MITIGATION OF METHANE EMISSIONS, USING ANAEROBIC TREATMENT OF PIG MANURE

Kęstutis Navickas, Živilė Kepalaitė, Vidmantas Župerka
Agroenergetikos katedra, Lietuvos žemės ūkio universitetas
Studentų g. 11, Akademija, LT 4324 Kauno r.

Summary. Large pig farms with liquid manure treatment technologies are main sources of methane emissions in agriculture. In this paper methane emissions from pig slurry and other organic wastes treated on pilot biogas plant of agricultural enterprise "Vyčia" were evaluated. More than 12 thousand tons of pig slurry and 1293 tons of organic wastes from food industry were treated on this biogas plant in 2000. Estimated methane emission from this biomass would be 478 thousand m3. In three anaerobic reactors 345 thousand m3 of biogas or 241,5 thousands m3 of methane were generated. Average mitigation factor of methane emissions from organic wastes after anaerobic treatment was 0,50. Organic matter reduction factor of anaerobic treatment varies between 0,25 and 1,0. Average mitigation factor of organic matter was 0,55. Rate of biogas production correlates with energy demand on farm biogas plant. Therefore, flows of treated organic wastes have been regulated close to this demand. It is the reason that environmental efficiency of the anaerobic treatment is insufficient.

Keywords: methane emission, manure treatment, organic wastes, anaerobic reactor.