Table 3. Plant growth, mildew attack and runner production, av. 1994-1995.

	Plant growth	Openness	Mildew	Amount of runners
Zefyr	2.5	2.3	3.3	many
Avanta	3.0	3.3	3.7	few
Elsanta	3.0	3.0	2.0	medium
Onebor	3.0	3.0	1.3	medium
Honeoye	3.3	3.8	1.3	many
Rhapsody	3.3	3.0	2.0	medium
Pegasus	3.8	2.8	1.7	medium
Pandora	4.0	3.0	0.7	many
Dania	4.5	3.3	0.3	many
1 =	Weak	Dense	Little	
3 =	Medium	Medium	Medium	
5 =	Strong	Open	Much	

bor' (syn. 'Marmolada') could be grown as a productive mid season variety with a medium quality compared to 'Elsanta' which had a lower yield but still seems without competition with its attractive bright and glossy appearance. 'Dania,' 'Pegasus' and 'Rhapsody' are late varieties with medium quality. The latter is somewhat low in yield. 'Dania' was the best late cultivar. 'Pandora' extends the picking season beyond 'Dania,' and has a high yield potential and medium quality. This variety needs attention on the pollination problem.

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'Leonense,' a Dual Purpose Peach Cultivar, Adapted to Southern Brazil

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The cultivar 'Leonense' has been released to provide the growers an option for commercialization in fresh market or industry. Besides it makes possible to produce better quality fruits, at lower cost, since this cultivar does not need to be sprayed for controlling bacterial leaf spot, caused by *Xanthomonas arboricola* pv. *pruni* (Smith, 1903; Vauterin, Hoete, Kersters & Swings, 1995).

In peaches, as in any crop, the price paid in the fresh market is higher than the one obtained for fruits for processing. However, there are years when production is greater than the fresh market demand and the grower needs to sell his fruits for the processing industry. Thus it is important to have dual purpose cultivars. On the other hand, it has good resistance to bacterial leaf spot one of the main disease problems in Southern Brazil.

Origin

'Leonense' was selected among the second generation seedlings of a cross between a Brazilian cultivar, 'Brilhante,' and the American selection NJC97 (Fig. 1). 'Brilhante,' now obsolete, originated from a cross between 'Convênio,' a non melting, good quality peach, and the selection Pelotas 77 originated came from a cross of an open pollination of 'Cardeal,' a yellow, melting flesh peach for fresh market and 'Aldrighi,' an old local culti-

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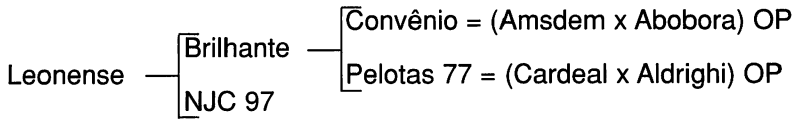

Figure 1: Genealogy of 'Leonense.'

var. Selection NJC 97 originated from the breeding program of Rutgers University, New Jersey, and produces clingstone fruits with nonmelting , yellow flesh.

The cultivar 'Leonense' was tested under the selection number of Conserva 877.

Table 1: Comparative data on lesion size, 72 hours after fruit inoculation with *Monilinia fructicola,* under controlled conditions, between the cultivars Leonense and Diamante. CPACT, 1997.

Cultivar	Lesion diameter in cm.**	Nº spores ml of suspension**
Diamante	5.7	779840
Bolinha*	4.0	314000
Leonense	5.2	621280

*Presently, the standard for resistance, in local experiments.
**Average of 30 observations.

Description

Plant: The plant of 'Leonense' is vigorous with semi-vertical growth pattern, dense canopy and has 11 to 13 flower bud pairs per each 25cm of twig length.

The field incidence of brown rot in fruits is low, however the inoculation with *Monilinia fructicola* (G. Wint) Honey, under controlled conditions (1) showed that 'Leonense' fruits are less susceptible than 'Diamante,' one of the main processing peach cultivars, in Southern Brazil (Table 1).

Table 2: Disease index , based on affected leaf area of a sample, and index defoliation of the whole plant, inoculated with *Xanthomonas campestris* pv. *pruni,* under greenhouse conditions, CPACT, 1995.[1]

Cultivar	Disease index[2]	Index of defoliation[3]
BR 4**	3.14	2.72
Norman*	1.49	1.00
Leonense	2.12	1.55

*Standard of resistance.
**Standard of susceptibility.
[1]Data on BLS reaction are based in the innoculation of a single vegetative cycle, and should be repeated. However, the behaviour under field conditions, over more than three years, is compatible with these results.
[2]Scale based on the percentage of affected leaf area, where: 1 = 0 to 2%, 2 = 2 to 6%, 3 = 6 to 12%, 4 = 12 to 15% and 5 = over 15%.
[3]Scale based on the percentage of defoliation, where: 1 = 0 to10%, 2 = 10 to 25%, 3 = 25 to 40%, 4 = 40 to 55% and 5 = over 55% defoliation.

Leaves of 'Leonense' are resistant to *Xanthomonas arboricola* pv. *pruni* under field conditions as well as greenhouse conditions, at similar level to the American cultivar 'Norman,' considered the resistance standard in the experiments (Table 2). The inoculation procedure was the same as described by Martins and Raseira (2).

The average production of 'Leonense' is around 20 tons per hectare and the chill-

Table 3. Phenology and production data obtained in plants of 'Leonense' at CPACT.

Year	Leafing	Full bloom	Harvest	Product in kg/pl	Avg. weight g/fruit	Soluble solids(Brix)	Fruit diameter
1993	11 Jul.	13 Aug.	22 Dec.	14.4	130	10.4°	
1994	22 Aug.	20 Aug.	19 Dec.	*	120		
1995	27 Jul.	28 Jul.	04 Dec.	17.0	139	13.0°	5.8-7.2cm
1996	28 Jul.	01 Aug.	10/12	49.0	98	14.4°	5.5-6.2cm

*Year of general low peach production, due to unusual weather conditions.

ing requirement is about 250 to 350 hours, based on comparison to known standards.

Fruit: Fruits are round to conic, with a slight bulge at the suture, diameter averages 5.5 to 7.2 cm and average weigh is around 120g.

The skin is 25% attractive red with a yellow ground color.

The flesh is golden yellow, clingstone, firm, with good flavor, and a good balance between acidity and sugar. The soluble solids are usually between 12° and 15° Brix and the pH averages 3.6.

Flowering: Flowers are showy and full bloom occurs about mid August, usually 5 days before 'Diamante' (Table 3). The pollen is fertil, usually over 50% in vitro germination (in 10% sucrose and 1% agar media).

Harvest: Harvest is generally in the second half of December, about 120 days after full bloom (Table 3).

Availability: Limited number of scions and budwood are available at the EMBRAPA/CPACT, P.O. Box 403, Pelotas, RS, Brazil, 96001-970.

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Blueberry Cultivar Evaluation on a High pH Site in Missouri

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Abstract

'Bluecrop,' 'Bluejay,' 'Blueray,' 'Berkeley,' 'Collins,' 'Coville,' 'Earliblue,' 'Elliott,' 'Lateblue,' 'Northblue' (half-high), 'Northland,' 'Patriot,' 'Pertic Blue' and 'Spartan' highbush blueberry cultivars were evaluated in south central Missouri during the 1990-1994 seasons. The planting site was a high pH, silt loam, low organic matter soil that was amended with sulfur to lower pH. Plant spacing was 1.2 by 3.0 m on bermed, drip irrigated, shredded hardwood bark mulched rows. Soil pH increased from 5.6 to 7.0 during the trial due to alkaline irrigation water and high exchangeable calcium in the soil. Acidified irrigation water and weekly fertigation gave acceptable growth of some cultivars. 'Earliblue' (early), 'Berkeley,' 'Bluecrop' and 'Northland' (midseason), and 'Coville' and 'Lateblue' (late) were best adapted to this site and these cultural practices.

Introduction

Highbush blueberries are generally grown in soils that are naturally acidic (pH 3.5-5.5), light texture (sandy loam), and high in organic matter (3-20%) (5). An exception to this is in the Ozark region of northern Arkansas, southern Missouri, and northeastern Oklahoma where they are grown in soils that have higher pH, high silt and clay content, and low organic matter. A standard recommendation for Missouri is that soils in the Ozark region with a natural pH above 6.5 should not be planted to blueberries, those with pH of 5.6 to 6.4 are acceptable if amended to lower pH, while those below 5.5 are most desirable (1,4). Successful blueberry production in soils with pH above 5.5 and even 6.0 has been reported, but much more intensive management is required in these plantings (3). A highbush blueberry cultivar trial was established in 1986 at Mountain Grove in south central Missouri on a site with high pH that was initially

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