

BRS 138 Soybean cultivar

Paulo Fernando Bertagnolli*¹; Emídio Rizzo Bonato^{1,3}; Aroldo Gallon Linhares¹; Leila Maria Costamilan¹; Romeu Afonso de Souza Kiihl^{2,3} and Leones Alves de Almeida^{2,3}

¹Brazilian Agricultural Research Corporation, National Wheat Research Center, Embrapa Wheat, P. O. Box 451, CEP 99001-970, Passo Fundo, RS, Brazil; ²Embrapa Soybean, P. O. Box 231, CEP 86001-970, Londrina, PR, Brazil; ³Bolsista do CNPq. (* Corresponding Author. E-mail: bertag@cnpt.embrapa.br)

ABSTRACT

The early-maturing soybean [*Glycine max* (L.) Merrill] cultivar BRS 138 originated from a cross between BR-16 x BR 85-16140, which was developed by Embrapa Wheat in conjunction with Embrapa Soybean. The cultivar BRS 138 was released in 1997 for cropping in the state of Rio Grande do Sul. It has a high yield potential and is resistant to soybean stem canker, caused by *Diaporthe phaseolorum* f. sp. *meridionalis*, brown stem rot, caused by *Phialophora gregata*, frog-eye leaf spot, caused by *Cercospora sojina*, and bacterial pustule, caused by *Xanthomonas axonopodis* pv. *glycines*, as well as to race 1 of *Phytophthora sojae*. It is susceptible to powdery mildew, caused by *Microsphaera diffusa*. The cultivar presents yield and agronomic characteristics similar to IAS 5, which is a well known cultivar in southern Brazil, but differs from IAS 5 in that BRS 138 is resistant to both brown stem rot and soybean stem canker.

KEY WORDS: *Glycine max*, cultivar description, plant breeding.

INTRODUCTION

The use of soybean cultivars with different maturity cycles is an usual and recommended practice in Brazilian agriculture, because of their varying flowering and harvesting dates (Manejo da cultura, 2001; Vieira et al., 1980). The search for increased yield, earlier maturity, resistance to diseases (mainly brown stem rot and soybean stem canker), plant height, and height of lower pods adequate to allow harvest without losses is a challenge for the plant breeding programs under way. Based on such objectives, the cross between BR-16 and BR 85-16140 was made. BR-16 is an early-maturing soybean cultivar, with high yield, broad adaptation, and resistance to brown stem rot, and the line BR 85-16140 is of late maturity and resistant to soybean stem canker.

PEDIGREE AND BREEDING METHODS

The cross (Figure 1) between BR-16 and BR 85-16140, descendent from the cultivar BR-1, was made in Londrina, PR, and the F₁ generation was grown in a greenhouse. F₂ generation was cultivated in the field and harvested using the single seed descent method (SSD). In F₃ generation, plants were harvested in bulk, having the designation BRB 91-06. All other generations were advanced at Embrapa Wheat, in Passo

Fundo, RS, using the bulk method. In the season 1992/93, in F₅, the individual plant was selected, being evaluated as a progeny in the 1993/94 season, in F₆. BRS 138 was evaluated under the name PF 92149, for yielding and agronomic characteristics in several trials in Rio Grande do Sul, from 1994/95 to 1996/97. The cultivar BRS 138 was released in 1997.

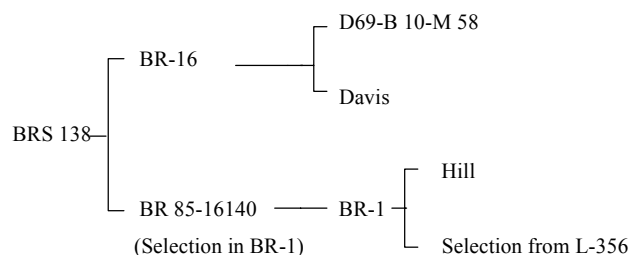


Figure 1. BRS 138 pedigree.

PERFORMANCE AND OTHER CHARACTERISTICS

During the 1994/95 season, in seven environments, BRS 138 showed an average grain yield of 2,947 kg/ha, representing a 16% increase, when compared to Ivorá. During the season from 1995/96 to 1996/97, on the average from 17 environments, BRS 138 yielded 2,973 kg/ha, which is 5% higher than Ocepar 14. In three years of trials, BRS 138, with 2,966 kg/

ha, showed the same yield as IAS 5 (Table 1). BRS 138 is an early-maturing cultivar, having an average cycle of 126 days from emergence to maturity. It has the same plant height and the height of lower pods as IAS 5, respectively, 73 cm and 12 cm, and shows lodging tolerance of 1.6 (Table 1). BRS 138 displays resistance to soybean stem canker, caused by *Diaporthe phaseolorum* f. sp. *meridionalis*, brown stem rot, caused by *Phialophora gregata*, frog-eye leaf spot, caused by *Cercospora sojina*, and bacterial pustule, caused by *Xanthomonas axonopodis* pv.

glycines, as well as to race 1 of *Phytophthora sojae*. The cultivar shows susceptibility to powdery mildew, caused by *Microsphaera diffusa*. BRS 138 has white flowers, tawny pubescence, dull yellow seed coat, and brown hilum. It has determinate growth habit and negative reaction to peroxidase. Soybean cultivar BRS 138 is suitable for the state of Rio Grande do Sul. It is protected by the National Service for Cultivar Protection of the Ministry of Agriculture, under number CP 00058 (Listagem, 1999).

Table 1. Agronomic characteristics of soybean cultivar BRS 138 and controls during the season from 1994/95 to 1996/97. Embrapa Wheat, Passo Fundo-RS, Brazil.

Cultivar	Yield (kg/ha)			Characteristic			
				Maturity (days)	Plant height (cm)	Height of lower pods (cm)	Lodging score (1-5)
	1994/95	1995/96	1996/97				
BRS 138	2,947	2,761	3,277	125	73	12	1.6
IAS 5	2,923	2,797	3,230	126	73	12	1.2
Ivorá	2,536	-	-	-	-	-	-
Ocepar 14	-	2,650	3,089	-	-	-	-
Environments	7	10	7	22	25	20	9

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Received: December 04, 2001;

Accepted: January 15, 2002.