

# Novel seaweed-based crop biostimulant

## Main results / outcomes

An Irish based biotech company Brandon Bioscience has developed a novel seaweed based biostimulant which could hold the key to reduce nitrogen use in agriculture. For over 23 years the company has been producing crop biostimulant products extracted from the common brown seaweed *Ascophyllum nosodum*. The company has perfected the process of identifying, isolating, extracting and concentrating specific bio-compounds from seaweed to create a range of highly effective biostimulant products with targeted properties. One of these products called PSI362, allows for more efficient use of nitrogen by crops, allowing for a 20% reduction in nitrogen rates without affecting crop yields.

## Practical recommendations

This product can have a significant role in delivering the EU target of 20% reduction in nitrogen use in agriculture

- It works by activating select nitrogen transport and assimilation genes in crops to enhance the uptake, transport and assimilation of the nutrient.
- Research work published in the journal *Frontiers in Plant Science* found the Nitrogen Use Efficiency (NUE) was increased by between 29.85 – 60.26% in barley crops with nitrogen rates of just 75% when treated with PSI362.
- When PSI362 was incorporated as a coating to the granular nitrogen fertiliser calcium ammonium nitrate (CAN) and applied to barley crops, nitrate uptake levels in the barley crop were considerably higher 22 days after application.
- Work is still ongoing into the mode of action at a basic plant science level to understand the optimal conditions for efficacy in various crop types and conditions but PSI362 is sure to play an important role in crop nutrition well into the future.



## Further information

- <https://brandonbioscience.com/>  
<https://www.youtube.com/watch?v=aiYuPU48iVk>  
<https://www.youtube.com/watch?v=450vTfnZx1o>

## About this abstract

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**AgroFossilFree** is a H2020 multi-actor project that will evaluate the current status in EU agriculture regarding energy use and assess existing needs, allowing farmers to optimize agricultural production through more efficient energy use and reduced GHG emissions, resulting in economic, agronomic and environmental benefits. AgroFossilFree will create a framework under which critical stakeholders will cooperate to evaluate and promote the currently available Fossil-Energy-Free Technologies and Strategies (FEFTS) in EU agriculture. The project is running from October 2020 to September 2023.

**Website:** [www.agrofossilfree.eu](http://www.agrofossilfree.eu)



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