Biogas Production in Simple Batch Systems – An Option for Romania?

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Abstract. Anaerobic digestion with biogas production has high potential for widespread implementation in Romania. Digestion in batch systems is one possible choice.

Keywords: biogas, anaerobic digestion, residual biosolids, biowaste.

SUMMARY

Anaerobic digestion of waste materials contributes to the establishment of an environmentally sound waste management in the public sector and in agriculture. Generated methane is a valuable energy carrier with the potential to displace other energy sources such as fossil energy. Research results from the University of Stuttgart revealed that the biogenic fraction adds up to 50 % (w/w) to the Romanian domestic waste (Kranert et al., 2008), thus representing a significant pool for biogas generation. Agricultural residues have high potential for methane production especially in countries with strong agricultural character. In Romania until now hardly any of the potential for energy generation from biomass is actually being used, but anaerobic digestion clearly is an attractive option towards a more sustainable energy system.

In order to achieve economic viability and technical reliability, suitable process types need to be chosen among the variety of available bioreactors. Simple batch systems are one possible option. Robust techniques and high flexibility are main associated benefits. When digesting solid materials, batch-operated solid-phase digestion may be especially advantageous choice for fibrous material such as agricultural residues containing straw. Fibrous material (e.g. horse dung with straw), which in general is regarded as unsuitable for running a continuous digestion at elevated contents of total solids, does not cause any problem in this process type (Kusch et al., 2008). However, batch-operated digestion systems are more appropriate for smaller throughputs. As a consequence, they are more favourable when implementation of decentralised waste management schemes is being considered.

REFERENCES