US-311 and US-427 Southernpea Breeding Lines

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The ARS/USDA has announced the release of southernpea \( [Vigna unguiculata \text{(L.) Walp.}] \) breeding lines US-311 and US-427. US-311 is an early maturing, pinkeye type pea, and US-427 is a root-knot nematode (Meloidogyne spp.) resistant, brown crowder type pea. Both lines are near cultivar quality, and each is recommended for use as parental material in breeding programs.

Origin

US-311 originated from a bulk seed increase made in 1979 of an \( F_2 \) population with the following parentage: (Coronet \( \times \) CR 22-2-21) \( \times \) Coronet. US-427 is the product of a conventional recurrent backcross breeding procedure to transfer the dominant \( Rk \) gene \((1)\) for root-knot nematode resistance \([M. incognita \text{(Kofoid & White)} \text{Chitwood, } M. javanica \text{(Treub.) Chitwood, and } M. hapla \text{Chitwood}] \) from the commercial cultivar Mississippi Silver into the popular home garden cultivar Knuckle Purple Hull; it is a composite of four homozygous resistant \((Rk/Rk) F_4\) selections derived from the 5th backcross.

Description

US-311 is a purple hull, pinkeye type southernpea. The outstanding attribute of US-311 is its early maturity; it often matures 5 to 10 days earlier than 'Pinkeye Purple Hull'. The pod, pea, and plant growth habit characteristics of US-311 are quite similar to those of 'Pinkeye Purple Hull'. The plant habit is low bushy, and the pods are borne above the foliage in a scattered fashion. Pod color is green when immature, dark purple at green-shell maturity, and purple at dry maturity. The fresh peas have pink eye color and a kidney shape; dry peas have a smooth seed coat. Taste panel evaluations of canned and frozen samples of fresh peas indicate that the processing characteristics of US-311 are comparable to those of 'Coronet'. US-311 was tested throughout the southern United States as an observational entry in the 1984 and 1985 Regional Southernpea Cooperative Trials; it was tested as a replicated entry in the 1986 trials. US-311, like 'Coronet', is moderately susceptible to root-knot nematodes (Meloidogyne spp.) and Fusarium wilt \([Fusarium oxysporum \text{Schlecht. f. tracheiphilum} \text{(E. F. Sm.) Snyd. and Hans., Race 2}].\)

US-427 is a purple hull, brown crowder type southernpea. The pod, pea, plant growth habit, and maturity characteristics of US-427 are quite similar to those of 'Knuckle Purple Hull'. Maturity is late and the plants have a low bushy plant habit with the pods borne in a scattered fashion at foliage level. The pods are curved and have deep constrictions. Pods ready for mature-green harvest are dark purple; dry pods are purple. Dry peas are dark brown, large, globose in shape, and have a smooth testa. US-427 was a replicated entry in the 1985 Regional Southernpea Cooperative Trials. US-427 is highly resistant to root-knot nematodes, but it probably retains the recurrent parent's ('Knuckle Purple Hull') shortcoming with respect to virus susceptibility.

Availability

Small quantities of breeder's seed of US-311 and US-427 are available for distribution.
The original 'Brooks' cherry (Prunus avium L.) seeding was evaluated at the Wolfskill Ranch of the University of California, Davis from 1970 to 1985. Clones of the original seeding have been evaluated for fruit quality in Contra Costa County since 1978 and in Fresno County at the University's Kearney Agricultural Center since 1981. 'Brooks' registered its most outstanding performance at the Kearney Field Station.

'Brooks' is characterized as a very high quality, early maturing sweet cherry that possesses outstanding ability to develop large fruits. 'Brooks' ripens about one week before the popular cultivar Bing. Compared to 'Early Bural', and other early maturing sweet cherry cultivars grown in California's central valley; e.g., 'Black Tartarian', 'Larian', etc., 'Brooks' is larger, of higher fruit quality, and superior in fruit firmness.

Origin

'Brooks' was selected in the University of California cherry breeding program among the progeny of a cross between the two commercial sweet cherry cultivars Ranier and Early Bural.

Description

'Brooks' is an upright to upright spreading tree. Tree size is slightly below average for the species. It is hardy for normal climatic conditions found in the San Joaquin Valley of Central California. It is a very productive regular bearer. 'Brooks' blooms at the University of California's Kearney Agricultural Center, Parlier, between the bloom dates of 'Early Bural' and 'Bing' (18 Mar. 1987). The date of first fruit picking at Parlier was on 10 May 1987. The ripe fruit hangs well on the tree for at least 7 days. The fruit is uniformly large particularly for an early-maturing cultivar. In 1987, at Parlier, average diameters were 25.4 mm for cheek; 21.2 mm for suture; and 21.5 mm for the axis. Fruit form is uniform and symmetrical, broadly oblate with a flattened and sometimes depressed apex. When viewed from the apical or basal end the fruit is nearly uniformly oval. The suture carries a narrow but distinct dark red line usually under 1.0 mm in width and darker than the surroundings. The suture is not sunken or depressed over the ventral surface. Occasionally, the suture is slightly depressed within the stem cavity. The ventral surface is very smooth. Usually there is no "lipping" near mid-suture, but it is very slightly lipped over the basal shoulder. The apex is truncate and often moderately depressed. The pisidal point is apical and distinctive, with moderate callousing of the stylar scar. The skin is firm (above average thickness) and tenacious to the flesh. The fruit is susceptible to skin cracking caused by rain, especially in the week immediately preceding harvest. The skin is dark red over nearly 100 percent of the fruit surface, darkening with maturity to a red burgundy. Some color streaking and mottling occurs over the basal shoulders of the fruit. Mottling is lighter red than the surrounding coloration. Numerous conspicuous light-colored dots and flecks arise over the apical shoulders of the fruit. The flesh color is variable, with rays and streaks of different shades of red and pink extending from the skin to the pit. Its coloration varies from pink to rose. Fibers are numerous and easily visible when the fruit is cut transversely. The fiber color is light, varying from white to cream. The pit cavity is darker than the surrounding flesh. The stone is nearly free; separating from the flesh with relatively little clinging or fiber attachment. There is no air space in the pit cavity. The juice is dark pink to red, becoming darker with advancing maturity of the fruit. The flesh texture is firm and crisp, ripening evenly. The fruit flavor is exceptional, sweet, well balanced, and rich well above the average of cultivars commonly grown in California. Its aroma is slight to lacking and its overall eating quality is exceptional.

Availability

Currently, we have applied for a U.S. Plant Patent. License information for propagation of the Brooks Cherry may be obtained by writing the U.C. Patent Office, Office of the President, University of California, Berkeley, CA 94720.

Literature Cited