



CULTIVAR RELEASE

BRS Louro – Wheat cultivar

Pedro Luiz Scheeren, Eduardo Caierao, Alfredo do Nascimento Junior, Marcio Só e Silva, Leo de Jesus Antunes Del Duca, Aroldo Gallon Linhares, Luiz Eichelberger, and João Leonardo Pires

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ABSTRACT - Wheat cultivar 'BRS Louro' was developed by Embrapa (Brazilian Agricultural Research Corporation). It was result of a cross of PF 869114 and BR 23. 'BRS Louro' has excellent agronomic features, medium resistance to scab and high grain productivity.

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

INTRODUCTION

The Embrapa genetic improvement program for wheat aims at making agronomically competitive cultivars of this cereal available for the production chain that are suitable for different segments of the milling industry in quality and use. Cultivar BRS Louro was released in partnership with the Fundação Pró-Sementes de Apoio a Pesquisa that participates in the process of experimentation, marketing and distribution of material of Embrapa. Main agronomic features of BRS Louro are a short plant type, lodging resistance and production potential.

PEDIGREE AND IMPROVEMENT METHOD

'BRS Louro' is derived from a crossing between cultivar BR 23 and line PF 869114 (Figure 1), realized by Embrapa Trigo in the summer of 1987/1988. F₁ generation was grown in a green house in the winter of 1988, also in Passo Fundo, state of Rio Grande do Sul, which generated

F₂ population seeds. This segregating material underwent selection cycles until F₈ generation, at times on the field, at times in a green house, using the pedigree method. After threshing the selected plants, the grains were visually selected in all generations. In the F₃ and F₄ generations powdery mildew-resistant plants were selected in a test realized under controlled conditions. The F₅ generation was subjected to selection for leaf rust resistance by artificial inoculation with different races of the pathogen. In this period, observations were also realized in relation to other diseases, such as leaf spots and scab. In 1997, one population containing F₈ seeds that had been sown on the Embrapa Wheat experimental area presented uniformity. It was harvested and denominated PF 970128 (BRS Louro). In 1998 and 1999, the line was evaluated in the internal preliminary trials of Embrapa for grain yield and other quantitative traits. 'BRS Louro' was indexed for cultivation in 2004 for the state of Rio Grande do Sul (Commission 2004) and extended to the states Santa Catarina (regions 4 and 5) and Paraná (regions 7 and 8) in 2005 (Commission 2005a, b).

PERFORMANCE

BRS Louro presented a high grain yield mean in the years and at the site where it was part of the VCU trial (2001 and 2002), exceeding the control means used for comparison by 6%, expressing a productivity of 2990 kg ha⁻¹ (Table 1). In the trials conducted in 2001, this percentage in relation to the controls was 4% and in 2002, 8%. At 19 of the 29 evaluation sites the VCU level in both years cultivar BRS Louro surpassed the controls in terms of grain yield (Table 1). In the trials, the best yield was achieved in Vacaria in 2002, with a mean of 4648 kg ha⁻¹. A plantation of basic seed multiplication, also in Vacaria, attained a mean productivity of 4920 kg ha⁻¹ on 78 ha and 5160 kg ha⁻¹ on 25 ha, confirming its high production potential. In general, the coefficients of variation in the different trials were acceptable, all below 20%. Table 2 presents data of the trials conducted in 2003 and 2004 that were used for the extension of cultivation of the cultivar to the states Santa Catarina and Paraná. The cultivar means BRS 179 and CD 105 were used as controls in Santa Catarina, and the mean of BR 18 and CD 105, in Paraná. The superiority of BRS Louro over the controls was 3.9% in Santa Catarina and 0.5% in Paraná. Of the tested adaptation regions (4, 5, 7 and 8), the cultivar was superior in grain yield in all but region 7, in the state of Paraná.

OTHER CHARACTERISTICS

‘BRS Louro’ belongs to the bioclimatic group of spring wheat. Mean plant height is about 89 cm, a feature that classifies it as a cultivar of medium plant type. Its cycle is early (around 136 days) with a vegetative period of 85 days. ‘BRS Louro’ is lodging-resistant and moderately resistant to soil acidity. It is moderately

susceptible to shattering, which requires attention to the maturation period when approaching the harvest. Cultivar BRS Louro is classified as of the soft class in the states of RS as well as PR, presenting W values of 86 10⁻⁴J and 108 10⁻⁴J, respectively; the dough tenacity/extensibility ratio (P/L) presents mean values of 0.81. The falling number, which refers to the enzymatic grain activity, is around 370 seconds, which indicates moderate resistance to pre-harvest sprouting. The protein composition, specifically glutenins, contains the bands n, 2+12 and 7+8. In respect of the reaction to the main wheat diseases the cultivar is moderately resistant to septoria glume blotch (*Stagonospora nodorum*) and to scab (*Fusarium graminearum*). It is moderately susceptible to leaf rust (*Puccinia triticina*), to powdery mildew (*Blumeria graminis* f. sp. *tritici*) and wheat streak mosaic virus. BRS Louro has upright leaves with predominantly colorless auricles. The ears are fusiform, awned, with light red and oblong semi-flint grains. Mean weight of a hectoliter was 78.50 kg hl⁻¹ in the samples collected for indexation and extension and the weight of a thousand seeds was 32.79 g.

SEED MAINTENANCE AND DISTRIBUTION

‘BRS Louro’ is indexed and protected by the Ministério da Agricultura, Pecuária e Abastecimento-MAPA (Ministry of Agriculture, Animal Husbandry and Supply) under numbers 17654 and 00601, respectively. Embrapa Wheat is in charge of the genetic seed of cultivar BRS Louro, the Serviço Nacional de Tecnologia da Embrapa (SNT) is responsible for basic seed and the Instituidores da Fundação Pró-Sementes de Apoio a Pesquisa in partnership with the Embrapa for certified seed.

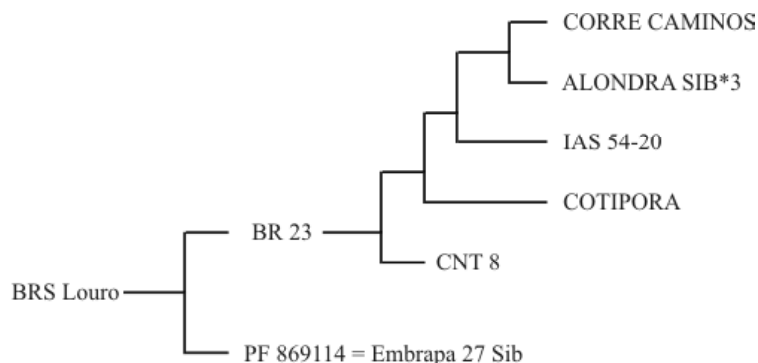


Figure 1. Pedigree of BRS Louro

Table 1. Grain yield means of the years when cultivar BRS Louro participated in the VCU (Value for Cultivation and Use) trial aiming at indexation, in the different environments of evaluation

State	Local	Year	BRS Louro (kg ha ⁻¹)	Controls (kg ha ⁻¹)			% Relative*	CV %
				T ₁	T ₂	T _{M2}		
RS	Inhacorá (season 1)	2001	3099	3054	2592	2823	110	10.79
RS	Inhacorá (season 2)	2001	1586	2294	2049	2171	73	14.27
RS	São Luiz Gonzaga	2001	2591	3545	2399	2972	87	14.09
RS	São Borja	2001	2754	2792	2627	2710	102	12.65
RS	Piratini	2001	2219	2060	1777	1918	116	16.94
RS	Tupanciretã	2001	2982	2839	1870	2355	127	11.35
RS	Tapera	2001	3163	2663	3190	2926	108	14.41
RS	Passo Fundo (season 1)	2001	3360	2784	2914	2849	118	11.94
RS	Passo Fundo (season 2)	2001	3636	3462	3626	3544	103	10.52
RS	Vacaria	2001	4126	4155	3701	3928	105	10.08
SC	Campos Novos	2001	4391	4991	4448	4720	93	6.45
PR	Cascavel	2001	2536	2681	2733	2707	94	10.36
PR	Guarapuava	2001	3979	2387	4096	3241	123	13.11
PR	Ponta Grossa	2001	4508	4090	4087	4089	110	12.54
MS	Ponta Porã	2001	2569	2835	2191	2513	102	12.86
Mean		2001	3166	3108	2953	3031	104	
SP	Paraguaçu Paulista	2002	927	960	920	940	99	19.9
SP	Manduri	2002	1487	1847	1493	1670	89	14.84
MS	Ponta Porã	2002	2634	2823	2755	2789	94	12.55
PR	Guarapuava	2002	2341	1837	1946	1892	124	15.25
SC	Campos Novos	2002	3563	2847	2233	2540	140	9.49
RS	Santa Rosa	2002	3437	3248	2821	3035	113	9.99
RS	Inhacorá	2002	1593	2367	1138	1753	91	16.24
RS	São Luiz Gonzaga	2002	3424	2895	2913	2904	118	9.23
RS	São Borja	2002	2708	3230	2764	2997	90	18.92
RS	Tupanciretã	2002	2923	2273	2232	2253	130	7.53
RS	Tapera	2002	2888	2037	2210	2124	136	10.66
RS	Passo Fundo (season 1)	2002	3534	3375	3207	3291	107	4.83
RS	Passo Fundo (season 2)	2002	3091	3095	3433	3264	95	4.73
RS	Vacaria	2002	4648	4440	4721	4581	101	8.02
Mean 2002			2824	2692	2516	2604	108	
General mean			2990	2893	2727	2810	106	

In 2001: T₁ = BR 23 and T₂ = Rubi; in 2002: T₁ = BR 35 and T₂ = IAPAR 78 for São Paulo Mato Grosso do Sul and Paraná and T₁ = BR 23 and T₂ = CEP 27 for Rio Grande do Sul and Santa Catarina. T_{M2} = Control means. * = Relation percentage between the grain yield mean of controls and of cultivar BRS Louro. CV = Coefficient of variation of each trial

Table 2. Means of grain yield (kg ha⁻¹) of cultivar BRS Louro in 2003 and 2004 in the different adaptation regions defined by the Ministério de Agricultura Pecuária e Abastecimento (state-specific) control means of reference in each state and relative percentage of the cultivar used for extension of cultivation to the states of Santa Catarina and Paraná

Year	Santa Catarina			Paraná		
	4	5	SC	7	8	PR
2003	3539	3764	3651	4245	4813	4435
2004	3699	5337	4518	3095	5292	3827
Mean BRS Louro	3619	4550	4085	3479	5132	4030
Mean Controls	3540 ¹	4309 ¹	3929 ¹	3707 ²	4511 ²	3999 ²
%*	102.2	105.6	103.9	93.8	113.8	100.5

¹ Control means BRS 179 and CD 105

² Control means BR 18 and CD 105

* = Relation between the grain yield mean of cultivar BRS Louro and means of the considered controls

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