***"BRS Jari"*: New variety of table cassava with high beta-carotene root content**

In participatory experiments conducted with farmers of Santo Amaro, Bahia, the *BRS Jari* variety presented root yield at 12 months of age of 16.5 t/ha and 28% starch content. In Umbaúba, Sergipe, root yield at 12 months reached 32 t/ha and 26% starch content. In Pacajus, Ceará, the average root yield at 18 months was of 16.2 t/ha and the average starch content was of 26.6%. In Araripina, in the state of Pernambuco, the maximum root yield reached was of 4.4 t/ha and 28% starch.

In all of these locations, the *BRS Jari* variety presents good characteristics for table consumption. However, there was variation in root yield among locations. In the case of the yield in Araripina, Pernambuco, the *BRS Jari* variety presented yield below the local average, and it therefore not recommended for cultivation in this region.

Technical Team

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Introduction
The main objective of the cassava breeding program for biofortification is to identify and develop varieties with high levels of beta-carotene in roots, low levels of hydrocyanic acid (HCN) and of good quality for fresh consumption in Northeast Brazil. Led by *Embrapa Mandioca e Fruticultura* and implemented in partnership with several of the country's research and teaching institutions, the project has the objective of selecting varieties with 15 μg/g of beta-carotene content in the roots, based on fresh weight.

To meet this demand, in 2001 *Embrapa Mandioca e Fruticultura* began work to identify and develop varieties of table cassava with higher nutritional value in terms of beta-carotene content (precursor of vitamin A) in yellow-coloured roots, and of lycopene in pink- and red-coloured roots.

The qualitative and quantitative evaluation and characterization of this material allowed for the selection of some varieties with higher levels of beta-carotene in the roots, high yield potential and quality for the fresh cassava market, from which the *BRS Dourada* and *BRS Gema de Ovo* varieties stood out, and which were launched in 2005. From these varieties, thousands of hybrids were developed through controlled crossings, with the objective of increasing levels of beta-carotene in the roots, associated with other quantitative and qualitative characteristics for fresh consumption.

Technical recommendations

The *BRS Jari* variety is recommended for planting under conditions such as those found in the *Recôncavo Baiano*, similar to Cruz das Almas, Bahia. This area presents an annual rainfall of around 1,200 mm, concentrated throughout April to September, an average annual temperature of 24°C and relative humidity of around 80%. The predominant soils are of the yellow *latosol* and *argisol* type. It is also recommended for the *Tabuleiros Costeiros* coastal area of the Northeast, in cohesive yellow *latosol* with a fine to medium texture.

The planting should take place at the beginning of the rainy season, using selected cassava cuttings of approximately 20 cm in length. The field must be kept clean for at least the first 120 days after planting.

By associating root yield data with quality, this variety is recommended for harvests between 10 and 12 months after planting. By using irrigation and fertilization, harvesting can take place earlier, from six months of age. The material for distribution to farmers will be available at *Embrapa Mandioca e Fruticultura* and *Embrapa Tabuleiros Costeiros*.

Main morphological characteristics of the plant

BRS Jari	
Terminal bud colour	Green
Terminal branches' colour	Green
Lobe shape	Lanceolate
Petiole colour	Red
Stem colour	Golden
Root skin colour	Brown
Root cortex colour	Pink
Raw root flesh colour	Yellow
Cooked flesh colour	Intense yellow
Root shape	Conical-cylindrical
Root length	Short (20-30 cm)

Origin, qualitative and quantitative characteristics, and adaptation regions

The *BRS Jari* variety, called experimentally by code 2003 14/17, was created at the *Embrapa Mandioca e Fruticultura* headquarters in 2003, in controlled crossing fields. The female parent was the BGM 1721 (*Abóbora*) variety, and the male parent the *BRS Dourada* variety.

In terms of total carotenoid and beta-carotene content in the roots, the *BRS Jari* variety stood out from the others with total root carotenoid content of 10.5 μg/g and 8.7 μg/g of

beta-carotene content; double the content of the varieties launched in 2005, *BRS Dourada* and *BRS Gema de Ovo.* There was therefore a gain of over 100% in terms of total carotenoids and beta-carotene content observed in the roots.

With respect to its qualitative characteristics, this variety presented 46 ppm of HCN in the raw roots and a maximum cooking time of 25 minutes. The cooked dough presented intense yellow coloration, absence of fibres, and plastic consistency. Other than the quality for table consumption, the *BRS Jari* variety presents ideal root size and shape for commercialization.

In advanced productivity experiments conducted under the conditions of the municipality of Cruz das Almas, Bahia, in 2005 and 2006, this variety yielded 15 t/ha and between 27% and 32% starch content, at 10 months of age. The experiments were established in randomized blocks, and repeated four times.