

Freda: A New Tomato Parthenocarpic Hybrid

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Auxin is commonly applied to facilitate fruit setting in tomato (*Lycopersicon esculentum* Mill.) grown during winter-spring on the Mediterranean coast. However, fruit quality is lost (puffiness, pointed blossom ends, etc.) with the use of auxin.

'Freda' is a commercial, fresh-market hybrid for winter growing and is suitable either for open field or greenhouse. 'Freda' is able to set seedless fruits at low temperatures without hormone applications.

Origin

'Severianin' (*L. esculentum* Mill.) was the source of parthenocarpy (Fig. 1). The genetic system that controls parthenocarpy of 'Severianin' is not clear. Some authors propose that parthenocarpy is conditioned by a

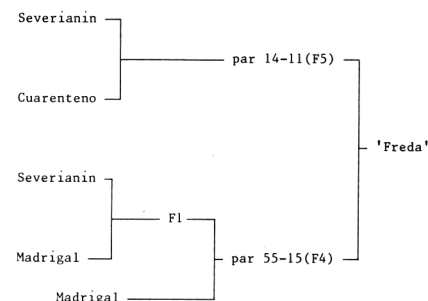


Fig. 1. Pedigree of 'Freda'.

simple recessive gene (pat-2) (Nuez, 1986; Philouze and Maissonneuve, 1978) while other research supports a two recessive-gene model consisting of one major (pat-2) and one minor gene (mp) (Vardy, 1985).

'Cuarenteno' and 'Madrigal' are widely grown in southeastern Spain. They show an excellent adaptation to cultivation under this environment and produce medium to large fruits. Fruit equatorial diameter and fruit weight averages are, respectively, 7.8 cm and 260 g for 'Madrigal' and 6.3 cm and 110 g for 'Cuarenteno'.

Table 1. Comparative early (until 148 days after transplanting) and total yield, fruit weight average, and percentage of seedless fruits during winter-spring in southeastern Spain. ('Carpy' is a commercial parthenocarpic hybrid. 'Carmelo' and 'Vemone' are conventional and commercial hybrids.)

Cultivar	Yield (kg·m ⁻²)		Fruit wt (g)	Seedless fruits (%)	
	Early	Total		Early	Total
Freda	2.6	12.8	144	93.0	53.3
Carpy	2.9	13.2	99	89.7	52.0
Carmelo	0.6	10.2	105	0	0
Vemone	1.0	16.2	66	0	0

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Fig. 2. Fruits of 'Freda'.

Selection for parthenocarpy was done in a greenhouse during the coldest period of the year, when minima averaged 5.1C and maxima 23C.

Description

Plant habit of 'Freda' is indeterminate. Fruits are red-orange when ripe, slightly

ribbed, have dark green shoulders, and are oblate (Fig. 2). The average fruit weight was 144 g. The production was $\approx 13 \text{ kg}\cdot\text{m}^{-2}$ in winter without hormone treatment and 50% of the production was seedless fruit (Table 1).

Availability

'Freda' has been registered in the Instituto Nacional de Semillas y Plantas de Vivero of Spain. A limited amount of seed stock will be available from J.C.

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