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“Development on the margin”

Agronomic Characteristics and Performance of Local Common Bean Landraces (*Phaseolus vulgaris*) from Southern Brazil

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Abstract

Common bean (*Phaseolus vulgaris*) is an important component of tropical and subtropical agroecosystems and plays an important role in human nutrition, especially in developing countries. The consumption of common beans, particularly when combined with rice, provide fibers, energy, vitamins, iron, proteins, and also essential amino-acids for a relative low cost, being a strategic and feasible alternative to alleviate malnutrition and increase food security. In southern Brazil several landraces of common bean are cultivated due better environmental adaptation or farmer's cultural preferences, but only few are commercially produced, posing a significant risk of loss of agrobiodiversity. In the West part of Santa Catarina State more than 120 landraces of common beans are cultivated and an intense effort in conservation of landraces is now in course. The aim of this work is to assist the efforts of farmers, research institutes and NGO's in the on farm conservation of these varieties by improving the knowledge of agronomic traits of landraces cultivated as second summer crop (off season). A field experiment was conducted in January 2011 at the experimental area of UNOESC in Sao Jose do Cedro County, West Santa Catarina State, Brazil. A field experiment with five local landraces (Enxofre, Verde, Pelé, Ângelo, Azulão) was done in a completely randomised blocks design with four replications and planting density of 266000 plants ha⁻¹ to evaluate germination, plant height, pods/plant, number of grains per plant and pod, weight of 100 grains, and observed yield. The results were analysed for statistically significant differences. In summary, Verde had the lowest plant density (influencing almost all other factors), Enxofre and Pelé had the highest values; regarding height, Enxofre and Verde are shorter than the others; the numbers of seeds per pod was not different for all landraces; the weight of 100 seeds evidenced that Pelé produces smaller seeds, and Enxofre and Ângelo biggest seeds; although there were no significant differences for observed yield, Enxofre and Ângelo produced 741 and 634 kg ha⁻¹, respectively, indicating acceptable yields for off-season cultivation. Experiments with other landraces would be interesting to compare these results, so as other planting dates.

Keywords: Agrobiodiversity, beans, crop performance, food security, traditional varieties