fruit is ≈ 12 days at 25C. Storage life in ordinary air at 0 to 1C is estimated at 2 months. The quality evaluations for 'Applethorpe Summerdel', 'Applethorpe Earldel', 'Hi-Early Delicious', and three early commercial cultivars are based on our evaluations (Table 1).

In most years, a small percentage (5%) of 'Applethorpe Summerdel' fruit is observed with dry moldy core (*Alternaria* spp.) infection. This cultivar is of similar susceptibility as 'Applethorpe Earldel', but is not as susceptible as 'Delicious' (25% infection).

'Applethorpe Summerdel' is susceptible to apple scab [*Venturia inaequalis* (Cke.) Wint.] and powdery mildew [*Podosphaera*

leucotricha (Ell. and Ev.) Salm.]. Under commercial conditions, the incidence of both of these diseases on 'Applethorpe Summerdel' has been successfully controlled using standard orchard spray programs. The susceptibility to fireblight [*Erwinia amylovora* (Burr.) Winslow et al.] is unknown, as this disease does not occur in Australia.

Availability

Limited quantities of budwood are available for testing and commercial propagation from the Queensland Dept. of Primary Industries, Granite Belt Horticultural Research Station, Applethorpe 4378, Queensland,

Australia. 'Applethorpe Summerdel' is not a patented cultivar. Budwood source trees have not been virus-indexed, but were propagated from the original seedling using virus-tested clonal MM106 and M778 rootstocks.

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'Richelieu' Apple

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'Richelieu' is an attractive mid-season red apple (*Malus domestica* Borkh.) with field immunity to apple scab caused by *Venturia inaequalis* (Cke) Wint. The name 'Richelieu' refers to the river that flows from Lake Champlain to the St-Lawrence River.

'Richelieu' was developed at the Agriculture Canada Research Station, St-Jean-sur-Richelieu, Qué., of which the breeding program had been initiated at the Ottawa Research Station, Ont. (Rousselle and Fortin, 1983). The fruit is attractive, large, and medium red (Fig. 1). It matures 1 week before 'McIntosh' and 1 month before 'Delicious'. It is well-distributed in the tree, and when ripe, it hangs for 10 days without losing its firmness and dessert quality. When picked at full maturity, it retains its good flavor and firm flesh up to 12 weeks in cold storage (1C). 'Richelieu' is a potential commercial cultivar for use as a mid-season dessert apple. Its scab resistance makes it a good candidate for home gardening.

Origin

The original seedling, identified as 64-01-207 at Ottawa, Ont., Canada, has been subjected to advanced tests as Ott.635 at Freliksburg, Qué., and Smithfield, Ont. The

seedling resulted from crossing two Ottawa scab-immune selections: the female parent Ott.521 and the pollen parent Ott.541. The complete pedigree is shown in Fig. 2. The seedling was selected in 1976 on the basis of good pomological characteristics. Propagated trees have been under test as Ott.635 at cooperating experiment stations and a few Quebec commercial orchards.

Description

The 'Richelieu' tree is of medium vigor and its basal branches spread widely. Its growth habit is otherwise similar to that of 'Spartan'. The fruit is attractive and has a very good, full-flavored dessert quality when ripe. Its flesh is white, crisp, juicy, fine-grained, and mildly subacid.

'Richelieu' carries the V_f gene for resistance to apple scab derived from *Malus floribunda* 821. It has shown resistance to the five known races of the organism in greenhouse inoculations and field immunity during 16 and 12 years of testing in Quebec and Ontario, respectively, and at various research stations in Canada. Under eastern Canadian conditions, 'Richelieu' has shown moderate resistance to powdery mildew caused by *Podosphaera leucotricha* (Ell. & Ev. Salm.) and to fire blight incited by *Erwinia amylovora* (Burr.) Winslow et al. However, it proved sensitive to quince and cedar-apple rusts (Warner, 1986; Warner and Potter, 1988) caused by *Gymnosporangium*

Fig. 1. Fruit and leaf of 'Richelieu' apple.

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Fig. 2. Pedigree of 'Richelieu' apple.

clavipes (Cke. & Pk.) and *G. juniperi-virginianae* (Schw.), respectively.

The following detailed description follows Zielinski (1955) and is roughly based on the description of 'Dayton' apple (Korban et al., 1988).

'Richelieu' fruit mature 4 weeks before 'Delicious' and 1 week before 'McIntosh'. They are slightly oblate to oblate in shape, with axial and transverse diameters of 58 and 74 mm, respectively. The glossy, medium-red color is slightly striped and covers up to 85% of the fruit surface. The smooth, glossy skin is thin and moderately tough, with widely spaced, conspicuous beige to white dots. The medium-thick stem is 12 to 15 mm long and

medium stiff; its cavity is acute, deep, medium, and slightly russeted. The basin is of medium depth, with a few lobes on inner, sloping sides. The calyx is persistent, convergent, and fully closed with a vase-shaped tube. The core is medium, closed, and small with meeting core lines. Carpels are acute and nontufted. Its flesh is white, firm, crisp, fine-grained, and mildly subacid. The fruit is of very good quality when ripe (it must be picked at stage 5 according to the starch-iodine 'McIntosh' maturity chart). The flavor resembles 'McIntosh', but is sweeter (11.5% to 12% soluble solids concentration). 'Richelieu' fruit retains its quality up to 12 weeks at 1C.

'Richelieu' trees are annual bearers of medium vigor, with widely spread basal branches; otherwise, growth habit is similar to that of 'Spartan'. Trees are a little slow to come into bearing, but in the adult stage, productivity is comparable to that of 'Imperial Allred McIntosh'. Foliage is glabrous, not rugose, and ovate with single serrate margins. The apex is acuminate and the base obtuse. The average leaf length to width ratio is 1.7.

Availability

Budwood is available from the St-Jean-sur-Richelieu Research Station, Québec J3B 6Z8, Canada. Trees of 'Richelieu' are propagated by local nurseries.

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'AU-Rubrum' Plum

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'AU-Rubrum' is a new plum (*Prunus salicina* Lindl.) cultivar developed by the Dept. of Horticulture, Alabama Agricultural Experiment Station, Auburn Univ., for growing in areas where minimum chilling of 700

hr below 7C occurs. 'AU-Rubrum' has proven its ability to produce high yields of excellent-quality fruit where certain fruit problems and diseases occur. 'AU-Rubrum' should fill a need for an early cultivar for commercial, home, and local markets for central and north central Alabama and other areas of similar environment.

'AU-Rubrum' originated from a natural bud mutation of 'Crimson'. The bud mutation was tested as Crimson M-1.

Description

'AU-Rubrum' is highly resistant to bacterial canker (*Pseudomonas syringae*, Van Hall), bacterial fruit spot [*Xanthomonas pruni* (E.F. Smith) Dows], bacterial leaf spot (*X. pruni*), and black knot [*Apiosporina morbosa* (Schw) Ark.] (Table 1) and is tolerant

to plum leaf scald (*Xylella fastidiosa* Wells et al.).

Trees of 'AU-Rubrum' are similar to those of 'Crimson' (spreading growth habit with dark green foliage), except that they are more vigorous, larger, and have greater longevity. 'AU-Rubrum' has a bud chilling requirement of 700 hr below 7C.

Fruits of 'AU-Rubrum' have dark red (scarlet red, HCC, 44A; Royal Horticultural Society, 1966) skin and flesh (Fig. 1, Table 1). Fruit firmness is adequate for handling, packing, and shipping to commercial markets (Table 1). Fruit quality, as rated by us, is excellent for fresh market, which makes 'AU-Rubrum' adaptable for home, roadside, and commercial markets. An expert panel rated the canned fruit acceptable (Table 2).

Maturity date is $\approx$ 1 week after 'Methley' (Table 1). The plant is self-fruitful, flowers profusely, and sets a heavy crop. 'AU-Rubrum' has produced high yields at two locations in central Alabama. Average yields of marketable fruit per tree were 22.7, 46.4, and 52.3 kg from 3-, 4-, and 5-year-old trees, respectively. It has been a consistent heavy-bearer like 'Crimson' and has produced larger crops than 'Bruce', 'Methley', 'Ozark Premier', or 'Santa Rosa'.

Fruits of 'AU-Rubrum' store as well at 0C as 'Crimson', 'AU-Producer', and 'Santa Rosa' and better than 'AU-Roadside', 'AU-

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