'Primevère' Apple

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'Primevère' is an attractive and long-keeping red apple (*Malus × domestica* Borkh.) with excellent fruit quality combined with field immunity to apple scab incited by *Venturia inaequalis* (Cke.) Wint. The large, attractive, red fruit matures ≈2.5 to 3 weeks after 'McIntosh' and retains its excellent quality for up to 6 months at 1 °C in cold storage. The name 'Primevère' means "spring time" in French and indicates that its excellent keeping quality allows it to be stored until spring. The letters "pri" in the name commemorate the Purdue-Rutgers-Illinois cooperative apple breeding program.

'Primevère' is cold hardy in the good orchard sites of Quebec. The overall dark cardinal red fruit is moderately acid at harvest, but quality is outstanding after 6 months of storage. This attractive apple combines scab resistance with excellent dessert and storage qualities.

Origin

The seedling is derived from a cross made in 1962 at Geneva, N.Y., by L.F. Hough, with 'Graham' as the seed parent and 597NJ1 as the pollen parent (Fig. 1). The original seedling was planted in 1963 in the CB block of the Clark Farm of the Purdue Horticultural Research Farm, West Lafayette, Ind., where its position was row 4 tree 29 (CBR4T29), and had the designation PRI 1792-4 in the breeding records of the cooperative apple breeding program of Purdue Univ., Rutgers Univ., and

the Univ. of Illinois. This seedling was selected in 1969 by E.B. Williams, and in 1979 was subsequently sent for testing to Frelighsburg, Quebec, Canada; Corvallis, Ore.; and East Malling, Kent, England. In 1971, it was discarded at Purdue Univ. Since 1982, it has been tested in several locations in Quebec.

Fig. 1. Pedigree of 'Primevère' apple.

Fig. 2. Fruits of 'Primevère' apple.

Description and Performance

'Primevère' fruits are slightly conic and occasionally lopsided (Fig. 2). The skin has a bright glossy dark-red finish, and is moderately thick and tough with inconspicuous lenticels. Flesh is fine-grained, pale-green to white, firm, and crisp. Fruit quality is similar to that of 'Liberty' and 'Trent' after 3 months in cold storage (Granger et al., 1992). Flavor is sprightly at harvest but mellows to moderately subacid following storage. Fruit is juicy with spicy full-rich flavor. Its quality is good at harvest but improves following storage. Harvest date is 2.5 to 3 weeks after 'McIntosh', which matures around 20 Sept. at Frelighsburg, Quebec.

The tree is moderately to highly vigorous, spreading, with a standard bearing habit, and a round top. Fruits are borne singly on variable-length spurs, and are distributed uniformly throughout the canopy. Flowering occurs in late midseason with or after 'Golden Delicious'.

'Primevère' apple has been tested extensively for resistance to apple scab in the greenhouse and for resistance to other major apple diseases in the field. Scab resistance is based on the absence of sporulation after repeated greenhouse inoculations with *V. inaequalis* races 1 through 5 using the method described by Williams and Kuc (1969) and Granger et al.

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(1990). Resistance to scab is based on the *V_f* gene derived from *Malus floribunda* 821 (Crosby et al. 1992). Field records at Purdue Univ. indicate that it is susceptible to cedar apple rusts incited by *Gymnosporangium juniperi-virginianae* (Schw.) and to powdery mildew incited by *Podosphaera leucotricha* (Ell & Ev.) Salm. Some bitter pit has been observed, but water core has been absent.

The following detailed description follows Zielinski (1955) and uses color designations according to the *Royal Horticultural Society Colour Chart* (third ed.) (1978).

FLOWER

Corolla: 47 mm in diameter at anthesis

Petals: 14 × 22 mm

Color: China rose 024/2 (bud) fading to white tinged with magenta rose 027/2 (open flowers)

FRUIT

Shape: Slightly conic to somewhat oblate; occasionally round to ovate or lopsided on young trees; length: width ratio = 0.95 to 1

Size: Average diameter, 68 to 76 mm

Color: Dark cardinal red (plate 82/2)

Skin: Smooth and glossy, moderately tough, medium thick; bloom is scant; inconspicuous, smooth, round, white dots

Stem: Short, medium thick

Cavity: Acute, medium depth, medium width, smooth surface

Basin: Medium depth, broad breadth, rounded sides, smooth surface

Calyx: Persistent, partly closed, erect to curved

Calyx tube: Urn-shaped

Stamen: Basal

Core-lines: Meeting

Core: Median closed, small

Carpels: Round, emarginate, smooth

Seeds: Full compliment, acuminate, nontufted

FLESH

Texture: Medium-grained, firm, crisp, and breaking at harvest; mellows to firm and crisp after storage

Color: Very pale green (plate 3/3)

Quality: Very spicy, rich, and sprightly acid at harvest, peak quality after 1 month in cold air storage

Maturity: 7 to 10 Oct. at Frelighsburg, Quebec, 3 weeks after 'McIntosh'

Keeping quality: Superior, retains quality and texture up to 6 months at 1 °C in cold air storage

Use: Winter dessert apple, appropriate for medium and long-term storage

TREE

Form and habit: Spring, round-topped, vigorous, standard bearing habit; fruit borne sin-

gly on variable-length spurs, hangs well on the tree even when over-ripe; annual bearing

Leaves: Ovate; serrate to double serrate margin; apex acute to acuminate, base acute to round; length : width ratio = 1.60. Leaf petioles show slight anthocyanin pigmentation, sometimes intense at the base.

Availability

Nonindexed budwood is available for test purposes from R.L. Granger.

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