Maximizing of crop yield with the best revenue of using nitrogen fertilizer and inoculation of seed with bacteria in sustainable agricultural systems in soybean (Glycine max L.)

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Abstract

Objectives

This research was conducted to determine the maximum yield of soybeans and the best nitrogen fertilizer. The experiment was conducted in 1990 on a plot of land in the agricultural area of the IRRW, at a location with a temperature of 20°C and a rainfall of 300 mm per year.

Materials and Methods

The experiment was conducted using field consultants, including the use of nitrogen fertilizer and Rhizobium japonicum inoculation. The treatments were applied in split plot design, with nitrogen fertilizer as a main plot and Rhizobium japonicum inoculation as a subplot.

Results and Discussion

The results showed that the use of Rhizobium japonicum inoculation and nitrogen fertilizer increased the yield of soybeans. The highest yield was obtained when the nitrogen fertilizer was applied at 100 kg ha⁻¹ and Rhizobium japonicum was inoculated at 2,000,000 cells per seed.

Conclusion

The use of Rhizobium japonicum inoculation and nitrogen fertilizer is an effective way to increase the yield of soybeans in sustainable agricultural systems. The results of this study can be used to improve the sustainability of soybean production in the IRRW region.

References