

'BRS HORIZONTE': NEW BEAN VARIETY WITH CARIOCA COMMERCIAL GRAIN TYPE FOR THE SOUTH AND CENTER WEST REGIONS OF BRAZIL

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Common bean is one of the most important Brazilian crops, with a great social importance as the main daily protein source.

Due to the national bean demand for the carioca commercial grain type, the common bean breeding program at Embrapa Rice and Beans has put a great effort for developing new bean cultivars with this grain type associated to erect plant type, resistance to diseases and lodging. An example of such effort is the development of the dry bean cultivar BRS Horizonte by Embrapa Rice and Beans and the International Center for Tropical Agriculture - CIAT, as partners, and it releases to the growers of South and Center West regions of Brazil. Although BRS Horizonte does not show any yield superiority when compared to cultivars Pérola, Eté and Iapar 81 used as a control, it shows some advantages by its erect growth habit, resistance to five pathotypes of the anthracnose causal organism and to the bean common mosaic virus, earliness and good resistance to lodging.

BRS Horizonte is originated from the cross EMP 250 /4/ A769 /// A 429 / XAN 252 // Pinto VI 114, performed at International Center for Tropical Agriculture, Cali, Colombia and named as line FEB 208. In 1999 this line was evaluated together with 37 other bean lines plus three controls, in a National Bean Trial, in seven different environments in the States of Goiás (1), Mato Grosso do Sul (2), Minas Gerais (3) and Espírito Santo (1). The joint analysis of the grain yield data and other agronomic characteristics provided the elements to promote the line FEB 208 to the Regional Trial with the pre-commercial name of CNFC 8202. This line was then evaluated in a field trial for cultivar release with eighteen other bean lines and two controls in a randomized complete block design (each plot consisted of four rows of 4 m) with four replications in 33 different environments in the States of Goiás (14), Federal District (4), Paraná (7) and Santa Catarina (8).

In the 33 field trial for cultivar release conducted during "wet" and "dry" seasons in Santa Catarina and Paraná, and in the "wet" and "winter" seasons in Goiás and Federal District, BRS Horizonte presented an average grain yield of 2,362 kg.ha⁻¹, not differing statistically from the average yield of the varieties Pérola, Eté and Iapar 81 used as a control (Table 1).

Table 1. Average yield of the dry bean variety BRS Horizonte in the State of Santa Catarina and Paraná during the "wet" and "dry" seasons and in the State of Goiás and Federal District during the "wet" and "winter" seasons, compared to the average yield of two controls, from 2001 to 2003.

Region	State	Season	BRS Horizonte (kg.ha ⁻¹)	Mean for Control ¹ (kg.ha ⁻¹)	Relative yield (%)	Number of environment
South	SC/PR	"wet"	2323	2279	102	10
		"dry"	2262	2330	97	5
Center West	GO/DF	"wet"	2239	2272	99	9
		"winter"	2771	3022	92	8
Mean			2362	2418	98	

¹Iapar 81 and Pérola in Santa Catarina and Paraná, and Eté and Pérola in Goiás and Federal District.

Besides the carioca grain type, BRS Horizonte also presents excellent cooking qualities and a higher protein content when compared to the controls (Table 2).

Table 2. Technological grain quality of the carioca bean cultivar BRS Horizonte.

Variety	Cooking time (minute)	Protein (%)	100 grain weight (g)
BRS Horizonte	33	26,0	27,7
Pérola	29	21,3	26,6
Iapar 81	29	22,5	25,1

Cultivar BRS Horizonte, under artificial inoculation, was resistant to bean common mosaic virus and to the pathotypes 55 (lambda), 89 and 89 AS (alfa-Brazil), 95 (Kappa) and 453 (zeta) of *Colletotrichum lindemuthianum*. In field trials it presented an intermediary reaction to rust, and was susceptible to angular leaf spot and common bacterial blight.

BRS Horizonte presents a prominent erect growth habit and good resistance to lodging enabling it for mechanical harvest. It, also, has a growing cycle of 75 to 85 days from emergency to physiological maturation depending on environment conditions. Normally it is harvested earlier than the variety Pérola used as a control.

By all mentioned advantages BRS Horizonte is another option for bean growers involved with carioca bean grain type production, for the South States of Santa Catarina and Paraná and the Center West State of Goiás and the Federal District.

Genetic seed stocks are maintained by Embrapa Rice and Beans and basic seed is available at Embrapa Technology Transfer.

Institutions involved in the cultivar evaluation:

Embrapa Arroz e Feijão; Embrapa Cerrados; Embrapa Soja; Embrapa Negócios Tecnológicos-Escritório de Ponta Grossa; Agência Goiana de Desenvolvimento Rural e Fundiário ; Universidade de Rio Verde/Fesurv; Avena S/C Ltda; Cooperativa Regional Agropecuária de Campos Novos; C. Vale Cooperativa Agroindustrial; Escola Agrotécnica Federal de Concórdia; Cooperativa dos Produtores de Sementes de Laranjeiras do Sul Ltda; Sementes Campo Verde; Universidade Estadual de Londrina; Cooperativa Agrícola Mista de Prudentópolis; Detec Assessoria Técnica S/C Ltda; Anastácio Ceregatti Sanchez Ltda. (Holambra Agrícola II); Cooperativa Regional Agropecuária de Taquarituba.