'AC Harrow Dawn' Peach

Richard E.C. Layne

Agriculture and Agri-Food Canada, Research Centre, Harrow, Ontario
N0R 1G0, Canada

Additional index words. *Prunus persica*, fruit breeding, cold hardiness, disease resistance

'AC Harrow Dawn' peach [*Prunus persica* (L.) Batsch] was released for the Ontario fresh market in 1996. 'AC Harrow Dawn', an early season peach that ripens 14 days before 'Redhaven', is cold hardy and disease resistant, productive, bears attractively colored fruit of desirable size and quality, and likely is suitable for long-distance shipping. This cultivar was recommended for commercial introduction in Canada by members of the Western Ontario Fruit Testing Association (WOFTA) on the basis of generally favorable performance in regional trials in southern Ontario coordinated by WOFTA. 'AC Harrow Dawn' likely is adapted to northern regions where 'Redhaven' is grown successfully. An application for Plant Breeding Rights in Canada was submitted in 1995 (application no. 95–645). The agent in Canada for 'AC Harrow Dawn' is Inter-Plant Patent Marketing, Niagara-on-the-Lake, Ontario.

Origin

'AC Harrow Dawn' originated at Harrow from a 1971 controlled cross of 'Cresthaven' x 'Harbinger' (Fig. 1). Selected and tested as a seedling from 1974 to 1978, 'AC Harrow Dawn' was then propagated by budding on peach seedling rootstocks, beginning in 1978, and tested as HW254 in regional trials coordinated by WOFTA from 1980 to 1995. 'AC Harrow Dawn' is genetically stable and uniform.

Description

Trees of 'AC Harrow Dawn' are semi-erect with medium to wide crotch angles. The bark, reddish-brown in midsummer, acquires a silvery sheen in midwinter. Flowering shoots are of medium length and thickness, have moderate anthocyanin pigmentation on the exposed side, and a high density of flower buds, usually two per node.

Leaves, lanceolate in shape with crenulate margins, are dark green and of medium size, typically ≈136 mm long, ≈31 mm wide, and the petiole is ≈9 mm long, based on a random sample of 30 shoots and leaves taken from the midpoint of each shoot. Leaf blades are

upfolded towards the midrib and recurved downward at the tip. There are typically two or more reniform petiolar glands near the leaf blade.

Flowers are small and nonshowy, and petals are elongated, small, and medium pink without striping. Stamens are longer than the petals and anthers are at the same level as the stigma. Pollen is abundant. The bloom period is medium to late and the flowering period is long, relative to other cultivars.

Fruit of 'AC Harrow Dawn' ripen in the early season, 14 days before Redhaven, 2 days before 'Garnet Beauty', and 6 days after 'Harrow Diamond'. The medium to large, roundish fruit (Fig. 2) has a dimpled blossom end, a shallow and indistinct suture, and a deep and

narrow stem cavity. Pubescence on the skin is short and of low density. Fruit size, based on a random sample of 30 firm-ripe fruit, was ≈62 mm high and ≈63 mm wide and individual fruit weighed ≈141 g. Ground color of the skin is yellow, and a bright red, marbled blush covers ≈80% of the fruit surface. The yellow, melting flesh is firm, smooth, and juicy and lightly streaked with anthocyanin directly under the skin, interspersed in the flesh, and around the stone. We rate the flavor as medium to good and fully acceptable for the fresh market. There is a good balance of sweetness and acidity. The stone weighs ≈7 g and is tan, elongated, deeply grooved and pitted, and does not adhere to the flesh when the fruit is ripe.

'AC Harrow Dawn' can be distinguished from 'Garnet Beauty', the cultivar it most closely resembles, by being more erect in growth habit, blooming later and for a longer period, having a shorter picking season, and ripening 2 days earlier than 'Garnet Beauty'. On ripe fruit, the skin is brighter red and more heavily blushed for 'AC Harrow Dawn' than for 'Garnet Beauty', the shape is more symmetrical, the suture is shallower and less distinct, and the flesh adheres less to the stone. There is less tendency for natural fruit drop before harvest with 'AC Harrow Dawn' compared with 'Garnet Beauty' and fewer split pits. The fruit skin appears to be a little thicker, peels easier, and the flesh of 'AC Harrow Dawn' is firmer than that of 'Garnet Beauty'. 'AC Harrow Dawn' appears to be more winter hardy than 'Garnet Beauty' and more resistant to canker and bacterial spot.

Performance

Performance of 'AC Harrow Dawn' was compared with 'Harrow Diamond', 'Harbelle', and 'Garnet Beauty' from 1986 to 1991 (Table 1). 'AC Harrow Dawn' had similar tree vigor to 'Harbelle' and 'Garnet Beauty' and was less

Fig. 1. Pedigree of 'AC Harrow Dawn' peach.

Fig. 2. Fruit of 'AC Harrow Dawn' peach (scale in centimeters).

Received for publication 22 Mar. 1996. Accepted for publication 20 June 1996. I thank H.O. Jackson, F.D. Stroud, E.W. Lamoure, M.D. St. Pierre, and M.F. Gadsby for excellent technical assistance. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked advertisement solely to indicate this fact.

vigorous and less upright than 'Harrow Diamond'. 'AC Harrow Dawn' was equally winter hardy as 'Harrow Diamond' and harder than 'Harbelle' and 'Garnet Beauty'. 'AC Harrow Dawn' and 'Harrow Diamond' had equal field resistance to perennial canker, exceeding that of 'Harbelle' and 'Garnet Beauty'. All four cultivars had good to very good ratings (≥ 7) for field resistance to bacterial leaf and fruit spot—'Harrow Diamond' and 'Harbelle' being the most resistant. Productivity of 'AC Harrow Dawn' was equal to that of 'Garnet Beauty' and 'Harrow Diamond' and exceeded that of 'Harbelle'. Fruit size of 'AC Harrow Dawn' was the same as for 'Harbelle' and 'Garnet Beauty' but larger than that of 'Harrow Diamond'. Both 'AC Harrow Dawn' and 'Harrow Diamond' fruit were more attractive than that of 'Harbelle' or 'Garnet Beauty'. 'AC Harrow Dawn' and 'Garnet Beauty' had similar amounts of blush ($\approx 80\%$) and 'AC Harrow Dawn' exceeded 'Harbelle' and 'Harrow Diamond' in blush. The flesh of 'AC Harrow Dawn' had similar firmness to that of 'Garnet Beauty' and 'Harrow Diamond' and exceeded 'Harbelle'. When fruit were fully ripe, 'AC Harrow Dawn' and 'Harrow Diamond' were almost freestone, more so than 'Harbelle' and 'Garnet Beauty'. All four cultivars had light red pigmentation in the flesh, but 'AC Harrow Dawn' and 'Harbelle' had the least. Flavor was rated medium to good for all four cultivars. 'Harrow Diamond' and 'AC Harrow Dawn' had fewer split pits than 'Harbelle' and 'Garnet Beauty'. In terms of overall performance for the 15 rated characters, 'AC Harrow Dawn' was similar to 'Harrow Diamond' and exceeded 'Harbelle' and 'Garnet Beauty'. 'AC Harrow Dawn' ripened 6 days later than 'Harrow Diamond', 1 day earlier than 'Harbelle', and 2 days earlier than 'Garnet Beauty'. 'AC Harrow Dawn' also ripened 14 days earlier than 'Redhaven', the commercial standard.

'AC Harrow Dawn' is being introduced for the Ontario fresh market because it exceeded the overall performance of 'Harbelle' and 'Garnet Beauty' for winter hardiness, canker resistance, attractiveness, and freeness, and it had fewer split pits. 'AC Harrow Dawn' will complement but not compete with 'Harrow

Table 1. Six-year mean performance of 'AC Harrow Dawn' peach compared with three other cultivars ripening in the early season (1986–91).^z

Characters evaluated	Mean cultivar rating ^y			
	Harrow Diamond	AC Harrow Dawn	Harbelle	Garnet Beauty
Tree vigor	8	7	7	7
Winter hardiness	8	8	7	7
Perennial canker	10	10	8	6
Bacterial leaf spot	9	8	10	7
Bacterial fruit spot	10	9	10	8
Productivity	6	6	5	6
Ripening uniformity	7	7	7	6
Fruit size	6	7	7	7
Attractiveness	7	7	6	6
Blush	7	8	6	8
Flesh firmness	7	7	6	7
Flesh adherence to pit	7	7	6	6
Red pigment in flesh	6	7	8	6
Flavor	6	6	6	6
Split pits	10	9	7	8
Total score	114	113	106	101
Mean ripe date (July)	20	26	27	28

^zRatings were subjective on a scale of 1 (least desirable) to 10 (most desirable). Ratings of 1 to 4 are considered unacceptable for a commercial cultivar, and 5 and 6 are commercially acceptable, while ratings ≥ 7 indicate a good level of performance.

^yMeans of three replications. Cultivars were tested in a completely random design at the Ridge Farm of the Harrow Research Centre.

Table 2. Flower bud and xylem hardiness of maximally acclimated dormant shoots of 'AC Harrow Dawn' peach compared with 'Redhaven', the medium-hardy commercial standard (1989, 1991).

Cultivar	T ₅₀ (°C) ^z			
	Flower buds		Shoot xylem	
	1989	1991	1989	1991
AC Harrow Dawn	-27.7 a ^y	-27.4 a	-31.1 a	-29.9 a
Redhaven	-27.6 a	-27.0 a	-31.0 a	-28.1 b

^zTemperature required to kill 50% of the flower primordia and 50% of the shoot xylem using a standard test (Layne, 1992).

^yMeans separation within columns by LSD ($P \leq 0.05$).

Diamond', because there is essentially no overlap of their picking seasons. 'AC Harrow Dawn' appears well adapted to northern areas where 'Redhaven' is grown successfully, hardiness being equal to or slightly greater than that of 'Redhaven' (Table 2).

Availability

'AC Harrow Dawn' is protected under the Canadian Plant Breeders Rights Act. The agent in Canada for the protection and commercialization of 'AC Harrow Dawn' is Inter-Plant

Patent Marketing. In the European Union, the agent for 'AC Harrow Dawn' in Europe is Star Fruits, 14 les Genêts d'Or, 84430 Mondragon, France. Virus-tested budwood of 'AC Harrow Dawn' is maintained at the Harrow Research Centre and also at the AAFC Centre for Plant Health, 8801 East Saanich Rd., Sidney, B.C. V8L 1H3, Canada.

Literature Cited

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