

STUDY ON AVAILABLE NITROGEN AND PHOSPHORUS IN SOIL CULTIVATING MAIZE (*Zea mays* L.) IRRIGATED WITH BIOGAS EFFLUENT

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Summary

The study was carried out to assess the effect of using biogas effluent on the variation of available nitrogen and phosphorus concentrations, some other soil chemical parameters in the soil cultivating maize. The field experiment was conducted in a completely randomized block design with three treatments: only chemical fertilizers application, irrigated 100% biogas effluent, irrigated 75% biogas effluent. The results showed that irrigating 100% and 75% biogas effluent increased available nitrogen concentrations in double at 15 days after seeding, corresponding to 54.9 mg.kg⁻¹ and 64.5 mg.kg⁻¹; and they decreased over time. The available phosphorus concentrations in soil in treatments irrigating 100% and 75% biogas effluent increased continuously and were highest at 45 days after seeding with respect to 1.33 mg.kg⁻¹ and 1.56 mg.kg⁻¹; and then, they declined at 60 days after seeding. Maize yields obtained in the irrigated biogas effluent treatments were not significantly different from the chemical fertilizers treatment, although the available nitrogen was high in the chemical fertilizers treatment. pH values and total phosphorus contents in soil were not significantly different among treatments and between the beginning and the harvesting of crop.

Keywords: *Maize, available nitrogen, available phosphorus, yield, biogas effluent, chemical fertilizers.*