

# 'Selene' Apricot

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'Selene' is a midseason ripening apricot cultivar (*Prunus armeniaca* L.) with high productivity, good fruit quality and an attractive large orange fruit suitable for the European markets. This cultivar is adapted to the climatic conditions in the Southeast of Spain. It has some resistance to sharka disease, showing only weak symptoms when challenged with a strong inoculation pressure. 'Selene' is self-compatible and possesses a high degree of autogamy. 'Selene' fruit are free stone with a light orange skin color and a deep orange flesh color that make them very attractive.

## ORIGIN

'Selene' resulted from a cross made in 1995 at Murcia, Spain, between the North American cultivar 'Goldrich' (Washington State University) and the breeding selection 'A2564' (Screara x Stark Early Orange) (Institut National de la Recherche Agronomique, Avignon, France) (Fig. 1). The major objective of the apricot breeding program at CEBAS-CSIC in Murcia is to develop new, good fruit quality, sharka-resistant cultivars to replace traditional cultivars in the areas affected by this viral disease (Egea et al., 1999).

## DESCRIPTION

### Tree characteristics

*Tree description.* 'Selene' was originally selected as a seedling tree on its own roots and then grafted onto apricot seedlings (3 repetitions) and studied five consecutive years. Trees of 'Selene' are large and very vigorous with a moderate spread. 'Selene' has a high density of flower buds (28.9 flowers/cm<sup>2</sup> of shoots) mainly localized on fruiting spurs of 2-year-old branches (Table 1). 'Selene' is characterized by large fruit with high productivity in comparison with traditional Spanish apricot cultivars. Tree architecture greatly facilitates pruning (reduced branching habit).

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*PPV resistance.* Sharka disease caused by the plum pox virus (PPV) is a serious limiting factor for temperate fruit production in those areas that are affected (Kölber, 2001). All apricot cultivars traditionally grown in Europe are susceptible to this disease (Martínez-Gómez et al., 2000), while several cultivars from North America, such as 'Goldrich', 'Sunglo' and 'Stark Early Orange', showed resistance to PPV and are frequently used as parents in breeding programs (Egea et al., 1999). Evaluation of PPV resistance in controlled greenhouse conditions (Martínez-Gómez and Dicenta, 1999) for three cycles of study, showed the resistance of the three studied replications of 'Selene' to PPV Dideron-type isolates. However, when grafted onto a very diseased old tree, weak sharka symptoms were observed.

*Time of bloom.* 'Selene' has medium-high chilling requirements for breaking dormancy, ≈1,100 chill units (Richardson et al., 1974). Under our experimental conditions in Murcia (South East of Spain, 37° N latitude, 1° W longitude, and 450 m altitude) 'Selene' full bloom occurred ≈7 Mar., a medium flowering date among traditional Spanish apricot cultivars (Table 1).

*Self-compatibility and autogamy.* The self-

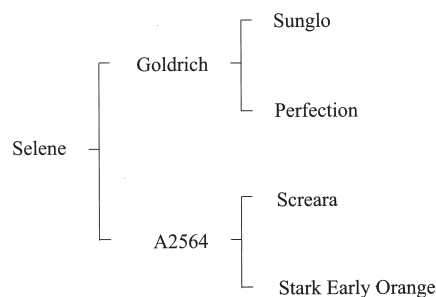


Fig. 1. Pedigree of 'Selene' apricot.

Table 1. Comparative analysis of tree and fruit characteristics of 'Selene', the Spanish cultivar 'Búlida', the French cultivar 'Bergeron' and the North American cultivar 'Orange Red'.

Characteristic	'Selene'	'Búlida'	'Bergeron'	'Orange Red'
<b>Tree</b>				
Vigor	Very vigorous	Very vigorous	Very vigorous	Vigorous
Flower density (flower/cm <sup>2</sup> )	28.9	42.0	31.1	5.1
Flowering date (full bloom)	7 Mar.	8 Mar.	13 Mar.	15 Mar.
Fruit set (%)	44.7	31.6	39.4	13.6
Yield	Very high	High	High	Medium
<b>Fruit</b>				
Ripening date	8 June	26 May	19 June	28 May
Fruit size (g)	64.7	59.8	70.7	61.0
Attractiveness	7.5	6.7	7.2	9.0
Sugar (°Brix)	13.33	10.62	11.90	14.22
Acidity <sup>z</sup>	2.45	1.29	1.73	1.23

<sup>z</sup>Titrateable acidity expressed as grams malic acid per 100 mL.

compatibility of this cultivar was demonstrated in the field (by bagging branches) and in the laboratory (by observing pollen tube growth in five flowers). The natural autogamy of 'Selene' was assessed by bagging branches just prior to anthesis and recording the fruit set. Fruit set percentage averaged 44.7% ± 1% over 3 years.

## Fruit characteristics

*Fruit size, firmness and color.* Fruit harvested from the original own-rooted seedling tree and from trees of 'Selene' grafted onto apricot seedlings (three replications) were studied over three years. 'Selene' bears large and globose fruit with an average weight of ≈65 g, an axial diameter of 5.1 cm, a transverse diameter in suture plane of 4.7 cm, and a transverse diameter at right to suture plane of 5.4 cm (Fig. 2). 'Selene' fruit are also characterized as firm (2.39 kg·cm<sup>-2</sup>) with low skin cracking, and a free stone without pit burning problems. Fruit have light orange skin color (color space coordinates L\* = 70.28, a\* = 15.90, b\* = 46.50, in mchromatometer (model CR-300; Minolta, Ramsey, N.J.) with a deep orange flesh color (color space coordinates L\* = 69.34, a\* = 17.93, b\* = 53.32). The attractiveness of 'Selene' fruit by subjective evaluation of four people reached 7.5 in a scale between 0 and 10 (Table 1).

*Organoleptic characteristics.* At the commercial-maturity stage 'Selene' fruit are moderately sweet (13.3 °Brix on average) with an intermediate acidity (2.45 g malic acid/100 mL on average) and good eating quality (Table 1). 'Selene' fruit have a light apricot aroma.

*Maturation time.* Fruit of 'Selene' mature uniformly. In our experimental conditions in Murcia, 'Selene' matures ≈8 Jun., 10 d later than the North American cultivar 'Orange Red'. This cultivar showed an intermediate maturation in comparison with the traditional Spanish apricot cultivars (Table 1).

## Molecular characterization

*Simple Sequence Repeat (SSR) analysis.* Eleven SSR markers previously developed in peach were screened for polymorphism of 'Selene' apricot DNA. The DNA fingerprints of 'Selene' and its progenitors 'Goldrich' and 'A2564' are shown in Table 2. UDP96005, UDP96018 and UDP98411 SSR markers were able to distinguish 'Selene' and its progenitors.

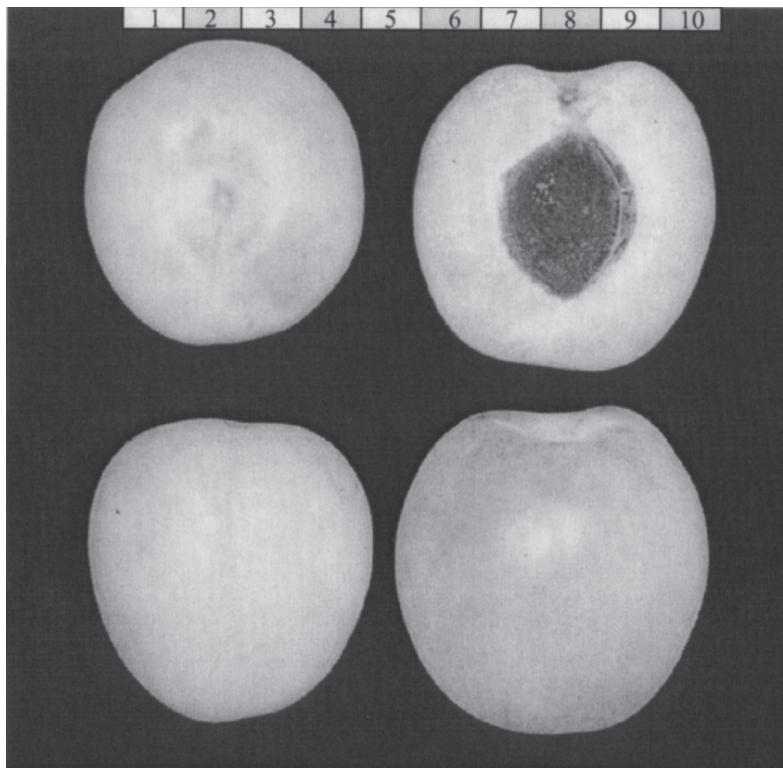


Fig. 2. Fruit of 'Selene' apricot. Scale bar in centimeters.

Table 2. Molecular characterization of 'Selene' apricot cultivar and its parents 'Goldrich' and 'A2564' using peach simple sequence repeat (SSR) markers.

SSR marker	Reference	Size of amplified bands (bp)		
		'Selene'	'Goldrich'	'A2564'
BPPCT 017	Dirlewanger et al., 2002	191/212	191/212	191/212
BPPCT 020	Dirlewanger et al., 2002	121/121	121/121	121/121
BPPCT 006	Dirlewanger et al., 2002	76/76	76/76	76/76
UDP 96003	Cipriani et al., 1999	115/115	93/115	115/115
UDP 96005	Cipriani et al., 1999	117/124	82/124	100/117
UDP 96018	Cipriani et al., 1999	242/242	242/282	242/282
UDP 96019	Cipriani et al., 1999	170/214	170/214	170/214
UDP 98406	Cipriani et al., 1999	95/100	95/100	95/95
UDP 98409	Cipriani et al., 1999	124/124	124/138	124/124
UDP 98411	Testolin et al., 2000	160/164	154/164	160/160
UDP 98412	Testolin et al., 2000	103/114	103/114	103/114

## AVAILABILITY

Virus-free budwood is available from CEBAS-CSIC (Spain). This cultivar is registered in the European Union Community Plant Variety Office with the registration number 2002/2176. Budwood has been tested and is free of the following viruses: prunus necrotic ring spot virus (PNRSV), apple mosaic virus (ApMV), apple chlorotic leaf spot virus (ACLSV), prune dwarf virus (PDV) and plum pox virus (PPV).

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