Radio talk: ARC-Agricultural Engineering

By: Dr Idan Chiyanzu

Title: USING ANAEROBIC DIGESTION TO PRODUCE ORGANIC SOLVENTS TO IMPROVE PROFITABILITY

Anaerobic digestion is a bioconversion technology that converts organic matter or waste into biogas, which can be used as renewable fuel for heating or for co-generation of electricity and heat.

Due to the high cost of investment in anaerobic digestion technologies, biogas alone does not make business sense. As such, more suitably desired by-products of the anaerobic digestion could be harvested. These products are called bio-based solvents, which have potential also to compete economically with established petrochemical solvents and are attractive to gain a significant market share in South African manufacturing industry.

In recent years, it has furthermore been recognized that an alternative approach to anaerobic processing of organic matter is for production of organic acids and/or alcohols instead of methane containing biogas. The organic acids (by-products) are called volatile fatty acids (VFAs) and are namely acetate, propionate, butyrate and formate.

An attractive step of an in-situ product separation of the gaseous end-product from the organic solvents can be added in a digester. Membrane separation of VFAs from the fermentation broth is a widely used process in the industry today.

In conclusion, it is evident that the revenues that can be obtained from VFAs + biogas production are significantly higher than those obtained from biogas alone.

Dr Idan Chiyanzu. Tel. 012 842 4044 E-mail. chiyanzui@arc.agric.za

Snr Researcher, ARC-Agricultural Engineering, Renewable Energy Division.