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Low cost digester monitoring under realistic conditions: rural use of biogas and digestate quality

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Abstract

The purpose of this work was to assess the behaviour of anaerobic digestion of cattle manure in a rural digester under realistic conditions, and estimate the quality and properties of the digestate. The data obtained during monitoring indicated that the digester operation was stable without risk of inhibition. It produced an average of 0.85 Nm³ biogas/d at 65.6% methane, providing an energy savings of 76%. In addition, the digestate contained high nutrient concentrations, which is an important feature of fertilizers. However, this method requires post-treatment due to the presence of pathogens.

Keywords: Anaerobic digestion; biogas digestate; cattle manure; energy; low-tech digester; nutrients; pathogens.

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