TERRAMARA

WK26-C Nutrient Use Efficiency Trial

Summary, April 2026

About Us

Algapelago & Atlantic Mariculture are kelp cultivators who are developing next-generation seaweed biostimulants from UK-cultivated seaweeds. We are based in North Devon in the South West of England and in Loch Sunart on the West Coast of Scotland, respectively.

Traditional nutrient management systems rely on high rates of mineral fertilisers, which have negative environmental impacts on watercourses and soil ecosystems. Seaweed biostimulants produced from cultivated kelp contain a rich blend of nutrients and compounds that stimulate beneficial soil microbes and trigger a chain of biological processes that support crop productivity and improve resilience to plant stresses and pathogens.

Our Product

Our prototype biostimulant, **TerraMara WK26-C,** is produced from line-grown seaweeds. We use Sugar Kelp (*Saccharina latissima*) as it thrives in cooler UK waters, is fast-growing and has a high nutrient profile.

Compared to traditional seaweed biostimulants, cultivating allows us to optimise for cleaner, more consistent kelp. This means it is far less likely to cause sprayer blockages and can be harvested for optimal nutritional value, particularly in its carbon and nitrogen content.

We then use a mechanical extraction process to transform freshly harvested kelp into a stable biostimulant. Innovate UK has grant funded the processing research and development through the LEK and SKE-NMT projects. Our core hypothesis has been to deliver a home-grown, more robust and reliable biostimulant for UK farming businesses.

Trial Partner

The James Hutton Institute is one of the UK's leading research centres for plant science, focusing on improving crops (cereals, potatoes and soft fruit) for yield, quality, and resilience. Their research ranges from lab-based molecular studies on plant development to large-scale field trials aimed at tackling climate and food security challenges.

James Hutton Limited
Impact through Science

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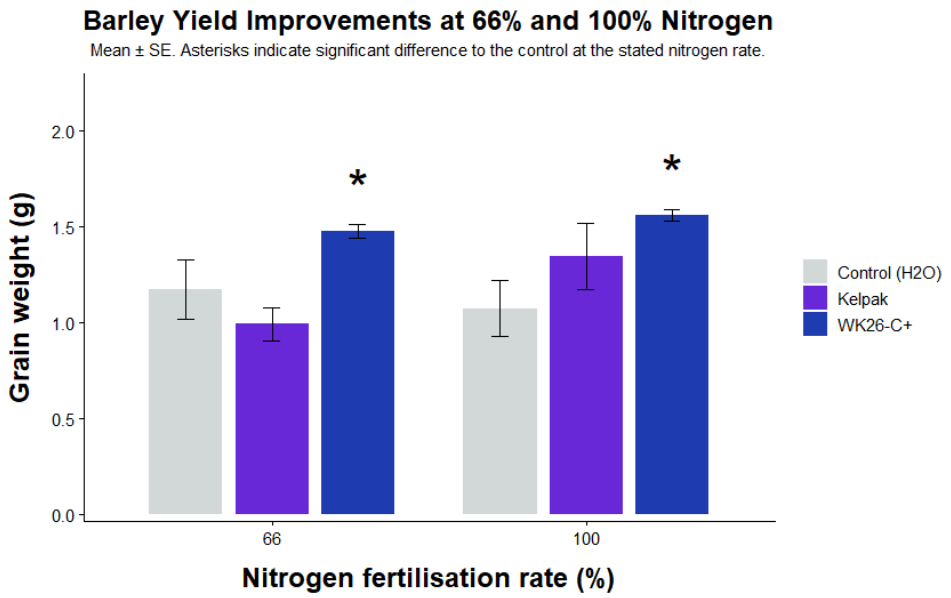
Summary of Nutrient Use Efficiency Trials

To date, IUK-funded crop trials have shown that UK cultivated kelps, when processed according to our techniques, can produce positive results on key crops.

In a glasshouse trial on **Spring Barley,** the impact of our prototype on nitrogen use efficiency was examined. In this trial, the seaweed treatment had a significant effect on barley grain yield. While yields were similar at 0 and 33 mg kg-1 N, divergence between treatments emerged at 66 mg kg-1 N and was most pronounced at 100 mg kg-1 N. The prototype treatments responded most strongly to additional fertilisation, achieving markedly higher yields, while the controls (water and commercial controls) showed only moderate gains, suggesting differences in fertiliser use efficiency. All three prototype extracts outperform the Kelpak competitor at 66% and 100% fertilisation levels.



The increase in yield at the higher nitrogen fertilisation rates suggests that SKE-NMT biostimulants were improving nitrogen use efficiency rather than generally affecting growth.

The results are particularly significant as the farming sector faces increasing pressure to produce more food with fewer inputs, lower emissions, and reduced environmental impact. By improving how crops utilise available nutrients, kelp extracts could help farmers work towards more resilient and sustainable farming systems.

Dr Gordon McDougall, Head of Plant Biochemistry and Food Quality Group at the Hutton, said, *"Improving (or indeed maintaining) barley grain yield and quality with reduced fertiliser inputs by application of green, low energy biostimulants from UK cultivated seaweeds provides another weapon in the armoury to reduce input costs in a period of fertiliser price volatility and to reduce the overall nutrient load on our farming systems."*

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Next Steps

Following positive results, we have begun a replicated lab and field trial with the James Hutton Institute to verify the nutrient response observed in the trial. Results are expected in the coming weeks.

Beyond this, we have begun field trials with barley and wheat growers in multiple locations across the UK. This is further augmented by new trials in other crops, such as lettuce, blackcurrants, strawberries, kale, potatoes and much more.