

IPR 87 - Bread wheat cultivar

Carlos Roberto Riede*; Luiz Alberto Cogrossi Campos; Maria Brígida dos Santos Scholz and Pedro Sentaro Shioga

Instituto Agronômico do Paraná (IAPAR), Área de Melhoramento e Genética Vegetal, Caixa Postal 481, CEP 86001-970, Londrina, PR, Brazil; (* Corresponding Author. E-mail: crriede@pr.gov.br)

ABSTRACT

The wheat cultivar IPR 87, developed by IAPAR, presents as important traits, good yield potential, medium-hard and red color kernels. It is moderately resistant to lodging, and moderately resistant/moderately susceptible to sprouting. It presented moderately susceptibility to leaf rust, wheat blast, bydv, and wmv. The quality parameters indicated overall intermediate gluten strength, given by the alveographic W value of 170.10⁻⁴ J, and Hagberg Falling Number of 327 s, which indicates good quality for biscuits and cake industry. Bread making can be done by blending IPR 87 flour with another stronger wheat flour. The mean grain yield was 4230 kg/ha in the North and Center-West regions of Paraná State.

KEY WORDS: *Triticum aestivum*, cultivar description, grain yield, seed production.

INTRODUCTION

IPR 87 is a bread wheat cultivar (*Triticum aestivum* L.) developed by the Agricultural Institute of Paraná State (IAPAR). After evaluation in the 1998, 1999 and 2001 seasons under the inbred line denomination LD 971, it was released for cultivation in Paraná in 2002. In this same year, it was submitted to the National Service for Cultivar Protection of the Ministry of Agriculture, for registration and protection.

PEDIGREE AND BREEDING METHOD

The cultivar IPR 87 originated from a single cross between the cultivars IOC 878 and IAPAR 29, made in 1987 at the Experimental Station of IAPAR in Londrina-PR (Figure 1). The breeding method used was the Pedigree, **IP11794-2L-1L-1L-3L-0L** with annual selections of individual plants up to the F₅ generation (Riede et al., 2001). The advanced uniform F₆ line was bulked and evaluated in an augmented design experiment in 1996.

The derived inbred line LD 971, was evaluated in the Preliminary Yield Trial in 1997; Regional Yield Trial in 1998; and State Yield Trials in 1999 and 2001 (Riede et al., 2002). Variety description was obtained along with DHE experiments.

Breeder's seed was obtained through small increases, initiating when LD 971 was evaluated in a Preliminary Yield Trial. After that, medium and large seed increases were done, maintaining the original

characteristics and genetic purity. Upon cultivar release, the available stock of Foundation Seed was 1500 bags (75 tons.), which were distributed among selected seed producers. Annually, a quantity of Breeder's seed is produced in order to provide new pure stock.

PERFORMANCE

IPR 87 was evaluated for grain yield from 1998 to 1999, and 2001 (Riede et al., 2002), (Table 1). The technological quality evaluations were done at Quality Laboratory of IAPAR. The main evaluated characteristics are presented in Table 2. HMW - High molecular weight subunit glutenins of IPR 87 are: 2*, 17+18, and 2+12, which scores 8 out of 10 (Payne et al., 1987). Although IPR 87 has been classified as soft wheat (weak gluten), the alveographic values (W) for gluten strength, indicates near classification as wheat for bread making. It also presents good balance between gluten tenacity and extensibility (P/L values). These characteristics allow its use for biscuits and cakes, but when blended with stronger gluten wheat flour it can be used for the preparation of french or pan bread (Riede, 2001).

OTHER CHARACTERISTICS

IPR 87 is an intermediate maturity cultivar, flowering in approximately 74 days and maturing in 121 days. It shows moderately susceptibility to leaf rust, wheat

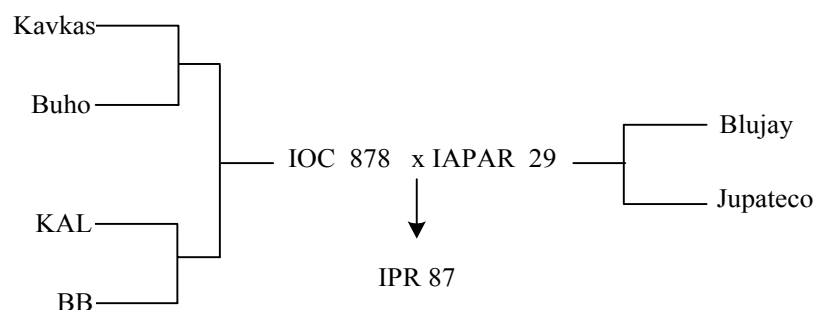


Figure 1. Ancestry of IPR 87.

blast (brusone), bydv and wheat mosaic virus.

It was released for cultivation in the Adaptation Regions 6 and 7, taking into consideration its good

yield potential, and lodging resistance (IAPAR, 2002).

The main agronomic traits and kernel properties are presented in Tables 3 and 4.

Table 1. Average grain yield in kg/ha of cultivar IPR 87 and respective checks, over three years of evaluation in de Adaptation Regions 6 (North) and 7 (Center-West) of Parana State.

Cultivar	1998	% Chk.	1999	% Chk.	2001	% Chk.	Genera l Mean	% Chk.
IPR 87	3990	113	4930	118	3820	105	4230	110
IAPAR 53	3590	101	4440	101	3630	100	3890	100
OCEPAR 16	3500	99	4370	99	3660	100	3840	99
Mean of Chks.	3545	100	4405	100	3645	100	3865	100

Table 2. Technological Quality parameters of cultivar IPR 87, evaluated from 1997 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	173	0.93	14.6	13.4	392
Mean of Region 7	163	0.90	15.8	12.6	254
General Mean	170	0.92	14.9	13.1	327

^{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 87 and check cultivars.

Cultivar	Plant Maturity (d)	Plant Height (cm)	Lodging Resistance	Shattering Resistance	Aluminum Tolerance
IPR 87	121	89	MR ^{1/}	MS ^{2/}	MSE ^{3/}
IAPAR 53	129	84	MS	MR	MT
OCEPAR 16	127	90	MR	MS	MSE

^{1/}MR: Moderately Resistant; ^{2/}MS: Moderately Suscetible; ^{3/}MSE: Moderately Sensitive; MT: Moderately Tolerant.

Table 4. Kernel characteristics of IPR 87 and check cultivars.

Cultivar	Kernel Hardness	Sprouting Resistance	Hectoliter Weight (g)	TKW ^{1/} (g)
IPR 87	Medium-Hard	MR/MS ^{2/}	74	36
IAPAR 53	Medium-Hard	MR	79	40
OCEPAR 16	Vitreous	S	77	37

^{1/}TKM: Thousand Kernel Weight; ^{2/}MR: Moderately Resistant; MS: Moderately Susceptible and S: Susceptible.

MAINTENANCE AND DISTRIBUTION OF FOUNDATION SEED

Foundation seed of IPR 87 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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Received: August 12, 2002;

Accepted: September 10, 2002.