

Biomass and Biogas Yield of Maize as Affected by Nitrogen Rates with Varying Harvesting under Semi-Arid Condition of Pakistan

Authors : Athar Mahmood, Asad Ali

Abstract : Management considerations including harvesting time and nitrogen application considerably influence the biomass yield, quality and biogas production. Therefore, a field study was conducted to determine the effect of various harvesting times and nitrogen rates on the biomass yield, quality and biogas yield of maize crop. This experiment was consisted of various harvesting times i.e., harvesting after 45, 55 and 65 days of sowing (DAS) and nitrogen rates i.e., 0, 100, 150 and 200 kg ha⁻¹ respectively. The data indicated that maximum plant height, leaf area, dry matter (DM) yield, protein, acid detergent fiber, neutral detergent fiber, crude fiber contents and biogas yield were recorded 65 days after sowing while lowest was recorded 45 days after sowing. In contrary to that significantly higher chlorophyll contents were observed at 45 DAS. In case of nitrogen rates maximum plant height, leaf area, and DM yield, protein contents, ash contents, acid detergent fiber, neutral detergent fiber, crude fiber contents and chlorophyll contents were determined with nitrogen at the rate of 200 kg ha⁻¹, while minimum was observed when no N was applied. Therefore, harvesting 65 DAS and N application @ 200 kg ha⁻¹ can be suitable for getting the higher biomass and biogas production.

Keywords : chemical composition, fiber contents, biogas, nitrogen, harvesting time

Conference Title : ICBS 2019 : International Conference on Biogas Science

Conference Location : London, United Kingdom

Conference Dates : January 21-22, 2019