

Increasing performance of biogas outputs with enzyme additives

Anaerobic digestion (AD) is a well-established technology that converts organic feedstocks to biogas – a source of renewable energy and digestate – a nutrient-rich biofertilizer. With nearly 700 operational AD plants across the UK, processing food waste, manures, sewage sludge and purpose-grown crops, the goal is to increase the performance and economic viability of the AD facilities.



Verdant Biotech is an exclusive supplier of next-generation enzymes for AD applications, developed and patented by Biopract ABT. The company has been working with several operators across the UK to improve biogas outputs. A recurring question from Verdant's clients is whether enzyme addition enhances the AD process and if the supplementation can come with a return on investment.

To assist Verdant Biotech in advising their clients, the Biorenewables Development Centre (BDC) has conducted a series of lab trials to assess the performance of Biopract enzymes on biogas outputs. Using biochemical methane potential analysis (an anaerobic batch system that monitors gas production over a period), the BDC measured gas volumes for different feedstocks supplemented with a range of enzyme loadings and non-enzyme controls. Results of the study showed that the Biopract enzyme improved the biogas production volumes and increased methane concentration.

Chris Hunt, the BDC Technologist said:

We have delivered these trials via our ERDF-funded support programme to Yorkshire SMEs. Consistently, the addition of enzyme performed better in terms of gas volumes in our bench scale AD assays compared to non-enzyme control and showed higher performance on different feedstocks including maize.

Hans Erik, Director at Verdant Biotech explained:

Our enzyme technology allows the AD plants to maintain biogas output by reducing feedstock consumption and to secure a longer-lasting supply of feedstock. It opens possibilities to AD operators to use a higher proportion of cheaper substrates like animal manures and slurries which in the trials at BDC showed greatly improved biogas yields.

The company attended the ADBA World Biogas 2022 with support from the BDC and BioVale teams. The event proved to be an excellent platform for Verdant to present and discuss the results from the trials, showcase their products and network with prospective clients.

Hans Erik added:

As an SME, we benefitted from the BDC's expertise and the ERDF funding for these projects. The support from the BDC team has been invaluable in raising the profile of Verdant Biotech and awareness of the innovative and highly effective enzymes developed by Biopract ABT.

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