

IPR 118 - Bread wheat cultivar

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ABSTRACT - Wheat cultivar IPR 118 developed by IAPAR has a good yield potential and is widely adapted. It is early maturing and moderately tolerant to shattering and soil aluminum, moderately resistant to leaf rust and presents high gluten strength for bread-making. The overall yield exceeded controls by 13%.

Key words: high gluten strength, earliness, aluminum tolerance, wide adaptation.

INTRODUCTION

IPR 118 is a bread wheat (*Triticum aestivum* L.) cultivar developed at the Agricultural Institute of Paraná State (IAPAR). After evaluation from 2000 to 2003 under the denomination LD 991, it was released for cultivation in the state of Paraná in 2004. In 2004, the cultivar was also submitted to the National Cultivar Registration Office (RNC), under Reference Number 18226 and to the National Service for Cultivar Protection (SNPC), under Certificate N° 626. The RNC extended cultivation recommendation to the states of São Paulo, Mato Grosso do Sul and Santa Catarina in 2005.

PEDIGREE AND BREEDING METHOD

Cultivar IPR 118 was originated in 1991 by a single cross of the inbred lines OC 852 and PG 8852, at the Experimental Station of IAPAR in Londrina-PR (Figure 1). The Pedigree breeding method was applied (IP 14791-6L-4L-6L-1L-0L) in annual selections of individual plants up to the F₆ generation. A description of the Wheat Breeding

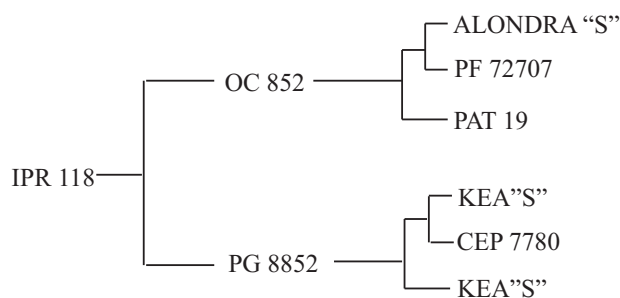


Figure 1. Pedigree of IPR 118

Program and its objectives is given in Riede et al. (2001).

The advanced inbred line LD 991 was evaluated in the Preliminary Yield Trial in 1999; Regional Yield Trial in 2000; and State Yield Trials from 2001 to 2003. The variety was described and tested for distinctness, homogeneity and stability (DUS) in 2002 and 2003 in Londrina-PR-Brazil.

Breeder seed was initially obtained when LD 991 was evaluated in the Preliminary Yield Trial. Thereafter, seed was multiplied in medium to large scale, under preservation of the original characteristics and genetic purity. Upon cultivar release, the stock of available

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Foundation Seed was 1500 bags (75 t), which were distributed to selected seed producers. Annually, a quantity of breeder seed is produced to provide new pure stock as nucleus source for further generations.

PERFORMANCE

IPR 118 was evaluated for grain yield and general performance from 2000 to 2003, by the Cultivar Evaluation Network headed by IAPAR, Embrapa-Soja,

and Fundação Meridional (Table 1). The Quality Laboratory of IAPAR evaluated the technological quality (main traits shown in Table 2). HMW - High molecular weight glutenin subunits of IPR 118 are: 2*; 7 + 8; 5 + 10, which scores a value of 10 out of 10 (Payne et al. 1987). The alveographic value (W) that measures gluten strength indicates the classification as bread-making wheat. The balance between gluten tenacity and extensibility (P/L values) is good (Riede 2001 and Riede et al. 2001).

Table 1. Average grain yield in kg ha⁻¹ of cultivar IPR 118 and respective controls, across eight adaptation regions in four states and different years of evaluation

Adaptation Region	State	Year	Nr. of Locations	IPR 118	Mean of Controls	% of Controls
6	PR	2000	2	3287	2995	110
		2001	3	4399	4208	105
		2002	2	3111	3355	93
		2003	4	4449	3933	113
Mean R6			3812	3623	105	
7	PR	2001	5	3548	3376	105
		2002	3	3387	3145	108
		2003	5	4222	3853	110
Mean R7			3719	3458	108	
8	PR	2001	3	4209	3355	125
		2002	3	3905	3086	127
		2003	3	5131	4232	121
Mean R8			4415	3558	124	
9	MS	2003	2	2408	2354	102
		2004	4	3480	3138	111
		2005	2	3006	2907	103
Mean R9			2965	2800	106	
11	SP	2003	2	3698	3502	106
		2004	2	6186	5001	124
		2005	2	4203	3920	107
Mean R11			4696	4141	113	
12	SP	2003	2	2510	2378	106
		2004	2	6244	5309	118
		2005	2	1428	1518	94
Mean R12			3394	3068	111	
4	SC	2003	2	2282	2174	105
		2004	2	5043	3507	144
		2005	2	2419	2542	95
Mean R4			3248	2741	118	
5	SC	2003	2	3713	2981	125
		2004	2	4747	4033	118
		2005	2	2830	2651	107
Mean R5			3763	3222	117	
General Mean			3753	3335	113	

Control cultivars: Trigo BR 18 and Trigo BR 35

Table 2. Technological quality parameters of cultivar IPR 118, evaluated from 2000 to 2004, at different sites of the Adaptation Regions 6 (North), and 7 (Center-West) and 8 (South) of Paraná State

Adaptation Regions	W ¹	P/L ²	PRO ³	FN ⁴	Nº of Samples
Mean of Region 6	292	1.18	15.6	411	9
Mean of Region 7	269	1.72	17.4	365	5
Mean of Region 8	318	1.19		355	3
General Mean	289	1.36	16.5	386	

¹W: Alveograph value; ²P/L: Relation between gluten tenacity and elasticity; ³PRO: Percentage of protein; and ⁴FN: Hagberg Falling Number

OTHER CHARACTERISTICS

IPR 118 is an early-maturing cultivar; flowering occurs after approximately 67 days and maturity within 119 days. It was rated moderately resistant to leaf and stem rusts, and susceptible to head sprouting in artificially induced germination tests.

IPR 118 was primarily released for cultivation in the Adaptation Regions 6, 7 and 8 of Paraná state considering the major attributes good yield potential and aluminum tolerance. Cultivation extension was granted for the Adaptation Regions 4 and 5 in Santa

Catarina, 9 in Mato Grosso do Sul as well as 11 and 12 in São Paulo. Main agronomic traits and kernel properties are shown in the Tables 3 and 4.

MAINTENANCE AND DISTRIBUTION OF FOUNDATION SEED

Foundation seed of IPR 118 is produced and distributed by IAPAR (Rodovia Celso Garcia Cid, Km 375, and P.O. BOX 481). Seed samples for research and breeding purposes can be obtained at this address.

Table 3. Agronomic traits of IPR 118 and control cultivars

Cultivar	Plant Maturity (d)	Plant Height (cm)	Lodging Resistance	Shattering Resistance	Aluminum Tolerance
IPR 118	119	82	MS ¹	MT ²	MT
BR 18	114	74	MS	MT	MSE
IPR 85	113	85	MS	MT	MT

¹MS: Moderately susceptible; ²MT: Moderately tolerant; ³MSE: Moderately sensitive

Table 4. Kernel characteristics of IPR 118 and control cultivars

Cultivar	Kernel Hardness	Sprouting Resistance	Hectoliter Weight (g)	TKW ¹ (g)
PR 118	Medium Hard	S ²	76	33
BR 18	Hard	S	79	45
IPR 85	Hard	MT ³	80	47

¹TKW: Thousand kernel weight; ²S: Sensitive; ³MT: Moderately tolerant

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