

CASE STUDY B - WILLOW PROJECT

Unlocking More Value from an Already Optimised Plant

| 3-4% + Biomethane Yield | - 6-7% Feedstock | -13% Ammonia | - 7.7% FOS/TAC |

OVERVIEW

Site B is a highly optimised farm-based AD plant using a balanced mix of maize silage, sugar beet, and manure. With a 9,600 m³ capacity and 5 MWth biomethane output.

It operates conservatively with stable feedstock inputs and capped gas injection, supported by CHP.

Despite already efficient operation, CreChar® delivered measurable performance improvements, demonstrating value even in well-optimised systems.

KEY OUTCOMES

- 3-4% increase in biomethane output
- 6-7% reduction in feedstock input
- 13% reduction in ammonia concentration
- 7.7% reduction in FOS/TAC ratio
- Increased CHP energy output
- Total annual savings driven by:
 - Feedstock optimisation and reduced input costs
 - Lower digestate volumes and disposal costs
 - Reduced chemical dosing
 - Improved energy value per unit of gas

Difference

£243,927

£1,675,514

£1,431,587

Before CreChar®

After CreChar®

Annual Savings

ROI ASSUMPTIONS

Savings on chemical additives, increased revenue from biomethane and a switch to more economical feedstocks.

ASSUMPTIONS

- Feedstock cost: £50/fresh tonne
- Digestate disposal: £10/tonne
- Gas+ RHI- £96/Mwh
- Days per year: 365
- CreChar Full Price

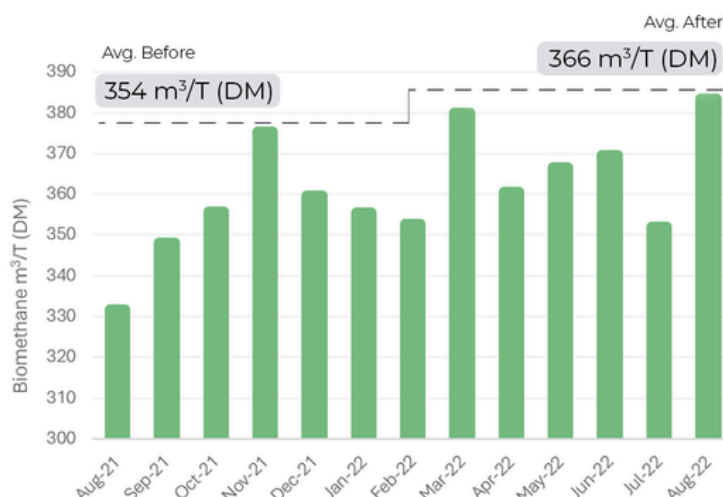
NOT INCLUDED IN CALCULATIONS

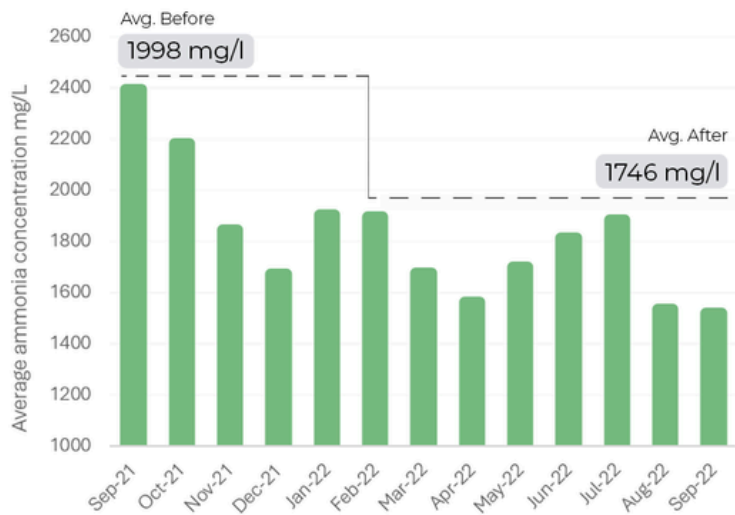
- CO₂ sequestration, carbon savings on sustainability report, heat recovery from CHP unit

BIOMETHANE YIELD

With CreChar®, methane yield per tonne (DM) increased by 3-4% and the feedstock input decreased by approximately 6-7%. This reflects improved conversion efficiency and reduced input costs.

- Feedstock input decreased 6-7%
- Methane increased 3-4% per tonne (DM)





AMMONIA & PROCESS STABILITY

Ammonia concentrations decreased by 13%, reducing inhibition risk and supporting microbial performance.

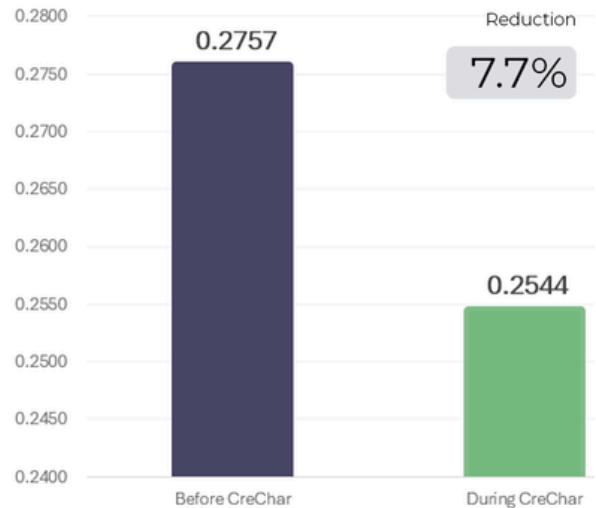
- **13% reduction in ammonia concentration**

FOS/TAC

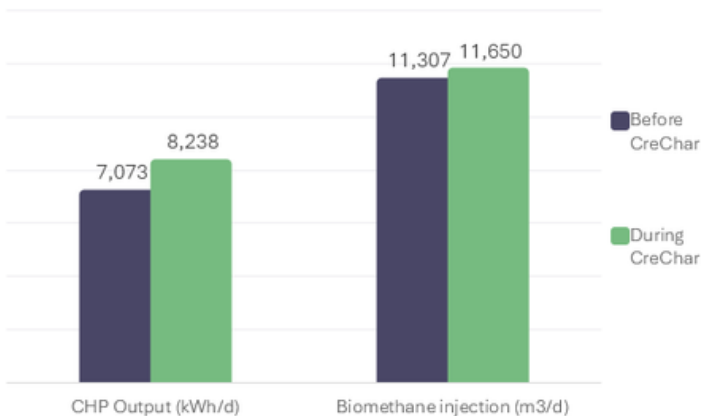
TFOS/TAC ratios remained within the optimal range (0.2–0.3) and decreased by 7.7%, indicating improved buffering capacity.

These results suggest that CreChar® supports a more resilient microbial environment - potentially giving operators greater flexibility to increase loading rates while maintaining stability.

- **7.7% reduction in FOS/TAC**



Average energy production streams (CHP and BTG)



ENERGY PERFORMANCE

The implementation of CreChar® demonstrated a clear uplift in both primary energy outputs. The most significant gain was observed in CHP output, which increased by approximately 16.5% (from 7,073 to 8,238 kWh/d).

Biomethane injection also improved, rising by approximately 3% (an increase of 343 m³/d). Overall, CreChar® enhanced gas production; however, injection capacity limits constrained biomethane gains, with surplus gas redirected to CHP generation.

OUR APPROACH

We run large-scale trials for at least 6 months to capture true operational patterns and deliver reliable, proven results - using a structured process to maximise outputs and gather key performance data, with minimal operator input and full expert support.

Our team assesses operations and data throughout, filling gaps where needed.

CreChar® is supplied in 20 kg digestible bags and added daily with no disruption.

CRECHAR® TRIALS

To find out how CreChar® can support your Anaerobic Digestion plant please reach out to us at:

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