Research Summary Sheet

AD Booster

Context and Challenges

Lignocellulosic biomass is considered as recalcitrant feedstock for anaerobic digestion (AD) due to its protective structure that limits its biological degradation. Thus, many agricultural waste types are only partly converted or are not considered for AD. Therefore, suitable pre-processing for the improvement of the performance of conventional AD remains a challenge in the development of anaerobic digestion technology.

Results and Applications

Aalborg Universitet and BioVAntage.dk Aps operated and monitored a demonstration-scale wet explosion pre-treatment plant (AD-Booster™) at Ribe Biogas, Denmark, a full-scale biogas plant.

The AD-Booster™ was inserted in the plants two-step digestion process. Unconverted manure fibres from the first digester were dewatered and pretreated in the AD-Booster prior to the secondary digestion step. During the operation period, process parameters were tuned to maximize methane production of the biogas plant and achieve a significant conversion of lignocellulosic matter into biogas.

Breakthroughs, benefits and added value

The AD-Booster ™ was brought into stable operation and delivered pre-treated materials to one out of three parallel secondary digesters. The pre-treatment resulted in 2.44 times higher methane production, when compared to secondary digestion without pre-treatment. Biogas plants will benefit from higher revenue form increased biogas production or reduced costs for feedstock.

Further information on NoAW project: http://noaw2020.eu

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