'Sooke Seedless' Table Grape

A.G. Reynolds¹, M.J. Bouthillier², D.A. Wardle², and L.G. Denby³
*Horticulture and Basic Studies Section, Agriculture and Agri-Food Canada
 Research Centre, Summerland, British Columbia V0H 1Z0, Canada*

Additional index words. *Vitis*, grape breeding

Expansion of the table grape (*Vitis* spp.) industry in British Columbia and Ontario has created demand for uniquely flavored, winter-hardy, disease-resistant, seedless cultivars that mature early in the season. 'Sooke Seedless' (Fig. 1) is one of two seedless cultivars that have earned significant interest locally and elsewhere. "Sooke" is a Coastal Salish word that has also become the name of a coastal town on Vancouver Island. 'Sooke Seedless' is a green, seedless, early to midseason cultivar with a very mild fruity flavor, and matures at Summerland in early to mid-September.

Origin

'Sooke Seedless' was selected in 1984 by M.J.B. and A.G.R. from a cross made in 1977 between Vineland 37022 ('Seneca' × 'Golden Muscat') and 'Romulus' (Fig. 2), under the direction of L.G.D. It was tested between 1984 and 1995 as selection 535. Data were gathered at Summerland (Table 1) on vine performance and fruit composition on the original seedling (1984-91; planted 1980, "Y"-shaped divided canopy), from an additional two five-vine plots (1988-93; planted 1986, bilateral cordon training), and from six five-vine plots within a randomized cultivar trial (1993-95; planted 1991, bilateral cordon training). The cultivar trial was established in 1991 as a completely randomized design within the existing selection evaluation vineyard, which contained 74 (of 169) vacant postlength plots available for planting. The trial consisted of six five-vine replications each of eight Summerland selections and seven named cultivars. 'Himrod', 'Interlaken', 'Lakemont', and 'Romulus' were included as the named seedless green cultivars to compare against 'Sooke Seedless'. The two existing plots of 'Sooke Seedless' (planted 1986) were incorporated into the trial. All vines were own-rooted, spaced 1.6 × 3.0 m (vine × row), trained to 1.8-m-high bilateral cordons, pruned to 20 nodes per meter as five-node spurs, and maintained under clean cultivation.

Description and performance

'Sooke Seedless' leaves are medium sized (10 to 15 cm long), orbicular, and three lobed,

containing a V-shaped petiolar sinus. Leaf surfaces are medium-green and glabrous above and below. Serrations are irregular and concave. The growing tip is slightly felty, with rose margins. Growth habit is procumbent.

'Sooke Seedless' yields have been as high as 25.9 t·ha⁻¹ based on a 12-year-old vine on a divided canopy plus 6-year-old bilateral cordon-trained vines (Table 1). Clusters of 'Sooke Seedless' (Fig. 1) are medium-large, well filled, triangular, and winged, and have varied in mass between 131 and 279 g depending on use and/or degree of cluster thinning (Table 1). Berries are seedless, nonslipskin, medium-large, round, and green, and have varied in mass between 1.43 and 2.24 g depending on the effectiveness of cluster thinning. Soluble solids concentration (SSC) averages 25.3%, with a mean titratable acidity (TA) of 9.6 g·L⁻¹. TA was 15.7 g·L⁻¹ in the cool 1985 season, but was only 6.8 g·L⁻¹ in the unusually warm 1987 season (Table 1). Mean pH was 3.22 between 1984 and 1995, with a minimum of 2.95 (1990) and a maximum of 3.64 in 1987 (Table 1).

Yields, SSC, TA, and pH ('Interlaken' excepted) have exceeded those of 'Himrod', 'Interlaken', 'Lakemont', and 'Romulus'; however, cluster mass, berries per cluster, and berry mass are similar (Table 2). Compared to its sister seedling, 'Skookum Seedless' (Reynolds et al., 1997), 'Sooke Seedless' has similar yields (15.9 vs. 15.2 t·ha⁻¹ for 'Skookum Seedless'), but 'Sooke Seedless' has lower cluster mass (194 vs. 242 g), lower berry mass (1.83 vs. 3.00 g), higher mean SSC (25.3 vs. 19.6), and higher TA (9.6 vs. 8.3 g·L⁻¹).

The flavor of 'Sooke Seedless' is very mildly fruity in character. Texture is moderately crisp, with a thin but slightly astringent skin. Seed traces are rarely visible. Harvest date is early to midseason, with 'Interlaken', or slightly before, about 21 Sept. in Summerland.

Culture

'Sooke Seedless' vines on irrigated silt loam soil have not exceeded a mass of 1.8 kg of cane prunings per vine (vine size) at a 1.6 × 3.0-m (vine × row) spacing, and average 1.1 kg per vine on a bilateral cordon. Training systems, such as Hudson River Umbrella or Umbrella Kniffin, would likely be suitable on most sites, while a divided canopy consisting of 1.6-m-high bilateral cordons has been successful in accommodating high-vigor vines. Low fruitfulness has been absent in the lowermost two nodes of bearing units retained at pruning. However, due to *V. labrusca* in its

Fig. 1. Cluster of 'Sooke Seedless' table grape.

Received for publication 16 Oct. 1996. Accepted for publication 13 Jan. 1997. Contribution no. 1029. 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.

¹Research Scientist.

²Research Assistant.

³Research Scientist (retired).

Fig. 2. Pedigree of 'Sooke Seedless' grape. Legend: a = *Vitis aestivalis* Michaux; l = *V. labrusca* L.; v = *V. vinifera* L.

Table 1. Yield and fruit composition of 'Sooke Seedless' table grape, Summerland, B.C., 1984–95.

Harvest date	Year	Yield (t·ha ⁻¹)	Cluster mass (g)	Berry mass (g)	Mass of cane prunings (kg/vine)	Fruit composition		
						SSC ^z (%)	Titrateable acidity (g·L ⁻¹)	pH
2 Oct.	1984 ^y	1.1	---	---	---	28.8	12.6	3.16
7 Sept.	1985	1.7	---	---	---	24.5	15.7	3.19
22 Sept.	1986	13.1	---	---	---	23.5	10.2	3.39
14 Sept.	1987	21.5	---	---	---	20.8	6.8	3.64
23 Sept.	1988	8.3	---	---	---	24.2	12.2	3.20
19 Sept.	1989	7.6	202	1.43	---	24.4	13.6	3.00
17 Sept.	1990	---	249	1.73	---	19.1	15.0	2.95
24 Sept.	1991	25.9	275	1.86	0.80	22.6	11.1	3.10
14 Sept.	1992	23.7	279	2.24	---	22.7	10.6	3.32
7 Oct.	1993	10.9	131	1.51	1.44	26.5	11.9	3.18
22 Sept.	1994	5.5	167	1.94	0.89	26.6	9.5	3.28
2 Oct.	1995	24.4	220	1.82	0.54	25.0	6.9	3.17

^zSSC = soluble solids concentration.

^yData from 1984 to 1987 are based on the original seedling (planted 1980), 1.8 × 3.0-m (vine × row) spacing, divided canopy training, sandy loam soil; data from 1988 to 1995 are based on: 1) the original seedling (1988–91 only); 2) two, five-vine plots (planted 1986), 1.6 × 3.0-m spacing, bilateral cordon training, silt loam soil; 3) an additional four five-vine plots (planted 1991), 1.6 × 3.0-m spacing, bilateral cordon training, silt loam soil.

Table 2. Performance of 'Sooke Seedless' and four commercial table grape cultivars, Summerland, B.C., 1993–95.

Cultivar	Yield (t·ha ⁻¹)	Cluster mass (g)	Berries/cluster	Berry mass (g)	SSC ^z (%)	Titrateable acidity	
						(g·L ⁻¹)	pH
Sooke Seedless	15.9 a ^y	193 a	105 b	1.83 a	25.3 a	9.6 a	3.21 a
Himrod	11.7 b	147 b	83 c	1.78 ab	19.9 d	6.6 d	3.03 c
Interlaken	14.0 ab	191 a	113 ab	1.70 b	22.5 b	7.0 cd	3.21 a
Lakemont	12.3 b	208 a	120 a	1.71 b	21.0 c	7.5 c	3.08 b
Romulus	12.5 b	183 a	102 b	1.78 ab	21.6 c	8.8 b	2.94 d
Significance	*	***	***	***	***	***	***

^zSSC = soluble solids concentration.

^yData were obtained from a completely randomized experiment containing six, five-vine plots for each cultivar. Vines were planted in 1991, with the exception of two 'Sooke Seedless' plots planted in 1986. Vines were own-rooted, trained to 1.8-m-high bilateral cordons, and spaced 1.6 × 3.0 m (vine × row).

*,***Significant at $P \leq 0.05$ or 0.001, respectively. Means separated at $P \leq 0.05$ by Duncan's multiple range test. Cultivar × year interactions were not significant for any of the variables.

heritage, we have found it prudent to use long spurs (about five nodes) or use cane pruning to ensure consistent yields. A pruning strategy of 20 nodes per meter row or canopy has been satisfactory to maintain consistent yields and vine size on divided and undivided canopies. Cluster mass and volume and berry mass have been improved slightly by cluster thinning to one cluster per shoot, and were increased markedly by the application of phenylureas (Reynolds et al., 1992). Winter survivability of primary buds is equal to hybrid winegrapes, such as 'Seyval blanc', 'Verdelet', and 'Vidal blanc', and superior to the pollen parent, 'Romulus'. No foliar powdery mildew [*Uncinula necator* (Schwein.) Burr] has been noted under a normal sulfur-based control program. Other diseases and major insect pests do not occur in the testing region, hence levels of resistance to downy mildew (*Plasmopara viticola* Berkeley & Curtis ex. De Barry), black rot [*Guignardia bidwellii* (Ellis) Viala & Ravaz], and phylloxera (*Daktulosphaira vitifoliae* Fitch.) are not known.

Uses

'Sooke Seedless' is recommended solely for use as a table grape. Its delicate flavor is not suitable for jelly, juice, or wine. Storage trials in 1990 and 1991 showed 'Sooke Seedless' to be in excellent condition after 6 weeks at 2 °C. Using polyethylene covering and SO₂ pads, there was <8% mean mass loss, and an average of four shattered berries per cluster following storage (Reynolds et al., 1992). 'Sooke Seedless' has been popular with Okanagan Valley grape growers since its limited release in 1985. Sensory studies showed 'Sooke Seedless' to have a very high degree of flavor and texture "liking" in comparison with several commercial seedless cultivars (Cliff et al., 1996). Several thousand cuttings were distributed among British Columbia and Ontario grape growers between 1985 and 1995.

Availability

Virus-free, noncertified cuttings may be obtained from A.G.R. Tissue-cultured plants are available from Agriforest Industries, Kelowna, B.C. (western Canada and the United States). Nursery-grown vines can be obtained from Euro Nurseries, Jordan, Ont. (eastern Canada and the United States), and from Tappen Valley Growers, Tappen, B.C. (lower mainland of British Columbia and Vancouver Island). There are no immediate plans to patent this cultivar.

Literature Cited

- Cliff, M.A., M.C. Dever, and A.G. Reynolds. 1996. Descriptive profiling of new and commercial British Columbia table grape cultivars. *Amer. J. Enol. Viticult.* 47:301–308.
- Reynolds, A.G., M.J. Bouthillier, D.A. Wardle, and L.G. Denby. 1997. 'Skookum Seedless' table grape. *HortScience* 32:743–744.
- Reynolds, A.G., D.A. Wardle, C. Zurowski, and N.E. Looney. 1992. Phenylureas CPPU and thidiazuron affect yield components, fruit composition, and storage potential of four seedless grape selections. *J. Amer. Soc. Hort. Sci.* 117:85–89.