

BREEDING OF COMMON BEAN "CARIOCA" TYPE TO OBTAIN COMERCIAL CULTIVARS

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Bean cultivars with carioca seed type have preferential acceptance by consumers almost in all regions of Brazil. This is one of the main reasons why this type of bean is largely cultivated from north to south of Brazil.

The great diversity of environments in which carioca is cultivated is responsible for many problems which demand research strategies for the creation of cultivars having high productivity, resistant or tolerant to major diseases with erect plant type that permit mechanical harvest, and commercial seed color type.

National Rice and Bean Research Center (CNPAF-EMBRAPA), started a breeding program through hybridization, with the objective of selecting genotypes of carioca bean type and with others desired characteristics in various regions of Brazil.

In winter of 1989 (July to September) 78 lines were tested. Among these, 47 were selected. From the field evaluation in the dry period of 1990 (February to April) and in the winter of 1991 14 superior bean lines were selected (Table 1).

Selected lines were tested for productivity in plots of two rows, 5m long, with 0.60-m row spacing and 12 plants per meter.

Lines were tested for natural incidence of common bacterial blight (*Xanthomonas campestris* pv. *phaseoli* (Smith) Dye), rust (*Puccinia phaseoli* var. *typica* Arth.), angular leaf spot (*Isariopsis griseola* Sacc.), powdery mildew (*Erysiphe polygoni* DC), utilizing a scale from 1 (resistant) to 9 (highly susceptible) described by Rava et al. (1988). Evaluation was also done for plant type and adaptation using the a scale from 1 (good) to 9 (poor) described by Costa et al. (1990). Lines were also tested with artificial inoculation for resistance to four physiological races of *Colletotrichum lindemuthianum* (Sacc. & Magn.) Scribes and to the bean common mosaic virus strain NL-3. The fourteen lines are in the moment being tested on the bean network trials which integrated the main research institutions working on bean in Brazil.

Table 1. Performance of fourteen lines of common bean "carrioca" type in three planting seasons, selected at CNPAF/EMBRAPA-BRASIL

Line	1989			1990			1991																
	YIELD (kg/ha)	CBB ¹	RI ²	PM ³	AD ⁴	ARQ ⁵	YIELD (kg/ha)	CBB	RI	RR ⁶	ALSL ⁷	ALSP ⁸	Races of C. Ladd Alfa Delta Kapa Zeta CM ⁹			Yield (kg/ha)	ALSL	RI	CBB				
AN 910523	2275	2	1	1	5	8	1430	1	1	1	3	2	1	1	1	1	1	1	1	1922	3	1	5
AN 910234	2262	1	3	2	5	8	1401	1	2	2	5	3	1	1	1	1	1	1	1	1646	7	1	3
AN 910518	1750	5	1	1	6	8	1370	1	1	1	3	2	1	1	1	1	1	1	1	1747	3	1	6
AN 910236	2362	2	2	1	7	8	1335	1	2	3	6	4	1	2	1	2	1	1	1	1686	7	1	1
AN 910522	2050	5	1	1	6	7	1323	1	1	1	3	2	1	1	1	1	1	1	1	1851	3	1	5
AN 910233	2587	2	1	1	5	8	1311	1	1	1	6	5	1	1	1	1	1	1	1	1232	8	1	1
AN 910546	1637	2	7	2	6	6	1161	3	4	5	7	4	1	1	7	1	1	1	1	1142	8	5	1
AN 910530	2100	2	4	1	5	7	1160	1	2	4	5	2	1	1	1	1	1	1	1	1403	6	3	3
AN 910354	2300	2	3	1	4	6	1153	1	3	5	6	5	1	1	1	2	2	2	2	1240	6	1	5
AN 910392	2087	1	1	1	6	7	1070	1	1	1	7	4	1	4	4	2	2	2	2	1177	6	1	1
AN 910403	2037	2	3	1	6	8	1064	2	3	4	6	4	1	4	1	1	1	1	1	1412	8	1	1
AN 910528	2250	2	3	1	6	7	1013	1	3	4	5	3	1	1	1	1	1	1	1	1266	7	3	3
AN 910408	2325	2	2	2	5	7	978	1	2	4	7	5	1	2	1	2	1	2	2	1259	7	1	1
CARIOCA (TEST.)	2087	3	4	1	6	7	964	2	2	3	4	7	1	7	8	4	4	4	4	1459	7	3	3
AN 910535	2112	2	5	1	6	6	938	1	5	5	4	2	1	1	1	1	1	1	1	1042	4	3	6
MEAN	2151						1114													1412			
CV (%)	13.02						14.30													13.37			

¹CBB = common bacterial blight; ²RI = rust intensity; ³PM = powdery mildew; ⁴AD = adaptation; ⁵ARQ = plant type; ⁶RR = rust reaction; ⁷ALSL = angular leaf spot-leaf; ⁸ALSP = angular leaf spot-pod; ⁹CM = common mosaic; ¹⁰RR = resistant.