

Three New Winter Hardy Strawberry Cultivars

'Harmonie', 'Saint-Laurent d'Orléans' and 'St-Jean d'Orléans'



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In collaboration with private partners three new June bearing strawberry cultivars (*Fragaria X ananassa* Duch.) bred for Eastern Central Canada and climates similar to Quebec conditions. 'Harmonie' was released because it has very attractive light red glossy fruit, which are very firm and have a shelf life of several days suitable for shipping. 'Harmonie', tested as APF9323-3, is a progeny resulting from a cross between 'Yamaska' and 'Joliette'. 'Saint-Laurent d'Orléans' was released because it has very firm, light red shiny fruit, it is resistant to leaf diseases, and its excellent shelf life. 'Saint-Laurent d'Orléans', tested as FIO9624-11, is a progeny resulting from a cross between L'Acadie and one of our advanced selections in 1996. 'St-Jean d'Orléans' was released because of its firmness, light red glossy fruit, resistant to leaf diseases, and its long shelf-life. 'St-Jean d'Orléans', tested as FIO9623-43, is a progeny resulting from a cross between 'Acadie' and 'Joliette' made in 1996. All the three released varieties can be obtained from Agriculture and Agri-Food Canada or from Meiosis Ltd. in Europe (Bradbourne House, Stable Block, East Malling, Kent ME19 6DZ) for evaluation and testing purposes.

'Harmonie' is a new June bearing strawberry cultivar (*Fragaria X ananassa* Duch.),

bred for Eastern Central Canada and climates similar to Quebec conditions. 'Harmonie' was released because it has very attractive light red glossy fruit, which are very firm and have a shelf life of several days. 'Harmonie' is therefore suitable for shipping.

Origin

'Harmonie', tested as APF9323-3, is a progeny resulting from a cross between 'Yamaska' (Khanizadeh et al. 1999) and 'Joliette' (Khanizadeh et al. 1996) made in 1993 by S. Khanizadeh. 'Harmonie' has been tested at the Agriculture and Agri-Food Canada (AAFC) sub-station in L'Acadie, Quebec since 1994, and during 1995-2002 by our partners Association des producteurs de fraises et framboises du Québec - (APFFQ) and Réseau d'Essais de Petits Fruits, CPVQ (Quebec Regional small fruit trials, Conseil des productions végétales du Québec) in Quebec. It has been also tested by other AAFC research centers (Atlantic Food and Horticulture Research Centre, Senator Hervé J. Michaud Research Farm 1045 St. Joseph Rd. Bouctouche NB), as well as in Ontario. 'Harmonie' is presently being tested in another AAFC research center (Manitoba) and also in Europe by Meiosis (Bradbourne House, Stable Block, East Malling, Kent ME19 6DZ).

Description and performance

Plants of 'Harmonie' are of medium vigor, have a flat growing habits, and produce about five inflorescences per crown. They can tolerate winter temperatures below -30°C with 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:width ratio and the flowers are perfect. 'Harmonie' produces attractive large, light red, shiny fruit. The fruit shape is globose-conic. The flesh is orange-red almost throughout and very firm. Fresh fruit store well for up to 5 days at room temperature.

'Harmonie' produces similar yield to 'Kent', 'Bounty' and 'Chambly' but lower than 'Joliette', 'Jewel', 'Veestar' and 'Glooscap'. 'Harmonie' is a late season cultivar and 50% of primary fruit are ripe by July 4 (same as 'Yamaska' at our substation in L'Acadie) and it is moderately susceptible to leaf spot and leaf scorch. No symptoms of powdery mildew (*Sphaerotheca macularis* Wallr. Ex Fr.) or gray mold (*Botrytis cinerea* Pers. Ex Fr.) have been noted since 1999. "Harmonie" has similar flavour to Bounty, Glooscap and Kent. The evaluation of antioxidant capacity of 'Harmonie', as measured by ABTS (2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)) radical cations scavenging assay and expressed as µmol/mg TEAC (Trolox Equivalent Antioxidant Capacity), shows high TEAC levels in the crude and aqueous extract (163.2 and 170.3 µmol/mg dry weight, respectively), while the lipophilic extract shows the lowest antioxidant capacity (4.68 µmol/mg).



'Saint-Laurent d'Orléans' is a new June bearing strawberry

cultivar (*Fragaria X ananassa* Duch.) bred for Eastern Central Canada and climates similar to Quebec conditions. 'Saint-Laurent d'Orléans' was released because it has very firm, light red shiny fruit, it is resistant to leaf diseases, and has an excellent shelf life. 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, and with a major emphasis in vegetable and strawberry production. This village is known as the capital of strawberry production in Quebec and is recognized for the high quality of its strawberry fruit.

Origin

'Saint-Laurent d'Orléans', tested as FIO9624-11, is a progeny resulting from a cross between L'Acadie (Khanizadeh et al. 1999) and one of our selections (SJ8916-1 x P. Panda), which was made in 1996 by S. Khanizadeh. 'Saint-Laurent d'Orléans' has been tested at the Agriculture and Agri-Food Canada sub-station in L'Acadie, Quebec since 1997, and in controlled semi-commercial sites by our private partner Les Fraises de l'Île d'Orléans in Ile d'Orléans, Quebec and also in Europe by Meiosis Ltd. (Bradbourne House, Stable Block, East Malling, Kent ME19 6DZ).

Description and performance

Plants of 'Saint-Laurent d'Orléans' are of medium vigor, have a flat globose growing habit, and produce 4-5 inflorescences per crown. They can tolerate winter temperatures below -30 °C with 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: width ratio and the flowers are perfect. 'Saint-Laurent d'Orléans' produces attractive and large red shiny fruit. The fruit shape is conic and globose conic. The flesh is medium to dark red almost throughout and firm. Fresh fruit store well for up to 4.5 days at room temperature.

'Saint-Laurent d'Orléans' produces higher yield and larger fruit size than 'Kent'. The fruit are also firmer, with lighter red skin color, and have longer shelf life at room temperature than 'Kent'. 'Saint-Laurent d'Orléans' is a late season cultivar. Fifty percent of primary fruit are ripe by July 4th at our substation in L'Acadie. Saint-Laurent d'Orléans' also demonstrated a higher degree of resistance to leaf diseases [scorch (*Diplocarpon earlina* Ell. & Ev.) and leaf spot (*Mycosphaerella fragariae* (Tul.) Lindau)], compared to Kent and also ranked as low susceptibility to verticillium (*Verticillium dahliae*) compared to 'Jewel' and 'Seascape' that ranked intermediate.



'St-Jean d'Orléans' is a new June bearing strawberry cultivar (*Fragaria*

X ananassa Duch.), bred for Eastern Central Canada and climates similar to Quebec conditions. 'St-Jean d'Orléans' was released because of its firmness, light red glossy fruit, resistant to leaf diseases, and long shelf-life. The selection is named after St-Jean d'Orléans, where the selection was tested on a controlled semi-commercial scale. The village of St-Jean d'Orléans is located on south-eastern side of l'Île d'Orléans, Quebec. It is an area with an horticultural economy with emphasis on vegetable and small fruit production. Formerly, this village was the host of the annual strawberry festival in July of each year to honor the new crop of strawberries.

Origin

'St-Jean d'Orléans', tested as FIO9623-43, is a progeny resulting from a cross between 'Acadie' and 'Joliette' made in 1996 by S. Khanizadeh. 'St-Jean d'Orléans' has been tested since 1997 at the Agriculture and Agri-Food Canada sub-station in L'Acadie, Quebec, in controlled semi-commercial sites by our private partner Les Fraises de l'Île d'Orléans in Ile d'Orléans, Quebec and in Europe by Meiosis Ltd. (Bradbourne House, Stable Block, East Malling, Kent ME19 6DZ).

Description and performance

Plants of 'St-Jean d'Orléans' are vigorous, have a flat growing habit, and produce 4-5 inflorescences per crown. They can tolerate winter temperatures below -30 °C with a 10 cm straw mulch cover. Petioles are short with three, medium to dark green, cupped and obtuse leaflets, with slightly acute teeth. The terminal leaflets have a 1.15-1.25 length:width ratio and the flowers are perfect. 'St-Jean d'Orléans' produces attractive and medium size, light red to red, shiny fruit. The fruit shape is mainly globose-conic. The flesh is light to medium red almost throughout and very firm. Fresh fruit store well for up to 4-5 days at room temperature, making it superior to 'Kent' for shipping.

'St-Jean d'Orléans' produces a higher yield than 'Kent'. 'St-Jean d'Orléans' is also firmer and has a longer shelf life than 'Kent', with similar flavor but lighter skin color. 'St-Jean d'Orléans' is an early-mid season cultivar. Fifty percent of the primary fruit ripen by June 27 which is similar to 'Kent' at our substation in L'Acadie and the production peak were reached on the same day as 'Kent'. It is less susceptible to leaf diseases, compared to Kent. Susceptibility to leaf scorch (*Diplocarpon earlina* Ell. & Ev.) and leaf spot (*Mycosphaerella fragariae* (Tul.) Lindau) was ranked as moderate to low in trial conducted since 1997.



Selected References:

- Khanizadeh, S., B. Thériault, O. Carisse and D. Buszard. 1999. AC-Yamaska Strawberry. HortScience 34(7):1286-1287.
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Additional information on Agriculture and Agri-Food Canada, National High value crop breeding program can be obtained from <http://www.pgris.com>, http://res2.agr.gc.ca/stjean/personnel/khanizadeh_e.htm or from the author Khanizadehs@agr.qc.ca

Area of adaptation and uses

The three new released cultivars are recommended for Eastern Central Canada, or 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 down to -30 °C and warm and humid summers with unpredictable mixture of sun and rain (drought some seasons, constant rain other seasons).

Availability

A patent is pending for 'Harmonie', 'St-Jean d'Orléans' and 'Saint-Laurent d'Orléans'. Plants are available from licensed nurseries in Quebec. Nonexclusive multiplication licenses can be obtained from Agriculture and Agri-Food Canada. European nurseries can obtain a multiplication license from Meiosis (Bradbourne House, Stable Block, East Malling, Kent ME19 6DZ). A limited number of plants are available for research purposes from the author (SK).