

**COMPARATIVE HOG BIOGAS PRODUCTION FROM PLASTIC
DRUM BIOGAS DIGESTER DURING NIGHT AND
DAYTIME COLLECTION**

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ABSTRACT

Background: Globally, livestock production is one of the major causes of some of the world's most pressing environmental problems, global warming, land degradation, air and water pollution, and loss of biodiversity. It has been estimated that livestock are responsible for 18 percent of greenhouse gas emissions. However, the livestock sector's potential contribution to solving environmental problems is equally large, and major improvements could be achieved at reasonable cost (Kanto, 2011). The use of biogas as effective farm equipment is an excellent example of sound integrated crop and livestock management (Largo, 2012). **Methods:** The eight 200- l drums of Plastic Drum Biogas Digester (PDBD) with open bottom and gas fittings above a closed lid were immersed in an open pit slurry septic tank. Biogas collection related parameters namely: full biogas capacity drum duration, volume of captured biogas, flow rate, gas depletion time and biogas production economic efficiency were gathered. **Results:** The volume of biogas produced after 96 hours (4 days) was 8,856.72 l which when allowed to a continuous depletion or emptying the submersion of the PDBD, the recorded time consumed was 16.5 minutes through a double burner stove with maximum level of fire. **Conclusion:** The PDBD was proven economically efficient and effective as it generated a ROI of 86.75% which indicated that for every peso of investment, the return is equivalent to PhP 0.8675, and a MBCR of 0.13 which indicated that for every additional peso of variable costs of the PDBD, the gross return was PhP 0.13. This study will encourage and help livestock farmers in managing their farm wastes at the same time producing a substantial savings for not using the Liquefied Petroleum Gas (LPG). Besides, a PDBD will help in addressing the issues on climate change particularly in global warming.

Keywords: Biogas, Plastic Drum Biogas Digester, Marginal Benefit Cost Ratio

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