growing conditions and luxurious growth (irrigated subtropical desert). Thus no comments should be made on the ultimate degree of blind nodes in a clone and thus on the possible genetics. Blind nodes have definitely been selected against at Gainesville, i.e., the released cultivars have much less incidence than less advanced selections which are made in the fruiting nursery where amount of fruit set is meaningless.

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'Double Delight' Red Raspberry

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Abstract

'Double Delight' is a primocane-fruiting (fall bearing) red raspberry (*Rubus idaeus* ssp. *strigosus* (L.) Michx.) cultivar, developed by the Agriculture and Agri-Food Canada, Morden Research Centre (MRC) breeding program. This new cultivar is specifically adapted to colder prairie regions of Canada and northern USA. 'Double Delight' typically begins fruiting earlier than 'Redwing' or 'Heritage,' cultivars generally considered too late for commercial fall bearing production on the Canadian Prairies, and approximately 10 days later than 'Red River' a recent introduction from the MRC program. 'Double Delight' is intended to diversify commercial raspberry production since relatively few cultivars are suitable for the harsh prairie climates.

Origin

'Double Delight' originated from a cross between ['Fall Red' x native primocane-fruiting type (Cheyenne, Wyoming)] x [Fall Red x Boyne] in 1968. It was selected in 1978 and tested as MRS#8114 in replicated and unreplicated test plantings.

Description

The name 'Double Delight' was selected to reflect the tendency for twin fruit to form from the same flower. 'Double Delight' overall fruit quality was rated as very good in sensory evaluation tests (6 trained panelists). 'Double Delight' was rated above other primocane selections including 'Red River' on the basis of appearance and similar to 'Red River' for flavour. The average soluble solids content was 11.0 ± 1.2 Brix and the mean pH was 2.92 ± 0.2, based on replicated trials over two years. The fruit is sweet, tart and has a good "raspberry" flavour.

The medium red fruits are conical with a conspicuous rounded point, have medium brightness and are very attractive. The fruit retains size well throughout the major part of the harvest season. In studies conducted in Manitoba, mean fruit weight was 2.6 ± 0.2 g, nearly 1.0 g larger than 'Red River' (1). Fruit length and width averaged 1.8 ± 0.2 cm. The average number of drupelets per fruit was 92. Drupelets have good coherence and retain their shape fairly well in a basket.

'Double Delight' has relatively long, stout canes with sparse, short spines. The average number of spines on a 3

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cm section of stem was 27.7 ± 5.8. The green background colour predominates for much of the season. Red coloration is noticeable, particularly as the cane matures in the fall. In the fall, cane colour slowly changes from green near the base to red near the tip. Cane height varies from 1.0 m to 1.5 m at the test sites (average of 3 canes from each of 4 replicates). Cane diameter at 5 cm above ground averaged 1.1 cm while at 50 cm the average was 0.8 cm. A trellis may be required to support heavy fruit loads. Root suckering is moderate, with plantings established at 0.75 m spacing filling quickly. Lateral shoot length averaged 18.2 ± 4.3 cm for vegetative shoots and 11.7 ± 3.6 cm for those bearing fruit. The average distance between laterals was 6.2 ± 1.05 cm with an average of 18.6 ± 2.3 laterals per cane.

Anthracnose [*Elsinoe veneta* (Burkholder) Jenk.] was rarely observed in 'Double Delight.' In fall bearing cultivars, this disease is not a common problem due to annual mowing. Field observation and virus indexing indicated no infection by known common raspberry viruses.

Performance

In 1987, a replicated yield trial was established at four locations (Morden, Souris, St. Adolphe and Portage la Prairie) in southern Manitoba (1). All sites except Morden were located on commercial farms. The Morden site was located at the Morden Research Centre (MRC). The trial was also established at a site east of Winnipeg (Richer) but was abandoned due to poor establishment and performance. At this site, late summer frosts (Aug 12-15) damaged or killed blossoms.

'Double Delight' was compared with one other primocane selection (MRS-#8001) and one other cultivar ('Red River') from the MRC breeding program. 'Fall Red' was initially planted for comparison with the fall bearing types. This cultivar failed to survive the first winter. In the spring of the second year, 'Heritage' was used as a replacement. 'Heritage' failed to produce ripe fruit at any location during the remainder of the test because fall frosts occurred too early, causing fruit loss.

'Double Delight' ripened approximately ten days later than 'Red River,' with the average first harvest occurring on August 25 (ranging from August 20-28). Maximum fruit harvest usually occurred within 4 weeks of the first harvest. Fruit yield averaged 1.22 kg m^{-1} over all the sites (1). Harvests were conducted weekly, thus yield estimates may be low. Highest yields were recorded at MRC (1.9 kg m^{-1}) where the growing season is typically longer than at other test sites. The impact of varying cane densities on fruit yields have been investigated (2). Low cane densities (6 m^{-1}) generally resulted in fruit yield increases. Areas with a known high risk of fall frosts should test this cultivar prior to establishing large scale plantings.

'Double Delight' had slightly fewer reproductive laterals than 'Red River' (10.9 and 13.0, respectively) and higher numbers of vegetative laterals (4.7 and 2.5, respectively) (1). Numbers of fruit per cane were similar (50 fruit). Flowers per cane (138 ± 14.3) or flowers per lateral (8.3 ± 1.9) were not significantly different ($P = 0.45$).

Hardiness

Field-planting trials suggest that 'Double Delight' is hardy to at least USDA zone 3. In areas with good snow cover, plantings could be extended into even colder regions; however, reduced yields may occur due to early fall frosts. General observations suggest that ripe and ripening berries can withstand temperatures of approximately -5°C before being injured.

Availability

'Double Delight' is propagated by tissue culture procedures by Prairie Plant Systems (108-106 Research Drive, Saskatoon, SK, Canada, S7N 3R3) and by traditional procedures by Jeffries Nurseries Ltd. (P.O. Box 402, Portage la Prairie, MB, Canada, R1N 3B7) under a royalty agreement. Limited number of plants are available for research purposes from C. G. Davidson.

Acknowledgements

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'Souris' Red Raspberry

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Abstract

'Souris' is a floricane-fruiting (summer-bearing type) red raspberry (*Rubus idaeus* ssp. *strigosus* Michx.) cultivar, developed by the Agriculture and Agri-Food Canada, Morden Research Centre breeding program. This new cultivar is specifically adapted to colder growing regions of the northern USA and southern Canada. 'Souris' has good berry quality and yield potential.

Origin

'Souris' originated from a cross between 'Asker' and 'Boyne' made in the mid-1960's and subsequently selected and identified as MRS#1x8. Since the original selection was made, several nonreplicated and replicated test plantings have been established to help determine both yield potential and quality characteristics of this clone.

Description

This new cultivar was named after the river and town of Souris, Manitoba, where one of the test sites was located. 'Souris' has very good fruit qualities. Berries are hemispherical in shape. In similarly sized berries, numbers of drupelets per fruit was lower in 'Souris' than 'Boyne' hence drupelet size was larger. Mean berry weight was 2.52 ± .29 gm. Mean berry length and diameter was 1.7 ± 0.2 cm. Soluble re high solids a(13.3 Brix) and pH is relatively low (pH = 2.98).

In sensory panel evaluations (6 trained panelists), 'Souris' is rated superior to 'Boyne' and the other 2 selections for fresh flavour and similar in appearance over a three year period. 'Boyne' was rated slightly higher in flavour scores when frozen berries were used. 'Souris' fruit is sweet and tart with excellent "raspberry" flavour. Dates of initiation of fruit harvest was similar to 'Boyne'; however, the time to ¾ complete harvest for 'Souris' was shorter by an average of 4 days.

'Souris' had fewer (18.8 ± 4.7 per cm of stem) short spines than 'Boyne' (39.6 ± 8.6 per cm of stem). Cane height ranged from 0.9 m to 1.8 m at the test sites, with a mean of 1.5 ± 0.3 m or slightly shorter than 'Boyne.' Cane diameter at 5 cm was 1.5 ± 0.3 cm and at 50 cm was 1.0 ± 0.2 cm. Cane diameter at the lowest fruiting lateral was 1.1 cm. Trellis support was not

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