

'Red Centre' Fresh-market Tomato

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'Red Centre' is a semi-determinate, red-fruited, fresh-market tomato (*Lycopersicon esculentum* Mill.) developed at the Gosford Horticultural Research & Advisory Station, New South Wales, Australia, and released by the NSW Agriculture & Fisheries in 1990 for vine-ripe harvest. 'Red Centre' may be grown on trellises, stakes, or on the ground. It produces firm, smooth, globe-shaped fruits that have a long storage life and good quality. 'Red Centre' is resistant to major diseases found on the east coast of Australia.

Origin

'Red Centre' is the cultivar name for HRAS 87-70, an *F₁* hybrid from the cross of 'Summit' (Gardner, 1985) × 795054-1 (J.W. Scott, personal communication). 'Summit', which was released by the North Carolina State Univ., Raleigh, is the source of resistance to races 1 and 2 of *Fusarium oxysporum* f.sp. *lycopersici* (I and I-2 genes), and strain 1 of *Verticillium dahliae* (Ve gene). Line 795054-1 originated from the Univ. of Florida, East Bradenton, carries the ripening inhibitor (*rin*) mutant. This is the source for long shelf life.

Description

'Red Centre' is a semi-determinate cultivar with heavy foliage cover and average height of 1.2 to 1.4 m in trellised systems. With on-ground cropping systems, foliage spreads to 1.2 m, producing fruit with very good protection from solar injury. 'Red Centre' performed well in the trials established by NSW Agriculture & Fisheries and the Victorian Dept. of Agriculture and Rural Affairs. Its yields were similar to those for 'Flora-Dade' in most cases (Table 1) and the proportion of large- and medium-sized fruits was ≈ 85% in both trellised and on-ground cropping systems (Table 2). The fruits are smooth, multilocular, globe-shaped with green shoulders, have jointless pedicels (*j-2* gene) and are red at maturity (Fig. 1). There were no significant differences between the degree

of redness developed by 'Red Centre' and 'Flora-Dade'. However, the special characteristics of 'Red Centre' are its firmness and long storage life. Fruits ripen slowly to red

in 7 days and then retain their firmness and storage life longer than other cultivars tested, e.g., 'Red Centre' fruits were significantly firmer than 'Flora-Dade' when harvested fully ripe (1.08 vs. 0.95 mm compression) and had a storage life of 40 days at 20C, ≈ 10 days longer than 'Flora-Dade' (Nguyen et al., 1991). Fruit may, therefore, be harvested at the breaker stage or fully ripe without loss of firmness. The flavor of 'Red Centre' fruits compared favorably with 'Flora-Dade' (Nguyen et al., 1991). Harvesting of vine-ripe fruit would eliminate the need to use ethylene to ripen fruit harvested mature-

Table 1. Marketable yield and fruit characteristics of 'Red Centre' tomato grown on trellises at Somersby, NSW, and on the ground at Tatura, Victoria, during 1987-89.¹

Cultivar	Marketable yield (t·ha ⁻¹) ²		Firmness (compression, mm) ³		Total soluble solids (°Brix)		Titratable acidity (ml 0.1 N-NaOH juice)	
	1987-88	1988-89	1987-88	1988-89	1987-88	1988-89	1987-88	1988-89
	<i>Somersby</i>							
Flora-Dade	80 a	89 a	1.3 a	1.0 a	3.0 b	4.4 a	6.1 a	6.4 a
Red Centre	75 a	78 a	1.1 b	1.0 a	4.0 a	4.2 a	5.4 a	4.9 b
	<i>Tatura</i>							
Flora-Dade	79 b	54 a	1.7 b	1.5 a	4.9 a	4.5 b	5.0 a	5.5 a
Red Centre	106 a	58 a	1.1 a	1.4 a	4.4 a	5.3 a	3.4 b	5.4 a

¹Mean separation within columns and locations, by F test, *P* = 0.05.

²Total of eight (Somersby) and three (Tatura) harvests.

³The method used for determining firmness, total soluble solids concentration, and titratable acidity was described by Sumeghy et al. (1983). Smaller values indicate firmer fruits.

Table 2. Size distribution of tomato fruits grown by trellised (Somersby, NSW, 1988-89) and on-ground (Tatura, Victoria, 1987-88) cropping systems.

Cultivar	Fruit size distribution ^{2,3} (%)					
	Large		Medium		Small	
	Trellis	Ground	Trellis	Ground	Trellis	Ground
Flora-Dade	2 a	14 a	78 a	58 a	20 a	28 a
Red Centre	4 a	19 a	81 a	67 a	15 b	14 b

²Mean separation within column, by F test, *P* = 0.05.

³Large: ≥80 mm; medium: 60-79 mm; small: 45-59 mm in diameter.

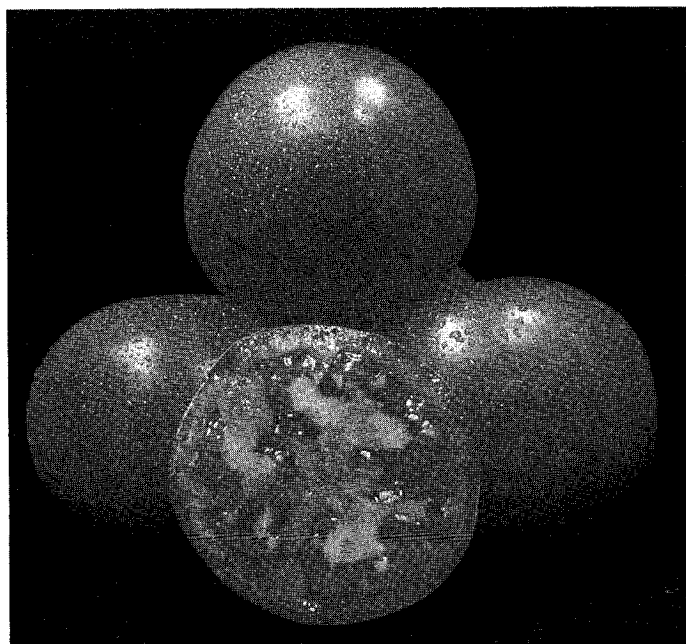


Fig. 1. Fruit of 'Red Centre' tomato.

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green, which may reduce their quality (Bisogni et al., 1976; McGlasson, 1989). The long storage life and degree of firmness of 'Red Centre' should permit successful transport by sea from eastern Australia to Southeast Asian markets. Tomatoes for these markets need a storage life of at least 4 weeks to ensure that fruit arrive at their destination in excellent condition. 'Red Centre' is mid-season in maturity. When harvested at the vine-ripe stage, it ripens about with 'Flora-Dade', and slightly later than 'Sunny'.

'Red Centre' is resistant to fusarium wilt races 1 and 2 and Verticillium wilt strain 1.

Availability

Commercial seed of 'Red Centre' is available from New World Seeds Pty. Ltd., P.O. Box 18, Dural, NSW 2158 Australia. Small samples for trial and breeding purposes may be obtained from the author.

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