‘Saint-Laurent d’Orléans’ Strawberry

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‘Saint-Laurent d’Orléans’ is a new June bearing strawberry cultivar (*Fragaria* × *ananassa* Duch.) released by Agriculture and Agri-Food Canada. ‘Saint-Laurent d’Orléans’ was named because it has large, very firm, light red (Royal Horticultural Society color chart 43 A or 44 A) shiny fruit (Fig. 1), with excellent shelf life (Table 1) and resistance to leaf diseases.

The selection was named after the village of St-Laurent d’Orléans, which is located at the south of l’Île d’Orléans, Quebec. In this area the principal economy comes from agriculture, with a major emphasis on vegetable and strawberry production. This village is known as the capital of strawberry production in Quebec and is recognized for the high-quality fruit produced there.

Origin

‘Saint-Laurent d’Orléans’, tested as FIO9624-11, is a selection from a cross between ‘L’Acadie’ (Khanizadeh et al., 1999) and a selection (SJ8916-1 × Pink Panda), which was bred in 1996 by S. Khanizadeh (Fig. 2). ‘Saint-Laurent d’Orléans’ has been tested at the Agriculture and Agri-Food Canada substation in L’Acadie, Quebec since 1997, and in controlled semi-commercial sites by our research partner Les Fraises de l’Île d’Orléans

in Île d’Orléans, Québec and also by Meiosis Ltd. in Europe.

Description and Performance

Plants of ‘Saint-Laurent d’Orléans’ are of medium vigor, have a flat globose growing habit, and produce four to five inflorescences per crown. Plants can survive winter air temperatures to –30 °C with a 10-cm straw mulch

cover. Petioles are short with three, medium green, cupped and obtuse leaflets, with slightly acute teeth. The terminal leaflets have a 1.25 length to width ratio. The leaves are medium to dark green with very weak to medium blistering between the veins. ‘Saint-Laurent d’Orléans’ produces perfect white medium- to large-sized flowers. The five petals (occasionally six to seven) are touching and petals are slightly longer than wide. The fruit shape is conic or globose conic. The flesh is medium to dark red almost throughout and firm. Fresh fruit store well (up to 4 to 5 d) at room temperature and longer under refrigeration.

‘Saint-Laurent d’Orléans’ was tested in several locations but the data presented here are from the replicated trials (four replications) in commercial fields (Les Fraises de l’Île d’Orléans Inc., St-Laurent, Île d’Orléans, Quebec) since 1999. ‘Saint-Laurent d’Orléans’ produces significantly higher yield and larger fruit size than ‘Kent’, the most popular variety in Quebec, and also outyields ‘Mira’, ‘Honcoye’, and ‘Annapolis’ (Table 1). The fruit are also firmer, with lighter red skin color, and have longer shelf life at room temperature than ‘Kent’, ‘Mira’, and ‘Annapolis’. ‘Saint-Laurent d’Orléans’ is a late midseason cultivar with fifty percent of primary fruit ripe by early July in L’Acadie, Quebec.

‘Saint-Laurent d’Orléans’ demonstrates a higher degree of resistance to leaf diseases [scorch (*Diplocarpon earlina* Ell. & Ev.) and leaf spot (*Mycosphaerella fragariae* (Tul.) Lindau] compared with ‘Kent’ and has lower susceptibility to verticillium wilt (*Verticillium albo-atrum* Reinke & Berth.) when compared with ‘Jewel’ and ‘Seascape’, which ranked intermediate (field and in vitro data not shown).

Total antioxidant capacity of the fruit of ‘Saint-Laurent d’Orléans’, measured by 2,2’-

Fig. 1. ‘Saint-Laurent d’Orléans’ strawberry.

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Fig. 2. Pedigree of 'Saint-Laurent d'Orléans' strawberry.

Table 1. Total yield, fruit weight, firmness, flavour, skin colour, shelf life at room temperature (20 °C) and the ripening season of 'Saint-Laurent d'Orléans' in comparison with 'Kent' and four other standard cultivars.

Genotype	Total yield (kg·ha ⁻¹)	Wt/ fruit (g) ^z	Firmness ^y	Flavor ^y	Skin color ^y	Shelf life at 20 °C ^x	Ripening season ^w
Saint-Laurent d'Orléans	15379	13.6	4.0	4.0	2.7	4.5	LM
Yamaska	12040	9.8	3.6	3.5	3.6	5.0	L
Mira	10372	10.7	2.7	1.8	2.0	1.0	LM
Honeoye	8899	9.5	3.2	2.2	3.9	2.0	M
Kent	7910	9.3	2.8	4.0	3.4	0.5	EM
Annapolis	6881	9.3	2.9	2.0	2.0	2.0	E
LSD0.05	3572	3.0	1.2	1.4	1.5	1.8	---

^zAverage of four replications from 1999–2003 harvests of second growing year (first harvest year), data taken from a 1-meter long representative portion of a 2 meter matted row (width 50 cm).

^yData were transformed to arcsin before analysis of variance (SAS Inst., 1988). Firmness: 1 = very soft, 5 = very firm; flavor: 1 = poor, 5 = excellent; skin color: 1 = very pale, 5 = dark red.

^xNumber of days at room temperature (20 °C) with >95% marketable.

^wRipening season: E = early, EM = early midseason, M = midseason, LM = late midseason, L = late. Designations are based on actual harvest dates.

azinobis(3-ethylbenzothiazoline-6-sulfonic acid (ABTS) cation radical-scavenging assay (Gao et al., 2000) showed high TEAC (Trolox Equivalent Antioxidant Capacity) levels in the crude and aqueous extract (242.5 and 248 µmol·mg⁻¹ dry weight, respectively), while the lipophilic extract (40.3 µmol·mg⁻¹ dry weight) showed the lowest capacity. The TEAC of all three extracts from 'Saint-Laurent d'Orléans' was higher than that reported for 'Kent' (Rekika et al., 2005). Relatively greater antioxidant levels (TEAC) and better shelf life were found in 'Saint-Laurent d'Orléans' fruit compared with 'Kent' (Rekika et al., 2005).

The phenolic compounds of various fruit have been widely shown to protect plant tissues against external stresses and contribute to disease resistance (Kalt et al., 1999; Mayr et al., 1997; Wang et al., 1994). These compounds may act as flavoring agents, colorants or antioxidants to extend shelf life and enhance preservation quality (Baldwin et al., 1995).

Area of Adaptation and Uses

'Saint-Laurent d'Orléans' is recommended for eastern-central Canada, especially in areas where the climate is similar to that in

the strawberry production areas of Quebec. Typically, strawberry production in Quebec occurs in areas with winter temperatures as low as -30 °C and warm, humid summers with an unpredictable mixture of sun and rain. 'Saint-Laurent d'Orléans' plant performance is good in both well-drained and poorly drained soils regardless of soil texture. The fruit is ideal for pick-your-own, fresh market, or shipping.

Availability

Canadian Plant Breeder's Rights were granted (Certificate 1554) and plants will be available from licensed nurseries in Quebec. Nonexclusive multiplication licenses can be obtained from Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, Quebec. European nurseries may obtain a multiplication license from Meiosis Ltd. (Bradbourne House, Stable Block, East Malling, Kent, UK ME19 6DZ). A limited number of plants are available for research purposes from the corresponding author.

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