IPR 85 - Bread wheat cultivar

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ABSTRACT

The wheat cultivar IPR 85, developed by IAPAR, has important traits including early maturity and vitreous, red colored kernels. It is moderately tolerant to aluminum in the soil, moderately resistant to sprouting and shattering. It also presented moderate resistance to powdery mildew and leaf rust. The quality parameters indicated overall high gluten strength, demonstrated by the alveographic W value of 371.10^{-4} J, and Hagberg Falling Number of 455 s, which indicates high quality for bread making or blending purposes. The mean grain yield was 3870 kg/ha in the North and Center-West regions of Paraná State.

KEY WORDS: *Triticum aestivum*, cultivar description, quality, seed production, earliness.

INTRODUCTION

IPR 85 is a bread wheat cultivar (*Triticum aestivum* L.) developed by the Agricultural Institute of Paraná State (IAPAR). After evaluation in the 1996, 1997 and 1998 seasons under the inbred line denomination LD 941, it was released for cultivation in Paraná in 1999. In 2000, it was submitted to the National Service for Cultivar Protecion of the Ministry of Agriculture and in 2001 received the Protection Certificate Number 00193. The recommended area for cultivation was extended to Mato Grosso do Sul in 2002.

PEDIGREE AND BREEDING METHOD

The cultivar IPR 85 originated from a single cross between the cultivars IAPAR 30 and Trigo BR 18 made in 1987, at the Experimental Station of IAPAR in Londrina-PR (Figure 1). The breeding method used was the Modified Pedigree, **IP8966-3L-0L-0L-3L-0L** with annual selections of individual plants or bulks according to generation and the field conditions (Riede et al., 2001). The inbred line LD 941, was evaluated in the Preliminary Yield Trial in 1995; the Regional Yield Trial in 1996; and in State Yield Trials in 1997 and 1998 (Campos et al., 1999).

Breeder's seed was obtained incrementally, initiating when LD 941 was evaluated in a Preliminary Yield Trial. After that, medium and large seed increases were carried out, maintaining the original characteristics and genetic purity. Upon cultivar release, the available stock of Foundation Seed was distributed among eight carefully chosen seed producers. Annually, a quantity of Breeder's seed is produced in order to provide new pure stock.

PERFORMANCE

IPR 85 was evaluated for grain yield from 1996 to 1999 (Campos et. al., 1999), and 2001 (Table 1). Technological quality evaluations were done at Quality Laboratories of EMBRAPA – Trigo and IAPAR. The main evaluated characteristics are presented in Table 2. HMW - High molecular weight subunit glutenins of IPR 85 are: 1, 17+18, and 5+10, which scores 10, the highest possible quality score for strong dough strength (Lukow et al. 1989). After quality evaluations, IPR 85 was rated has having very good quality for bread making or blending purposes according to parameters described in Guarienti, 1996 and Riede, 2001.

OTHER CHARACTERISTICS

IPR 85 is an early maturity cultivar, flowering in approximately 60 days and maturing in 113 days. It shows moderate resistance to powdery mildew and leaf rust. It was released for cultivation in the Adaptation Regions 6 and 7, considering the major atributes like earliness, disease resistance and technological quality (IAPAR, 1999). The main agronomic traits and kernel properties are presented in Tables 3 and 4. The recommendation area for cultivation was extended to Region 9 of Mato Grosso do Sul in 2002.

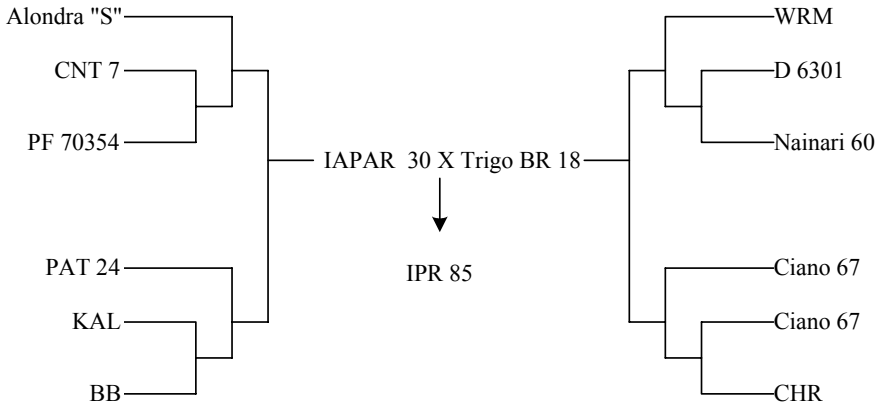

Figure 1. Ancestry of IPR 85.

Table 1. Average grain yield in kg/ha of cultivar IPR 85 and respective controls, over five years of evaluation in de Adaptation Regions 6 (North) and 7 (Center-West) of Parana State.

Cultivar	1996	1997	1998	1999	2001	General Mean
IPR 85	3860	3725	4060	3945	3750	3870
IAPAR 29	3815	3620	3545	3685	3305	3590
Trigo BR 18	4045	3330	3865	4150	3590	3800

Table 2. Technological Quality parameters of cultivar IPR 85, evaluated from 1996 to 2001, in different locations of the Adaptation Regions 6 (North) and 7 (Center-West) of Paraná.

Adaptation Regions	W[1/]	P/L[2/]	PRO[3/]	SDS[4/]	FN[5/]
Mean of Region 6	374	1.57	12.8	14.6	479
Mean of Region 7	362	1.82	15.3	12.9	388
General Mean	371	1.63	13.5	14.2	455

[1/] W: Alveograph value; [2/]P/L: Relation between gluten tenacity and elasticity; [3/]PRO: Percentage of protein; [4/]SDS: Sedimentation value and [5/]FN: Hagberg Falling Number.

Table 3. Agronomic traits of IPR 85 and check cultivars.

Cultivar	Plant Maturity (d)	Plant Height (cm)	Lodging Resistance	Shattering Resistance	Aluminum Tolerance
IPR 85	113	85	MS[1/]	MR[2/]	MT[3/]
IAPAR 29	120	80	R	MR	S
Trigo BR 18	114	74	MS	MS	MSE

[1/]MS: Moderately Suscetible and R: Resistant; [2/]MR: Moderately Resistant; [3/]MT: Moderately Tolerant; S: Sensitive and MSE: Moderately Sensitive.

Table 4. Kernel characteristics of IPR 85 and check cultivars.

Cultivar	Kernel Hardness	Sprouting Resistance	Hectoliter Weight (g)	TKW[1/] (g)
IPR 85	Vitreous	MR[2/]	81	45
IAPAR 29	Vitreous	S	78	32
Trigo BR 18	Vitreous	S	79	45

[1/] TKM: Thousand Kernel Weight; [2/] MR: Moderately Resistant and S: susceptible.

MAINTENANCE AND DISTRIBUTION OF FOUNDATION SEED

Foundation seed of IPR 85 is produced and distributed by IAPAR, located at Rodovia Celso Garcia Cid, Km 375, P.O. Box 481, CEP 86001-970, Londrina-PR-Brazil. Small samples of seed for research and breeding purposes can be obtained at this address.

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