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 1°C.

'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.

Literature Cited

- Korban, S.S., J. Janick, E.B. Williams, and F.H. Emerson. 1988. 'Dayton' apple. *HortScience* 23(5):927-928.
- Rousselle, G.L. and C.N. Fortin. 1983. 'Rouville' et 'Richelieu': Deux cultivars de pommier résistant à la tavelure. In: *Résumé des Recherches*, vol. 12. Agriculture Canada, Saint-Jean-sur-Richelieu, Québec, Canada.
- Warner, J. 1986. Susceptibility of apple scab resistant cultivars to *Gymnosporangium juniperi-virginianae*, *G. clavipes* and *Botryosphaeria obtusa*. *Can. Plant Dis. Surv.* 66:27-30.
- Warner, J. and C. Potter. 1988. Performance of scab resistant apple cultivars at the Smithfield Experimental Farm. *Fruit Var. J.* 42(3):96-102.
- Zielinski, Q.B. 1955. Modern systematic pomology. Brown, Dubuque, Iowa.

HORTSCIENCE 25(10):1311-1312. 1990.

'AU-Rubrum' Plum

J.D. Norton¹, G.E. Boyhan², D.A. Smith³, and B.R. Abrahams⁴

Department of Horticulture and Alabama Agricultural Experiment Station, Auburn University, AL 36849-5408

Additional index words. fruit breeding, *Prunus salicina*, bacterial canker, *Pseudomonas syringae*, bacterial leaf spot, *Xanthomonas pruni*, plum leaf scald, *Xylella fastidiosa*

'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 7°C 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 7°C.

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 ≈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 0°C as 'Crimson', 'AU-Producer', and 'Santa Rosa' and better than 'AU-Roadside', 'AU-

Received for publication 2 Oct. 1989. AAES Journal no. 11-892261P. We gratefully acknowledge the essential assistance of H.M. Bryce, E.V. Smith Research Center, Shorter, Ala., in evaluation and propagation of the material. Assistance of growers in conducting commercial grower trials with the material is deeply appreciated. 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.

¹Professor of Horticulture.

²Research Associate.

³Associate Professor.

⁴Technician.

Table 1. Fruit and plant characteristics of 'AU-Rubrum' compared to standard *Prunus salicina* cultivars.

Characteristic	Cultivar								
	AU-Rubrum	AU-Amber	AU-Producer	AU-Roadside	Crimson	Homeside	Methley	Ozark Premier	Santa Rosa
Skin color ²	dR	dR-P	dR-P	dR	cR	Or-IR	dR-P	R-P	dR-P
Flesh color ²	dR	Cr	dR	dR	cR	Cr	dR	Cr	R
Fruit diameter (cm)	6.2	3.5	3.5	5.4	4.2	6.1	3.0	5.4	3.5
Firmness	5	4	5	4	5	4	3	4	4
Stone adhesion ³	C	C	F	sC	C	C	C	sC	C
Flavor ⁴	5	5	5	5	5	5	5	5	5
Texture ⁴	5	5	5	5	5	5	5	5	5
Shape ⁴	5	5	5	5	5	5	5	5	5
Soluble solids (%)	15.6	18.2	16.5	17.2	16.3	18.8	18.5	15.7	16.7
Harvest date (Auburn)	17 June	30 May	27 June	1 July	24 July	5 July	10 June	10 July	5 July
Yield (Auburn and Headland) ⁵	5	5	5	5	5	5	3	4	3
Marketable fruit after 6 weeks at 0C (%) ⁶	85	70	90	70	90	65	70	65	80
Disease resistance ⁷									
Bacterial canker	1	0	0	0	0	1	5	1	5
Bacterial fruit spot	0	0	0	0	0	0	3	0	5
Bacterial leaf spot	0	0	0	0	0	0	5	1	5
Black knot	0	5	1	0	0	1	5	1	0
Brown rot	2	2	2	2	1	1	3	3	3
Plum leaf scald	1	0	1	1	3	1	4	4	5

²Color abbreviations: Or = orange, R = red, P = purple, Cr = cream, cR = crimson red, dR = dark red, IR = light red.

³Stone adhesion: C = cling, sC = semi-cling, F = free.

⁴Rating index: 1 = very poor, 2 = poor, 3 = fair, 4 = good, 5 = excellent.

⁵Percent marketable fruit after 6 weeks storage at 0C.

⁶Disease index: 0 = 0, 1 = 1% to 20%, 2 = 21% to 40%, 3 = 41% to 60%, 4 = 61% to 80%, and 5 = 81% to 100% of the fruit, leaves, and trees infected with bacterial canker, bacterial fruit spot, bacterial leaf spot, black knot, brown rot, and plum leaf scald. Ratings were taken in years when injury from disease was severe on susceptible cultivars.

Table 2. Mean quality evaluations of 12 canned plum cultivars.²

Cultivar	Overall ³		
	Color	Texture	Flavor
AU-Rubrum	8	8	8
AU-Amber	8	9	9
AU-Producer	8	8	8
AU-Roadside	8	8	8
Crimson	8	8	8
Giant Cherry	5	6	7
Methley	8	8	8
Morris	8	8	7
Ozark Premier	7	7	6
Red June	6	8	8
Sapa	10	8	8
Starking Delicious	8	7	5

²Numerical scores as follows: 9 or 10 = highly acceptable, 7 or 8 = acceptable, 5 or 6 = barely acceptable, below 5 = unacceptable. Means scores of an expert panel (3 to 4 panelists) were obtained on the canned plums after at least 6 weeks warm storage.

³Overall ratings are the means of all the panelists' three quality ratings.

Amber', 'Homeside', and 'Methley' (Table 1).

'AU-Rubrum' compares favorably with the cultivars currently being grown commercially and in home and roadside plantings. It is more resistant to bacterial fruit spot, bacterial leaf spot, bacterial canker, and black knot than are 'Methley', 'Giant Cherry', and 'Santa Rosa'. The cultivar is tolerant to plum leaf scald.

Tree vigor and tolerance to plum leaf scald are the primary improvements of 'AU-Rubrum'. Tree vigor is a primary selective cri-

Fig. 1. Fruit of 'AU-Rubrum' plum.

terion in the southeastern United States, and the relationship of plum leaf scald to phony peach makes resistance important.

The increased fruit size of 'AU-Rubrum', when compared to 'Crimson', (Table 1) should provide an advantage in marketing the fruit. Two other characteristics, ripening date and skin color at maturity, may be taken collectively as another important advantage of 'AU-Rubrum'. 'AU-Rubrum' ripens 7 days later and is more fully colored at any comparable stage of maturity than 'Methley'. Another improvement of 'AU-Rubrum' is good tree longevity. In test orchards at two Alabama locations, 9 years after planting,

trees of 'AU-Rubrum' were in vigorous condition.

Availability

Trees of 'AU-Rubrum' are available from wholesale and retail nurseries for planting in Winter 1990-91. A limited supply of budwood may be obtained from J.D.N., Dept. of Horticulture, Auburn Univ., AL 36849-5408.

Literature Cited

Royal Horticultural Society. 1966. RHS colour chart. The Royal Horticultural Society, London.