The First Peach Cultivars Protected in Brazil

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Abstract

Although peach breeding programs in Brazil date back to the 1950s all cultivars released were public domain and there has not been any type of plant patent, royalties or similar, until 1997. Since that year all new cultivars may be protected. The main reason for the protection was the need to organize the propagation chain, once nurseries now need the certificate of origin, for all protected cultivars and only the licensee ones can have it. The first peach cultivars protected, in Brazil, were ‘BRS Kampai’, ‘BRS Libra’, released in 2009, and ‘BRS Regalo’ and ‘BRS Fascínio’, released in 2012. Except ‘BRS Libra’, all others are table cultivars. All four were obtained by Embrapa Clima Temperado through hybridization, using traditional breeding methods. ‘BRS Libra’ is the earliest non melting cultivar and is a very low chilling, estimated in less than 150 hours. The cultivars ‘BRS Kampai’, ‘BRS Regalo’ and ‘BRS Fascínio’ produce low acid white flesh fruits, and are being planted under the subtropical climate condition as well as in the temperate zone. ‘BRS Kampai’ is the earliest one, ripening in mid-November in the south, and at the second half of October in the southeast areas. The harvest of ‘BRS Regalo’ and ‘BRS Fascínio’ differs only a few days from each other, being at end of November in the Southeast, and 15 to 20 days later in Southern Brazil. A description of the four cultivars will be provided. Growers from six different Brazilian states have been participating in testing and evaluating the material before releasing, under a non-propagation agreement. This procedure has been rewarding and gave a lot more confidence on the results. Once a new variety and the mother plants were registered and the protection process had begun, a call for nurseries interested in propagating them was published.

INTRODUCTION

Peach breeding in Brazil started, by the end of the 1950s, with a priority in developing cultivars adapted to warm winters and with different harvest periods in order to spread the season. Over the years, other objectives were added to these ones including fruit appearance and quality, high productivity, flesh flavor, disease resistance, and novelties (Feliciano et al., 1999; Raseira et al., 2008). The main peach breeding programs in Brazil are located in São Paulo, carried on by the Instituto Agronômico de Campinas, and in Pelotas, Rio Grande do Sul state, conducted by Embrapa Clima Temperado. Other newer programs are in Santa Catarina and Paraná. Close to one hundred per cent of the processing industry relies on cultivars developed by Embrapa Clima Temperado. For fresh market, over 30 cultivars were released and at least 10 of them are still being planted commercially. There was no peach cultivar protected in Brazil, until 1997. Although since that year all new cultivars may be protected under the Protection Cultivars Law (nr. 9456/1997, in accordance with the UPOV, 1978 Act), in fact, peach cultivars only could be officially protected since 2008, when forms and official descriptors were published. In 2009, the first two cultivars were protected, and in 2012, two more had the same process. The four cultivars are: ‘BRS Kampai’, ‘BRS Regalo’ and ‘BRS Fascínio’, which are table cultivars, and ‘BRS Libra’, a processing type peach.

MATERIALS AND METHODS

The four protected cultivars were obtained by hybridization, as most of the released varieties all over the world (Fideghelli et al., 1997). Once a selection was made, a few plants
were propagated by budding and planted in the Embrapa’s collection for comparison with other selections and especially, with commercial varieties that ripe on the same period. After they were observed for a couple of cycles, more plants were propagated to be observed in other areas, with the cooperation of other research institutions and growers, under a non-propagated agreement. The four cultivars described below were results of this system.

‘BRS Libra’ was released in 2007. It was obtained from a cross, made in 1995, between a selection Conserva 594 and a low chill processing cultivar ‘Pepita’ (Raseira et al., 2010a). ‘Conserva 594’ originated by open pollination of two old cultivars (‘Capdeboseq’ and ‘Madrugador’) whereas, ‘Pepita’ originated from open pollination of ‘Precocinho’ (Fig. 1).

‘BRS Kampai’ originated from a cross between ‘Chimarrita’ and ‘Flordaprince’ (Raseira et al., 2010b). ‘Chimarrita’ also originated from Embrapa’s Peach Breeding Program, selected among the progeny obtained from a cross, made back in 1978, using ‘Babcock’ as a female parent and ‘Flordabella’ as a male (Raseira and Nakasu, 1998). ‘Flordaprince’ was released by the University of Florida (Fig. 2).

‘BRS Regalo’ was selected among the seedlings of a progeny obtained from a cross of ‘Chula’ by ‘Chimarrita’, both white flesh cultivars released by the Embrapa’s Peach Breeding Program. ‘Chula’ is no longer commercially important. It is a very old cultivar originated from a cross of ‘Delicioso’ (one of the clone foundation of the program) by nectarine ‘Panamint’ (Nakasu et al., 1986).

The initial cross that gave rise to ‘BRS Fascínio’ was made in 1993, using the peach ‘Chimarrita’ as a female parent and the nectarine ‘Linda’ as a male. In 1996, the first selection among the progeny was made and seeds of these plants were collected. They were stratified in 1997, and the seedlings were taken to the field, the following winter. The plant number 14 of this latter progeny was selected as ‘Cascata 1032’. It was budded in seedling rootstock and tested in a couple of places until 2012, when it was released as ‘BRS Fascínio’.

Once there is a probability of releasing a selection as a new cultivar, a meeting for designing a market plan is set. In that meeting, breeders, extension agents, researchers of other areas, and growers can participate. Based on the data collected over the years in different locations, a comparison of the candidate selection with the main cultivar, available at the same time in the market, is made giving grades for each item (appearance, firmness, flavor, productivity, etc.) previously established and ordered according to the importance. If the selection won the comparison, the next steps for the releasing are planned. Usually before this happens, semi-commercial plots are established. The following steps are: to choose a fancy name, register the new cultivar in the Ministry of Agriculture, make the registration of the mother plant with the geographic location and finally start the protection process. Parallel to that, a call for nurseries to be licensed for propagation of the new variety is made and the ones that fulfill the requirements will receive budwood and the permission to propagate it. Royalties can be charged or not, according to the terms of that call.

RESULTS AND DISCUSSION

‘BRS Libra’ is an early ripening cultivar, beginning harvest around the first part of October in the southern hemisphere (Raseira et al., 2012a). Fruits are very aromatic, yellow, non-melting flesh, clingstone, with a sweet acid flavor. The soluble solid content is around 10°Brix and firmness is usually 3.6 to 4.5 kg/cm² at ripe stage. The chilling requirement is estimated between 100 and 200 hours.

‘BRS Kampai’ is a table cultivar. Harvest begins by the second or third week of November in the southern part of Brazil and in mid-October in the southeast region. Fruits are conic roundish, with a white greenish background color on the skin covered by 50 to 80% red. The flesh is semi-free from the pit, with sweet low acid taste, and soluble solid content of 11 to 12°Brix. Firmness at complete ripe stage is 2.2 to 3.6 kg/cm². The chilling requirement is estimated as being around 200 hours.
‘BRS Regalo’ is also a table cultivar which produces white flesh, low acid, and juicy peaches. The skin is cream, with a little greenish, and 80% red as a cover color. The fruit diameter has varied between 5.0 and 7.0 cm (without using irrigation), being the average fruit weight varying from 82 to 135 g. The flesh is semi-adherent to the pit and the firmness is regular (2.7 to 4.1 kg/cm²). The endocarp is red. It is a very steady material with a good stability of production over the years. The chilling requirement was not determined precisely but it is estimated as 300 hours. ‘BRS Regalo’ can produce in areas with less than 100 hours chilling as long as it is treated with dormancy breaking agents.

Plants of ‘BRS Fascínio’ are vigorous with a semi upright growth habit. They are very productive. Fruit diameter is around 6 to 7.5 cm with average weight between 200 and 300 g. The flesh is white, low acid, very firm, non-melting at harvest time and it only turns melting when the fruit is kind of over ripe. The total soluble solids varied between 11 and 14°Brix. Chilling is estimated around 300 hours. However, this cultivar is also producing in Sao Paulo state. In Atibaia, SP, at 600 m altitude ‘BRS Fascinio’ does not even need chemical treatment for breaking dormancy. There, two-year old plants produced 40 kg per plant.

In a period that all over the world, the area on peaches tend to be stable, ‘BRS Kampai’ alone (released in 2009) sold 50,000 plants until 2012. ‘BRS Libra’ did not sell much, because it is a processing peach.

For 2013, the reserves in the four licensee nurseries are around 20,000 plants of ‘BRS Fascino’, 8,000 of ‘BRS Regalo’, and 15,000 plants of ‘BRS Kampai’, which represent 0.4% of the total area on peaches in Brazil. It is also interesting to point out that ‘BRS Fascinio’ and ‘BRS Regalo’ were released only at the end of 2012.

CONCLUSIONS

The system of protecting the new peach cultivars in Brazil, may need some improvement and may not be economically important for Embrapa. However, it proved to be a fairly good system of organizing the nurseries and give an accurate estimation of what is being planted. The participation of growers during the last part of the evaluation of advanced selections is also very useful for marketing the new cultivar and gives a lot more confidence on the criteria used for deciding the release.

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Literature Cited


Figures

Fig. 1. Genealogy of ‘BRS Libra’.

Fig. 2. Genealogy of ‘BRS Kampai’.
Fig. 3. Genealogy of ‘BRS Regalo’.

Fig. 4. Genealogy of ‘BRS Fascínio’.