45 mm long; flowers small, petals white, calyx yellowish green; anthers and stigma lobes yellow; tolerance to cold and heat average; usually struggles in full sun; commercial potential excellent if grown in a protected environment.

Armando (*H. polyrhizus/costaricensis*). Red-fleshed, medium-sized fruit with red skin, good quality. **Origin:** collected by R. Lobo in Las Manos, near border of Honduras and Nicaragua. **Fruit:** round; medium, 390 g; quality acceptable; flesh very firm, red; skin purplish-red, intermediate in thickness, with numerous bracts; 16.11 °Brix; 41 d from bloom to harvest in Southern California; harvest mid-June to January. **Plant:** stems thick and short, with 3 well-defined ridges, dark green spiny; areoles have 4-6 spines, arranged in a circular pattern, 3-8 mm long; flowers intermediate, petals white; calyx yellowish, with shades of red on the edges, anthers and stigma lobes yellow; tolerant to cold and heat; grows well in full sun; commercial potential good.

Bien Hoa Red (*H. guatemalensis*). Very flavorful fruit with fuchsia-colored flesh and reddish green skin. **Origin:** Guatemala. **Fruit:** round; medium, 360 g, ideal for market; skin greenish-red; flesh fuchsia colored, pulp very juicy, lacks firmness; rind thin, with

scattered compact bracts; quality exceptional; 18.9 °Brix; 43 d from bloom to harvest in Southern California; harvest June to November. **Plant:** stems triangular, with 3 well-defined ridges, relatively thin and short, mature stems dark green and brittle, producing numerous shoots; pruning essential; areoles have 1-2 spines on average, 1-5 mm long; segment between areoles quite convex, 36.45 mm long; flowers small, petals white, calyx yellowish green, anthers and stigma lobes yellow; tolerance to cold and hot weather average; struggles in full sun; lack of cold hardiness limits commercial potential or requires protected environments.

Bien Hoa White (*H. undatus*). White-fleshed fruit with pinkish red skin and long bracts. **Origin:** Bien Hoa Farms, Fallbrook, CA. **Fruit:** oblong; intermediate size, 388 g; skin relatively thin, pinkish-red; flesh very firm, white, with numerous small, black seeds; quality poor; 11.85 °Brix; 40 d from bloom to harvest in Southern California; harvest time short, from mid-July to mid-October. **Plant:** stems thin but wide, relatively long, triangular, with 3 distinct ridges, when mature, green, with a brown, hard stripe on the ridges; areoles have 3-5 spines with conic shape, similarly sized and arranged in a triangular pattern, 3-5 mm long; segment between areoles convex, 53.3 mm long; flowers intermediate, petals white, calyx light yellow, anthers and stigma bright yellow; tolerance to cold and heat low; does not do well in full sun; good for backyard growing in warm areas, but little potential for commercial production.

Cebra (*H. polyrhizus*). Red-fleshed large fruit with thick rind and average flavor. **Origin:** Nicaragua. **Fruit:** oval; large, 468 g; skin and flesh red, rind thick; quality acceptable; 15.75 °Brix; 46 d from bloom to harvest in Southern California; harvest from late June to late December or into January. **Plant:** stems intermediate in thickness and length; mature stems grayish green, usually bearing white stripes resembling a zebra pattern, whence the name; areoles have 4-6 spines arranged randomly, 3-7 mm long; segment between areoles slightly convex, 26 mm long; flowers large, petals white; calyx yellow, with shades of red on the edges; anthers and stigma lobes yellow; tolerance to cold and heat average; grows well in full sun; commercial potential good.

Colombiana (Yellow Dragon) (*H. megalanthus*). White-fleshed fruit with yellow skin and exceptional quality, considered the best flavored of all pitahayas. **Origin:** Colombia. **Fruit:** oblong; very small, 160 g, rarely reaching 200 g; skin yellow, flesh translucent white, seeds large; rind thick and spiny, with spines needing to be removed during harvest, and no bracts; pulp firm, extremely sweet, flavor excellent; 21 °Brix; 150 to 180 d from bloom to harvest in Southern California; harvest November to February. **Plant:** stems thin and long, triangular, with 3 well-defined ridges, light green; areoles have 1-3 conic spines, 2-3 mm long; segment between areoles slightly concave, 36.27 mm long, giving the stem a “bony” appearance; flowers long and narrow, tubular, petals white, calyx light green; anthers light yellow, stigma lobes lime green; tolerance to cold and heat low; usually struggles in full sun; commercial potential excellent because it fruits in the offseason; protected environment needed.

Delight (*Hylocereus* sp.). Pinkish-white- or light-pink-fleshed fruit with excellent flavor, well suited for backyard cultivation. **Origin:** bred and selected by Paul Thomson in San Diego County, early 1980s. **Fruit:** oval; medium, 371 g, ideal for marketing; quality excellent; flesh light pink or pinkish-white, seeds small; rind greenish red, of intermediate thickness; bracts short, scattered; 18.08 °Brix; 41 d from bloom to harvest in Southern California; harvest late June to mid-December. **Plant:** very vigorous, stems triangular, with 3 well defined ridges; stems intermediate in thickness and length, very straight, green when mature; areoles have 1-3 thin spines, 1-3 mm long; segment between areoles convex, 43.3 mm long; flowers intermediate, petals white, calyx yellowish, anthers and stigma lobes yellow; tolerance to cold and heat slightly

better than average; does relatively well in full sun; commercial potential good.

El Grullo (*H. ocamponis*). Large, red-fleshed fruit with greenish red skin, excellent quality, thick and heavy plants, and great tolerance to heat and cold. **Origin:** unnamed selection collected by R. Lobo in El Grullo, Jalisco State, Mexico. **Fruit:** oval; large, 489 g; quality acceptable; flesh dark red; rind purplish-red, thick and hard with numerous compact bracts; 18.11 °Brix; 40 d from bloom to harvest in Southern California; harvest mid-July to December. **Plant:** stems thick, heavy, fleshy and long, exceeding 2 m in length when fully grown; young shoots lime green, triangular, with well-defined ridges; mature stems turn grayish and fill in the section between the ridges, becoming almost a solid triangle; spines very numerous and long, each areole having 8-13 needle-like spines randomly arranged, 3 to 14 mm long; flowers large and narrow, tubular, petals white, calyx yellowish red, anthers and stigma lobes light yellow; tolerance to cold and heat exceptional; grows well in full sun, maintaining the same appearance year-round.

Halley's Comet (*Hylocereus* sp.). Pink-fleshed fruit with excellent flavor; closely related to Physical Graffiti, but not as vigorous or productive. **Origin:** Paul Thomson, San Diego County, CA, early 1980s. **Fruit:** round; large, 482 g; flesh hot pink, seeds small; rind bright red, relatively thin, with an intermediate number of bracts; quality very good, 16.7 °Brix; rated high in sensory evaluations; 38 d from bloom to harvest in Southern California; harvest July through December. **Plant:** stems intermediate in thickness, with 3 well defined ridges; stems relatively straight when mature, dark green; areoles have 1-3 spines, 2-4 mm long; segment between areoles convex, 53.6 mm long; flowers intermediate, petals white, calyx yellowish green, anthers and stigma lobes yellow; tolerance to cold and heat good; grows well in full sun; commercial potential good.

Lisa (*H. polyrhizus*). Red-fleshed fruit with better than average flavor, large size; most productive of all red-fleshed Nicaraguan cultivars. **Origin:** Nicaragua. **Fruit:** oval; medium large, 465 g; skin red; rind thick, with a smooth, velvety feel, hence the name Lisa “Smooth”; flesh dark red, very firm; quality better than average, 17.02 °Brix; 44 d from bloom to harvest in Southern California; harvest late June to late December or January. **Plant:** stems intermediate in thickness and length; mature stems grayish green; areoles have 3-5 spines, 3-7 mm long, usually arranged in a circular pattern; segment between areoles slightly convex, 23 mm long; flowers largest of all, petals white, calyx yellow, with shades of red on the edges, anthers and stigma lobes bright yellow; tolerance to cold and heat better than average; commercial potential excellent.

Mexicana (*H. undatus*). White-fleshed fruit with pinkish red skin, attractive appearance with long bracts. **Origin:** Mexico, introd. from Nicaragua. **Fruit:** oblong; large, 552 g; skin pinkish red, relatively thin; flesh very firm, white, with numerous small black seeds; quality acceptable for white-fleshed fruit, 14.04 °Brix; 40 d from bloom to harvest in Southern California; harvest very compact, mid-July to mid-October. **Plant:** stems thin but wide, relatively long, triangular in shape with 3 distinct ridges; mature stems green, with a brown, hard stripe on the ridges; areoles have 3-5 conic spines, similarly sized and arranged in a triangular pattern, 3-5 mm long; segment between areoles convex, 53.3 mm long; flowers intermediate, petals white, calyx light yellow, anthers and stigma lobes bright yellow; tolerance to cold and heat average; usually struggles in cold, damp conditions; good both for backyard growing and for commercial production.

Orejona (*H. polyrhizus*). Red-fleshed fruit with average flavor and size, and numerous long bracts. **Origin:** Nicaragua. **Fruit:** oblong; medium large, 438 g; flesh red; skin thick, red; quality acceptable, 15.78 °Brix; 45 d from bloom to harvest in Southern California; harvest late June to late December. **Plant:** stems thin, relatively short, grayish green; areoles have 6-8 spines in a random pattern,

3-8 mm long; segment between areoles straight to slightly concave, which exposes the spines and makes this cultivar look very spiny; flowers large, petals white, calyx yellow, with shades of red on the edges, anthers and stigma lobes yellow, stigma lobes are lighter than anthers; tolerance to cold and heat average; grows well in full sun; commercial potential low because of spines.

Physical Graffiti (*Hylocereus sp.*). Vigorous, very productive, pink-fleshed fruit with excellent flavor, most preferred and widely planted in Southern California. **Origin:** Paul Thomson, San Diego County, CA, early 1980s. **Fruit:** oblong; medium, 374 g; flesh hot pink, seeds small; rind bright red, relatively thin, with few bracts; quality excellent, 17.93 °Brix, rated highest in sensory evaluation; 40 d from bloom to harvest in Southern California; harvest July to December. **Plant:** very vigorous; stems thick, short, curvy, dark green, with 3 well-defined ridges; canopy management critical to keep this plant productive and to prevent overcrowding; areoles with 1-3 conic spines 1-3 mm long; segment between areoles convex, 46.5 mm long; flowers long and narrow, tubular, petals white, calyx light green, anthers light yellow, stigma lobes lime green; tolerance to cold and heat good; grows very well in full sun; commercial potential excellent.

Rosa (*H. polyrhizus*). Red-fleshed fruit with average flavor and size, and red, thick rind. **Origin:** Nicaragua. **Fruit:** round; medium, 384 g; short, scattered bracts, resembling a rose when seen from the top; skin and flesh red; rind thinner than in other Nicaraguan cultivars, making this cultivar more susceptible to cracking when fully mature; quality acceptable; 16.05 °Brix; 45 d from bloom to harvest in Southern California; harvest late June to late December or January. **Plant:** stems intermediate in thickness and length, grayish green; areoles have 8-9 spines in a random pattern, 4-6 mm long; segment between areoles slightly convex, 27.11 mm long; flowers large, petals white, calyx yellow, with shades of red on edges, anthers bright yellow, stigma lobes lime green; tolerance to cold and heat average; grows well in full sun; commercial potential good.

San Ignacio (*H. polyrhizus*). Large, red-fleshed fruit with red skin and average flavor. **Origin:** Nicaragua. **Fruit:** oval; large, 552 g; skin thick and red; flesh red; quality acceptable; 15.6 °Brix; 48 d from bloom to harvest in Southern California; harvest late June to late December or January. **Plant:** stems thick, intermediate in length, dark green; areoles have 6-7 spines arranged randomly, 2-6 mm long, 4 of them consistently larger than the rest; flowers large, petals white, calyx yellow, with shades of red on edges, anthers bright yellow, stigma lime green; tolerance to cold and heat slightly better than average; grows well in full sun; commercial potential good.

Seoul Kitchen (*H. undatus*). White-fleshed, pinkish-red-skinned fruit with large fruit of marginal quality; vigorous, strong and prolific bloomer with longer fruiting season than other white-fleshed cultivars. **Origin:** Florida, similar to George. **Fruit:** round; large, 518 g; flesh firm, white; skin thick, pinkish red, with numerous short, compact bracts; quality marginal; 12.18 °Brix; 41 d from bloom to harvest in Southern California; harvest mid-July to December. **Plant:** stems thick and short; mature stems grayish green, with a striped pattern that resembles zebra stripes; stems have clusters of spines arranged in a circular pattern, 4-6 spines per cluster, 3-7 mm long; flowers long and narrow, tubular, petals white, calyx light green, anthers light yellow, stigma lobes lime green; tolerance to cold and heat higher than average; usually grows well in full sun; limited potential for commercial production, but valuable as a pollinizer.

Sin Espinas (*H. sp.*). Red-fleshed fruit with glossy, pinkish-red skin and good flavor, suited to home gardens and indoor growing. **Origin:** Nicaragua. **Fruit:** round; medium, 393 g; skin thick, pinkish-red, glossy; flesh very firm, dark red when ripe; quality good; 16.5 °Brix;

43 d from bloom to harvest in Southern California; harvest early June to December. **Plant:** stems thin and very light; mature stems brownish green; considered spineless, but has 1-2 very small spines per areole, 0.5-1 mm long; segment between areoles convex, 43 mm long; flowers small, petals white, calyx light yellow, anthers and stigma light yellow; tolerance to cold and heat low; best suited to protected or indoor production.

Valdivia Roja (*H. ocamponis*). Red-fleshed fruit with greenish red skin, excellent quality. **Origin:** Jalisco State, Mexico. **Fruit:** oblong; small, 250 g; flesh very firm, red; skin greenish, relatively thin, with very few, short bracts; quality one of the best among red-fleshed cultivars; 17.9 °Brix; 40 d from bloom to harvest in Southern California; harvest July to late December or January. **Plant:** stems thick and fleshy, very heavy, with 3 well defined ridges when young, turning rounder as they mature; mature stems grayish because of waxy coating, tend to crack as they get older; areoles have 1-2 spines, 1-2 mm long; flowers large, attractive, petals white, calyx yellowish, with red shades on the edges, anthers and stigma lobes light yellow; very hardy, tolerance to cold and heat high, so plant looks the same all year; grows well in full sun, but commercial potential limited because of inconsistent fruit set.

Vietnamese Giant (*H. undatus*). Attractive white-fleshed fruit with pinkish red skin and long bracts. **Origin:** Florida. **Fruit:** oval; medium, 338 g; skin pinkish red, relatively thin; flesh very firm, white; seeds numerous, small, black; quality excellent for white-fleshed cultivars; 15.6 °Brix; 40 d from bloom to harvest in Southern California; harvest very compact, mid-July to mid-October. **Plant:** stems thin and intermediate in width and length, triangular, with 3 distinct ridges; mature stems green, with a brown, hard edge on the ridges; areoles have 4-6 spines, randomly arranged, 1-3 mm long; segment between areoles convex, 50.3 mm long; flowers intermediate, petals white, calyx light yellow, anthers and stigma bright yellow; tolerance to cold and heat average; usually struggles in cold, damp conditions; potential for backyard growing and commercial production good.

Yellow Dragon. See Colombiana.

PLUM

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Blackred XX. Orange-fleshed clingstone fruit, interspecific hybrid. **Origin:** Le Grand, CA by L.G. Bradford and J.M. Quisenberry. September Yummy O.P.; USPP 26,054; 10 Nov. 2015. **Fruit:** medium, globose; flesh firm, crisp, moderately juicy, clingstone, balanced acid and sugar; aroma slight; skin reddish black, minor pale orange yellow flecking; ripens 10-25 Oct. in San Joaquin Valley, CA. **Tree:** small, vigor weak, upright and dense, self-incompatible, medium productive; leaf glands globose.

Blues Jam™. Freestone processing fruit with blue skin and green-amber flesh. **Origin:** Cornell University by J.P. Watson. Furst O.P.; selected 1970 from an original seed collection in 1958; tested as NY 58.904. **Fruit:** 20 g, slightly larger than Jam Session™; ~2.5 cm long and 1.9 cm wide; skin blue, flesh green-amber; completely freestone; for processing; resembles Damson in astringency requiring recipe management, by freezing and thawing the fruit before processing or by blending with a less astringent fruit; ripens in mid-September in Geneva, NY about a week after Stanley. **Tree:** vigor medium; readily machine harvestable via shake and catch methods; black knot (*Dibotryon morbosum*) and brown rot tolerance above average, similar to Damson.

Crimson Carson. Yellow-fleshed, clingstone fruit interspecific hybrid. **Origin:** Modesto, CA by G.N. Zaiger, L.M. Gardner and G.G. Zaiger. 17MA204 O.P.; USPP 25,811; 18 Aug. 2015. **Fruit:** medium; globose; skin red over yellow; flesh firm, juicy, clingstone; balanced acid and sugar; aroma moderate; eating quality good; ripens 28 May to 7 June. **Tree:** large, vigorous, upright; medium dense; self-incompatible; hardy; chilling requirement 600 h; leaf glands globose.

Jam Session™. Dark-blue-skinned, yellow-green-fleshed, freestone fruit that retain on the tree well for processing. **Origin:** Cornell University by J.P. Watson. Late Muscatel O.P.; selected 1970 from an original seed collection in 1958; tested as NY 58.911.1. **Fruit:** round-oblong; ~1.9 cm wide and 2.2 cm long; 15 g; completely freestone; oblong, 1.3 cm × 1.6 cm; skin dark blue; unprocessed flesh yellow-green; neither skin nor flesh is astringent; color of cooked fruit deep, purple-red, slow to oxidize; ripens in mid-September in Geneva, NY, about a week after Stanley. **Tree:** vigor medium; cold hardy; crops heavily, requiring annual pruning once mature to reduce crop loads and encourage annual bearing; partially self-compatible, may benefit from interplanting with a pollinizer such as Damson and NY 9™; exhibits strong fruit retention, resists natural drop; readily trained for machine harvesting; fruits hold well on the tree for scheduled harvest; black knot and brown rot tolerance above average, similar to Damson.

Orablue. Large, high-quality mid- to late-season semi-freestone European plum. **Origin:** USDA-ARS, Kearneysville, WV by R. Scorza. NY981 O.P.; tested as B7054; introd. 2009. **Fruit:** large, 60-67 mm long by 43-57 mm wide, 72-122 g; skin deep purple, flesh amber; 15-22 °Brix; semi-freestone, up to 8% of fruit has styler end stone breakage; ripens mid-September to late October in Kearneysville. **Tree:** semi-erect with spurs; blooms 2 d to one week ahead of Stanley; good pollinizers are Stanley, Reine Claude and Bluebyrd; susceptible to black knot at a level similar to Stanley.

Plumgiant II. Yellow-fleshed, clingstone fruit, interspecific hybrid. **Origin:** Le Grand, CA by L.G. Bradford. Parentage unknown; USPP 26,033; 3 Nov. 2015. **Fruit:** large, round to slightly elliptical, flesh firm, tough, meaty; juicy and sweet, clingstone; aroma slight; skin black, minor brown flecking; ripens 27 July to 7 Aug. in San Joaquin Valley, CA. **Tree:** medium, vigor medium, upright and dense; self-incompatible; productive; hardy; leaf gland globose.

Plumsweet XVI. Red-fleshed, clingstone fruit, interspecific hybrid. **Origin:** Le Grand, CA by L.G. Bradford and J.M. Quisenberry. Plumsweettwo O.P.; USPP 26,055; 10 Nov. 2015. **Fruit:** large, oblate; flesh firm, crisp, meaty, clingstone; juicy; aroma very slight; skin dark red mottling and streaking; ripens 8-27 July in San Joaquin Valley, CA. **Tree:** medium, vigorous, upright and dense; self-incompatible; productive; hardy; leaf glands globose.

Suplumfortyfive. Red-fleshed, clingstone fruit. **Origin:** Sun World International, Bakersfield, CA by T. Bacon. Suplumeleven O.P.; USPP 26,175; 1 Dec. 2015. **Fruit:** 55mm, round; crisp-juicy, acidity low, flesh sweet, clingstone; skin greyed-purple; slight tendency to crack; ripens 11-21 June in Kern County, CA. **Tree:** medium, vigorous; semi-upright; regular bearing; hardy; fertility unknown; chilling requirement 600 h; leaf glands globose.

Suplumfortysix. Red-fleshed, clingstone fruit. **Origin:** Sun World International, Bakersfield, CA by T. Bacon. 96P024-003-430 O.P.; USPP 26,174; 1 Dec. 2015. **Fruit:** large, round to slightly elongated; flesh crisp-juicy, acidic and sweet, clingstone; aroma slight; skin dappled dark gray; ripens 8-20 Aug. in Kern County, CA. **Tree:** medium, moderately vigorous; semi-upright; hardy; fertility unknown; chilling requirement 700 h; hardy; leaf glands globose.

Valerie. Yellow-fleshed, semi-freestone fruit European plum. **Origin:** Vineland Station, ON, Canada by G. Tehrani, W. Lay, and F. Eady. Valor × California Blue; tested as V70031; introd. 1999. **Fruit:** very large; oblong; skin violet-blue; bloom moderate; flesh firm, semi-freestone; flavor good; quality superior; well suited to fresh market; ripens 14 Aug in Vineland Station. **Tree:** upright to spreading; very productive; resistance to black knot and bacterial canker good; self-incompatible; pollinated by Bluefre, Earliblue, Italian, Stanley, Valor, Vanette, Veeblue, Verity, Victory, Vision and Voyageur.

Vampire. Dark red-fleshed, clingstone fruit Japanese plum. **Origin:** Vineland Station, ON, Canada by J. Subramanian, and W. Lay. V59011 (Early Golden O.P.) × Ozark Premier; crossed 1983; tested as V82053; introd. 2006. **Fruit:** very large; elliptic, glossy; dark red; flesh medium-firm, clingstone; flavor fair; storage quality good; suited to fresh market; ripens 29 Aug. in Vineland Station. **Tree:** spreading; productive; tolerance to black knot and bacterial canker good; self-incompatible; pollinated by Shiro and Early Golden.

Vandor. Amber-fleshed, semi-freestone fruit European plum. **Origin:** Vineland Station, ON, Canada by J. Subramanian and W. Lay. Valor × California Blue; tested as V70032; introd. 2008. **Fruit:** medium; round; dark violet-blue; bloom moderate; flesh firm, semi-freestone; flavor good; well suited to the fresh market; ripens 20 Aug. in Vineland Station. **Tree:** upright to spreading; very productive; slow growing; resistance to black knot and bacterial canker good; self-incompatible pollinated by Valor, Vanette, Veeblue, Vibrant, Victory and Violette.

Vanette. Amber-fleshed, freestone fruit European plum. **Origin:** Vineland Station, ON, Canada by G. Tehrani, W. Lay, and F. Eady. Early Rivers × Stanley; tested as V66071; introd. 1999. **Fruit:** medium-large; ovate; skin purple skin; bloom moderate; flesh firm, freestone; flavor good; superior quality; well suited to fresh market; ripens 17 Aug. in Vineland Station. **Tree:** spreading; very productive; resistance to black knot and bacterial canker very good; self-incompatible; pollinated by Stanley, Valor, Veeblue, Verity, Victory, Vision and Voyageur.

Vibrant. Amber-fleshed, semi-freestone fruit European plum. **Origin:** Vineland Station, ON, Canada by J. Subramanian, G. Tehrani, and W. Lay. Valor × California Blue; tested as V70034; introd. 2003. **Fruit:** medium-large; ovate; violet-blue; bloom moderate; firm; flavor good, semi-freestone; well suited to fresh market; ripens 7 Aug in Vineland Station, ON. **Tree:** upright to spreading; very productive; very resistant to black knot and bacterial canker; self-compatible; also pollinated by Valerie, Valor, Vanette, Veeblue, Victory and Voyageur.

Violette. Yellowish-green-fleshed, semi-freestone fruit European plum. **Origin:** Vineland Station, ON, Canada by J. Subramanian, G. Tehrani, and W. Lay. Verity × Bluebell; tested as V72511; introd. 2003. **Fruit:** medium-large; oblong; skin dark blue; bloom moderate; flesh very firm semi-freestone; flavor good; well suited to fresh market; ripens 10 Sept. in Vineland Station. **Tree:** spreading; very productive; resistance to black knot and bacterial canker good; self-incompatible; pollinated by Italian, Stanley, Valerie, Valor, Vanette, Verity, Victory, Vision and Voyageur.

PLUM ROOTSTOCK

Thomas G. Beckman, USDA-ARS Southeastern Fruit and Tree Nut Research Lab, Byron, GA

APRIDWARF. Compatible with European and Japanese plum cultivars. Described under Apricot Rootstock.

APRIMED. Compatible with plum cultivars. Described under Apricot Rootstock.

POMEGRANATE

John E. Preece, USDA-ARS National Clonal Germplasm Repository, One Shields Avenue, University of California, Davis, CA

John M. Chater, Dept. of Botany and Plant Sciences, University of California, Riverside, CA

Jeff Moersfelder, USDA-ARS National Clonal Germplasm Repository, One Shields Avenue, University of California, Davis, CA

Ariana (Soft-seeded VIR-2). Tart-sweet, soft-seeded, red, medium to large fruit. **Origin:** VIR Kara-Kala Experimental Station, Turkmenistan by N.I. Zaktreger, O.F. Mizgireva, and A.D. Strebkova. Seedling 31 O.P.; introd. from Turkmenistan Experimental Station of Plant Genetic Resources, Garrygala to USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1999. **Fruit:** medium to large; round-flat; dark red, with large, dark red arils; seeds small, soft; flavor tart-sweet; ripens late October in Davis. **Tree:** low growing shrub; straight; grows well in areas with hot summers.

Desertnyi (Desertnyi). Soft-seeded, sweet-tart, pinkish red, medium fruit. **Origin:** VIR Kara-Kala Experimental Station, Turkmenistan by B.S. Rosanov and Z.M. Gaivoronskaya. (Kazake × Wonderful) × Wonderful; introd. from Turkmenistan Experimental Station of Plant Genetic Resources, Garrygala to USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1999. **Fruit:** medium; round-flat, often oblate; rind soft, pink blushed to pinkish red, may be striped, similar to Wonderful; shiny light red; arils large, dark-red; seeds small, soft; flavor sweet-sour; does not transport well; does not store for long periods; tends to split; rind may dry and lose color (brown) on tree after peak maturity; harvest window relatively narrow. **Tree:** weak; flexible; branches drooping; leaves narrow, lancet shaped; tendency for multiple trunks and more horizontal than vertical growth resulting from horizontal branches; flowers showy, large and red.

Haku Botan. Medium- to medium-hard-seeded, sour, light yellow, almost white fruit with double white flowers. **Origin:** Shibamichi Nursery, Saitama, Japan; collected by S. March, A. Shibamichi, and F.P. Drake in 1985 for the USA National Arboretum. Given to the USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1990. **Fruit:** medium to large; rind light yellow, almost white; arils clear to yellow, medium-sized; seeds medium to medium-hard; flavor lemon-like, very tart, mellows on the tree in November and postharvest in refrigeration; fruits split along lobes of calyx, which may turn fruit completely inside-out in extreme cases; subject to skin blemish caused by wind damage. **Tree:** about 4 m tall and 2 m wide, with a vertical, open form; slower growing than other cultivars; leaf petioles contain no anthocyanin; grown as an ornamental for its double white flowers.

Loffani. Medium- to hard-seeded, sweet yellow fruit with or without pink blush. **Origin:** Camarillo, CA by S.J. Chater. Introduced to the USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1997. **Fruit:** medium to exceptionally large; round; skin yellow, may have pink blush or speckling; skin thick, waxy smooth and rigid; calyx thick and rigid; arils pink; seeds very large, pink, hard; sweet; high proportion of rind to seeds; ripens in October in Davis. **Tree:** low-growing, spread out shrub with low vigor; precocity relatively low; fruit subject to sunburn and late-season split.

Loulou. Medium- to hard-seeded, sweet, pink to pinkish red with yellow fruit. **Origin:** Camarillo, CA by S.J. Chater. Introduced to the USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1997. **Fruit:** small to medium; skin pink to pinkish red, smooth and rigid; arils pink to reddish pink; seeds moderately hard, pink; flavor refreshing, sweet and fruity; ripens in September and October in Davis. **Tree:** low-growing, spread out shrub; can be trained to upright habit; fruit subject to late-season splitting and sunburn.

Molla Nepes (Soft-seeded VIR-5). Tart-sweet, soft-seeded, medium to large, dark red fruit. **Origin:** VIR Kara-Kala Experimental Station, Turkmenistan by N.I. Zaktreger, O.F. Mizgireva, and A.D. Strebkova. O.P. seedling; introd. from Turkmenistan Experimental Station of Plant Genetic Resources, Garrygala to USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1995. **Fruit:** medium to large; flat top, with a ring around the large, elongated calyx; skin dark red; arils dark red; seeds soft; flavor tart-sweet; ripens toward the end of October. **Tree:** Low-growing, spread-out shrub.

Myagkosemyannyi Rozovyi (Soft-seeded Pink). Soft-seeded pink and yellow, sour-sweet fruit. **Origin:** VIR Kara-Kala Experimental Station, Turkmenistan by N.I. Zaktreger, O.F. Mizgireva, and A.D. Strebkova. O.P. seedling 21; introd. from Turkmenistan Experimental Station of Plant Genetic Resources, Garrygala to USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1999. **Fruit:** medium; rounded-flat; skin pink on yellow ground color; arils light red; seeds soft; flavor sour-sweet; fruits store for 3-4 months. **Tree:** low growing, spread-out shrub.

Purple Heart (Sharp Velvet). Tart-sweet, medium to large, red-fruited fruit. **Origin:** Camarillo, CA by S.J. Chater. Introduced to USDA-ARS National Clonal Germplasm Repository, Davis, CA in 1997. **Fruit:** medium to large; rind red; arils medium to large, dark red; seeds crunchy; calyx durable, but subject to lobe loss during transport like Wonderful; rind waxy, thick and durable; fruit similar to Wonderful, except small subset may be heart shape; postharvest shelf life similar to Wonderful; flavor more tart than sweet, complex; seeds nutty; splitting minimal; fruit holds well on the tree and in storage; ripens toward the end of October. **Tree:** upright; yields large; precocity and tree form similar to Wonderful; leaf petiole dark red; grows well in areas with hot summers.

Sharp Velvet. See Purple Heart.

Soft-seeded Pink. See Myagkosemyannyi Rozovyi.

Soft-seeded VIR-2. See Ariana.

Soft-seeded VIR-5. See Molla Nepes.

POMEGRANATE ROOTSTOCK

Pjerin Preka, Stefano Cherubini, Flavio Roberto De Salvador and Petra Engel, CREA-Fruit Tree Research Centre, Rome, Italy

Pjered One. First known non-suckering *Punica granatum* rootstock for pomegranate. **Origin:** Chance seedling identified in a local population of found in Central Italy in 2007. Selected in 2012 by P. Preka and S. Cherubini at the CREA-Fruit Tree Research Centre in Rome; EU PVR 20153000, filed 14 Dec. 2015. **Plant:** easily propagated via hardwood cuttings; no auxin treatment needed, warming the basal parts favors rooting success. Grafts well with the main cultivars, best method is cleft grafting in spring during growth. **Rootstock performance:** Absence of suckers allows tree-type training of grafted cultivars. **Scion performance:** growth vigorous, soil anchorage good, typical adaptation to soils and scion growth.

RASPBERRY

Patrick P. Moore, Horticulture and Landscape Architecture Dept., Washington State University, Puyallup, WA

Chaim Kempler, Agriculture and Agri-Food Canada, Pacific Agri-Food Research Center, Agassiz, B.C., Canada

Julesi. Early-season, floricanefruiting red raspberry for fresh markets. Regularly bears a second crop in October at the end of canes. **Origin:** NARIC Fruitculture Research Institute, Fertőd,

Hungary by F. Dénes. Autumn Bliss × Fertődi Aranyfürt: crossed 2000; selected 2003; tested as 6891/8/1; introd. 2014. **Fruit:** large; conical; dark red; ripens 10-12 d before Fertődi Zamos; easily removed from receptacle. **Plant:** vigor high; upright, very tall canes; sucker production high; tolerant of raspberry bushy dwarf virus.

STRAWBERRY

Kim S. Lewers, USDA-ARS, Genetic Improvement of Fruits and Vegetables Laboratory, Beltsville, MD

AAC Lila. Short-day, midseason cultivar adapted to Eastern Canada and Northeastern USA. **Origin:** Agriculture and Agri-Food Canada, Kentville Research and Development Centre, Kentville, Nova Scotia by A.R. Jamieson. Queen Elisa × Wendy, crossed 2006; selected in Sheffield Mills, NS, 2007; tested as K07-21; introd. 2013; PBR Certificate no. 4566; 3 July 2013. **Fruit:** bright medium red (RHS 45-A); mid-sized to large; seasonal mean 16 g; conic with a short neck; flesh firm, medium red (RHS 46B); flavor very good, well balanced; calyx mid-sized, raised, reflexed; achenes just below the surface; ripens midseason. **Plant:** vigor medium; stolons plentiful, 13.5/plant; yield moderate to high; semi-upright, density medium; flowers at canopy; fruiting trusses prostrate; moderately resistant to common leaf spot (*Ramularia tulasnei*) and leaf scorch (*Diplocarpon earlianum*); tolerant to red stele (*Phytophthora fragariae*); susceptible to powdery mildew (*Podosphaera macularis*).

Amandine. Long-day cultivar with a brief chilling requirement, adapted to protected cultivation in the Gironde, France. **Origin:** Darbonne Pepiniere, Le Barp, France, by Alexandre Pierron-Darbonne. 88.09.06 × Mara des Bois, crossed 2005. Le Barp; selected in Segovia, Spain; tested as Amandine DA 47; USPP 26,059; 6 Nov. 2014. **Fruit:** moderately glossy dark red (RHS 45B to 45A); large, 13 to 15 g; uniformly cordate; flesh moderately firm, orange-red (RHS 31B to 32B) to light orange (RHS 27C to 29C), 7%SS, 3.9 pH; calyx small, spreading, set at surface; achenes at surface; season early. **Plant:** vigor medium; stolons few, 3 to 5; yield low, 513 g/plant; flat globose, density medium; flowers above canopy; fruiting trusses semi-erect.

BBB PO 01. Short-day, female, white-fruited cultivar with red achenes, adapted to The Netherlands. **Origin:** Beekers Berries Breeding, Made, The Netherlands by J.A.P. de Jongh, Etten-Leur. Mix of white-fruited genotypes including Annablanca and Louis Gathier O.P. 2007; selected in Etten-Leur, The Netherlands, 2008; tested as BBB PO 01; USPP 24,332; 25 Mar. 2014. **Fruit:** moderately glossy white (RHS 158C 160D); small, 2.1 cm long, 2.6 cm wide; uniformly oblate; flesh moderately firm, very juicy, white (RHS NN155A and NN155C to NN155D); very sweet, moderately acidic, very aromatic; calyx small, inset, spreading to slightly reflexed; achenes deeply inserted, red (RHS 44A to 45A). **Plant:** vigor strong; upright mounded; flowers beneath canopy, fruiting trusses; tolerant to Phytophthora crown rot (*Phytophthora cactorum*), susceptible to rain damage.

BG-3.324. Short-day cultivar adapted to Southern California coast. **Origin:** Berry Genetics, Freedom, CA by S.D. Nelson, M.D. Nelson, L.W. Stoeckle. BG-1257 × BG-1975, crossed 2003; selected in Ventura County, CA, 2005; USPP 23,256; 18 Dec. 2012. **Fruit:** orange-red to red (RHS 45B); large, 28.5 g; moderately uniform conic; flesh firm, dark red (RHS 45A); flavor good; calyx small, inset, spreading to clasping; achenes at or below surface; season very early. **Plant:** vigor medium, upright; density medium; stolons many; yield moderate to high, 1,150 g/plant; flowers at to above canopy, fruiting trusses prostrate; susceptibility to powdery mildew, Botrytis fruit rot (*Botrytis cinerea*) and two-spotted spider mite (*Tetranychus urticae*) moderate; susceptible to bacterial angular leaf spot (*Xanthomonas fragariae*).

BG-4.367. Short-day cultivar adapted to Southern California coast. **Origin:** Berry Genetics, Freedom, CA by S.D. Nelson, M.D. Nelson,

L.W. Stoeckle. BG-633 × BG-414.065, crossed 2004; selected in Ventura County, CA, 2006; USPP 25,865; 8 Sept. 2015. **Fruit:** red (RHS 46B); large, 28.5 g; moderately uniform conic; flesh very firm, medium red (RHS 45C); flavor moderate; calyx mid-sized, inset, spreading; achenes at surface; season early. **Plant:** vigor medium; stolons plentiful 13.5/plant; yield moderate to high, 1,200 g/plant; upright, density medium to sparse; flowers at to above canopy, fruiting trusses prostrate; susceptibility to powdery mildew, Botrytis fruit rot, and two-spotted spider mite moderate; susceptible to bacterial angular leaf spot.

BG-4315. Short-day cultivar adapted to Southern California coast. **Origin:** Berry Genetics, Freedom, CA by S.D. Nelson, M.D. Nelson, L.W. Stoeckle. BG-633 × BG-1445, crossed 2002; selected in Ventura County, CA, 2004; USPP 23,257; 18 Dec. 2012. **Fruit:** orange-red to red (RHS 45B); mid-sized to large, 26.9 g; moderately uniform conic; flesh firm, medium red (RHS 44A); flavor good; calyx mid-sized, inset, spreading; achenes at surface; mid-season. **Plant:** vigor medium to strong, stolons many; yield moderate to high, 1,200 g/plant; upright, density medium; flowers at canopy, fruiting trusses prostrate; susceptibility to powdery mildew, Botrytis fruit rot, and two-spotted spider mite moderate; susceptible to bacterial angular leaf spot.

BG-4316. Short-day cultivar adapted to Southern California coast. **Origin:** Berry Genetics, Freedom, CA by S.D. Nelson, M.D. Nelson, L.W. Stoeckle. BG-633 × BG-1445, crossed 2002; selected in Ventura County, CA, 2004; USPP 23,255; 18 Dec. 2012. **Fruit:** orange-red (RHS 34A); mid-sized, 24.9 g; uniformly conic; flesh firm, light red (RHS 34C); flavor good; calyx large, inset, spreading to clasping; achenes at surface; season early. **Plant:** vigor medium, stolons many; yield moderate to high, 1,150 g/plant; upright, density medium; flowers at canopy, fruiting trusses prostrate; susceptibility to powdery mildew, Botrytis fruit rot, and two-spotted spider mite moderate; susceptible to bacterial angular leaf spot.

BG-6.3024. Short-day cultivar adapted to Southern California coast. **Origin:** Berry Genetics, Freedom, CA by S.D. Nelson, M.D. Nelson, L.W. Stoeckle. BG-1975 × BG-219.068, crossed 2006; selected in Ventura County, CA, 2008; USPP 25,895; 15 Sept. 2015. **Fruit:** red (RHS 46B); very large, 30.6 g; uniformly conic; flesh moderately firm, medium red (RHS 45C); flavor excellent; calyx large, inset, spreading to reflexed; achenes at surface; midseason. **Plant:** vigor strong, stolons plentiful, yield 13.5/plant; high, 1,350 g/plant; large, upright, density medium to strong; flowers at to below canopy, fruiting trusses prostrate; susceptibility to powdery mildew, Botrytis fruit rot, and two-spotted spider mite moderate; susceptible to bacterial angular leaf spot.

Brilla. Short-day cultivar adapted to protected culture and open fields, Northern Italy. **Origin:** CRA-Unità di Ricerca per la Frutticoltura, Forlì, Italy and “Top Quality” projects by W. Faedi, G. Baruzzi, P. Lucchi, and P. Sbrighi. Complex pedigree including Alba, Brighton, Cesena, Darselect, and Tribute, crossed 2004; selected in Cesena, Italy, 2006; tested as FC 04.256.32; USPP 24,511; 3 June 2014. **Fruit:** glossy, orange-red, tough; large, 28.2 g; variable, irregular, long conic; flesh moderately firm, flavor mild, 6.9% SS; 9.7 meq TA; achenes at surface; early midseason. **Plant:** vigorous; yield very high, 1,200 g/plant; globose, density medium; flowers at canopy; soil-borne pathogen tolerance moderate; non-fumigated soil adaption good; susceptibility to anthracnose fruit and crown rot (*Colletotrichum acutatum*), bacterial angular leaf spot, powdery mildew and Botrytis fruit rot moderate.

Buddy. Everbearing cultivar adapted to Kent, Great Britain. **Origin:** Hargreaves Plants, Spalding, Lincolnshire, UK, by D.W. Simpson, East Malling, UK, A.B. Whitehouse, Maidstone, UK, and A.W. Johnson, Rochester, UK. Diamante × DNBL205; selected in East Malling, 2006; tested as EMR428; USPP 24,512; 3 June 2014. **Fruit:** glossy red (RHS 44A); large, 22.8 g; cordate; red orange (RHS 35A)

and light red (RHS 36A) flesh; flavor excellent, 7.5% SS; calyx mid-sized, spreading; achenes below surface. **Plant:** vigor medium; stolons plentiful, 25 daughter plants; yield medium, 839 g/plant; semi-erect; flowers above canopy, fruiting trusses semi-erect; resistance to Phytophthora crown rot and Verticillium wilt (*Verticillium dahliae*) moderate.

Charm. Short-day processing cultivar adapted to the Pacific Northwest US. **Origin:** USDA-ARS Corvallis, OR by C.E. Finn. BC 91-14-31 × WA 94023-1, crossed 1999; selected Corvallis, OR in June 2001; tested as ORUS 2262-2; USPP 25,300; 24 Feb. 2015. **Fruit:** deep red (RHS 53A); mid-sized, 14.6 g; uniform conical, slight wedge; flesh deep red (RHS 47A), fine textured; flavor sweet, balanced, 7.65% SS, 3.43 pH; calyx mid-sized, spreading, surface very easily removed; achenes at or below surface; early midseason. **Plant:** vigor very strong; stolons plentiful, 13.5/plant; yield high, 38,063 kg/ha; upright globose, medium to dense; flowers at or above canopy; fruiting trusses prostrate to semi-erect; virus tolerance apparent, susceptibility to red stele high.

Cristina. Short-day cultivar adapted to central north Europe. **Origin:** Marche Polytechnic University, Italy by B. Mezzetti and F. Capocasa. CN95,602,8 × CN95,419,4, crossed 2001; selected 2003; EU CPVO applied for. **Fruit:** glossy red-orange (RHS 30A); very large, 33.7 g; conic; flesh moderately firm; flavor good, 7.1% SS, 10.8 meq TA; calyx small, spreading to clasping; achenes at or above surface; season very late. **Plant:** vigor medium to strong, 3.9 crowns/plant; stolon production high, 33/plant; yield very high, 1,213 g/plant; foliage semi-upright, dense; flowers at or below canopy; non-fumigated soil tolerance good.

Crystalina. Dayneutral cultivar adapted to coastal Central California. **Origin:** Sweet Darling Sales, Aptos, CA by J. Larse. 103904 × 103926; selected in Watsonville, CA; tested as 107936 and Crystal; USPP 25,867; 8 Sept. 2015. **Fruit:** moderately glossy red (RHS 45A); large, 22.5 g; conic; flesh orange red (RHS 41B) and white (RHS 155C); flavor moderately sweet, balanced; calyx very large; achenes below surface; ripens from mid-March for 24 weeks. **Plant:** vigor strong; stolons very few, 1 daughter/plant; yield high, 103.5 g/plant; upright globose; density medium; fruiting trusses prostrate.

Dani. Dayneutral cultivar adapted to coastal Central California. **Origin:** Sweet Darling Sales, Aptos, CA by J. Larse. 2002 × 1706; selected in Watsonville, CA; tested as 105429; USPP 25,533; 12 May 2015. **Fruit:** moderately glossy red (RHS 45A); large, 20 g; conic; flesh orange red (RHS 41B) and white (RHS 155C); flavor moderately sweet, balanced; calyx very large; achenes below surface; early dayneutral; ripens from April through October. **Plant:** vigor strong; stolons very few, 1 daughter/plant; yield early, high, 71.8 g/plant; upright globose; density medium; flowers at canopy; fruiting trusses prostrate; fruit protected from rain by foliage and tolerant of shipping.

Deluxe. Short-day cultivar adapted to the Gironde, France. **Origin:** A. Pierron-Darbonne, Navarra, Spain. 16.01.18 × Darselect; crossed 2004; selected in Le Barp, France; tested as DA46; USPP 26,208; 15 Jan. 2015. **Fruit:** very glossy orange red; very large, 32.4 g; variable round to conic; flesh firm, orange red, 7.5% SS, 3.9 pH; calyx mid-sized, spreading surface; achenes at surface; midseason. **Plant:** vigor strong, stolons plentiful; upright globose, dense; flowers at canopy.

Dream. Short-day to weak-dayneutral cultivar adapted to the Gironde, France. **Origin:** A. Pierron-Darbonne, Navarra, Spain. 31.14.04 × 01.12.52; crossed 2007; selected in Le Barp, France; tested as DA50; USPP 26,210; 15 Jan. 2015. **Fruit:** very glossy red to dark red; large, 23.5 g; conic; flesh firm, light red, 7.4% SS, 3.9 pH; calyx mid-sized, reflexed surface; achenes below surface; season very early. **Plant:** vigor medium; stolons plentiful; semi-upright, flat globose, open; density medium; flowers above canopy.

Florida127 (Sweet Sensation®, Sensation™). Short-day cultivar with partial repeat flowering during same season, adapted to Florida. **Origin:** University of Florida by V.M. Whitaker and C.K. Chandler. FL 05-107 × FL 02-58; crossed 2009; selected in Balm, FL, Winter 2009-2010; tested as FL 09-127. **Fruit:** glossy bright red ($a^* = 38.9$); very large, 35-45 g primaries, 15-35 g secondaries; conical to cordate; firm, red ($a^* = 24$) flesh, sweet, 9.63-12.49 SSC/TA; calyx mid-sized, spreading to reflexed; achenes slightly below surface; season early. **Plant:** vigor moderate, 4-7 crowns/plant; stolon number medium to high, 25-40 daughter plants; yield moderate to high, 679-1,020 g/plant; semi-upright; density medium; flowers at or below canopy; resistant to anthracnose fruit rot (*C. acutatum*); susceptibility to Botrytis fruit rot moderate.

Fontanilla. Short-day cultivar adapted to protected cultivation on the southwest coast of Spain. **Origin:** Instituto Andaluz de Investigación y Formación Agraria y Pesquera, Seville, Spain by P. Domínguez, M.T. Ariza, J.J. Medina, B. de los Santos, M. Chamorro, J.M. López-Aranda, and C. Soria. SE-1823-4 × Sabrosa (Candongia™); crossed 2006; tested as 2700-2. **Fruit:** medium red; large, 29.2 g; slightly irregular, long wedge; flesh firm, light red, aromatic, flavorful, 7% SS; calyx large; achenes below surface; season early. **Plant:** vigor strong; stolons plentiful; yield very high, 1,077.9 g/plant, compact, semi-upright; flowers above canopy; somewhat resistant to powdery mildew; susceptible to anthracnose crown rot.

Garda. Short-day cultivar adapted to Northern Italy and Central Europe. **Origin:** CRA-Unità di Ricerca per la Frutticoltura, Forlì, Istituto Sperimentale di Frutticoltura-Verona Province Authority and Growers Associations “Aposcaligera” and “COZ” by W. Faedi, G. Baruzzi, P. Lucchi, P. Sbrighi, G. Baroni, L. Ballini, and M. Birolli. Complex pedigree including Addie, Alba, Belrubi, Cardinal and Holiday; crossed 2002; selected in Verona, Italy, 2004; tested as VR 02.312.2; EU CPVO N° 2012/1671; 17 Aug. 2012. **Fruit:** glossy red, tough; large, 24.6 g, secondaries smaller; uniform conical; flesh very firm; flavor good, 7.6% SS, 9.0 meq TA; season early. **Plant:** vigor moderate; yield high, 1,060 g/plant; open; flowers at canopy, fruiting trusses; susceptibility to anthracnose fruit and crown rot, bacterial angular leaf spot, powdery mildew and Botrytis fruit rot moderate.

Grandarosa. Short-day cultivar adapted to Poland. **Origin:** Research Institute of Horticulture, Skierniewice, Poland by A. Masny, E. Żurawicz and J. Markowski. Granda × Camarosa; crossed 2003; selected 2005; tested as T-03021-12; CPVO Decision No. UE 39554. **Fruit:** glossy orange-red; large, 17.1 g; somewhat irregular, long wedge to conical; flesh firm, orange-red, flavorful, 9.4% SS; calyx large, raised, reflexed; achenes below surface; midseason. **Plant:** vigor strong, stolons many; yield medium, 753 g/plant; upright globose; density medium; flowers above canopy; somewhat resistant to powdery mildew and strawberry spider mite (*Tetranychus lambi*); somewhat tolerant to Verticillium wilt; somewhat susceptible to leaf scorch.

Herriot. Short-day cultivar adapted to matted row production in west-central New York, the upper Midwest, the mid-Atlantic and southeast Canada. **Origin:** Cornell University, by C.A. Weber, Geneva, NY. NYUS299 × MNUS 210, aka Winona; crossed 1997; selected 1999; tested as NY99-21; USPP 24,613; 8 July 2014. **Fruit:** glossy bright to dark red (RHS 45A); large, 10.8 g; uniform conical; flesh firm, light red to white, flavorful, 9.03% SS, 3.38 pH; calyx mid-sized, reflexed; achenes at or slightly below surface; compact; early midseason. **Plant:** vigor strong; yield high, 14,600 kg/ha; upright, dense; flowers above canopy; fruiting trusses short, semi-erect; resistance to common leaf diseases good.

Ischia. Dayneutral cultivar adapted to Italy. **Origin:** Consorzio Italiano Vivaisti, Comacchio, Italy by M. Leis and A. Martinelli, Ferrara, Italy, and by G. Castagnoli, Quingentole, Italy. CIVRI30 × O2N2-19; selected 2005, in Ferrara; USPP 24,552; 17 June 2014. **Fruit:** red (RHS 46A, RHS 46B); large, 20-31 g; conical; flesh

orange-red (RHS 34A, RHS 33B) and white (RHS 155D); flavor good, 8.5% SS to 10% SS; calyx small, inset, spreading to slightly reflexed; achenes below surface; ripens 63 to 70 d after planting. **Plant:** vigor medium; stolon number adequate, 5.5/plant; yield medium, 800 g/plant to 1,000 g/plant; semi-upright, dense; flowers at or below canopy, fruiting trusses semi-erect; tolerant to powdery mildew, susceptibility to *Phytophthora* crown rot moderate.

Jonica. Short-day cultivar adapted to Southern Europe. **Origin:** CRA-Unità di Ricerca per la Frutticoltura, Forlì, Italy, and Piraccini Secondo, Cesena, Italy by W. Faedi, G. Baruzzi, P. Lucchi and P. Sbrighi. Kilo O.P.; crossed 2004; selected 2006; tested as PIR 04.72.21; EU CPVO N° 2013/2784; 4 Nov. 2013. **Fruit:** very glossy red, tough; large, 25.2 g, smaller secondaries; uniform conical; flesh very firm; flavor very good, 8.1% SS, 9.2 meq TA; season early. **Plant:** vigor moderate; yield moderate, 600 g/plant; globose; density medium; flowers at canopy, fruiting trusses; susceptibility to anthracnose fruit and crown rot, angular leaf spot, powdery mildew, and *Botrytis* fruit rot moderate.

Lili. Dayneutral cultivar adapted to coastal Central California. **Origin:** Sweet Darling Sales, Aptos, CA by J. Larse. Parentage unknown; selected at Watsonville, CA; tested as 101983 and LILY; USPP 25,849; 1 Sept. 2015. **Fruit:** moderately glossy red (RHS 45A), tough; uniformly very large, 30.3 g; slightly irregular conic with snubbed tip; flesh moderately firm, orange-red (RHS 41B) and white (RHS 155C), moderately sweet; achenes below surface; ripens before Albion. **Plant:** vigor strong; stolons very few, 1 daughter/plant; yield high, 122.9 g/plant; upright globose; density medium; fruiting trusses prostrate; resistance to fruit bruising moderate.

Linosa. Dayneutral cultivar adapted to Italy. **Origin:** Consorzio Italiano Vivaisti, Comacchio, Italy by M. Leis and A. Martineni, Ferrara, Italy and by G. Castagnoli, Quingentole, Italy. CIVRI30 × R6R7-19; selected at Ferrara, 2005; USPP 24,440; 13 May 2014. **Fruit:** moderately glossy vivid red (RHS 46B); large; slightly irregular long ovoid; flesh firm, orange-red (RHS 33A, RHS 35B) and white (RHS 155D); flavor good, 7.5-8.5% SS; calyx mid-sized, raised, spreading, detaches easily; achenes below surface; season early. **Plant:** vigor medium; stolons plentiful, 6.5/plant; yield high, 800 g to 1,000 g/plant; semi-upright; density medium; flowers at or below canopy; fruiting trusses semi-erect; tolerant to *Phytophthora* crown rot, powdery mildew, poor soils, and general root and leaf diseases.

Margherita. Short-day cultivar adapted to protected cultivation in southern coastal Italy. **Origin:** Sociedad Nova Siri Genetics by N. Tufaro. Siris × Pajaro; selected at Nova Siri, Matera, Italy; tested as AD.09.06; USPP 25,638; 23 June 2014. **Fruit:** bright red-orange (RHS 40A, RHS44B); uniformly very large, 30.45 g; uniform conic; flesh firm, bright red-orange (RHS 40A, RHS 40B); flavor good, 8.27% SS, 3.55 pH; calyx small, set at surface; achenes below surface; season early, ripens 58-67 d after planting. **Plant:** vigor medium strong; stolons many; yield high, 965 g/plant; upright globose, dense; flowers at canopy.

Marisol. Short-day cultivar adapted to protected cultivation in coastal Southern Italy. **Origin:** Sociedad Nova Siri Genetics, Matera, Italy by N. Tufaro. Siris × Milsei; selected at Nova Siri; USPP 25,637; 23 June 2015. **Fruit:** very glossy bright red-orange (RHS 42B, RHS 42C); large, 22.5 g; conical to cylindrical with forked tip; flesh moderately firm, bright red-orange (RHS 40A, RHS 40B); flavor mild, 7.95% SS, 3.78 pH; calyx large, reflexed; achenes below surface; early-midseason. **Plant:** vigor medium strong; stolons plentiful; yield high, 913 g/plant; upright globose, dense.

Mayflower. Short-day cultivar adapted to United Kingdom. **Origin:** East Mailing Research, Kent, UK by D.W. Simpson. EM-639 × ITA

80-52-1; crossed 1996; selected in Kent, UK, 1997; tested as EM-995; USPP 24,394; 22 Apr. 2014. **Fruit:** moderately glossy, bright red (RHS 44A) and bright red-orange (RHS 34A); broad conical; flesh firm, bright red (RHS 44A), bright red-orange (RHS 34A), and strong pink (RHS 37A); flavor balanced, with moderate sweetness and acidity; calyx small, raised, reflexed; achenes slightly below surface; mid-late season. **Plant:** vigor good; yield medium, upright globose; flowers below canopy; tolerant to *Phytophthora* crown rot and rain.

Merced. Short-day cultivar adapted to California. **Origin:** The Regents of the University of California, by D.V. Shaw and K.D. Larson. Cal 3.92-8 × Cal 2.95-4; crossed 2007; selected at Winters, CA, 2008; tested as C229; USPP 25,436; 14 Apr. 2015. **Fruit:** red (Munsell 5 R 3/7); very large, 35 g; long conic; flesh extremely firm, orange-red (Munsell 7.5 R 6/12); flavor outstanding; calyx mid-sized, reflexed surface, weakly attached; achenes at or above surface; ripens early April through end August. **Plant:** vigor medium; stolons plentiful, 12.1/plant; yield very high, 2,339 g/plant; open, erect; flowers at or above canopy; resistant to *Phytophthora* crown rot and common leaf spot, resistance to powdery mildew and anthracnose crown rot (*C. acutatum*) moderate, tolerant to two-spotted spider mite and strawberry viruses of California, susceptibility to *Verticillium* wilt high.

Murano. Dayneutral cultivar adapted to Italy. **Origin:** Consorzio Italiano Vivaisti, Comacchio, Italy by M. Leis, Ferrara, Italy and A. Martinelli, Ferrara, Italy. R6R1-26 × A030-12; crossed 2004; selected 2005; USPP 25,070; 18 Nov. 2014. **Fruit:** orange-red to red (RHS 45A); large, 18-20 g; conical; flesh very firm, bright orange-red (RHS 44B); flavor good; calyx mid-sized, reflexed surface; achenes below surface; ripens 53-62 d after planting, June to November. **Plant:** vigor medium strong; stolon number adequate, 6.5/plant; yield high, 900 g to 1,100 g/plant; semi-upright; density medium; flowers at canopy; fruiting trusses erect.

Pink Rosa. Short-day cultivar adapted to Poland. **Origin:** Research Institute of Horticulture, Skierniewice, Poland by A. Masny and E. Żurawicz. Granda × Sophie; crossed 2004; selected 2005; tested as T-04052-06; EU PVR Application 20131696. **Fruit:** pink-orange to pink-red; large, 14.2 g; wide-conical to cordate; firm, flesh red-orange; flavor good, 8.27% SS; calyx small, spreading to slightly reflexed, inset; achenes below surface; season late. **Plant:** vigor good; stolon numbers medium; yield medium, 616.1 g/plant; semi-upright; flowers below canopy; resistance to common leaf spot, leaf scorch, powdery mildew, and *Verticillium* wilt moderate.

Prize. Dayneutral cultivar adapted to coastal Central California. **Origin:** Plant Sciences, Watsonville, CA and Berry R&D, Watsonville by S.M. Ackerman, S.D. Nelson, and M.D. Nelson. PS-2880 × PS-2899; crossed 2003; selected in Ventura County, CA, 2005; USPP 26,193; 9 July 2015. **Fruit:** orange-red (RHS 44A); small, 19.9 g; conical to ovate; flesh firm, light red (RHS 39A, 39C); flavor good, 7.6% SS; calyx large, spreading, inset; achenes at surface; ripens late September to mid December. **Plant:** vigor strong; stolon numbers few to medium; yield low, 420 g/plant; semi-upright; density medium; flowers at or below canopy, fruiting trusses prostrate; resistance to bacterial angular leaf spot, and susceptibility to powdery mildew, *Botrytis* fruit rot, and two-spotted spider mite moderate.

PS-3.108. Short-day cultivar adapted to Central California coast. **Origin:** Plant Sciences, Watsonville, CA and Berry R&D, Watsonville by S.M. Ackerman, S.D. Nelson, and M.D. Nelson. PS-1269 × PS-4634; crossed 2003; selected in Monterey County, CA, 2005; USPP 23,291; 1 Jan. 2013. **Fruit:** red to dark-red (RHS 46A); very large, 29.6 g; uniform conical; flesh firm, medium red (RHS 44B); flavor good; calyx mid-sized, inset, spreading;

achenes at surface; season early. **Plant:** vigor medium; stolon numbers medium to high; yield very high, 1,950 g/plant; upright; density medium; flowers at canopy, fruiting trusses prostrate; susceptibility to powdery mildew, Botrytis fruit rot, two-spotted spider mite moderate; susceptibility to bacterial angular leaf spot high.

Romina. Short-day cultivar adapted to central northern Europe. **Origin:** Marche Polytechnic University, Italy by B. Mezzetti and F. Capocasa. 95,617,1 × Darselect; crossed 1999; selected 2001; USPP 24,532; 10 June 2014. **Fruit:** red (RHS 33A); medium, 19.8 g; variable, conical to biconical; flesh very firm (444g), light red (RHS 33D); flavor good, 7.8% SS, 9.8 meq TA; calyx mid-sized, spreading to reflexed; achenes at or below surface; season very early. **Plant:** vigor medium to strong, 3.8 crowns/plant; stolon production high, 35/plant; yield moderate to high, 874 g/plant; upright; density medium; flowers below foliage; tolerant to non-fumigated soil.

Sensation™. See Florida127.

Summer Gem. Short-day cultivar adapted to Eastern Canada. **Origin:** University of Guelph–Simcoe Research Station, Simcoe, Ontario, Canada by A. Dale. 81RT2 (Cavendish × Startyme) × G19; crossed 1997; selected 1999; tested as 15Z49; introd. 2013. **Fruit:** bright red; large; flesh moderately firm, bright red; flavor balanced; early midseason, ripens 2-3 d after Veestar. **Plant:** vigor strong, winter hardy; stolons plentiful; yield consistently good; resistant to leaf scorch and powdery mildew, susceptible to common leaf spot and anthracnose (*C. acutatum*).

Sweet Sensation®. See Florida127.

Sweet Sunrise. Short-day fresh-market or processing cultivar adapted to the Pacific Northwest. **Origin:** USDA-ARS, Corvallis, OR by C.E. Finn, P.P. Moore, B.M. Yorgey, J. Lee, B.C. Strik, M. Dossett, C. Kempler, R.R. Martin and G.J. Galletta. Puget Reliance × B 754; crossed 1998; selected 2000; tested as ORUS 2240-1; introd. 2012; USPP 25,223; 13 Jan. 2015. **Fruit:** skin bright red, glossy; flesh very firm, solid red; medium-large, 15-20 g; uniform squat conical; percentage soluble solids and acidity similar to Totem and Tillamook; flavor sweet, outstanding; picks easily with or without cap; season early, ~7 d before Totem and Tillamook. **Plant:** vigor high; yield high, greater than Totem; habit upright, open; resistant to red stele; tolerant to typical Northwest US viruses.

Triumph. Everbearer adapted to Southern California coast. **Origin:** Plant Sciences, Watsonville, CA by S.M. Ackerman, S.D. Nelson, and M.D. Nelson. PS-3003 × PS-4634; crossed 2003; selected in Ventura County, CA, 2005; tested as PE-3.221; USPP 24,950; 7 Oct. 2014. **Fruit:** red (RHS 44A); mid-sized, 21.5 g; moderately uniform conical; flesh moderately firm, medium red (RHS 44B); flavor good; calyx mid-sized, inset, spreading; achenes at surface; season early. **Plant:** vigor strong; stolons plentiful; yield moderate to high, 600 g/plant; upright; density medium; flowers at to below canopy, fruiting trusses prostrate; susceptibility to bacterial angular leaf spot, Botrytis fruit rot, two-spotted spider mite moderate; susceptible to powdery mildew.

Verity. Dayneutral cultivar adapted to Northern Europe. **Origin:** Edward Vinson, Kent, UK by P.E. Vinson and S.P. Warren. Evita × 04AA21; crossed 2005; selected in Faversham, Kent, UK, 2006; tested as 06HN43; USPP 25,794; 11 Aug. 2015. **Fruit:** red (RHS 44A); large, primaries 32 g; ovoid with broad shoulders; flesh firm, red-orange (RHS 32A, RHS 32B), sweet, 9.3% SS; calyx small, spreading to reflexed; achenes at or below surface; mid- to late-season. **Plant:** vigorous; stolon number medium; yield very high, 1,400 g/plant; foliage upright, dense; flowers at or above canopy, fruiting trusses semi-erect; resistance to Phytophthora crown rot partial.

TEJOCOTE

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Calpan Gold. *Crataegus mexicana*, thornless, late ripening, with high fruit productivity. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by R. Nieto-Ángel. Seedling from population of Pecos de Huejotzingo; tested as HUE10; selected 1988; registered with CNVV (Mexican National Catalog of Plant Varieties) as TEJ-01-160709; Nov. 2008. **Fruit:** large, 2.7 cm in diameter, 11.6 g; usually very round; flesh firm; skin orange-yellowish; ripens late November to late December. **Tree:** thornless and very vigorous, with round canopy; flowers large; leaves large and serrate, without lobes, similar to apple leaves, twice as long as wide; resistance to apple maggot (*Rhagoletis pomonella*) moderate.

Centenario. *C. nelsoni* with dark red fruit, highly productive, ripening very late. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico, by M.W. Borys. Selected from wild population of San Cristobal de las Casas, Chiapas; tested as RRO03; selected 1982; registered with CNVV (Mexican National Catalog of Plant Varieties) as TEJ-05-160709; Nov. 2008. **Fruit:** small; 1.9 cm wide and 1.6 cm high; 3.5 g; typically elliptical; small; firm; skin dark reddish; ripens late November to late February. **Tree:** thorny; dwarfed; canopy spreading; flowers small; leaves small and elliptical, without lobes; also used as rootstock for its dwarfing effect and seed production.

Chapeado. *C. mexicana*, thornless, with high fruit weight and orange-reddish skin, ripening late. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by R. Nieto-Ángel. Seedling from population of Pecos de Huejotzingo; tested as HUE12; selected 1989; registered with CNVV (Mexican National Catalog of Plant Varieties) as TEJ-02-160709; Nov. 2008. **Fruit:** large, 3.4 cm in diameter, 23.4 g.; usually very spherical; large and firm, with orange-reddish skin; ripens late October to late December. **Tree:** thornless; vigorous; canopy semi-round; flowers large; leaves large and serrate, without lobes, similar to apple leaves, twice as long as wide; resistance to apple maggot moderate.

Eli. *C. stipulosa* with bright red fruit and high fruit productivity, ripening early. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by R. Nieto-Ángel. Selected from wild population of San Cristobal de las Casas, Chiapas; tested as SCC09; selected 1989; registered with CNVV (Mexican National Catalog of Plant Varieties) as TEJ-04-160709; Nov. 2008. **Fruit:** medium; 2.2 cm wide, 1.8 cm high; 4.5 g; usually elliptical; small and soft; skin bright reddish; ripens early September to late November. **Tree:** vigorous; thorns few; canopy round; flowers large; leaves small, rounded, without lobes.

Tempranero. *C. gracilior*, thorny, with pale yellowish fruits, ripening early. **Origin:** Universidad Autónoma Chapingo, Chapingo, Mexico by M.W. Borys and R. Nieto-Ángel. Selected from a wild population of Santa Catarina del Monte in Mexico Valley; tested as SCM03; selected 1982; registered with CNVV (Mexican National Catalog of Plant Varieties) as TEJ-03-160709; Nov. 2008. **Fruit:** medium; 2.2 cm wide, 2.4 cm high; 7.5 g; typically pyriform; skin pale-yellowish; pulp sweet, 16 °Brix; ripens late August to early November. **Tree:** thorny; vigor medium; canopy spreading; flowers small; leaves medium and serrate, without lobes; basal leaves more acute.

INDEX

06-04 BLUEBERRY
06-22 BLUEBERRY
53-116 PINEAPPLE
59-656 PINEAPPLE
AAC Lila STRAWBERRY
Alisio 15 PEACH
Amandine STRAWBERRY
Amara BLACKBERRY
Amarilla Jarro CACTUS PEAR
Amarilla Miquihuana CACTUS PEAR
Amarilla Montesa CACTUS PEAR
Amarilla Plátano CACTUS PEAR
Amber Fire NECTARINE
American Beauty PITAHAYA
Andes Nec-3 NECTARINE
APF-190 BLACKBERRY
APRIDWARF. APRICOT AND PLUM ROOTSTOCK
APRIMED. APRICOT AND PLUM ROOTSTOCK.
Aramat SWEET CHERRY
Ariana POMEGRANATE
Armando PITAHAYA
Arvin Glen CHERRY SWEET
ASFARI APPLE
Aus-Festival PINEAPPLE
Autumn Pearl NECTARINE
B. Thome Gala APPLE
B9-65 CITRUS
Baby Blues BLUEBERRY
BB05-185GA BLUEBERRY
BB05-251MI-1 BLUEBERRY
BB05-274MI-13 BLUEBERRY
BB05-58GA-1 BLUEBERRY
BB05-61GA-61 BLUEBERRY
BB06-540FL-12 BLUEBERRY
BB07-210FL-18 BLUEBERRY
BBB PO 01 STRAWBERRY
BG-3.324 STRAWBERRY
BG-4.367 STRAWBERRY
BG-4315 STRAWBERRY
BG-4316 STRAWBERRY
BG-6.3024 STRAWBERRY
Bien Hoa Red PITAHAYA
Bien Hoa White PITAHAYA
Black Jack BLACKBERRY
Blackred XX PLUM
Bliss™ BLUEBERRY
Blues Jam™ PLUM
Bluesfest BLUEBERRY
Brilla STRAWBERRY
Buddy STRAWBERRY
Burnectthirty NECTARINE
Burnecttwentyfive NECTARINE
Burnecttwentyseven NECTARINE
Burnecttwentysix NECTARINE
Burpeachthirty PEACH
Burpeachthirtyfive PEACH
Burpeachthirtyfour PEACH
Burpeachthirtyone PEACH
Burpeachthirtythree PEACH
Burpeachthirtytwo PEACH
Burpeachtwenty-nine PEACH
C00-09 BLUEBERRY
C03-038 BLUEBERRY
C03-158 BLUEBERRY
C04-014 BLUEBERRY
C04-051 BLUEBERRY
C05-178 BLUEBERRY
C05-190 BLUEBERRY
C95-12 BLUEBERRY
C97-390 BLEBERRY
C97-41 BLUEBERRY
C99-42 BLUEBERRY
Cakedelice NECTARINE
Calpan Gold TEJOCOTE
Calypso BLUEBERRY
Cambay XOCONOSTLE
Camila BLACKBERRY
Cebra PITAHAYA
Centenario TEJOCOTE
Chapeado TEJOCOTE
Charm STRAWBERRY
CN B110 APPLE
Colombiana PITAHAYA
Columbia Giant BLACKBERRY
Cowiche™ SWEET CHERRY
Crimson Carson PLUM
Crisplate PEACH
Crispsun PEACH
Cristina STRAWBERRY
Crystalina STRAWBERRY
Cuaresmeño Zacatecano XOCONOSTLE
Cuerón XOCONOSTLE
Dani STRAWBERRY
DAS-10 APPLE
Daybreak™ BLUEBERRY
Delight PITAHAYA
Deluxe STRAWBERRY
Desertnyi POMEGRANATE
Dole 14 PINEAPPLE.
Dream STRAWBERRY
DrisBlackFive BLACKBERRY
DrisBlackFour BLACKBERRY
DrisBlackSeven BLACKBERRY
DrisBlackSix BLACKBERRY
DrisBlueEight BLUEBERRY
DrisBlueEleven BLUEBERRY
DrisBlueFive BLUEBERRY
DrisBlueFour BLUEBERRY
DrisBlueNine BLUEBERRY
DrisBlueOne BLUEBERRY
DrisBlueSeven BLUEBERRY
DrisBlueSix BLUEBERRY
DrisBlueTen BLUEBERRY
DrisBlueThirteen BLUEBERRY
DrisBlueThree BLUEBERRY
DrisBLueTwelve BLUEBERRY
DrisBlueTwo BLUEBERRY
DS-41 APPLE
EB 8-1 BLUEBERRY
EB 8-17 BLUEBERRY
EB 8-30 BLUEBERRY
EB 8-42 BLUEBERRY
El Capitan CHERRY SWEET
El Grullo PITAHAYA
Eli TEJOCOTE
Emilia BLACKBERRY
FA 1566 PEACH
FF04-14 BLUEBERRY
FHIA 01 BANANA/PLANTAIN
FHIA 17 BANANA/PLANTAIN
FHIA 23 BANANA/PLANTAIN
Fire Gem PEACH
Firelam CHERRY SWEET
FL98-325 BLUEBERRY
Flatop PEACH
Florida127 STRAWBERRY
Folsom ALMOND
Fontanilla STRAWBERRY

Foxtrot APPLE
 Franklynn PINEAPPLE
 Gaia APPLE
 Gala Perathoner APPLE
 Garda STRAWBERRY
 Gi14813 CHERRY ROOTSTOCK
 Gi31817 CHERRY ROOTSTOCK
 Gisela 13® CHERRY ROOTSTOCK
 Gisela 17® CHERRY ROOTSTOCK
 Glenearly CHERRY SWEET
 Glory™ CHERRY SWEET
 Golden Zest PEACH
 Goldfinger BANANA/PLANTAINS
 Goodwin CHERRY SWEET
 Grandarosa STRAWBERRY
 Gulfsnow PEACH
 Hahong NECTARINE
 Haku Botan POMEGRANATE
 Halleys Comet PITAHAYA
 Heintooga BLUEBERRY
 Herriot STRAWBERRY
 Honey Spring NECTARINE
 Honeylicious NECTARINE
 Hwangok APPLE
 Ice Queen PEACH
 ICS 45 CACAO
 Imara APPLE
 Indigocrisp™ BLUEBERRY
 Invierno XOCONOSTLE
 Ischia STRAWBERRY
 Jam Session™ PLUM
 Jonica STRAWBERRY
 Julcsi RASPBERRY
 Keepsake™ BLUEBERRY
 Kester ALMOND
 Kiona™ CHERRY SWEET
 Kootenay CHERRY SWEET
 Korvik CHERRY SWEET
 Krewer™ BLUEBERRY
 Ladina APPLE
 Lewis APPLE
 Ligolina APPLE
 Lili STRAWBERRY
 Linosa STRAWBERRY
 Lisa PITAHAYA
 Loffani POMEGRANATE
 Loulou POMEGRANATE
 MAC 2137 APPLE
 Maddison SWEET CHERRY
 MAIA1 APPLE
 Majesty APPLE
 Mango CACTUS PEAR
 Margherita STRAWBERRY
 Marisol STRAWBERRY
 Mayflower STRAWBERRY
 MegasBlue™ BLUEBERRY
 Merced STRAWBERRY
 Mexicana PITAHAYA
 MG200 CHERRY SWEET
 Miss Alice Mae™ BLUEBERRY
 Miss Jackie™ BLUEBERRY
 Miss Lilly™ BLUEBERRY
 MNPink1 BLUEBERRY
 Molla Nepes POMEGRANATE
 Murano STRAWBERRY
 Myagkosemyanni rozovyi POMEGRANATE
 N13-32 CITRUS
 N2-28 CITRUS
 N40W-6-3 CITRUS
 Nectabingo NECTARINE
 Nectadiva NECTARINE

Nectafest NECTARINE
 Nectasia NECTARINE
 Nene BLUEBERRY
 NEWROOT-1 CHERRY ROOTSTOCK
 Norman BLUEBERRY
 OLL – 4 CITRUS
 Orablue PLUM
 Orejona PITAHAYA
 Osorno BLUEBERRY
 P.F. 8 Ball White PEACH
 P.F. Late 8 Ball PEACH
 P.F. Legendary PEACH
 P.F. Paramount 24 PEACH
 P-1972 PINEAPPLE
 PA1UNIBO CHERRY SWEET
 PA2UNIBO CHERRY SWEET
 PA3UNIBO CHERRY SWEET
 PA4UNIBO CHERRY SWEET
 PA5UNIBO CHERRY SWEET
 PC7903-2 CHERRY SWEET
 PC8007-2 CHERRY SWEET
 Pearl Princess XII PEACH
 Pearlicious XVI NECTARINE
 Pearlicious XVII NECTARINE
 Pearlicious XXII NECTARINE
 Pearlicious XXIII NECTARINE
 Physical Graffiti PITAHAYA
 Pink Popcorn™ BLUEBERRY
 Pink Rosa STRAWBERRY
 Pinnacle BLUEBERRY
 Pjer One POMEGRANATE ROOTSTOCK
 Plumgiant II PLUM
 Plumsweet XVI PLUM
 Polar Sweet NECTARINE
 PQM-1 PINEAPPLE
 Prelude™ BLUEBERRY
 Prema96 APPLE
 Prime-Ark® Traveler BLACKBERRY
 Prize STRAWBERRY
 PS-3.108 STRAWBERRY
 Purple Heart POMEGRANATE
 R82358 NECTARINE
 Ranch ELDERBERRY
 Red Princess PEACH
 Regal 13-82 APPLE
 Regal Lee CHERRY SWEET
 REGALYOU APPLE
 RENOIRCIV APPLE
 Rich Fire PEACH
 Rich Snow PEACH
 Ridley 1104 BLUEBERRY
 Ridley 1111 BLUEBERRY
 Ridley 1403 BLUEBERRY
 Ridley 3402 BLUEBERRY
 Ridley 4514 BLUEBERRY
 RIM 52 CACAO
 Robust™ BLUEBERRY
 Roja San Martín CACTUS PEAR
 Romina STRAWBERRY
 Rosa PITAHAYA
 Rosé PINEAPPLE
 Rosie Raimier CHERRY SWEET
 Rosilam CHERRY SWEET
 Royal Bailey CHERRY SWEET
 Royal Belle CHERRY SWEET
 Royal Brynn CHERRY SWEET
 Royal Edie CHERRY SWEET
 Royal Elaine CHERRY SWEET
 Royal Hazel CHERRY SWEET
 Royal Helen CHERRY SWEET
 Royal Lee™ CHERRY SWEET
 Royal Lydia CHERRY SWEET
 Royal Lynn CHERRY SWEET

Royal Marie CHERRY SWEET
 Royal Tioga CHERRY SWEET
 Royal Zest Four PEACH
 Royal Zest One PEACH
 Royal Zest Three PEACH
 Royal Zest Two PEACH
 RR2a CHERRY SWEET
 Rubilam CHERRY SWEET
 Sainero XOCONOSTLE
 San Ignacio PITAHAYA
 Sauzee Gem flat PEACH
 Seedless Snack CITRUS
 Sensation STRAWBERRY
 Sensation™ BLUEBERRY
 Seoul Kitchen PITAHAYA
 Sharp Velvet POMEGRANATE
 Sierra Pearl NECTARINE
 Sierra Princess PEACH
 Sin Espinas PITAHAYA
 Sinfonia APPLE
 Skyler Rae® CHERRY SWEET
 Smooth Texan One NECTARINE
 Smooth Texan Three NECTARINE
 Smooth Texan Two NECTARINE
 Smooth Zest One NECTARINE
 Smooth Zest Two NECTARINE
 Snow Bliss PEACH
 Snow Lady Rose PEACH
 Snow Pride PEACH
 Soft-seeded Pink POMEGRANATE
 Soft-seeded VIR-2 POMEGRANATE
 Soft-seeded VIR-5 POMEGRANATE
 SPA 10 CACAO
 SR500 CHERRY SWEET
 Stark Gagger APPLE
 STO1 CHERRY ROOTSTOCK
 STO2 CHERRY ROOTSTOCK
 STO3 CHERRY ROOTSTOCK
 Summer Amelia PEACH
 Summer Fire PEACH
 Summer Frost PEACH
 Summer Gem STRAWBERRY
 Summer Gold CITRUS
 Summer Princess PEACH
 Sunectwentyfour NECTARINE
 Supecheighteen PEACH
 Suplumfortyfive PLUM
 Suplumfortysix PLUM
 Sweet Aryana™ CHERRY SWEET
 Sweet Fruitful CHERRY SWEET
 Sweet Gabriel™ CHERRY SWEET
 Sweet Lorenz™ CHERRY SWEET
 Sweet Saretta™ CHERRY SWEET
 Sweet Sensation STRAWBERRY
 Sweet Sunrise STRAWBERRY
 Sweet Valina™ CHERRY SWEET
 T-1101 BLUEBERRY
 Tainung No. 21 PINEAPPLE
 Tainung No. 22 PINEAPPLE
 TARS 27 CACAO
 TARS 30 CACAO
 TARS 34 CACAO
 Tempranero TEJOCOTE
 Temptation™ BLUEBERRY
 TexFirst PEACH

TH-917 BLUEBERRY
 TH-921 BLUEBERRY
 TH-929 BLUEBERRY
 TH-948 BLUEBERRY
 Thome Red APPLE
 Tip Top CHERRY SWEET
 Titanium™ BLUEBERRY
 TN21 PINEAPPLE
 TN22 PINEAPPLE
 Triumph STRAWBERRY
 Twocot APRICOT
 UF 411 CITRUS
 UF 711 CITRUS
 UF 900 CITRUS
 UFBest PEACH
 UFGem PEACH
 Valdivia Roja PITAHAYA
 Valerie PLUM
 Vampire PLUM
 Vandom PLUM
 Vanette PLUM
 Venustiana CACTUS PEAR
 Verity STRAWBERRY
 Vibrant PLUM
 Victoria™ BLUEBERRY
 Vietnamese Giant PITAHAYA
 Violet PLUM
 Virgen XOCONOSTLE
 Von BLACKBERRY
 WeiGi1 CHERRY ROOTSTOCK
 WeiGi2 CHERRY ROOTSTOCK
 WeiGi3 CHERRY ROOTSTOCK
 Weiroot 720 CHERRY ROOTSTOCK
 White Zest One PEACH
 Wiltons Star APPLE
 Yangambi Km 5 BANANA/PLANTAIN
 Yellow Dragon PITAHAYA

ADDENDA

BLACKBERRY

A-2312. USPP 25,864; 8 Sept. 2015 (List 47).
 APF-77. USPP 24,249; 18 Feb. 2014 (List 47).
 Columbia Star. USPP 25,532; 12 May 2015 (List 47).
 HJ-7. USPP 24,298 11 Mar. 2014 (List 47).

BLUEBERRY

Blue Ribbon. USPP 24,636; 15 July 2014 (List 47)
 Blue Silk. USPP 25,690; 14 July 2015 (List 47)
 Cargo. USPP 24,661; 22 July 2014 (List 47)
 Cipria. USPP 25,691; 14 July 2015 (List 47)
 Clockwork. USPP 24,638; 14 July 2015 (List 47)
 Nocturne. USPP 24,832; 2 Sept. 2014 (List 47)
 Overtime. USPP 24,663; 22 July 2014 (List 47)
 Perpetua. USPP 24,209; 4 Feb. 2014 (List 47)
 Southern Splendour. USPP 22,692; 1 May 2012 (List 46)
 T-885 (Summer Sunset™). USPP 23,374; 5 Feb. 2013 (List 46)
 T-959 (Titan™). USPP 24,135; 7 Jan. 2014 (List 47)
 TH-819 (Georgia Dawn™). USPP 24,696; 29 July 2014 (List 47)
 Top Shelf. USPP 24,697; 29 July 2014 (List 47)
 Ventura. USPP 24,606; 8 July 2014 (List 47)
 ZF05-196 (Jam Session). USPP 24,637; 15 July 2014 (List 47)
 ZF06-179 (Jelly Bean). USPP 24,662; 22 July 2014 (List 47)
 ZF08-095 (Blueberry Glaze). USPP 25,467; 28 April 2015 (List 47)