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## DISPOSAL OF CHICKEN MANURE BY METHANE FERMENTATION

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Chickens badly absorb energy of plant feed. Most of it goes in the manure. Therefore, it can be used as a source of renewable energy in the production of biogas, which is one of the ways of its utilization.

Chicken manure contains uric acid and undigested proteins, which are two main forms of nitrogen. The ratio C / N is less than optimal. Anaerobic decomposition of these substances in chicken manure resulted in the production of high amounts of ammonia, which under certain concentration leads to inhibition of the process. However, it has been repeatedly shown that methanogens can adapt to increased concentrations of ammonia nitrogen.

Number of researchers have reported the successful operation of digestion systems for poultry manure. Most of these systems were designed to operate in the mesophilic range.

Given the wide margin of variation of parameters by different researchers of the process, the aim of our study was to establish the optimal parameters of anaerobic digestion of chicken manure.

Methane fermentation of chicken manure was carried out in the mesophilic temperature regime at the temperature of about 35 °C. The fermentation was carried out in periodic regime. The investigation was carried out at four different manure moisture levels (80 %, 85 %, 90 %, 95 %) and three different doses of inoculum (5 %, 10 %, 15 % of the volume).

It has been found out that with the increase of manure moisture the biogas yield from one unit of dry substance and correspondingly dry organic substances also increases, but from one unit of digester volume — decreases. The optimal parameters for carrying out anaerobic digestion of chicken manure are: moisture of substrate at the level of 85 %, amount of inoculum — 5 %, duration of the process — from 13 to 20 days.

**KEY WORDS:** Chicken manure, methane fermentation, biogas.