'BRS SUPREMO': A BLACK COMMON BEAN CULTIVAR WITH ERECT PLANT TYPE RECOMMENDED FOR THE CENTRAL WEST AND SOUTH BRAZIL

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During the 2003/2004 growing season it was produced, in Brazil, about 2,7 million tons of common bean in an area of 2,7 million hectares meaning a national average productivity of 1.000 $kg.ha^{-1}$. Although the average productivity has been growing, the average per capita consumption has been decreasing representing an annual consumption of only 12,7 $kg.inhabitant^{-1}$.

In Brazil, the black beans national production does not meet the internal demand consumption, which occurs mostly in the states located in the south and in Rio de Janeiro and Espírito Santo. To meet this demand it is necessary an annual import of about 100 thousand tons. The common bean genetic improvement program, at Embrapa Rice and Beans, is focused on cultivars that are more productive, more resistant to diseases and have an erect plant type enabling mechanical harvest and representing a better quality product to the final consumer and a higher revenue to the farmers. With this philosophy it has been released the black bean cultivar BRS Supreme to the States of Santa Catarina, Paraná, Goiás and Federal District. Besides of the above qualities, this cultivar is resistant to several rust pathotypes, to bean common mosaic virus and to four pathotypes of the causal agent of anthracnose.

BRS Supremo is a black bean originated from the single cross between W22-34 and VAN 163, performed at Embrapa Rice and Beans in 1988. The bulk method was used in the F_2 generation. In the F_3 and F_4, after inoculation with the pathotype 89 of *Colletotrichum lindemuthianum*, the modified mass selection was performed and susceptible plants were eliminated. One pod per plant was collected from the remaining resistant plants to reconstitute the population. In the F_5 and F_7 plants were selected by the bulk method and in the generations F_6 and F_8 it was used the modified mass selection. In F_8, after inoculation with the pathotype 95 of *Colletotrichum lindemuthianum* the susceptible plants were eliminated and the remained plants were harvested individually originating the F_9 lines from where the AN 9310960 line was selected based on grain yield, erect plant type and disease resistance. In 1999 this line was evaluated together with additional 31 lines and two controls in the National Trial, conducted under six different environments, in the States of Goiás (1), Mato Grosso do Sul (2), Minas Gerais (1), Rio de Janeiro (1) and Espírito Santo (1). The joint analysis of the grain yield data and other agronomic characteristics provided the elements to promote AN 9310960 to the Regional Trial with the pre-commercial name of CNFP 7762. The line was then evaluated in a field trial for cultivar release with twelve lines and two controls in a randomized complete block design with four replications in 30 different environments in the States of Goiás (13), Federal District (2), Paraná (7) and Santa Catarina (8).

In the last 30 field trials conducted during "wet" and "dry" seasons in the States of Santa Catarina and Paraná and in field trials during de "wet" and "winter" seasons in the State of Goiás and Federal District, the line CNFP 7762 presented an average grain yield 2% superior than the cultivars IPR 88 - Uirapuru and BRS Valente in the States of Santa Catarina and Paraná and the cultivars Diamante Negro and BRS Valente in the State of Goiás and Federal District (Table 1).

Table 1. Yield of cultivar BRS Supremo during "wet" and "dry" seasons in Santa Catarina and Paraná States and in "wet" and "winter" seasons in Goiás State and Federal District, obtained from 2001 to 2004 and compared to yields of two controls.

Region	State	Season	BRS Supremo (kg.ha^{-1})	Mean for Control[1] (kg.ha^{-1})	Relative yield (%)	Number of environments
South	SC/PR	"wet"	2464	2438	101	10
		"dry"	2499	2263	110	5
Center-West	GO/DF	"wet"	2322	2355	99	11
		"winter"	2401	2285	105	4
Media			2410	2358	102	

[1]IPR 88 - Uirapuru and BRS Valente in Santa Catarian and Paraná, and Diamante Negro and BRS Valente in Goiás and Federal District.

Cultivar BRS Supremo presents grain size and color uniformity, excellent cooking qualities and a chocolate brown broth (Table 2).

Table 2. Industrial and technological grain qualities of the black bean cultivar BRS Supremo.

Cultivar	Cooking time (minute)	Soluble solids (%)	Protein (%)	100 grain weight (g)
BRS Supremo	31,0	12,1	23,3	24,6
BRS Valente	28,1	10,9	19,2	21,5
Diamante Negro	34,0	11,2	20,0	21,3

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

BRS Supremo presents an erect growth habit with high yield potential in any crop system tested and under different soil and environment conditions. It has also good resistance to lodging, with a growing cycle of 83 days from emergency to physiological maturation.

BRS Supremo is a new option for bean growers involved with black bean grain type production, for the "wet" and "dry" seasons in the State of Santa Catarina and Paraná and "wet" and "winter" seasons in the State of Goiás and 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 - 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.