



## 'BRS Pontal': new common bean cultivar with Carioca grain type

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**ABSTRACT** - BRS Pontal was derived from the cross BZ3836//FEB166/AN 910523 by Embrapa Rice and Beans. Owing to its productivity and disease resistance, it was released in 2003 for cultivation in the States of Goiás/Distrito Federal, Mato Grosso, Mato Grosso do Sul and Minas Gerais.

**Key words:** *Phaseolus vulgaris*, plant breeding, cultivar description, seed production.

### INTRODUCTION

The common bean breeding program strategy at Embrapa Rice and Beans is based on the demands of the participants of its agri-chain. Besides productivity increase, yield stability and grain quality, the program also aims at the reduction of yield losses caused by biotic and abiotic stresses. In Brazil, the commercial carioca grain type is traditionally preferred for consumption. This justifies the efforts in developing superior lines with this grain type associated with the most common desirable commercial traits. Common bean needs to become more productive and competitive in the agricultural system to guarantee its sustainability in Brazil's agribusiness. The development of new cultivars that are more productive and more resistant to biotic and abiotic stress will allow farmers to obtain more profitable crops with a smaller environmental impact and will probably

contribute to the consolidation of common bean as a consistent option for agricultural exploration.

### CULTIVAR ORIGIN AND DEVELOPMENT

The cultivar BRS Pontal was derived from the cross BZ3836//FEB 166/AN 910523 by Embrapa Rice and Beans. The F<sub>2</sub> and F<sub>3</sub> population was advanced in bulk. The F<sub>4</sub> population was planted at the Embrapa Rice and Beans, inoculated with the pathotype 89 of *Colletotrichum lindemuthianum* and a single pod of each resistant plant was harvested to rebuild the plant population. The same selection methodology was used in the F<sub>5</sub> generation; however, the plants were harvested individually. Line LM 95102774 was selected from the F<sub>6</sub> families based on its productivity and disease resistance.

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## PERFORMANCE

In 1997, LM 95102774 and 42 other lines were evaluated in the National Bean Trial carried out in 11 environments, in the Brazilian States of Goiás (2), Mato Grosso (1), Mato Grosso do Sul (3) Minas Gerais (1), Bahia (1), Pernambuco (2) and Espírito Santo (1).

The joint analysis of yield and other agronomic traits pointed to line LM 95102774, which was promoted to the Regional Bean Trial of 1999/2000. The line was evaluated in this trial with 12 other lines and five checks, in a randomized complete block design with four replications, using the recommended technologies for the different cultivation systems, in a total of 36 environments in the States of Goiás (13), Distrito Federal (1), Minas Gerais (17), Mato Grosso (2), and Mato Grosso do Sul (3).

In the 36 regional trials, line LM 95102774 exceeded the checks by 15.34% (Table 1). Based on its superiority, it was released for cultivation in 2003 under the trade name BRS Pontal in the States of Goiás/Distrito Federal, Mato Grosso, Mato Grosso do Sul, and Minas Gerais.

## OTHER CHARACTERISTICS

### Technological and industrial grain quality

This new cultivar has a very regular grain color, excellent cooking quality (Table 2), and the seed weight averages 26.1g 100 seed<sup>-1</sup>.

### Reaction to diseases

Under artificial inoculation, the cultivar BRS Pontal was resistant to the common bean mosaic virus and was resistant, intermediate, and susceptible to 11, 6, and 7 *C. lindemuthianum* pathotypes, respectively. In the field trials, it presented intermediate reaction to rust and common bacterial blight and was susceptible to angular leaf spot.

### Plant type and resistance to lodging

'BRS Pontal' has a semi-prostrate growth habit, low resistance to plant lodging in most tested bean production systems and takes 87 days to grow from the seedling stage to physiological maturity.

Table 1. Yield of the cultivar BRS Pontal compared to the mean of control cultivars in the years 1999/2000

Region	State	'BRS Pontal'	Mean of controls <sup>1</sup>	Relative yield	Number of sites
		— kg ha <sup>-1</sup> —	— kg ha <sup>-1</sup> —	— % —	
southeast	Minas Gerais	3014	2671	115.6	17
center west	Goiás/Distrito Federal	2747	2701	108.9	14
	Mato Grosso	1286	998	135.0	2
	Mato Grosso do Sul	2209	1735	131.0	3
Mean		2747	2455	115.3	

<sup>1</sup>Controls: Pérola and Iapar 81

Table 2. Technological and industrial grain quality of the common bean cultivar BRS Pontal, compared to other cultivars of the carioca grain type

Cultivar	Cooking time	Soluble solids	Protein
	— minutes —	— % —	— % —
BRS Pontal	26.0	8.3	21.4
Pérola	29.0	9.6	21.3
Iapar 81	29.0	9.4	21.0

## CONCLUSION

Due to its high yielding potential, excellent grain quality, resistance to lodging and to some important diseases, BRS Pontal is a new option for carioca bean growers in the States of, Minas Gerais, Goiás and Distrito Federal.

## SEED PRODUCTION

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

## INSTITUTIONS OF PARTICIPATING SCIENTISTS

Embrapa Arroz e Feijão; Embrapa Milho e Sorgo; Embrapa Cerrados; Empaer-MT; Agenciarrural-GO; Universidade Federal de Viçosa; Universidade Federal de Lavras; Fesurv/Esucarv; Idaterra-MS; and TecAgro - Tecnologia em Agricultura Ltda.

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