

IPR Graúna – common bean cultivar

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ABSTRACT

IPR Graúna is a common bean cultivar developed by the Agronomic Institute of the State of Paraná (IAPAR) and released for sowing in all areas of the state of Paraná. It belongs to the black commercial group, has a high yield potential and erect stem and branches, which favors seed quality and direct mechanical harvesting. It flowers and reaches maturity at 38 and 86 days after germination, respectively, and is resistant to the common mosaic virus, rust and powdery mildew and moderately resistant to the common bacterial blight and the angular leaf spot.

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

INTRODUCTION

IPR Graúna is a common bean cultivar (*Phaseolus vulgaris* L.) from the black commercial group developed by the Agronomic Institute of the State of Paraná (IAPAR). After field evaluations in Paraná (in the south of Brazil) during the 1998/99, 1999/2000 and 2000/2001 agricultural years under the inbred line denomination LP98-1, it was released for sowing all over the state of Paraná. 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 04163, on August 29, 2002.

PEDIGREE AND BREEDING METHODS

IPR Graúna (Figure 1) was originated from a single plant selection in the F₄ single pod descent population (Fehr, 1987) that was obtained from multiple crosses

among inbred lines. The progeny for the selected plant number 16 was carried out using the pedigree method up to generation F7, from which the inbred line LP8-1 was selected. The inbred line was evaluated in 19 different environments in the state of Paraná, during two crop seasons: 11 in the wet season and 8 in the dry season. The number of locations ranged from 3 to 4 per season.

Breeder's seed was obtained through the use of 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.

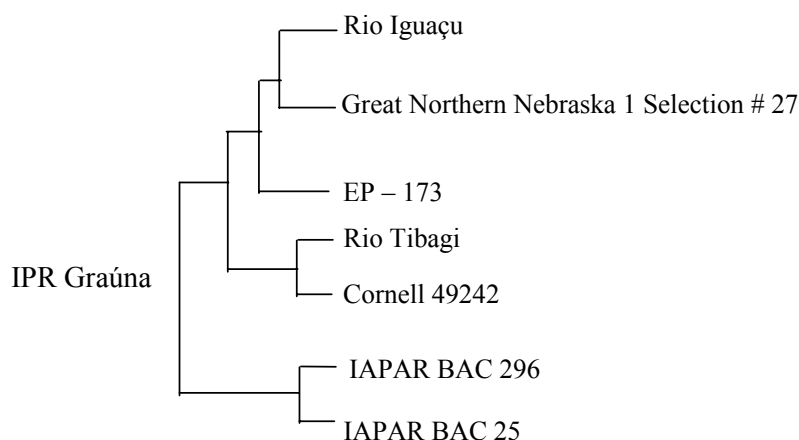


Figure 1. IPR Graúna pedigree.

PERFORMANCE

IPR Graúna has been registered for sowing all over the state of Paraná. It flowers and reaches its physiological maturity at 38 and 86 days after emergence respectively, and has a high yield potential. During the yield trials of the black bean genotypes, which took place in 19 environments in the state of Paraná in the 1998/99, 1999/2000 and 2000/2001 agricultural years, 11 trials were established during the wet season and eight in the dry season. IPR Graúna

cultivar showed an average yield of approximately 2,369 kg/ha, which was similar to the FT Nobre average yield, and 11.80%, 17.05% and 12.54%, which was higher than average yield of IAC Una, IAPAR 44 and Diamante Negro cultivars respectively, used as control (Table 1). The yield potential of the IPR Graúna is approximately 3,775 kg/ha. When compared to the cultivar control, one of the advantages of this cultivar is the high yield potential and resistance to the main diseases that occur in the state of Paraná.

Table 1. Seed yield (Kg/ha) of IPR Graúna, FT Nobre, IAC Una, IAPAR 44 and Diamante Negro obtained in 19 environments in Paraná, 11 in the wet season and eight in the dry season, during the 1998/99, 1999/2000 and 2000/01 agricultural years.

Cultivars	Wet 1998	Dry 1999	Wet 1999	Dry 2000	Wet 2000	Dry 2001	General mean
IPR Graúna	2117	2766	1657	2894	2441	2839	2369
FT Nobre	2011	2377	1973	2919	2559	2582	2388
IAC Una	1890	2186	1829	2548	2270	2077	2119
IAPAR 44	1938	1857	1796	2331	2103	2162	2024
Diamante Negro	-	-	1406	2594	2321	2496	2105

OTHER CHARACTERISTICS

IPR Graúna 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 (Drifjhout 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*) and the angular leaf spot (*Phaeoisariopsis griseola*). Its flowers are purple, and the average insertion height of the first pod is 0.16m; the average pods per plant and seeds per pod are 13 and 7, respectively.

The seeds have a black coat and are opaque and elliptic. The average weight of 1,000 seeds is approximately 241 grams. It has good culinary qualities; the average cooking time is approximately 29 minutes, and the average protein content is approximately 22%.

MAINTENANCE AND DISTRIBUTION OF PEDIGREE SEEDS

The foundation seed of IPR Graúna 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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