

# BRSMG UNIÃO: A COMMON BEAN CULTIVAR WITH GRAIN TYPE “JALO” FOR THE STATE OF MINAS GERAIS, BRAZIL

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**INTRODUCTION:** Common beans ‘Jalo’ type has yellow and large grains, and usually reaches the higher market prices. However, most of the cultivars with this grain type present some problems as susceptibility to pathogens, especially *Erysiphe poligoni*, causal agent of powdery mildew disease, which can cause significant losses in grain yield. Availability of cultivars ‘Jalo’ grain type is limited. Thus institutions that work with common bean breeding in Minas Gerais, Brazil, Universidade Federal de Lavras (UFLA), Universidade Federal de Viçosa (UFV), Empresa de Pesquisa Agropecuária de Minas Gerais (Epamig) and Empresa Brasileira de Pesquisa Agropecuária (Embrapa), have evaluated lines with this grain type, aiming to obtain and recommend new cultivars that are superior to ‘Jalo EEP 558’ cultivar, which was indicated to Minas Gerais state in 1980. Result of this work, is recommendation of BRSMG União cultivar, a new option of common bean cultivar type ‘Jalo’, for the state of Minas Gerais.

**MATERIALS AND METHODS:** Cultivar BRSMG União was obtained by hybridization method, using as parents Jalo EEP 558 and ESAL 686 cultivars. After hybridization and obtained F<sub>1</sub>, backcross (BC) was performed with Jalo EEP 558. The F<sub>1</sub>BC<sub>1</sub> seeds were sown at the UFLA’s experimental area, and were selected 64 progenies F<sub>1:2</sub>BC<sub>1</sub>. These progenies seeds were multiplied until the F<sub>1:3</sub>BC<sub>1</sub> generation, when they were evaluated in experiments with repetitions. Thirty three progenies were selected considering especially the resistance to *E. poligoni*, and grain type ‘Jalo’.

These 33 F<sub>1:3</sub>BC<sub>1</sub> progenies were evaluated at the UFLA’s experimental area. The parents Jalo EEP 558 and ESAL 686 and the Perola cultivar were used as cultivar control. The sowing was in July/2000. Data of mildew severity was obtained using a 1 – 9 grade scale, where 1 indicated absence of symptoms, and 9, 90% to 100% of leaf area infected. Grain yield, in Kg.ha<sup>-1</sup>, was also obtained. Eighty four per cent of the progenies evaluated presented grain yield higher than Jalo EEP 558 cultivar. One of these lines stood out by grain type ‘Jalo’ and resistance to powdery mildew and originated BRSMG União cultivar.

From the dry season of 2005 to rainy season of 2006/2007, this line was assessed in experiments for determining the Value for Cultivation and Use (VCU), joint other 21 lines and BRS Radiante and Jalo EEP 558 cultivars as control. The experiments were carried out by UFLA, UFV, Embrapa Arroz e Feijão and Epamig in the state of Minas Gerais, Brazil, in different environments presented in Table 1.

## RESULTS AND DISCUSSION:

**Plant architecture:** BRSMG União cultivar presented indeterminate grows habit, type III. Plant architecture and tolerance to lodging was similar to Jalo EEP 558 (Table 2)

**Disease reaction:** BRSMG União cultivar was tolerant and/or resistant to diseases that have occurred in field (powdery mildew, rust and angular leaf spot) (Table 2).

**Flowering and maturity:** flowering of BRSMG União cultivar occurred 35 days after sowing and crop cycle was completed in around 77 days, considering a semi-early cultivar (Table 2).

**Grain yield and type:** BRSMG União cultivar also showed mean grain yield higher than controls cultivars in most environments (Table 1). The grains were cream uniform, similar to Jalo EEP 558 cultivar. The average of 100 seeds weight was 39,6g.

BRSMG União cultivar, mainly by the productive potential and resistance to powdery mildew, is an excellent choice for producers interested in common beans type ‘Jalo’ in the state of Minas Gerais, Brazil.

**Table 1.** Mean grain yield (Kg.ha<sup>-1</sup>) of BRSMG União cultivar and controls cultivars (BRS Radiante and Jalo EEP 558) by location, season and year of assessment, in the state of Minas Gerais, Brazil.

Location	Season	Year	BRSMG União	Controls cultivars		% mean controls
				Radiante	Jalo	
Lavras	Dry	2005	2575	2058	2242	119,8
Lambari	Dry	2005	2283	1142	1087	204,8
Patos de Minas	Dry	2005	2145	2433	2012	96,5
Viçosa	Dry	2005	2800	2695	2613	105,5
Ponte Nova	Dry	2005	1399	1061	1367	115,2
Ijaci	Winter	2005	2454	2531	2354	100,5
Patos de Minas	Winter	2005	1154	1425	1023	94,3
Ibiá	Winter	2005	2479	2215	2099	114,9
Sete Lagoas	Winter	2005	3183	3008	2150	123,4
Ijaci	Rainy	2005	2352	1938	2317	110,6
Lavras	Rainy	2005	1523	1823	1158	102,2
Lambari	Rainy	2005	1821	1533	1346	126,5
Patos de Minas	Rainy	2005	3075	2450	2604	121,7
Lavras	Dry	2006	2512	2323	2144	112,5
Lambari	Dry	2006	3092	3083	3379	95,7
Patos de Minas	Dry	2006	2104	2129	2062	100,4
Viçosa	Dry	2006	2908	3033	2547	104,2
Coimbra	Dry	2006	1875	1692	1638	112,6
Lambari	Winter	2006	2554	1820	2196	127,2
Patos de Minas	Winter	2006	1923	1660	1190	134,9
Uberlândia	Winter	2006	1155	1568	2112	62,8
Coimbra	Winter	2006	2683	2145	2073	127,2
Sete Lagoas	Winter	2006	2692	2967	3075	89,1
Lavras	Rainy	2006	1712	1483	1858	102,5
Patos de Minas	Rainy	2006	1921	2292	2017	89,2
Viçosa	Rainy	2006	1899	1056	1948	126,4
Rainy season average			2043	1796	1893	110,8
Dry season average			2369	2165	2109	110,9
Autumn/winter season average			2253	2149	2030	107,8
Overall average			2241	2060	2024	109,8

**Table 2.** Traits of BRSMG União cultivar and Jalo EEP 558 control cultivar obtained in the VCU experiments conducted in the state of Minas Gerais in 2005 and 2006

Traits	BRSMG União	Jalo EEP 558
Architecture <sup>1</sup>	5,8	6,2
Lodging <sup>2</sup>	5,3	5,9
Days to flowering	35	34
Days to maturity	77	82
Powdery mildew <sup>3</sup>	2,8	6,8
Rust <sup>3</sup>	1,5	1,0
Angular leaf spot <sup>3</sup>	2,0	1,1

<sup>1</sup>1, erect plants and 9, prostrate plants; <sup>2</sup>1, absence of lodging and 9, lodged plants; <sup>3</sup>Disease severity: 1, resistant and 9, susceptible.

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