

RELIABILITY OF COMMON BEAN LINES EVALUATED IN THE STATE OF MINAS GERAIS, BRAZIL

¹Magno Antonio Patto Ramalho, ²Ângela de Fátima Barbosa Abreu, ¹Flávia Maria Avelar Gonçalves

¹Universidade Federal de Lavras, Cx. Postal 37, 37200-000 Lavras, MG, Brasil;
²EMBRAPA/EPAMIG, Cx. Postal 176, 37200-000 Lvras, MG, Brasil.

The state of Minas Gerais is one of the largest common bean producers in Brazil. In this state, almost the totality of the cultivated common beans is of the 'Carioca' type, that is, beige cream stripped. The breeding program of the Universidade Federal de Lavras/ Empresa de Pesquisa Agropecuária de Minas Gerais obtains, periodically, several lines with this type of grain. The best lines are evaluated in experiments carried out in three harvests - sowing in February, July and November - and usually, accentuated genotypes x environments interaction occurs.

In order to identify the best lines, in the experiments carried out in the years 1996 and 1997, in twenty environments (Table 1), the reliability index was utilized (Annicchiarico, 1992). In this method, there is the advantage of recommending the cultivars to the farmers, considering the risk of the cultivars presenting a performance below a given standard, for example the environment's average. The higher the reliability index of a given cultivar, the lower will be its probability of being unsuccessful. This is probably the main objective of the farmers at the time of choosing a cultivar.

Evaluating the materials by means of this method, it was verified that the 'Carioca' cultivar used as standard, showed performance superior to 70.5% of the environments. It is note worthy that several lines presented behavior superior to this control, among them CI-164, ANPAT 8.12, CI-21, CI-140, CI-128 and Carioca MG, in which the reliability level was superior to 95%, indicating that the lines can be recommended to the farmers since their probability of presenting behavior inferior to the environment's average is less than 5%.

Table 1. Locations, year and month of sowing of the experiments carried out in the state of Minas Gerais, Brazil.

Locations	1996			1997	
	Sowing month				
	Feb.	Jul.	Nov.	Feb.	Jul.
Lavras	X	X ^{1/}	X	X	X ^{1/}
Patos de Minas	X	X ^{1/}		X	
Lambari	X	X ^{1/}	X	X	
Sete Lagoas				X	
Ijaci			X	X	
Montes Claros		X			

^{1/} Two experiments were carried out

Table 2. Average productivity, in kg/ha, and reliability index (%) of 15 common bean cultivars in 20 environments.

Cultivars	Average	l (%)
CI-21	2010.0 a	98.5
CI-140	1986.6 a	96.2
Carioca MG	1975.2 a	97.2
CI-128	1969.2 a	95.1
ANPAT 8.12	1961.3 a	96.8
CI-164	1935.2 a	96.2
ANLAV 8.28	1899.2 b	93.7
RELAV 37.19	1856.6 b	90.7
CI-257	1853.0 b	93.7
MA 4.137	1832.6 b	90.8
ANPAT 5.12	1749.0 c	84.8
Carioca	1736.8 c	70.5
CI-48	1722.2 c	82.8
H-4	1652.6 c	78.1
CI-107	1534.3 d	61.1

Means followed by different letters are different at the 5% level of probability by the Scott Knott test.