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'Harval' Apricot

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'Harval' apricot (*Prunus armeniaca* L.) is a late-season, attractive, firm-fleshed, high-quality cultivar introduced in 1989 for the Ontario fresh market. The tree is cold hardy, vigorous, and consistently productive. 'Harval' appears resistant to perennial canker (*Leucostoma* spp.) and bacterial leaf and fruit spot [*Xanthomonas campestris* pv. *pruni* (Smith) Dye] and moderately resistant to brown rot [*Monilinia fruticola* (Wint.) Honey]. The fruit are resistant to skin cracking and preharvest drop and ripen 1 day after 'Harlayne' and 5 days after 'Hargrand' in the late season. This new cultivar is recommended by the Ontario Tender Fruit Producers' Marketing Board for trial planting in Niagara and for limited planting in southwestern Ontario. It is suggested for trial in regions where 'Goldcot' and 'Harlayne' are successfully grown.

Origin

'Harval' was the result of a 1969 cross made at the Harrow Research Station between 'Veecot' and HW435 (Fig. 1). The pollen parent, HW435, was selected at Harrow in 1968 from a New Jersey seedling progeny (NJ631032) donated by L.F. Hough and C.H. Bailey in 1963. 'Harval' was selected in 1974 and propagated for a second test at Harrow beginning in 1976. Trees were propagated in cooperation with the Western Ontario Fruit Testing Assn. (WOFTA) and placed in regional trials with cooperating growers beginning in 1982 under the designation HW437. 'Harval' was also propagated by the New York State Fruit Testing Cooperative Assn. (NYSFTCA) Geneva, N.Y., and distributed for a second test beginning in 1989. 'Harval' is being tested in Canada, the United States, and Europe. The name 'Harval' honors the author's wife Val Rae who assisted in the evaluation of this and other Harrow apricot introductions.

Performance

Budded trees of 'Harval'/HW418 (apricot

seedling rootstock selection) were placed in an orchard planting at the Harrow Research Station in 1976 consisting of a completely random design with three replications. The performance of 'Harval' was compared with that of 'Hargrand' and 'Harlayne' between 1980 and 1989 (Table 1). 'Harval' had the highest total score (105) for the 14 characters evaluated, followed closely by 'Harlayne' (103), and 'Hargrand' (102). 'Harval' bloomed 1 day earlier than 'Hargrand' and 2 days earlier than 'Harlayne'. 'Harval' fruit ripened 5 days later than 'Hargrand' and 1

day later than 'Harlayne'. 'Harval' had good performance ratings (scores ≥ 7) for 11 of the 14 characters evaluated and fully satisfactory ratings (scores = 6) for three characters. 'Harval' exceeded the performance of 'Harlayne' for tree vigor, fruit size, attractiveness, and resistance to skin cracking and exceeded that of 'Hargrand' for tree vigor, attractiveness, and resistance to skin cracking. 'Harval' had no serious faults that would limit its acceptance on the fresh market or its adaptability to suitable sites for apricot culture in southern Ontario.

A standard controlled-freezing test (Layne, 1989) routinely used for dormant, fully acclimated shoots of peach and apricot was used to assess the cold hardiness of 'Harval' in relation to other Harrow apricot introductions and two standards, 'Goldcot' and 'Veecot' (Table 2). 'Harval' was less bud hardy than 'Harlayne' or 'Harglow' but equally bud hardy as the other Harrow introductions and the two standards. 'Harval' was equally hardy

Table 1. Mean performance of 'Harval' compared with two other Harrow introductions at the Harrow Research Station (1980-1989).^z

Character evaluated	Mean cultivar ratings		
	Hargrand	Harlayne	Harval
Tree vigor	8 ^y	8	9
Winter hardiness	8	8	8
Perennial canker	8	8	8
Bacterial spot (leaves)	8	8	8
Bacterial spot (fruit)	7	8	7
Brown rot	6	7	6
Productivity	6	7	6
Ripening uniformity	6	6	6
Fruit size	8	6	7
Attractiveness	6	7	8
Skin cracking	6	7	8
Flesh firmness	8	7	8
Flesh adherence to pit	10	9	9
Flavor	7	7	7
Total score (14 characters)	102	103	105
Mean bloom date	27 Apr.	28 Apr.	26 Apr.
Mean ripe date	28 July	1 Aug.	2 Aug.

^zMean based on three trees per cultivar and 10 years of data.

^yRatings were subjective on a scale of 1 (least desirable) to 10 (most desirable). Ratings below 5 are unsatisfactory, 5 or 6 is satisfactory, and ratings ≥ 7 are considered good and commercially desirable.

Fig. 1. Pedigree of 'Harval' apricot.

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Fig. 2. Fruit of 'Harval' apricot (scale in centimeters).

Table 2. Cold hardiness of maximally acclimated dormant shoots of 'Harval' compared with other apricot cultivars (1989).

Cultivar	T_{50}^z (°C)	
	Flower buds	Shoot xylem
Goldcot	-26.8	-34.2
Harcot	-27.6	-34.9
Hargrand	-27.5	-34.3
Harglow	-27.7	-34.0
Harlayne	-28.6	-34.8
Harogem	-27.1	-34.2
Harval	-26.8	-34.3
Veecot	-25.7	-34.9
LSD, 5%	0.87	0.77

^zTemperatures required to kill 50% of the flower primordia and 50% of the shoot xylem using a standard test (Layne, 1989).

as the other Harrow introductions and the two standards with respect to cold hardiness of the shoot xylem. Thus, 'Harval' should be adapted to regions where 'Goldcot', 'Veecot', and other Harrow introductions are successfully grown.

Description

'Harval' trees are vigorous, upright to spreading, productive, and cold hardy (Tables 1 and 2) with good field resistance to perennial canker and bacterial leaf and fruit spot and moderate resistance to brown rot (Table 1). Dormant flower buds and shoot xylem are comparable in hardiness to 'Goldcot' in controlled-freezing tests (Table 2).

Leaves are medium to large, cordate with acuminate apices and serrate leaf margins. There are usually one or more small globose leaf glands on the leaf petiole, especially on the youngest leaves. Flowers are initially pink, then white when fully open.

The fruit are borne on the previous season's growth and on short fruiting spurs. They are resistant to skin cracking and preharvest drop. When thinned 8 to 10 cm apart, a randomly collected sample of 50 firm-ripe fruit had a mean fruit weight of 42.9 ± 0.9 g, and mean fruit length and fruit diameter of 46.7 ± 0.4 mm and 43.2 ± 0.3 mm, respectively. The fruit are very attractively

Pits are tan, oblong, plump, of medium size in relation to the fruit, and have conspicuous wings and a keel. The kernels are of medium size, plump, and bitter. Based on a random sample of 50 pits, the mean respective length, width, and thickness of pits were as follows: 27.7 ± 0.2 , 19.1 ± 0.2 , and 11.4 ± 0.1 mm.

'Harval' fruit are well-suited for the fresh market and for long-distance shipping because they retain their firmness after harvest and can be stored ≈ 2 weeks in common cold storage (1 to 5°C) at high relative humidity ($\geq 80\%$). They are also suitable for home processing, especially as canned halves in sugar syrup, puree, and jam. In raw product tests, 'Harval' had a soluble solids content of 17.8° Brix, pH of 3.62, and titratable acidity of 1.11%.

Availability

Budwood of 'Harval' from virus-indexed trees is available from the Harrow Research Station and is distributed by WOFTA. Trees of 'Harval' are available from WOFTA, Harrow, Ont. NOR 1G0, and from NYSFTCA, Geneva, NY 14456. They will be available from several commercial nurseries beginning in 1991.

Literature Cited

Layne, R.E.C. 1989. Breeding cold hardy peaches for Canada. *Acta Hort.* 254:73-78.