

PERFORMANCE OF THE BLACK BEAN "BRS VALENTE" IN BRAZIL

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The urgent demand for high yielding black bean varieties, resistant to some major diseases, with erect plant type and good grain quality, lead the breeding program of Embrapa Arroz e Feijão to develop the line LM 93204217, released as BRS Valente and recommended for planting in three main growing regions of Brazil: Central-West; Southeast; and South. These regions comprise 10 states such as Goiás/Distrito Federal, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul.

BRS Valente was derived from a triple cross among Emgopa 201-Ouro/Ônix/AN 512586, and conducted in bulk from F1 to F3. From F4 to F6 the populations were inoculated with *Colletotrichum lindemuthianum* pathotype 89 (alfa Brasil), and the susceptible plants were eliminated. The single pod descent method was utilized from F4 to F5 and from F6, single plant selection was applied. The line LM 93204217 was included in the adaptation and yield trials conducted in 10 states. The testing results comprising 74 experiments, are shown in Table 1.

BRS Valente possesses desirable grain appearance (size, form and 100 grain weight) and nutritional quality, as well as good cooking attributes, providing a thick and brown-purple broth (Table 2).

Table 1. Grain production of BRS Valente compared to local checks* (average from 74 trials) from 1995 to 2001.

Region	State	BRS Valente (kg ha ⁻¹)	Mean of local checks (kg ha ⁻¹)	Relative yield ¹ over the local checks (%)	Number of testing sites
Southeast	ES	2.206	1.790	123,2	5
	RJ	1.946	1.540	126,4	7
	MG	2.998	2.461	121,8	6
	SP	2.464	2.372	103,9	23
Central-West	GO/DF	3.014	2.544	118,5	10
	MS	1.918	1.682	114,0	9
	MT	1.932	1.670	115,6	7
South	RS	2.398	2.156	111,2	5
	SC	2.161	1.910	113,1	9
	PR	2.382	1.996	119,3	13

*Iapar 44; Rio Tibagi; Capixaba Precoce; Serrano; Xamego; Diamante Negro; FT 120; FT Nobre; IAC Una; Macotaço; and Macanudo.

Table 2. Cooking and nutritional quality of the BRS Valente as compared to standard checks.

Cultivar	Cooking time (minutes)	Water bsorptio (%)	Soluble solutes (%)	on cracke grain (%)	Broth color	Protein (%)	Fiber (%)	Testa (%)
BRS Valente	28,10	95	10,91	78	Clear*	19,25	9,7	11,75
FT Nobre	28,48	104	11,05	70	Clear*	21,60	-	13,48
Rio Tibagi	36,00	102	12,40	97	Dark	20,00	12,5	13,10
D. Negro	34,02	104	11,20	97	Clear*	20,00	10,0	11,40
Iapar 44	37,00	104	11,00	-	-	-	10,5	-

*Brown-purple.

Under artificial conditions BRS Valente is resistant to bean common mosaic virus and to 19 pathotypes of anthracnose. Under field conditions it presents moderate reaction to rust, common bacterial blight and angular leaf spot.

Furthermore BRS Valente has an erect plant type, resistant to lodging in any cropping system and under the different soil types and climate conditions prevalent in the testing sites. The maturation period varied between 80 and 94 days, depending on latitude and altitude.

Seed production is accomplished by Embrapa Arroz e Feijão and basic seed is commercialized by Embrapa Negócios para Transferência de Tecnologia.

Participating scientists and institutions are:

Embrapa Research Units: Arroz e Feijão; Milho e Sorgo; Cerrados; Trigo; Clima Temperado; Agrobiologia; Soja; Negócios para Transferência de Tecnologia: ENT de Ponta Grossa (PR); Sete Lagoas (MG) and Goiânia (GO);

State Organizations: Instituto Capixaba de Pesquisa, Assistência Técnica e Extensão Rural (Incaper); Empresa de Pesquisa Agropecuária do Rio de Janeiro (Pesagro); Empresa Matogrossense de Pesquisa, Assistência e Extensão Rural (Empaer); Instituto da Terra (Idaterra); Agência Goiana de Desenvolvimento Rural e Fundiária (Agenciarrural); Fundação Estadual de Pesquisa Agropecuária do Rio Grande do Sul (Fepagro); Instituto Agrônômico de Campinas (IAC); Instituto Agrônômico do Paraná (Iapar); Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina (Epagri); Cooperativa Agropecuária da Região do Piratinga Ltda. (Coopertinga); Tec-Agro - Tecnologia em Agricultura Ltda;

Universities: Universidade Federal de Santa Maria (RS); Universidade Federal de Viçosa (MG).

References

1. Del Peloso, M.J., J.G.C. Costa, C.A. Rava, G.E. de S. Carneiro, D.M. Soares, J.L. Cabrera Diaz, L.C. Faria, I.F. Antunes, E.P. Silveira and A.M. Mesquita. 2000. Feijão Preto é 'Valente'. Goiânia, Embrapa Arroz e Feijão. (Pesquisa em Foco, 48).
2. Del Peloso, M.J., J.G.C. Costa, C.A. Rava, G.E. de S. Carneiro, D.M. Soares, L.C. Faria, J.L. Cabrera Diaz, I.F. Antunes, E.P. Silveira and A.M. Mesquita. 2000. Feijão Preto BRS Valente: Extensão de Indicação para São Paulo, Paraná e Santa Catarina. Goiânia, Embrapa Arroz e Feijão. (Comunicado Técnico, 44).