'SJM150' Apple Rootstock

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'SJM150' (St-Jean Morden 150) is a new rootstock resulting from a cross made in 1960 between *Malus baccata* 'Nertchinsk' and 'M.26' ('Malling 26' = M.16 × M.9). It is a new dwarfing apple rootstock developed at the Agriculture and Agri-Food Canada (AAFC) Research Station, St-Jean-sur-Richelieu, Quebec. It produces dwarf trees larger than 'Malling 9' (M.9) but smaller than 'Malling 26' (M.26). It was released because of its superior hardiness, ease of propagation, and similar to better efficiency and precocity compared with 'M.26' and 'M.9' in sandy loam soil (Khanizadeh et al., 2005). 'SJM150' produces very low or no suckers compared with 'M.9' and the same amount of burr knots compared with 'M.9' and 'M.26'.

'SJM150' was among the 56 hybrid seedlings of 'Nertchinsk' × 'M.26' to which 'McIntosh VC309' was budded in 1971 and planted in 1974 at Frelighsburg, Quebec, where it was evaluated until 1984 for hardiness, tree size, and efficiency (Granger et al., 1991) along with other semidwarfed SJP84 and SJM series (Khanizadeh et al., 2007). 'SJM150' was planted in 1997 in replicated trials in several plots at the Frelighsburg, Quebec, and L'Acadie, Quebec, substations and also at two grower sites (Khanizadeh et al., 2000, 2005).

Description of Self-rooted Trees

Own-rooted trees began flowering in L'Acadie, Quebec, on 14 May compared with 'M.26', which began flowering on 23 May. The color of the buds in full balloon stage is greenish white with a pattern of pink, pedicels are green on one side and red on the other, and flowers are single with an average of 4.7 cm diameter. Petals are overlapped, circular, and oblong, mainly white.

The mature leaves are medium size with length between 7.2 and 8.3 cm, width between 4.3 and 5.1 cm, and a length to width ratio of 1:6. The leaves are dark green and slightly glossy on the upper side and pubescent on the

lower side with an outward to downward orientation. Petioles are between 1.4 and 1.9 cm long and the shape of the apex is acuminate or cuspidate with serrated margins.

The reddish brown dormant 1-year-old shoot is 7.0 mm thick and the length of internodes at the middle third of the shoot is 21 mm with medium flexibility and numerous large numbers of lenticels.

Fruits are small (14 g), 2.7 to 3.6 cm in diameter, globose to flat-globose, symmetrical, and the ribbing is very weak (Fig. 1.). Fruit crowning is absent and the eye is medium size, closed open, and the calyx is persistent with medium length and overlap at the base. The basin is very shallow and the stalk is thin (0.9 to 1.9 mm), long (1.5 to 3.0 cm), and the cavity is shallow and narrow. The skin is smooth and entirely covered with a solid and faded pinkish red (RHS 46B-D) over a yellow ground color (RHS 4C-D), (Royal Horticultural Society, 1995) with a very little amount of russet around the stalk cavity. The lenticels are small to medium size and prominence and the fruit flesh is yellowish.

Propagation (Stool Bed)

'SJM150' produces the same amount of shoots per stool bed as 'Malling 26' (M.26). Average shoot diameter is 6.00 to 7.00 mm and length of shoots is on average 64 cm. Rooting efficiency is good and much better than 'M.26' and 'M.9' and root zone length and width are 23 cm and 34 cm, respectively.

Diseases and Pests

'SJM150' is resistant to woolly apple aphid (*Erisoma lanigerum*) and has similar

Fig. 1. Fruit of 'SJM150'.

susceptibility to the two races of *Erwinia amylovora* compared with 'M.26' ('Malling 26') but is less susceptible to four races of *Phytophthora cactorum* (Leb. & Cohn) Schroet. (Carisse and Khanizadeh, 2006; <http://www.cyberfruit.info/apple/apple-rootstocks/pdf/disease-susceptibility.pdf>).

Performance in the Orchard

The performance of 'SJM150' using 'McIntosh Summerland' as a scion has been monitored since 1997 in two commercial orchards located in Dunham and Mont-St-Grégoire, Quebec. 'SJM150' produced dwarf trees smaller than 'M.26' but larger than 'M.9'. The grafted trees on 'SJM150' have similar or better efficiency and precocity compared with 'M.26' and 'M.9' and produce very low or no suckers compared with 'M.9' (Khanizadeh et al., 2005).

Availability

A Canadian Plant Breeder's Right has been issued and limited quantities of indexed budwood are available for research purposes (universities and research stations) from Canadian Food Inspection Agency, Shahrokh Khanizadeh (North America) or from Meiosis (Europe) by written request. Interested nurseries may inquire about "nonexclusive licenses" directly from AAFC or Meiosis (<http://www.meiosis.co.uk>).

Literature Cited

- Carisse, O. and S. Khanizadeh. 2006. Relative resistance of newly released apple rootstocks to *Phytophthora cactorum*. Can. J. Plant Sci. 86:199–204.
- Granger, R.L., G.L. Rousselle, M. Meheriuk, and H.A. Quamme. 1991. Promising winter hardy apple rootstocks from a breeding program at Morden, Manitoba. Fruit Var. J. 45:185–187.
- Khanizadeh, S., Y. Groleau, J. Cousineau, R. Granger, and G. Rousselle. 2000. New hardy apple selections from the Quebec apple breeding program. Acta Hort. 538:715–718.
- Khanizadeh, S., Y. Groleau, A. Levasseur, O. Carisse, V. Toussaint, R. Granger, and G. Rousselle. 2008. 'SJM15' Apple Rootstock. International Journal of Fruit Science 7(3):27–31.
- Khanizadeh, S., Y. Groleau, A. Levasseur, R. Granger, G.L. Rousselle, and C. Davidson. 2005. Development and evaluation of St Jean-Morden apple rootstock series. HortScience 40:521–522.
- Royal Horticultural Society. 1995. Royal horticultural society color chart (RHS). Royal Horticultural Society, London, UK.

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