



CULTIVAR RELEASE

BRS Camboatá – Wheat cultivar

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ABSTRACT - Wheat cultivar 'BRS Camboatá' was developed by Embrapa. It resulted from selection within genotype PF 93232. 'BRS Camboatá' has excellent agronomic features, erect leaves and high grain yield. It is classified as bread wheat in Paraná, São Paulo and Mato Grosso do Sul. W values were lower in the states Rio Grande do Sul and Santa Catarina.

Key words: *Triticum aestivum*, cultivar, crop breeding.

INTRODUCTION

The genetic wheat improvement program of Embrapa is directed towards making competitive wheat cultivars at the agronomic level available for the production chain as well as cultivars that are suitable for the different segments of the milling industry in quality and use. 'BRS Camboatá' is a cultivar released in partnership with the Fundação Pró-Sementes de Apoio à Pesquisa and is integrated in the process of experimentation, marketing and distribution of cultivars of Embrapa. 'BRS Camboatá' represents a significant advance in the agronomic type and is responsive to high inputs. It is specifically indicated for cold regions of high altitude.

PEDIGREE AND IMPROVEMENT METHOD

'BRS Camboatá' was derived from selection within genotype PF 93232, in 1995. Initially, in the winter

of 1992, in Passo Fundo, State of Rio Grande do Sul, some plants with distinct traits were selected within cultivar Embrapa 16. One of these presented short plant type, unlike the original cultivar, which is of medium to high plant type. This plant was multiplied to S₁ (first generation of multiplication) during the summer of 1992-1993, (plot nr. 580544) in a greenhouse of Embrapa. The S₂ seeds hereof (second generation of multiplication) were sown on the experimental field in winter 1993 (plot nr. 158191). The resulting plants were united as line PF 93232 Sel. In the winter of 1994, this line was included in the Preliminar Net Trial, conducted by Embrapa. As the segregation continued, probably originated from a natural crossing of cultivar Embrapa 16, a plot was sown for multiplication, of which 54 plants were selected in winter 1995. In the winter of 1996, plot 689115 was sown, originated from the selected plant 14F. Plants in this plot presented uniformity and were harvested for sowing

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and observation in the following year. In 1997, the seeds originated from the selected plant were sown as OP (Observation Plot). Since the plants presented uniformity, the plot was harvested and designated line PF 970151. After the evaluation of Value of Cultivation and Use (VCU), the line was denominated 'BRS Camboatá' and indicated for cultivation for the state of Rio Grande do Sul in 2003 (Scheeren et al. 2003). The indication for cultivation was extended to the States of Santa Catarina, Paraná (regions 7 and 8) and Mato Grosso do Sul (regions 9 and 10) in 2005 (Scheeren et al. 2005).

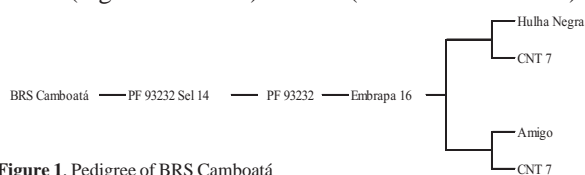


Figure 1. Pedigree of BRS Camboatá

PERFORMANCE

Regarding grain yield, 'BRS Camboatá' performed best in colder and higher regions, independent of the states in which it was grown. In Rio Grande do Sul, for example, expressive responses were observed on the mountain and upland regions. Table 1 shows the mean performance of this cultivar in the different years of evaluation (2001, 2002, 2003 and 2004) when it was integrated in the VCU trials. Results are displayed per location of evaluation and the means per state included. Cultivar BRS 179 was used in comparisons for the states of Rio Grande do Sul and Santa Catarina, CEP 24 for Paraná, and BR 18 for São Paulo and Mato Grosso do Sul. 'BRS Camboatá' presented a superior or equal mean grain yield to the controls considered in all states, with a percentage of 102, 107, 103, 100, and 101%, respectively for Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, and Mato Grosso do Sul. The evaluations considered for RS, SC, PR and MS covered four years of evaluation and three years in SP. Taking the mean of all yield data of 'BRS Camboatá' and the controls into consideration, the new cultivar was superior by 3%. In Rio Grande do Sul and Paraná, the states that come up for over 90% of the wheat production in Brazil, the yield of 'BRS Camboatá' exceeded 6 t ha⁻¹ in Passo Fundo and Piratini (2003) and in Guarapuava (2004).

OTHER TRAITS

The vegetative cycle of 'BRS Camboatá' lasts 83 days and the total cycle 137 days. The plant type is medium short, with a mean of 85 cm and presents good lodging resistance, which is a fundamental trait in view of the need to raise the yield potential. It was classified as moderately resistant to shattering and moderately susceptible to preharvest sprouting. Frosts during the vegetative phase did little harm to the cultivar. The reaction of 'BRS Camboatá' to the main wheat diseases was balanced. It presented resistance to powdery mildew (*Blumeria graminis* f. sp. *tritici*), resistance to wheat mosaic virus and moderate resistance to leaf rust (*Puccinia triticina*), moderate susceptibility to head blight (*Fusarium graminearum*), and to blotch diseases (*Drechslera tritici repentis*, *Stagonospora nodorum* and *Bipolaris sorokiniana*). In the evaluations realized, 'BRS Camboatá' presented burnt leaf tips, a trait which is directly associated to leaf rust resistance in the adult plant. However, new evaluations to confirm this trait are required. 'BRS Camboatá' has erect leaves, predominantly colorless auricles, fusiform ears and longish red grains. It was preliminarily classified as soft class cultivar in RS, with mean of W (gluten strength) of 192 10⁻⁴ J and in Paraná, as bread class cultivar, with mean W value of 222 10⁻⁴ J. Especially in region 7 of Paraná, in the west of the state, the W values were higher. The cultivar presented mean weight of a thousand grains of 31 g and mean test weight of 77 kg hL⁻¹. Regarding glutenins, 'BRS Camboatá' presents the bands n, 2+12 and 7+8. The grain is hard and experimental data obtained from Brabender Mill showed flow extraction of 41 to 54%. The falling number was in the mean 367 seconds, with a variation from 218 to 514.

SEED MAINTENANCE AND DISTRIBUTION

'BRS Camboatá' is indexed by the Ministry of Agriculture, Animal Husbandry and Supply under number 17655. Embrapa is in charge of the genetic seed of cultivar 'BRS Camboatá', the Serviço de Negócios Tecnológicos da Embrapa (SNT) is responsible for basic seed and the Fundação de Apoio a Pesquisa Pró-Sementes, in partnership with Embrapa, is responsible for certified seed.

Table 1. Grain yield means (kg ha⁻¹) of cultivar ‘BRS Camboatá’

	Local	Cultivar ¹	BRS Camboatá					Mean ²	% ³
			2001	2002	2003	2004			
RS	Cachoeira do Sul	4063			4542	3793	4168	103	
RS	Inhacorá	3521	2723	1724	5918		3272	93	
RS	Passo Fundo	3960		3477	6093	3492	4135	104	
RS	Piratini	2836	1849		6196		4023	142	
RS	Santa Rosa	3020		2639		2663	2651	88	
RS	São Borja	3552	2488	3411	4248	3555	3426	97	
RS	São Luiz Gonzaga	3531	2738	3052	4373		3388	96	
RS	Tapera	3104	3040		3218		3129	101	
RS	Tupanciretã	3348	2648	2166	5647		3487	104	
RS	Vacaria	4805	4381	4563	4887		4610	96	
	Mean RS	3574	2838	3005	5014	3376	3629	102	
SC	Abelardo Luz	3538		2619	4166	4002	3697	105	
SC	Campos Novos	3899	4663	3082	4666	4595	4251	109	
	Mean SC	3718	4663	2850	4416	4298	3974	107	
PR	Cafelândia	3710			4092	3989	4023	108	
PR	Campo Mourão	2949		2153	4252	2869	3036	103	
PR	Cascavel	2777	2701				2701	97	
PR	Guarapuava	4136	3456	3988		6654	4699	114	
PR	Ponta Grossa	4248	3125	1954	5373	4982	3858	91	
	Mean PR	3564	3094	2699	4572	4623	3663	103	
SP	Arandu	3078				3124	3124	101	
SP	Avaré	2919				2877	2877	99	
SP	Manduri	2732		1693	3165	2811	2620	96	
SP	Maracáí	1351			1418		1418	105	
	Mean SP	2520		1329	1791	2937	2509	100	
MS	Dourados	2117			1831		1831	87	
MS	Maracaju	2811			3273	2753	2926	104	
MS	Ponta Porã	2456	2577	2987		2556	2707	110	
	Mean MS	2461	2577	2987	2552	2655	2488	101	
	Overall mean	3167	3293	2574	3669	3577	3252	103	

¹ Grain yield means of the controls BRS 179 (for RS and SC states), CEP 24 (for PR state) and BR 18 (for SP and MS states) obtained between 2001 the 2004

² Mean of cultivar ‘BRS Camboatá’ at the different evaluation sites between 2001 and 2004

³ Relation between the mean of cultivar ‘BRS Camboatá’ and the control means, considering the years of evaluation

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