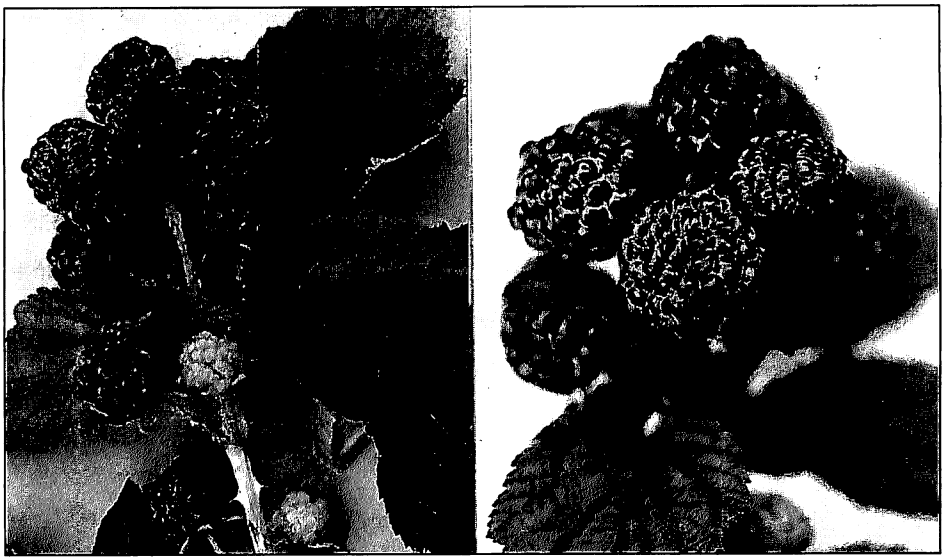


Figure 1. Fruit of 'Earlysweet' black raspberry, Beltsville, Maryland, 1996.

Fruit Varieties Journal 52(3):124-127 1998

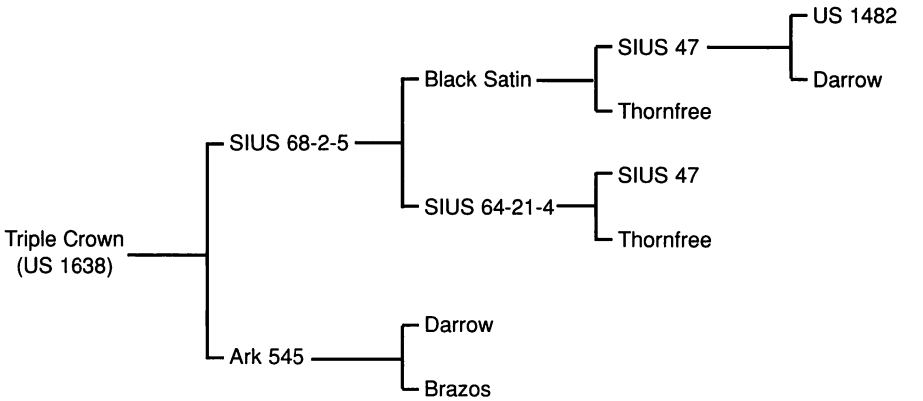
'Triple Crown' Thornless Blackberry

G. J. GALLETTA,[1] J. L. MAAS,[1] J. R. CLARK,[2] AND C. E. FINN[3]

'Triple Crown' is a midsummer-ripening tetraploid thornless blackberry cultivar [*Rubus* sp., subgenus *Rubus* (*Eubatus*)] suitable for fresh or processed use developed and released by the Agricultural Research Service, U.S. Department of Agriculture. 'Triple Crown, tested as US 1638, was selected in 1983 at Beltsville, Maryland by G. J. Galletta from his 1980 cross of SIUS 68-2-5 (=C-47) x Arkansas 545 ('Darrow' x 'Brazos') (Fig. 1). SIUS 68-2-5 ('Black Satin' x SIUS 64-21-4) is a thornless selection bred by the late Dr. "Jack" Hull of the USDA. SIUS 64-21-4 is a full sibling of 'Hull Thornless' (1), 'Black Satin,' 'Dirksen Thornless,' and 'Chester Thornless' blackberries. 'Triple Crown' has grown and fruited well in several locations in Beltsville from 1985 through 1995, and also at Corvallis, Oregon, where 7-year-old plants yielded an average of 14.7 kg per plant in 1995 (C. Finn, unpublished data). 'Triple Crown' was named for its three crowning attributes: high vigor in a thornless plant, high productivity, and improved fruit sweetness and aroma. Coupled with its improved fruit display habit, this was enough to suggest that this selection might compare with the winner of the Triple Crown of horse racing. 'Triple Crown' was released to nurseries in 1996.

Triple Crown' is a vigorous, crown-forming plant which bears numerous

[1]Fruit Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, MD 20705.
[2]Department of Horticulture, University of Arkansas, Fayetteville, AR 72701.
[3]Horticultural Crops Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Corvallis, OR 97330.



US 1482 = Merton Thornless x US 1411 (Merton Thornless x Eldorado)

Figure 1. Pedigree of 'Triple Crown' thornless blackberry.

thornless canes. Floricanes have many laterals bearing one to two flower clusters of five to ten flowers each. Hence, the distribution and presentation of fruit is more uniform and easier to harvest than in previous semi-erect thornless cultivars. Reports from researchers testing the selection in the eastern and Midwestern U.S. indicate that 'Triple Crown' has established well and is growing to maturity.

In the first fruiting year in Beltsville, 'Triple Crown' was earlier maturing than 'Chester Thornless,' larger fruited than 'Chester Thornless' and 'Hull Thornless,' but not as high yielding as 'Chester Thornless' (Table 1). In general, 'Triple Crown' fruit ripen about 14 to 16 days later than 'Shawnee,' 10 to 12 days later than 'Navaho,' and 4 to 7 days ahead of 'Chester Thornless' in Arkansas (J. Clark, unpublished data). In Oregon, 'Triple Crown' fruit ripens 20-30 days later than 'Marion' and 'Hull Thornless' and 7-18 days ahead of 'Chester Thornless' (C. Finn, unpublished data).

Fruit of 'Triple Crown' are uniformly glossy black, large, slightly longer than broad (Fig. 2), and possess a balanced subacid, sweet and aromatic flavor with a pleasant aftertaste. Both fruit "skin" and flesh are firm, and seed size is large. In Arkansas, 'Triple Crown' fruit were similar in size to those of 'Chester Thornless,' but soluble solids were higher than in 'Chester Thornless' in each of three evaluation years (Table 2). In Oregon, in a 7-year-old observation planting, 'Triple Crown' plants averaged 14.7 kg per plant in 1995, although harvests were at irregular intervals and some ripe fruit was lost through dropping (K. Wennstrom and C.

Table 1. First season yields, mean individual fruit mass, harvest dates, and cumulative percent fruit harvested for the first three harvests of 'Triple Crown,' and two standard thornless blackberry cultivars grown in Beltsville, Maryland, in 1994.

Cultivar	Yield[z]		Mean fruit mass (g)	Harvest date range	Cumulative harvest (% of total yield)		
	Total (kg/ha)	Marketable (%)			Harvest 1	Harvest 2	Harvest 3
Triple Crown	1,363b[y]	74	7.5a	July 8-Aug 3	30.3a	63.5a	81.3a
Hull Thornless	1,244b	72	5.4b	July 8-Aug 3	42.8a	59.3a	77.5a
Chester Thornless	2,967a	73	5.2b	July 8-aug 17	2.5b	10.0b	31.0b

[z]Two-plant plots, plots replicated four times; plots spaced 1 m between plants in rows 4 m apart, equivalent to 3,000 plats/ha.
[y]Mean separation within columns by Duncan's multiple range test at $P \leq 0.05$.

Figure 2. Fruit of 'Triple Crown' thornless blackberry, Beltsville, Maryland, 1996.

Finn, unpublished data). Individual berry weights averaged 7.0 g over the season.

As a frozen whole berry in Oregon in 1996, 'Triple Crown' fruit had Hunter color readings of L = 6.79, a = 1.73, and b = –0.13 and 'Chester Thornless' had readings of L = 7.22, a = 0.83, and b = –0.46. Puree samples of 14 blackberry genotypes (11 trailing and two semi-erect genotypes plus 'Thornless Evergreen') were evaluated by an untrained panel of experienced blackberry evaluators including growers, processors, fieldmen, and researchers (B. Yorgey and C. Finn, unpublished data). 'Triple Crown' rated with 'Chester Thornless' for color, appearance, flavor, aroma, and overall quality. 'Triple Crown' was rated with 'Marion' for color, flavor, and overall quality, better than 'Marion' for appearance, and worse than 'Marion' for aroma. In general, 'Triple Crown' fruit produced a dark puree that was desirable but lacked the aroma of 'Marion.' Both fruit "skin" and flesh of 'Triple Crown' fruit were firm, and the seed size is large. 'Triple Crown' fruit is susceptible to ultraviolet light injury in Oregon, but less so than 'Hull Thornless' fruit. While 'Triple Crown' has not been evaluated for mechanical harvest, in subjective evaluations it rated similar to 'Chester Thornless' and worse than 'Marion.'

Growing locality can affect major aroma components of 'Triple Crown' fruit. Fruit grown in Oregon had greater concentrations of 4-terpineol, a-terpineol, a-pinene, and ethylacetate, but lower concentrations of ethylhexanoate than fruit grown in Oklahoma (P. Perkins-Veazie, pers. commun.).

Reports from researchers testing the selection in the Eastern and Midwestern U.S. indicate that 'Triple Crown' has es-

Table 2. Mean fruit mass, soluble solids, bloom period, and winter injury ratings of 'Triple Crown' and 'Chester Thornless' blackberries grown in Clarksville, Arkansas from 1994 through 1997[z]

Cultivar	Year	Mean fruit mass (g)	Soluble solids (%)	Bloom period	Winter injury
Chester Thornless	1997	8.2	10.0	very late	slight
	1996[y]	---	---	---	---
	1995	5.2	8.2	late	none
	1994	4.5	9.6	---[x]	---
Triple Crown	1997	7.8	11.0	late	slight
	1996[y]	---	---	---	---
	1995	6.0	12.4	late	none
	1994	4.0	10.2	---[x]	---

[z]Each cultivar was sampled once for fruit mass and soluble solids each year and no yield records were made. Data were collected from a single 6-m-long plot.
[y]Data not taken due to severe cold injury in 1996. On a scale of 1-10 (10 = best), 'Triple Crown' rated 3, 'Chester Thornless' rated 5, and 'Shawnee' rated 7 for cold injury.
[x]Data for bloom period and winter injury not taken in 1994.

tablished well and is growing to maturity. Similar observations have been made in grower trials in the Pacific Northwest. At present, 'Triple Crown' is expected to be well adapted to the Mid-Atlantic, the lower Midwest, and lower New England and the Pacific Coast regions. Serious disease problems have not been observed on 'Triple Crown' plants or fruit in Maryland or Oregon during its testing period. Plant hardiness of 'Triple Crown' appears equal to that of 'Chester Thornless (G. Galletta and C. Finn, unpublished data). However, the more severe damage to 'Triple Crown' and 'Chester Thornless' than to 'Shawnee' in Arkansas in 1996 (Table 2) following exposure to temperatures of –17°C and –12°C suggests that these northern-selected clones may exhibit a lower degree of tolerance to fluctuating southern winter temperatures than those selected in the South. 'Triple Crown' is introduced as a possible earlier complement to the late-maturing and high quality 'Chester Thornless' blackberry.

Availability

'Triple Crown' is not patented. The USDA does not have plants of 'Triple Crown' for general distribution. Contact J. L. Maas, USDA/ARS, Fruit Laboratory, 10300 Baltimore Blvd., Beltsville, MD 20705, for nursery plant sources.

Acknowledgements

We are indebted to P. Perkins-Veazie, USDA, ARS, Lane, OK, for contributing information on 'Triple Crown' fruit volatile constituents, to B. Yorgey, Dept. of Food Sciences, Oregon State University, Corvallis, for blackberry fruit quality analyses, and to K. Wennstrom, USDA, ARS, Corvallis, Oregon, for collection of 'Triple Crown' yield data.

Literature Cited

1. Galletta, G. J., A .D. Draper, R. G. Hill, R. C. Blake, and R. M. Skirvin. 1981. 'Hull Thornless' blackberry. HortScience 16:796-797.