



THE LVI

Report of The

BEAN IMPROVEMENT COOPERATIVE

No. 56 March 2013

[ISSN 0084-7747]

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Please address correspondence about BIC membership and BIC annual reports to:

Dr. Phillip N. Miklas USDA-ARS 24106 No. Bunn Road Prosser, WA 99350-9687 Phone: 509-786-9258 FAX: 509-786-9277

phil.miklas@ars.usda.gov http://www.css.msu.edu/bic SITE REGULARLY UPDATED

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MORPHOAGRONOMIC CHARACTERIZATION OF LIMA BEAN POPULATIONS – BOCA DE MOCA LANDRACES

José Ribamar Assunção Filho¹, Josilane Souza da Penha¹, Ângela Celis de Almeida Lopes^{1*}, Regina Lucia Ferreira Gomes^{1*}, Kaesel Jackson Damasceno e Silva² and Carlos Tadeu dos Santos Dias³

¹Federal University of Piauí - UFPI, ZIP CODE 64049-550, Teresina, PI, Brazil; ²Embrapa Mid-North, CPAMN, ZIP CODE 64006-220, Teresina, PI, Brazil; ³Luiz de Queiroz College of Agriculture, ZIP CODE 13418-900, Piracicaba/SP *Corresponding authors: acalopes@ufpi.edu.br and rlfgomes@ufpi.edu.br

INTRODUCTION

Lima bean (*Phaseolus lunatus* L.) is one of four species of the genus *Phaseolus* commercially exploited, with the potential to provide vegetable protein. In Brazil, mainly in the Northeast region, is a income and alternative food source for the population. Boca de moça landrace is among the most widely consumed in the Piauí State, due to color pattern characteristic of their seeds. This study aimed to characterize lima bean populations of the Boca de moça landrace, based on agronomic traits, to verify the genetic diversity and to select individual plants with potential for improvement.

MATERIAL AND METHODS

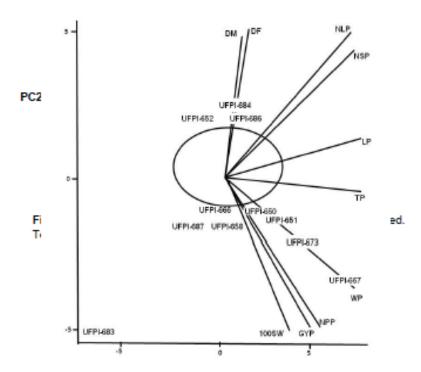
Lima bean subsamples from BAG UFPI were collected in conties of the Piaui State. The experiment was conducted in Teresina, PI county, during the period January-September 2010. Were evaluated the following traits: days to flowering and maturity (DF and DM), number of pods per plant (NPP); length, width and thickness pod (LP, WP and TP respectively); number of locules per pod (NLP); number of seeds per pod (NSP); one hundred seed weight (100 SW), grain yield per plant (GYP). Mean Euclidean distance and component principal analysis were performed by software SAS (SAS INSTITUTE, 1989) and GENES (CRUZ, 2001).

RESULTS AND DISCUSSION

In the principal component analysis (PCA), the first three principal components explained about 74.57% of the variation. The traits that accounted for the highest effect on the first principal component were length (0.43), width (0.38) pod and grain yield per plant (0.37), indicating that represents production components. Thus, genotypes with high values for the principal component 1 present high average for production components. Number of days to flowering and maturity were the descriptors with the highest impact on the second principal component, which represent the culture life cycle. Figure 1 illustrates the first two principal components of diversity for production components and lyfe cycle. UFPI-666, UFPI-650, UFPI-651, UFPI-687, UFPI-658, UFPI-673 and UFPI-667 subsamples were the earliest and presented high values for production components. UFPI-667 and UFPI-682 subsamples were most divergent by mean Euclidean distance. Since the new hybrids to be established must be based on the magnitude of their dissimilarities and potential per se of the parents, therefore the subsamples mentioned can be potential combination, because presented high means for desirable traits. Based on the individual plant production, were selected 13 plants earliest and greater production among UFPI-701, UFPI-653, UFPI-673 e UFPI-667 subsamples.

CONCLUSIONS

UFPI-666, UFPI-650, UFPI-651, UFPI-687, UFPI-658, UFPI-673 and UFPI-667 showed life cycle early and higher average for production components. The subsamples UFPI-667 and UFPI-682 showed greater dissimilarity and high complementarities for desirable traits.



ACKNOWLEDGMENTS

The authors thank the Brazilian National Research Council, CNPq, for a scholarship and for funding the project.

REFERENCES

CRUZ, C.D. Aplicativo computacional em genética e estatística. Programa genes: versão windows, Viçosa: Editora UFV, 2001. 648p.

IBGE - Instituto Brasileiro de Geografia e Estatística. Banco de dados agregados: pesquisa: produção agrícola municipal. Rio de Janeiro, 2006. Disponível em:<

http://www.sidra.ibge.gov.br./bda/agric/default.asp?z=t&o=11&i=P > Acesso em 20 de abril de 2012.

SAS INSTITUTE. SAS/STAT user's guide: version 6. 4th ed. Cary, Estados Unidos, 846p. 1989.