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BIOGAS UTILIZATION SYSTEM FOR WARMING POULTRY HOUSES

By

MOHMMED EMAM EBRAHIM SHEHATA
B.Sc. Agric. Sc. (Agricultural mechanization), Ain Shams University, 2004.

A Thesis Submitted in Partial Fulfillment
Of
The Requirements for the Degree of

MASTER OF SCIENCE
in
Agricultural Sciences
(Agricultural Machinery & Power Engineering)

Department of Agricultural Engineering
Faculty of Agriculture
Ain Shams University

2021

Approval Sheet

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Date of examination: 27 / 8 / 2020

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ABSTRACT

Mohmmed Emam Ebrahim Shehata: Biogas Utilization System for Warming Poultry Houses. Unpublished M.Sc. thesis, Department of Agricultural Engineering, Faculty of Agriculture, Ain Shams University, 2021

This study was carried out to compare three different types of energy sources used in warming poultry houses. Experiments were carried out during winter 2019 at Training center for recycle agriculture residues TCRAR belong to Agriculture Research Center; Moshtahar, Tukh ,El Qulibia governorate Egypt.

Because of current energy shortage, there has been much interest in developing new method in warming poultry houses as alternatives to Traditional methods. Biogas appears to be a feasible nontraditional gas for warming poultry houses because it can be derived from agricultural roughages, poultry houses waste and residues which provide the raw material for biogas production. Biogas technologies are a workable source of energy especially for the rural people.

The experimental measurements included the temperature and relative humidity in three kind of poultry houses model, ambient air temperature and its relative humidity, and Follow the daily weight recording. Methods: Three models of poultry houses were used to compare the most famous types of energy sources used in warming: electricity and liquefied petroleum gas (LPG) with the third model which is biogas. Used equipment's: contain from (power supply, Arduino, connecting cables, bread board, R.T.C, SD Card Module with Arduino, DHT22, Fans, solenoid valve, Spark Module, spark plug and relay) connected to each other to make system control and observation heat and humidity. High relative humidity when warming with LPG and high start-up costs in the situation of warming with biogas due to the high prices of raw materials needed to build the digester in the long run, however,

renewable energy is the best, sustainable and cheaper alternative, avoiding the ever-increasing prices of fossil energies. warming with LPG increases the relative humidity significantly and more than the relative humidity producing from biogas, burning process also increases the percentage of toxic gases in the poultry house So should Increase ventilation should be considered in the situation of warming based on fuel burning.

Keywords; Biogas Utilization, Warming Systems, Poultry Houses.

ACKNOWLEDGEMENT

I would like to express my deep appreciation and gratitude to **Prof. Dr. Mubarak Mohammed Mostafa**, Prof. Emer. of Agric. Eng., Fac. Agric., Ain Shams Univ. for suggestive of the problem of study and for his kind supervision throughout this work. The author is grateful for his valuable discussions, which helped to finalize this work.

The author wishes to express his sincere gratitude and appreciation to **Prof. Dr. Mostafa Fahim Mohammed Abdel-Salam**, Prof. of Agric. Eng., Fac. Agric., Ain Shams Univ., for kind supervision, continuous encouragement and valuable advices throughout this work.

I would like to give a special acknowledgement and express my recognition to Soul of **Prof. Dr. Mahmoud Ahmed El-Nono**.

And my family for their tender care, help, patience, loving encouragement and moral support, And especially to my mother God forgave her.

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