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Biogas From Beet Pulp And Source Separated Household Waste- Energy Production And Greenhouse Gas Reduction

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ABSTRACT

If properly used, biogas production is a clean technology converting plant residues and bio-wastes to energy carriers and organic fertilisers. In the Danish energy strategy, biogas production is intended to expand to allow treatment of 50% of livestock wastes by 2020. At present, low profitability is a barrier to this development. The BioChain project intends to improve the effectiveness of biomass management, from harvest and transport through gas production till end use of the digestate as a fertilizer, thereby boosting biogas production from, e.g., animal manure and organic household waste, and ultimately improving the economic viability. This article exemplifies the approach of this project through mass and energy balances for beet root and source separated house hold waste used for biogas production. Included is the change in energy production as affected by changes in storage of the untreated biomass and optimisation of retention time for anaerobic digestion. Greenhouse gas (GHG) emissions, carbon sequestration and mineral fertilizer efficiencies associated with each management strategy are included in the calculations.