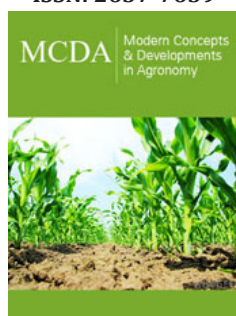


Experiment Report of Organic Bean Cultivation in Subtropical Soils

Edleusa Pereira Seide*

Department of Agricultural Sciences, State University of West Paraná, UNIOESTE, Marechal C. Rondon, PR, Brazil

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***Corresponding author:** Edleusa Pereira Seide, Department of Agricultural Sciences, State University of West Paraná, UNIOESTE, Marechal C. Rondon, PR, Brazil

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Summary

The cultivation of organic grains cultivated in a no-tillage system is a sustainable management system that brings numerous benefits in tropical soils, such as: reduction of erosion, pollutants that reach rivers and improvement in the quality of the food produced. However, its cultivation in conditions with high rainfall and heat requires great care. The present work aims to report the experiences of the research group on agroecology in the cultivation of 11 cultivars of organic beans in a no-tillage system in western Paraná, Brazil. We sought to report the main handlings and inputs used and the result of the yield obtained.

Keywords: Organic grains; Agroecology; Organic no-till system

Experience Report

The present study aims to report on the experiment of the Technological Vocational Center (CVT) in Agroecology and Cassava in Western Paraná, belonging to Universidade Estadual do Oeste do Paraná in Entre Rios do Oeste. It is at an altitude of 521m and geographical coordinates of 24°40'54" S and 54°17'3" O. The soil is classified as a typical Eutroferic Red Latosol. The total CVT area is 10 hectares and certified organic grains have been grown for over 10 years.

The soil management adopted is the no-tillage system. In winter as a crop management, green fertilization, such as oat, turnip, vetch, or a mixture of species (mix) is done, aiming to perform a crop rotation system. The plants cultivated in the area are: maize, soybeans, beans, wheat and oats.

In winter the area was cultivated with wheat, and after its harvest, 8t ha⁻¹ of poultry litter was applied and then the 11 bean cultivars were sown. The cultivars sown were: BRS FC402, IPR Tangará, ANFc 9, IPR Andorinha, IPR Sabiá, IPR Curió, IPR Campos Gerais, IPR Corujinha, IPR Tuiuiú, IPR Urutau, IPR Galha. The main characteristics of each cultivar are shown in Table 1.

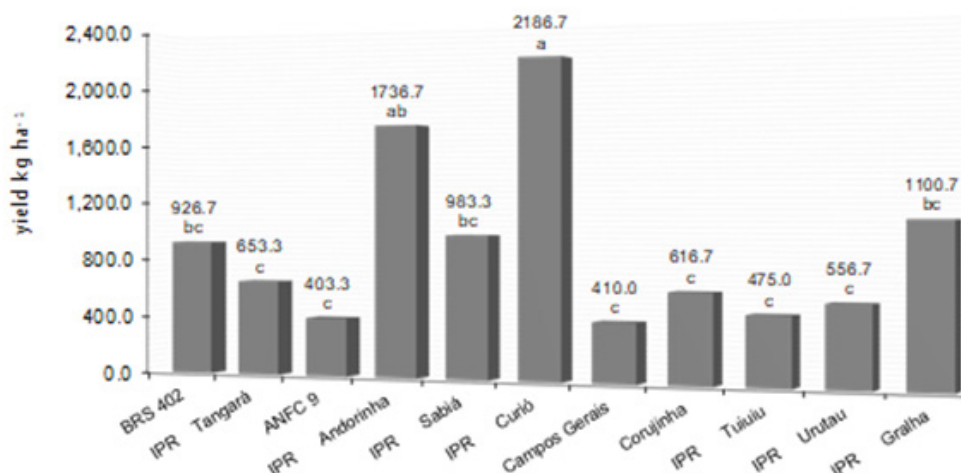
Prior to sowing, the bean seeds were treated with *Bradyrhizobium* and *BioPhos*. The mechanical sowing was on October 17th of 2020, under no-tillage system. At sowing, it was applied in the furrow 437kg ha⁻¹ of natural phosphate, enriched with magnesium silicate, cast in an electric oven at 1500 °C (yoorin®). Row spacing was 0.50 m and the number of seeds per linear meter was according to each cultivar (Table 1). The control of spontaneous plants was mechanically performed on days 11/04 and 11/05 of 2020. A manual weeding was performed when the plant was blooming.

Table 1: Cultivars evaluated in CVT and agronomic characteristics: group, average cycle in days, germination percentage, number of seeds per linear meter.

Cultivars	Group	Average Cycle (days)	Germination (%)	Number of Seeds/m linear	Plants Germinated/Linear m
BRS FC402	Carioca	85-94	91	16	8
IPR Tangará	Carioca	87	96.5	15	10
IPR Andorinha	Carioca	73	99	15	11
ANFc 9	Carioca	88-94	94	15	10
IPR Sabiá	Carioca	87	43	36	9
IPR Curió	Carioca	72	50.5	30	17
IPR Campos gerais	Carioca	88	63.5	24	18
IPR Corujinha	Pintado	-	90	16	14
IPR Tuiuiu	Black	88	74.5	18	10
IPR Urutau	Black	84	83	18	10
IPR Gralha	Black	89	28	60	11

In the area, there were infestations of pod caterpillar (*Spodoptera cosmioides*) and mite white (*Polyphagotar sunemus latus*) that required control measures. The product Tracer®, which is a non-systemic insecticide of biological origin of the spinosyns chemical group at the dose of 50ml ha⁻¹ and Lime Sulfur (1%),

was used. There was a low incidence of diseases and therefore no control was performed. In the harvest season there was high and prolonged precipitation, which delayed and prolonged the harvest period, resulting in losses mainly of the later materials. Average yield is shown in Figure 1.

**Figure 1:** Average yield of organic bean cultivars, cultivated under no-tillage system.

Conclusion

The IPR Curió variety stood out as the most productive, exceeding the national productive average by 104%. The excess rainfall in the crop reduced the quality and productivity of some varieties.

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