

Breeding Program, College Station, TX, by T.E. Thompson and L.J. Grauke. BW-1 x Osage; crossed in Brownwood, TX 1985; selected 1996; tested as 1985-1-2; introd. 2009. **Nut:** oblong elliptic with obtuse apex, rounded base, flattened in cross-section; 116 nuts/kg; 62% kernel; mature very early, 4 d before Pawnee. **Kernel:** cream to golden; medium, non-trapping dorsal grooves and rounded dorsal ridge; shells easily into full halves; very attractive. **Tree:** strong branch angles; initiates growth late, after Pawnee; protandrous, with early to midseason pollen shed and mid- to late-season pistil receptivity, similar to Pawnee; good pollinizer for, and pollinized by, Kanza, Wichita and Lakota; resistant to pecan scab; medium susceptibility to yellow aphid complex and black aphids; yields at Brownwood, TX comparable to Pawnee, exceeded Desirable, and with less alternate bearing than both.

## PERSIAN WALNUT

**Charles A. Leslie, Walnut Improvement Program, University of California, Davis, CA**

**Robert Livermore.** A lateral-bearing walnut with red seedcoat. **Origin:** University of California, Davis by G. McGranahan, C. Leslie, and H. Phillips. UC86-11 x Howard; crossed 1991; selected 1998; tested as UC91-75-15. USPP 12,264; 11 Dec. 2001. **Nut:** 14.1 g; well-filled; 50% kernel by weight; shell and seal strong; kernels plump, easily removed as halves; pellicles uniformly bright red. **Tree:** bears terminally and laterally; precocious; protandrous; yield moderate; ripens mid- to late-season 7-10 d before Chandler.

## PERSIAN WALNUT ROOTSTOCK

**Charles A. Leslie, Walnut Improvement Program, University of California, Davis, CA**

**RX1.** A phytophthora resistant hybrid clonal rootstock for Persian walnut. **Origin:** University of California, Davis and USDA-ARS, by G. McGranahan, C. Leslie, W. Hackett, and G. Browne. *Juglans microcarpa* DJUG 29.11 x *J. regia* O.P.; crossed 1997; selected 2001; introd. 2009; USPP applied for. **Plant:** less vigorous than typically used *J. hindsii* x *J. regia* seedling hybrids; light green foliage; easily propagated by tissue culture. **Rootstock performance:** shows resistance to *Phytophthora citricola* and *P. cinnamomi* in greenhouse and field trials; performs well in replant situations and waterlogged conditions.

**VX211.** A vigorous, nematode-tolerant hybrid clonal rootstock for Persian walnut. **Origin:** Davis, CA, University of California, Davis and USDA-ARS, by G. McGranahan, C. Leslie, W. Hackett, G. Browne, J. McKenna, T. Buzo, S. Kaku, and M. McKenry. *J. hindsii* PDS96-43 x *J. regia* O.P.; crossed 1997; selected 1999; introd. 2009; USPP applied for. **Plant:** notably more vigorous than typically used *J. hindsii* x *J. regia* seedling hybrids; readily propagated by tissue culture. **Rootstock performance:** very vigorous growth habit; grows well in the presence of nematodes (*Pratylenchus vulnus* and *Meloidogyne* sp.); moderate resistance to *P. citricola*.

## PINEAPPLE

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**Ajubá.** The third hybrid pineapple introd. from the Brazilian hybridization program. **Origin:** EMBRAPA Cassava & Tropical Fruits, Cruz das Almas, Brazil, by J.R.S. Cabral. Perolera x Smooth Cayenne; crossed 1985; introd. 2009. **Fruit:** shell bright yellow;

cylindrical; small to medium, 1.6 kg with crown; flesh yellow; SS 14.5%; titratable acidity 0.6%. **Plant:** vigorous; leaves smooth; produces 1 sucker and 4 slips at harvest.

**Aus-Carnival.** Fresh fruit pineapple with very high sugars and high ratoon yields. **Origin:** Queensland Department of Primary Industries, Maroochy Research Station, Nambour, Australia, by G. Sanewski. CO-2 (73-50) x 53-116; crossed 1993; selected 1997; tested as 7-1627; Australia Plant Breeders Rights Certificate 3631; 21 Oct. 2008. **Fruit:** green-yellow; ovoid; 1.45 kg; crown large, 301 g; SS 19.2%; acidity medium; flavor good; flesh yellow, slightly translucent; ratoon yield high. **Plant:** 53.6 cm to apex of flowering syncarp; semi-erect; 40.8 leaves, 127.5 cm, and longer than parents; anthocyanins present, mainly on margins and towards the base; piping leaf margin; peduncle medium to long; anthocyanin on peduncle bract medium; slips few, 0.4; suckers on peduncle, 1.2.

**Aus-Jubilee.** Fresh-fruit pineapple with excellent appearance, sweet, moderate acidity, good flavor, and uniform maturity. **Origin:** Queensland Department of Primary Industries, Maroochy Research Station, Nambour, Australia, by G. Sanewski. Smooth Cayenne x CO-2 (73-50); crossed 1993; selected 1997; tested as 10-2594; Australia Plant Breeders Rights Certificate 3633; 9 Feb. 2006. **Fruit:** golden yellow; ovoid; medium, 1.6 kg with crown; smaller crown and fruitlets than CO-2; flowers and ripens acropetally with strong maturity gradient; flesh firm, fibrous, pale yellow, with good flavor; SS 16%; acidity moderate; ascorbic acid  $\geq 25$  mg/100 cc juice. **Plant:** vigorous and rapid growth; 56.5 cm to apex of flowering syncarp; inflorescence bract color at emergence (red bud stage) slightly colored but less than parents; peduncle 24.2 x 2.7 cm; leaves dark green with piping margin, spineless at tips, short to medium; anthocyanin pigment lacking; relative to 73-50, has fewer slips and improved resistance to natural floral induction; relatively few suckers.

**Del Monte Gold™.** See MD-2.

**Española Roja (Red Spanish, Black Spanish, Key Largo, Havannah, Habana, Cubana, Cowboy, Bull Head, Cumanesa, Native Philippine Red).** A traditional cultivar widely grown in Venezuela and the Caribbean basin. **Origin:** pre-Columbian. **Fruit:** shell orange; medium, 1.2-2.0 kg with crown, depending on plant size at forced floral induction; barrel-shaped; SS 12%; acidity low; flesh firm, pale, aromatic, resistant to internal browning. **Plant:** vigorous; medium; leaves spiny to half-spiny, dark green, though smooth clones have been selected; floral bracts intense bright red; slips 1-3; few - many suckers; tolerant to heat, drought, butt rot, wilt, and phytophthora rots (*Phytophthora cinnamomi*, *P. parasitica*); develops chlorosis in high manganese soils; susceptible to nematodes; highly susceptible to *Strymon basilides* larvae.

**FLHORAN41.** A bright red, fresh-fruit cultivar, reflecting its Manzana heritage, a great success in the French West Indies, and developing well in La Réunion. **Origin:** CIRAD-FLHOR, Martinique. Smooth Cayenne x Manzana; crossed by C. Loison 1986; selected by G. Coppens d'Eeckenbrugge and Y. Atsé, 1991; tested as 282 or Scarlett; EU PVR 12,638; 2004. **Fruit:** orange to bright red where nights are cool or sun radiant; medium, 1.4-2.0 kg with small, erect crown, depending on plant size at forced floral induction; cylindrical; fruitlets medium to large and flat; flesh firm, golden yellow, relatively low fiber; SS 15-18%; acidity similar to Smooth Cayenne but ascorbic acid content higher; core thin. **Plant:** compact with erect, smooth "piping" leaves; responds well to floral induction; peduncle 19-25 cm, very resistant to lodging; forcing to ripening 14 d before Smooth Cayenne; few suckers at harvest, but 1-2 slips; resistant to Brazilian fusariosis (*Fusarium subglutinans* f.sp. *ananas*); more susceptible than Smooth Cayenne to reniform nematodes (*Rotylenchulus reniformis*); susceptible to fruitlet core rot.

**Honey Gold.** A highly aromatic pineapple cultivar with exceptional shelf life. **Origin:** Del Monte Fresh Produce, Inc., Coral Gables, FL,

by J.L. Morales, H. Sauter, and T.R. Young. Nineteen crowns of Tainung 11 were planted in Costa Rica and clonal selections made in this group and for three subsequent generations beginning in 1997; introd. 2006. USPP 16,328; 14 Mar. 2006. **Fruit:** green or reddish when immature, typically yellow like Tainung 11 if picked ripe; medium, ~1.0 kg, range from 0.4-1.7 kg, depends on plant size at forced floral induction; cylindrical to slightly conical; 80-144 fruitlets; short, erect crown; flesh light yellow with intense aroma; titratable acidity 0.93%, seasonal range 0.67-1.33%, higher than Smooth Cayenne; SS 16.2%; ascorbic acid 15-37 mg/100 cc, less than CO-2 in the same environment; stores well and has exceptional shelf life at room temperature. **Plant:** relatively slow growing; medium, to 57 cm erect; leaves yellowish-green, olive-green and reddish-green, 85 cm long and 6.0 cm wide at forced floral induction; few deltoid-cuspidate hooked spines at leaf tips; peduncle ~21 cm long; slips 0-3.

**Imperial.** The first fusariosis-resistant cultivar introd. by the Brazilian breeding program, successful when tested on the French market. **Origin:** EMBRAPA Cassava & Tropical Fruits, Cruz das Almas, Brazil, by J.R.S. Cabral. Perolera x Smooth Cayenne; crossed 1988; tested as PExSC-56; introd. in 2003. **Fruit:** uniformly yellow or orange, coloration initiating soon after anthesis and fully completed at harvest; small to medium, 0.60-1.70 kg without crown, depends on plant size at forced floral induction; cylindrical; fruitlets slightly prominent; crown 120 g; flesh firm, yellow, of excellent flavor; SS 14.5-18.3%; titratable acidity 0.29-0.70%; 29 mg/100 g ascorbic acid; resistant to transport damage and internal browning. **Plant:** slow grower; height 49.1 cm from soil to fruit base; growth habit compact; leaves short to medium, 'D' leaf to 68 cm, dark green on margins and violet (anthocyanins) in centers; smooth ("piping"); peduncle relatively thin, 20 cm long x 3 cm wide; resistant to fusariosis. Generally 3-5 slips at fruit base; 1 sucker at harvest; disease resistance allows for organic production.

**Josapine.** A very early fruiting cultivar and the principal fresh-fruit pineapple in Malaysia. **Origin:** Malaysian Agricultural Research and Development Institute (MARDI), by Y.K. Chan and H.K. Lee. Johor (Nanas Johor) x Smooth Cayenne; introd. 1996. **Fruit:** dark purple skin ripens to orange-red; relatively small, 1.1 to 1.3 kg; cylindrical; length to 15 cm, diameter to 11.6 cm, core to 2.5 cm; fruitlets medium and slightly bulging; crown medium, occasionally with multiple proliferations; flesh deep golden yellow, slightly fibrous, fairly dry; aroma strong; SS 17% on peat soil to 22% on mineral soils; titratable acidity 0.7-0.9%; storage life good; resistant to internal browning. **Plant:** vigorous; plant height 81 cm; leaves lightly purple-tinged, margins usually spineless with spines at leaf tip; leaf width 4.4 cm; leaf number at floral induction 52; fruit/plant weight ratio 0.38; plants can be forced 8 mo. from planting (on peat); 30 d from forcing to red-heart, another 85 d to harvest, 15 d earlier than Smooth Cayenne; 2-3 shoots; susceptible to bacterial heart rot (*Erwinia chrysanthemi*) on mineral soils, less so on peat.

**Manzana (Bumanguesa).** Grown in the same zone as Perolera, and in the western Colombian Andes (Valle del Cauca), under better technical conditions. **Origin:** possibly a sport from Perolera, the main difference being more regular fruit shape and color. **Fruit:** medium, smaller than Perolera; uniformly dark to bright red in tropical highlands; globular to shouldered-cylindrical; large, flat fruitlets; flesh pale yellow, firm, retains its juice, allowing street sale of slices; SS 12%; very slightly acidic; no or very little maturity/sweetness gradient; multiple crowns and basal slips common. **Plant:** similar adaptation to highland conditions, similar lodging in hot lowlands, as Perolera; susceptible to the nematode *Pratylenchus neglectus*; tolerant to root knot nematode; resistant to fusariosis.

**MD-2 (Del Monte Gold™).** A highly productive pineapple with a distinctive flavor, with coconut overtones; dominant pineapple fresh-fruit cultivar worldwide. **Origin:** Pineapple Research Institute of Hawaii, Mililani, HI, by D.D.F. Williams. 58-1184 x 59-443; crossed 1970; selected 1973; tested as 73-114; introd. c. 1980; named

MD-2 in 1981; introd. 1996. **Fruit:** intense orange-yellow color; medium large, to 2.5 kg with crown, depending on plant size at forced floral induction; cylindrical, square-shouldered; fruitlets large, flat, glossy; overly large crown in some environments; flesh clear, sweet, glossy, compact, yellow, fibrous but not objectionably so; SS 15-17%; titratable acidity 0.5-1.0%, higher in cool seasons or environments; ascorbic acid 50-90 mg/100 cc juice, four-fold higher than Smooth Cayenne; flavor well developed, with coconut overtones in subtropical environments, less flavorful in the tropics; core more tender, edible, and thinner than Smooth Cayenne; prone to translucence in some environments; exceptionally resistant to internal browning, withstands refrigeration better than CO-2 and other traditional fresh cultivars; forcing to ripening 7 d before Smooth Cayenne; not suitable for canning. **Plant:** vigorous; robust; leaves 100 x 6.5 cm in large plants; spines small, mainly at leaf tips, comparable to Smooth Cayenne; leaves lack anthocyanin pigmentation; inflorescence bract color at emergence (red bud stage) green, unlike Smooth Cayenne; peduncle relatively short, 15 cm; very susceptible to natural floral induction; more productive, but more susceptible to phytophthora rots and bacterial heart rot, than Smooth Cayenne; tolerant of nematodes but somewhat more susceptible to reniform nematode than Smooth Cayenne; susceptible to fruitlet core rot and fusariosis.

**Pérola (Pernambuco, Branco de Pernambuco, Jupi, Abakka, Eleuthera).** One of the two most widely grown fresh-market pineapples in Brazil. **Origin:** ancient cultivar of obscure origin. **Fruit:** green with a little yellow in the center of mature fruitlets; 0.9-1.6 kg; ovoid when small to markedly conical when large; flesh soft, white and juicy, with exquisite aroma; SS 13-16%; 30-34 mg/100 mL ascorbic acid in juice; flowers and ripens acropetally with strong maturity gradient; small, erect (flame-like) crown. **Plant:** vigorous; medium; leaves dark green, erect and spiny; erect basal slips surround the fruit in some strains; tolerant to drought; resistant to phytophthora rots, mealybug wilt, and nematodes; highly susceptible to fusariosis.

**Perolera (Lebrija, Motilona, Capachera, Tachireense).** An important fusariosis-resistant pineapple of the northeastern Andes, of Colombia and Venezuela. **Origin:** pre-Columbian. **Fruit:** heterogeneous, yellow to orange; large, 1.5-3 kg with crown; irregular cylindrical; genetic shape defects common and more severe when fruits are large; flesh pale yellow to yellow, firm and sweet; SS 12%; low acid; crown small; numerous crownlets protrude from base of crown and upper fruitlets. **Plant:** medium to tall; leaves completely smooth (piping); peduncle long, makes fruit susceptible to lodging and sunburn, particularly in hot lowlands; basal slips 4-11; susceptible to fruitlet core rot and the fly *Melanoloma canopilosum*; resistant to fusariosis.

**Queen (Mauritius, Malacca, Red Ceylon, Buitenzorg, Victoria, Ripley Queen, Alexandra, Moris, McGregor, Z, James Queen).** Widely distributed, hardy pineapple grown for fresh-fruit market mostly in tropical environments in the Southern Hemisphere. **Origin:** pre-Columbian, still found deep inland in French Guiana; the tetraploid genotype James Queen (formerly Z) was found in South Africa. **Fruit:** yellow; small, 0.5-1.0 kg with crown; conical to cylindrical, depending on clone; small prominent fruitlets; SS 14-18%; relatively low acid; flesh sweet, crisp, golden yellow, with excellent flavor and long shelf life; very susceptible to internal browning, particularly if harvested before maturity. **Plant:** vigorous and robust; small, 60 to 80 cm; leaves short and very spiny, silvery; slip and shoot numbers vary widely between clones; more tolerant to stress, pests and diseases than Smooth Cayenne; susceptible to natural floral induction, phytophthora rots, bacterial fruit collapse, fruitlet core rot (affected fruitlets remain green), and butt rot (*Chalara paradoxa*).

**Selangor Green (Green Pine, Green Spanish, Nanas Hijau, Selassie).** An important traditional cultivar. **Origin:** derived from

a mutation of Singapore Spanish where the anthocyanins in all the organs are suppressed. **Fruit:** yellow; small, about 1.0 kg, but heavier in some locations; cylindrical; SS 10-12%; acidity low; taste poor, however juice is of good color and quality. Multiple crowns frequent. **Plant:** vigorous; medium, 80-100 cm; leaves 35-70, uniformly green leaves and inflorescence while petals are pale yellow, 150 x 5 cm; leaves vary from completely spiny to very few spines, depending on clone; bracts of the peduncle and inflorescence bright red; produces 2-6 slips and many shoots; cultivated in South Asia, particularly in Malaysia, because it is well adapted to peat soils with high pH; tolerant to phytophthora rots; susceptible to bacterial fruit collapse caused by *Erwinia chrysanthemi* and nematodes; develops severe chlorosis in high manganese soils.

**Singapore Spanish (Singapore Canning, Ruby, Red Pine, Nanas Merah, Nangka, Gandul, Betek, Masmerah).** Second-most important canning cultivar in the world. **Origin:** pre-Columbian. **Fruit:** dark purple, turning copper-orange when ripe; small, about 1.0 kg, but heavier in some locations; cylindrical; flesh golden yellow; SS 10-12%; acidity low; taste poor; however, juice is of good color and quality; multiple crowns frequent. **Plant:** vigorous; medium, 80-100 cm; leaves 35-70, dark green, 150 x 5 cm; leaves vary from completely spiny to very few spines, depending on clone; bracts of the peduncle and inflorescence bright red; produces 2-6 slips and many shoots; cultivated in South Asia, particularly in Malaysia, because it is well adapted to peat soils with high pH; tolerant to phytophthora rots; susceptible to bacterial fruit collapse and nematodes; develops severe chlorosis in high manganese soils.

**Tainung No. 17 (Tainon 17).** A yellow-fleshed pineapple with better flavor and lower acidity than Smooth Cayenne; holds about 80% of the fresh pineapple market share in Taiwan. **Origin:** Chiayi Agricultural Experiment Station, Chiayi, Taiwan, Taiwan Agricultural Research Institute, by C.-C. Chang. Smooth Cayenne x Queen; crossed 1980; selected 1991; tested as C69-4-381; introd. 1998. **Fruit:** yellow; medium, 1.4-1.5 kg with crown; cylindrical; skin thin; blossom cup shallow; flesh yellow to deep yellow, juicy; mildly acid; more fibrous than Smooth Cayenne; core large. **Plant:** moderately vigorous, average plant height 90 cm; leaf edge smooth with spiny tips; susceptible to natural floral induction; moderately susceptible to mealybug wilt.

**Vitória.** The second cultivar introd. from the Brazilian hybridization program, with fusariosis resistance. **Origin:** EMBRAPA Cassava & Tropical Fruits, Cruz das Almas, Brazil, by J.R.S. Cabral; crossed 1985; Primavera x Smooth Cayenne; tested as PR1XSC-08, later as EC-099 (Espírito Santo state, Brazil); introd. 2006. **Fruit:** yellow; medium, 1.5 kg with crown; crown 131 g; cylindrical with flat fruitlets; fruit core thin, 12 mm; flesh firm, white, with excellent flavor; SS 15.8%; titratable acidity 0.8%; more resistant to damage in transportation than Pérola and Smooth Cayenne. **Plant:** vigorous; habit similar to Pérola; 'D' leaf 92.8 cm long x 10.5 cm wide; leaves smooth (piping), light-green; peduncle thin, 20 mm; slips 4.2; resistant to fusariosis.

## PISTACHIO

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**Golden Hills.** High-yielding, high-percent-split, early maturing female *Pistacia vera* cultivar for harvest before Kerman. **Origin:** University of California, Davis, by D.E. Parfitt, C.E. Kallsen, and J. Maranto. 2-34 x ES#21; crossed 1990; tested as B22-31; introd. 2005; USPP 17,158; 17 Oct. 2006. **Flower:** panicles with 50-200 female flowers borne laterally on 1-year-old wood, 2.5-4.0 cm long, expanding to 8 cm; flowering period 3 weeks,  $\approx$ 1 week earlier than Kerman. **Nut:** in-shell size and shape are similar to Kerman,  $\approx$ 1.3 g; mature 1-2 weeks prior to Kerman; yield greater than for Kerman, percent split edible in-shell nuts greater than Kerman. **Tree:** structure

typical for *P. vera*;  $\approx$ 3 m tall and wide at 7 years, trunk diameter 10-15 cm; more and smaller scaffold branches than Kerman.

**Kaleghouchi.** High-yielding, female *P. vera* cultivar with large, high quality nuts which is more difficult to shake harvest than other cultivars. **Origin:** Iran. **Flower:** panicles with 50-200 female flowers borne laterally on 1-year-old wood; flowering period is  $\approx$ 1 week earlier than Kerman, similar to Golden Hills and Lost Hills. **Tree:** somewhat larger than Kerman; vigorous with many long branches; bears clusters on long, horizontal 1-year-old branches. **Nut:** in-shell size and shape much larger than Kerman,  $\approx$ 1.4 g; higher percent split nuts than Kerman; harvest date and yield similar to Kerman; edible yield higher than Kerman.

**Lost Hills.** Early maturing, low-alternate-bearing, large nut, female *P. vera* cultivar for harvest before Kerman. **Origin:** University of California, Davis, by D.E. Parfitt, C.E. Kallsen, and J. Maranto. Introd. 2005; USPP 17,701; 8 May 2007. **Flower:** panicles with female flowers borne laterally on 1-year-old wood, 2.5-4 cm long, expanding to 8 cm; 3-week flowering period  $\approx$ 1 week earlier than Kerman. **Nut:** in-shell nuts are larger than Kerman, longer and less flattened with a deeper split in the shell, approx. 1.4 g; ripens 1-2 weeks prior to Kerman; total yield similar to Kerman with less alternate bearing habit. **Tree:** structure typical for *P. vera*;  $\approx$  3 m tall and 3 m wide at 7 years, trunk diameter 12-18 cm  $\approx$ 15% larger than Kerman.

**PETE I.** Female *P. vera* cultivar with large nut and high level of resistance to *Botryosphaeria dothidea*, useful for higher rainfall areas. **Origin:** Pete I Pistachios, Inc., by D.R. Petersen; parents unknown; introd. 2007; USPP 17,836; 26 June 2007. **Flower:** bloom period 25 Mar.-10 Apr. in N. California. **Nut:** significantly larger than Kerman with deep suture; 90% split nuts. **Tree:** upright growth habit; high level of reported resistance to *B. dothidea*, approx. 5% of incidence of Kerman.

**PG1.** Seed-propagated *P. integerrima* hybrid rootstock for budding and grafting to *P. vera* scions. **Origin:** Pioneer Nursery by H.P. Anderson III and K.L. Puryear. *P. integerrima* female clone x *P. integerrima* male clone (hybrid progeny are dioecious). **Tree:** parent and progeny trees morphologically typical of *P. integerrima*; large tree as unbudded rootstock; provides earlier fruiting, larger pistachio tree than traditional *P. atlantica* rootstock; resistant to verticillium wilt (*Verticillium dahliae*).

**Randy.** Male *P. vera* pollenizer for Golden Hills and Lost Hills. **Origin:** University of California, Davis, by D.E. Parfitt, J. Maranto, and C.E. Kallsen. Introd. 2005; USPP 18,262; 4 Dec. 2007. **Flower:** panicles with male flowers borne laterally on 1 year old wood, 2.5-4 cm long, expanding to 8 cm; long flowering period, more and larger inflorescences than Peters male, more durable (viable) pollen than Peters, flowering period greater than 3 weeks, approx. 1 week earlier than Peters. **Tree:** structure and branching habit are typical for male *P. vera*;  $\approx$ 3 m tall and 3 m wide at 7 years, trunk diameter 10-15 cm (larger than Peters); larger crown than female cultivars, similar to Peters.

**Ruehle.** Female *P. vera* cultivar with potentially better nut quality than Kerman. **Origin:** by E.C. Ruehle and A.J. Ruehle; probably Bronte O.P. **Flower and Tree:** similar to Kerman. **Nut:** Similar to Kerman, but larger kernel; less susceptible to epicarp lesion than Kerman.

**UCB1.** Seed propagated *Pistacia* hybrid rootstock for budding and grafting *P. vera* scions; **Origin:** University of California, Berkeley, by L.J. Ashworth and D.P. Morgan. *P. atlantica* female clone x *P. integerrima* male clone (hybrid progeny are dioecious); introd. c. 1992 by D.P. Morgan, L. Epstein, and L. Ferguson, University of California, Davis. **Tree:** large tree with upright growth habit, 2x size