

## IPR Juriti – common bean cultivar

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### ABSTRACT

IPR Juriti is a common bean cultivar developed by the Agronomic Institute of the State of Paraná (IAPAR), released for sowing in all areas of the states of Paraná and São Paulo. It belongs to the carioca commercial group, and has a high yield potential and erect stem and branches, which favors seed quality and direct mechanical harvesting. It flowers and reaches maturity at 42 and 89 days after germination, respectively. It is resistant to the common mosaic virus, rust and powdery mildew, and moderately resistant to the common bacterial blight. It also presents a moderate tolerance to acid soils, high temperatures and water stress, which may happen during the reproductive stage.

**KEY WORDS:** *Phaseolus vulgaris*, common bean, cultivar description, seed production.

### INTRODUCTION

IPR Juriti is a common bean cultivar (*Phaseolus vulgaris* L.) from the carioca commercial group, which was developed by the Agronomic Institute of the State of Paraná (IAPAR). After field evaluations in the states of Paraná and São Paulo, during the 1997/98, 1998/99, 1999/2000 and 2000/2001 agricultural years under the inbred line denomination LP96-37, it was released for sowing all over the states of Paraná and São Paulo. The cultivar was submitted to the National Service of Cultivar Protection – SNPC at the Ministry of Agriculture for registration and protection, and was registered in SNPC under the number 02495, on August 29, 2002.

### PEDIGREE AND BREEDING METHODS

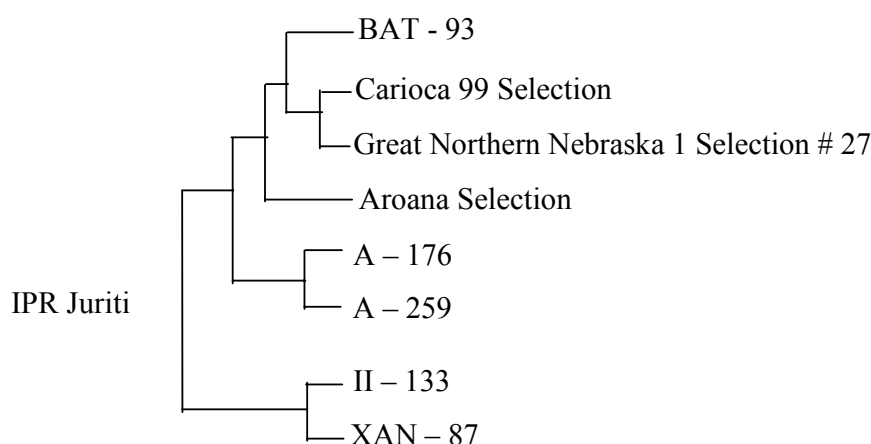
IPR Juriti (Figure 1) originated from a single plant selection in the F<sub>3</sub> single pod descent population (Fehr, 1987), obtained from multiple crosses among inbred lines. The progeny for the selected plant number 10 was carried out using the pedigree method up to generation F7, from which the inbred line LP96-37 was selected. The inbred line was evaluated in 25 and 23 different environments in the states of Paraná and São Paulo respectively, during 3 crop seasons: 18 in the dry season, 9 in the autumn-winter season and 21 in the wet season. The number of locations ranged from 5 to 11 per season.

Breeder's seed was obtained by using two generations of progeny tests. An initial sample of 500 plants carrying authentic cultivar traits was obtained from

the experimental material and all seeds were sowed in individual rows. The rows presenting unusual plants or seeds were eliminated and all seeds from the homogeneous rows were individually harvested and sowed in individual blocks in the following season. The homogeneous blocks for plant and seed characteristics were combined in a single stock to form the breeder's seed.

### PERFORMANCE

IPR Juriti has been registered for sowing in the states of Paraná and São Paulo. It flowers and reaches its physiological maturity at 42 and 89 days after emergence respectively and has a high yield potential. During the yield trials of the colored bean genotypes, which took place in 25 environments in the state of Paraná in the 1997/98, 1998/99, 1999/2000 and 2000/2001 agricultural years, 13 trials were established during the wet season and 12 in the dry season. IPR Juriti cultivar showed an average yield of approximately 2,658 Kg/ha, which was 20.50%, 11.44% and 16,71%, higher than the average yield of the Carioca, Pérola and IAPAR 81 cultivars respectively, used as control (Table 1). In the state of São Paulo, the yield trial was settled in the 23 environments in the 1999/2000 and 2000/2001 agricultural years: six in the dry season, nine in the autumn-winter season and eight in the wet season. IPR Juriti showed an average yield of approximately 2,665 kg/ha, which was higher than the average yield of the control IAC Carioca, IAC Carioca Eté, IAPAR 81 and Pérola in approximately 11.04%, 10.11%,



**Figure 1.** IPR Juriti pedigree

8.03% and 19.92% respectively (Table 2). The yield potential of the IPR Juriti is approximately 3,976 kg/ha. When compared to the cultivar control, one of the advantages of this cultivar is the high yield potential and erect architecture of the plant, which favors seed quality and direct mechanical harvesting.

## OTHER CHARACTERISTICS

IPR Juriti has an indeterminate growth habit, an average plant height of 0.6m, erect stem and branches, and is classified as a plant type II (CIAT, 1987). Direct

mechanical harvesting is possible with some acceptable losses, as long as the area declivity, population and plant development are adequate. It carries the gene I, which allows for resistance to the common mosaic virus (Drifjhou et al., 1978) and it shows resistance to rust (*Uromyces appendiculatus*) and powdery mildew (*Erysiphe polygoni*). It is moderately resistant to the common bacterial blight (*Xanthomonas axonopodis* pv. *phaseoli*). It is also fairly tolerant to acid soils and high temperatures and small hydric deficits that may happen during the reproductive stage. Its flowers are white, and the average insertion height of the first pod is 0.13m; the

**Table 1.** Seed yield (Kg/ha) of IPR Juriti, Carioca, Pérola and IAPAR 81 obtained in 25 environments in the state of Paraná, 13 in the wet season and 12 in the dry season during the 1997/98, 1998/99, 1999/2000 and 2000/01 agricultural years.

Cultivars	Wet 1997	Dry 1998	Wet 1998	Dry 1999	Wet 1999	Dry 2000	Wet 2000	Dry 2001	General mean
IPR Juriti	3225	2362	2325	2940	2468	2818	2508	2732	2658
Carioca	2631	1977	2021	2410	1962	2511	2022	2176	2206
Pérola	3084	2133	2230	2662	2164	2582	1799	2479	2385
IAPAR 81	-	-	-	-	2048	2498	2331	2234	2277

**Table 2.** Seed yield (Kg/ha) of IPR Juriti, IAC Carioca, IAC Carioca Eté, IAPAR 81 and Pérola obtained in 23 environments in the state of São Paulo, six in the dry season, nine in the autumn-winter and eight in the wet season during the 1999/2000 and 2000/2001 agricultural years.

cultivars	dry 1999	aut/win 1999	wet 1999	dry 2000	aut/win 2000	wet 2000	general mean
ipr juriti	1985	2865	2464	2512	2343	3299	2665
iac carioca	1637	2422	2047	2306	2555	2878	2400
iac carioca eté	1975	2628	2078	2284	2077	3126	2420
iapar 81	1610	2569	1942	2556	2259	3173	2467
pérola	-	-	-	2104	1522	3069	2222

average pods per plant and seeds per pod are 15 and 6, respectively.

Seed teguments are opaque and beige-colored with brown stripes. The average weight of 1,000 seeds is approximately 257 grams. It has good culinary qualities, and the average cooking time is approximately 28 minutes. The average protein content is approximately 23%.

#### **MAINTENANCE AND DISTRIBUTION OF PEDIGREE SEEDS**

The foundation seed of IPR Juriti is produced and commercialized by IAPAR, located at Rodovia Celso Garcia Cid, Km 375, P.O. Box 481, CEP 86001-970, Londrina, PR, Brazil. Small amounts of seeds for research or evaluation tests can be obtained at this address.

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