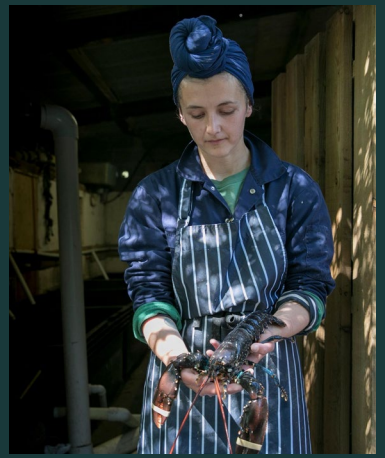
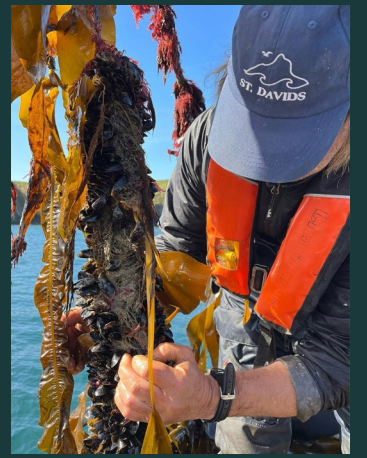
For the love of the sea

Regenerative ocean farming of Welsh seaweed & shellfish






ST. DAVIDS


Defense Mechanisms

Strengthens plant immunity against threats

Stress Tolerance

Helps plants withstand environmental stresses

Nutrient Availability

Ensures essential nutrients are accessible to plants

Nutrient Efficiency

Maximizes the use of available nutrients

Compositional Analysis - LSB

		Liquid Seaweed Biostimulant (LSB)	Units	Notes
Dry Mass		**1.2**	%	
pH		**5.0**	pH	
Brix		**1.0**	Brix	
Conductivity		**14.9**	mS	
Specific Gravity		**1.020**	SG	
Key Seaweed-based Active Ingredients				
Sulphated Polysaccharides		Data not currently available	mg/kg	**Fucoidan** - These sulfated polysaccharides enhance plant resistance to abiotic stress and improve nutrient uptake, promoting overall plant health **Alginate** - A polysaccharide that improves soil structure, retains moisture, and enhances root development, leading to better plant growth **Laminarin** - A storage β-glucan that boosts seed germination and seedling growth by interacting with plant metabolic processes
Polyphenols		Data not currently available	mg/kg	Polyphenols are antioxidant compounds, and a type of phytochemical, that protect plants from oxidative stress and support their resilience against environmental challenges.The main type of polyphenols found in brown seaweeds are **phlorotannins** which stimulate the absorption of essential nutrients like nitrogen, phosphorus, potassium, and calcium in plants. They can increase the uptake of these elements by at least 5-50%.
Other Beneficial Carbohydrates		Data not currently available	mg/kg	**Mannitol** - A type of carbohydrate that acts as an antioxidant and scavenges reactive oxygen species (ROS), protecting plants from oxidative damage caused by environmental stresses like drought or salinity
Other Beneficial Natural Compounds		Data not currently available	mg/kg	Seaweeds also contain a broad range of beneficial **proteins and fats** that also contribute to improved plant, enhanced stress tolerance and a boost to soil fertility by stimulating microbial communities
Macronutrients (Primary)				
Nitrate	**N**	**694.2**	mg/kg	Nitrogen is a component of chlorophyll, essential for photosynthesis and a key element in amino acids, proteins, and nucleic acids (DNA and RNA)
Phosphorus	**P**	**45.9**	mg/kg	Promotes early root growth, improving water and nutrient uptake, which is vital for seedling establishment, plays a key role in flower formation, seed production, and crop maturity and enhances plant resilience to abiotic stresses such as drought, salinity, and cold temperatures
Potassium	**K**	**2747.9**	mg/kg	Regulates water uptake and loss, improving drought tolerance, activates enzymes involved in growth processes, aids in photosynthesis and carbohydrate production and strengthens cell walls and improves disease resistance
Macronutrients (Secondary)				
Calcium	**Ca**	**90.4**	mg/kg	Critical component of cell walls, providing structural integrity and strength to plant tissues, promotes root development and overall plant vigor, regulates the transport of other nutrients into the plant and improves soil structure by displacing sodium ions, enhancing water infiltration and aeration as well as contributing to nutrient retention in the soil
Magnesium	**Mg**	Data not currently available	mg/kg	Adequate magnesium nutrition is critical for maintaining high crop yields and quality as it enhances plant tolerance to various stress conditions, including drought, salinity, and high temperatures and facilitates the uptake and transportation of other nutrients, enhancing overall nutrient absorption and utilisation
Sulphate	**S**	**661.3**	mg/kg	Essential for the synthesis of proteins, amino acids, and enzymes, aids chlorophyll formation and photosynthesis and enhances the uptake and utilisation of other nutrients, particularly nitrogen
Sulphur	**S**	**88.1**	mg/kg	Essential for the synthesis of proteins, amino acids, and enzymes, aids chlorophyll formation and photosynthesis and enhances the uptake and utilisation of other nutrients, particularly nitrogen
Micronutrients				
Boron	**Bo**	**2.0**	mg/kg	Important for cell wall development, sugar metabolism, and new growth
Chlorine	**Cl**	Data not currently available	mg/kg	Crucial for photosynthesis, osmosis, and ionic balance
Copper	**Cu**	**<0.1**	mg/kg	Essential for enzyme activity, chlorophyll production, and overall plant health
Iron	**Fe**	**3.7**	mg/kg	Vital for chlorophyll synthesis, photosynthesis, respiration, and nitrogen fixation
Manganese	**Mn**	**0.3**	mg/kg	Necessary for enzyme activation, photosynthesis, and plant defense mechanisms
Molybdenum	**Mo**	**<0.1**	mg/kg	Essential for nitrogen fixation and reduction of nitrates
Zinc	**Zn**	**0.7**	mg/kg	Important for enzyme function, protein synthesis, and growth regulation
Other Beneficial Minerals				
Selenium	**Se**	**<0.1**	mg/kg	At low concentrations, selenium can promote plant growth and act as an antioxidant and defensive molecule against plant pathogens
Silicon	**Si**	**11.0**	mg/kg	Plays a significant role in alleviating both abiotic and biotic stresses in plants and can improve growth, yield, and quality in various crops, including potatoes, where it enhances nutrient uptake and has been shown to affect micronutrient content in tubers
Sodium	**Na**	**958.1**	mg/kg	Aids metabolism, chlorophyll synthesis, and osmotic regulation and in certain cases, it can partially replace potassium in some functions
TOTAL		**5303.61**	mg/kg	

Website: www.carymor.wales Email: admin@carymor.wales Mobile: +44 (0) 7773 846 560

Co-op Trials:

Two year detailed trials of the Liquid Seaweed Biostimulant, aiming to:

- Validate the **efficacy of the product in the field** , in the context of organic and conventional potatoes, cereals and grassland
- Assess the potential for the biostimulant **to reduce synthetic fertiliser use** whilst maintaining yield and quality
- Assess the contribution of the biostimulant to **improving soil health**
- Establish the appropriate **application rates**

Farmer-led Trials:

- Ongoing validation of the product on a **big variety of working farms** and growing businesses on a farmer-led basis
- Building **connections** between land and sea farmers and learning from those with experience

Grassland Trial 2024 (Farming Connect)

- Tan y Graig, Lampeter (beef and sheep)
- Establishment of red clover in silage fields
  - Direct Drilling
  - Opico Harrow
- With and without Liquid Seaweed Biostimulant
- Biostimulant (4%) applied 10 litres/ha/year split across 2 applications
- Increased yield of 733 kg DM/ha in direct drilled plot and 498 kg DM/ha in the Opico harrowed plot, equating to an average increased output of £92.33/ha