



OceanGlas

HIGH QUALITY SEAWEED/KELP EXTRACT

100% derived from fresh *Ascophyllum Nodosum*



100% PURE ASCOPHYLLUM NODOSUM LIQUID EXTRACT



Over the last year we have developed a new unique and innovative cold process extraction method, which we call "gentle extraction". Through extensive research and development we found by that bursting the cells at cooler temperatures allowed us to obtain the freshest, most pure extract possible from hand harvested Ascophyllum Nodosum without using any heat or chemicals.

Amino acids, Vitamins, antioxidants that help the plant in its basic physiology mainly to fight against oxidative stresses induced by osmotic or parasites.



Polyphenols, also antioxidants, help the plant during oxidative stress in coping with free radicals generated during abiotic and biotic stresses.

Natural Micro & Macro nutrients: a wide panel of more than 60 elements

Increases efficiency of other tank mixed products.

OceanGlas

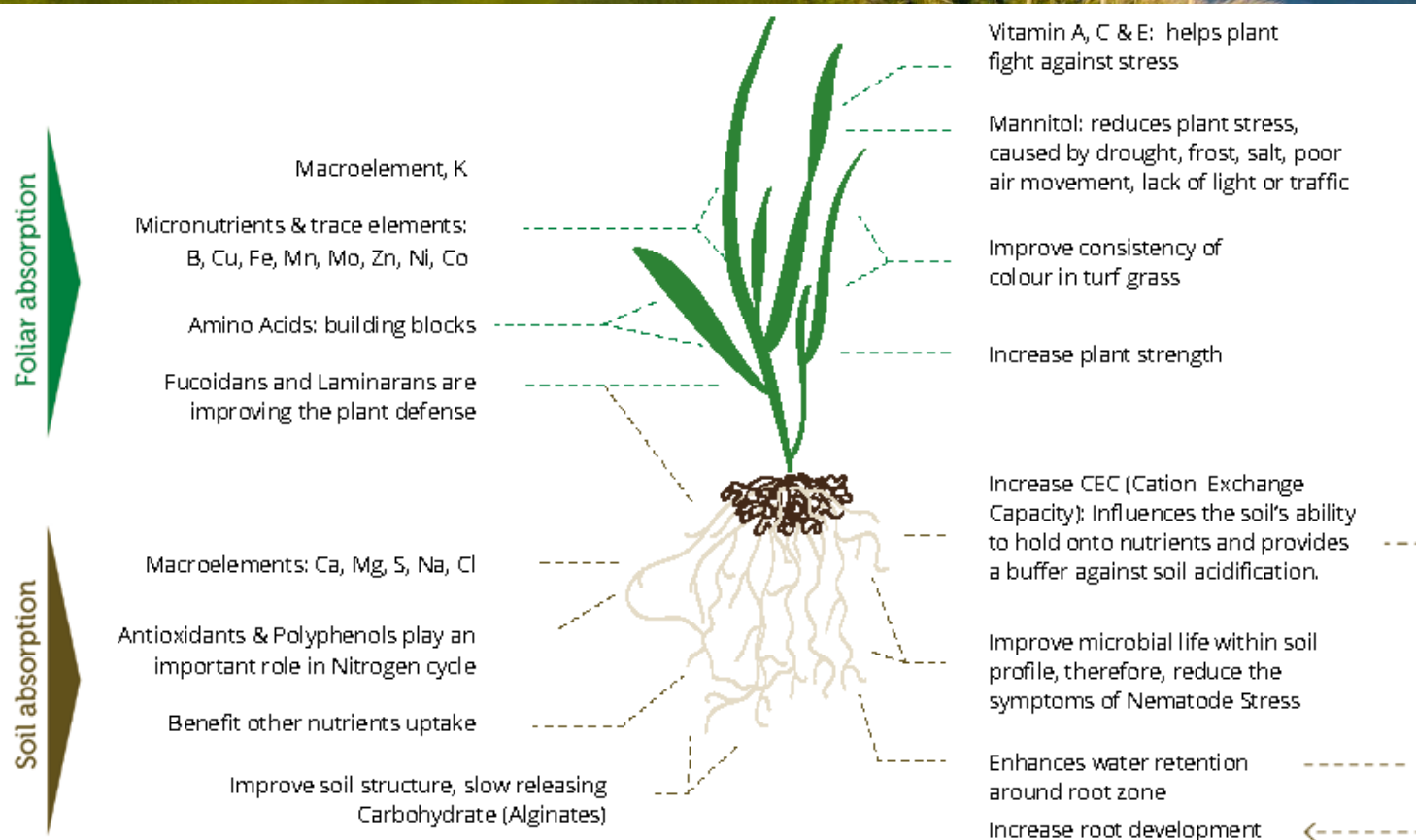
Polysaccharides: Alginates, Fucoidans and Laminarans.

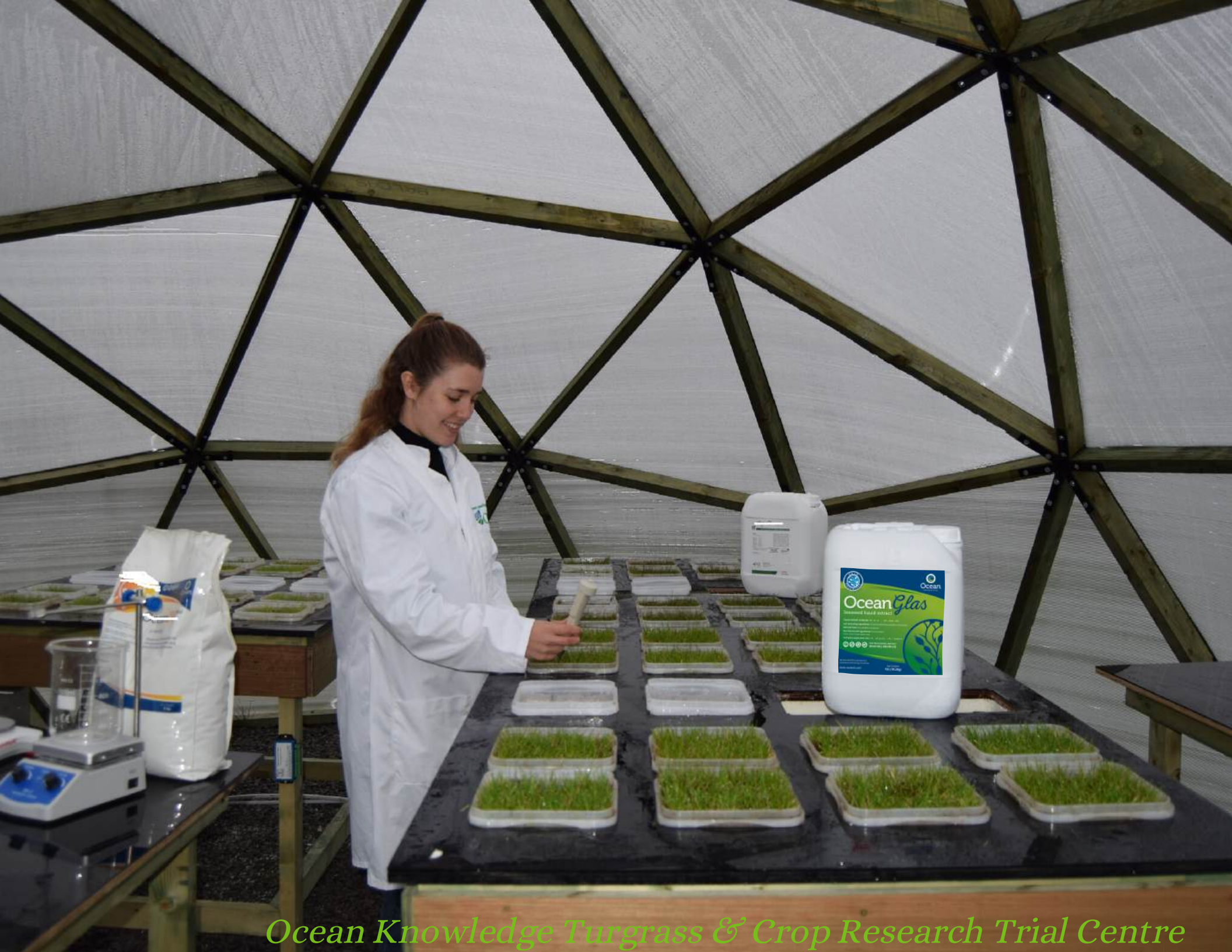
OceanGlas contains all the essential carbohydrates, amino acids and vitamins which support the development of strong and healthy turf grass which allows the plant to fight against pathogens and environmental stresses. Leading to a reduction in chemical usage.

ASCOPHYLLUM NODOSUM

Located on the mountainous west coast of Ireland in County Donegal, and nested beneath the shadows of Sliabh League, Europe's highest sea cliffs, our company Ocean Knowledge is perfectly placed to take full advantage of the abundance of the natural resource of *Ascophyllum nodosum* which grows in the unpolluted cold waters of the Irish west coast. *Ascophyllum nodosum* is a brown macro algae growing between the low and mid-inter tidal zone in the North Atlantic Ocean. This species is traditionally cut by local harvesters and careful rotation of harvesting areas are setup to ensure sustainable management of the resources. Ocean Knowledge monitors all our harvesting sites to ensure that all our macroalgae comes from pristine unpolluted locations.

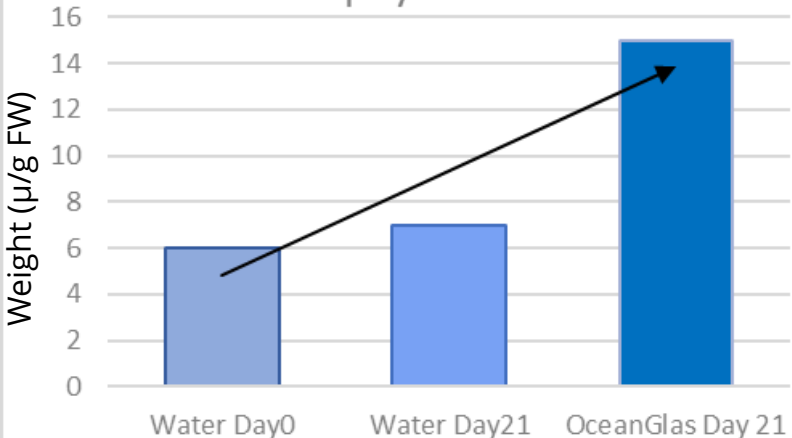
BENEFITS OF OCEANGLAS





Ocean Knowledge Turgrass & Crop Research Trial Centre

Chlorophyll - Poa annua



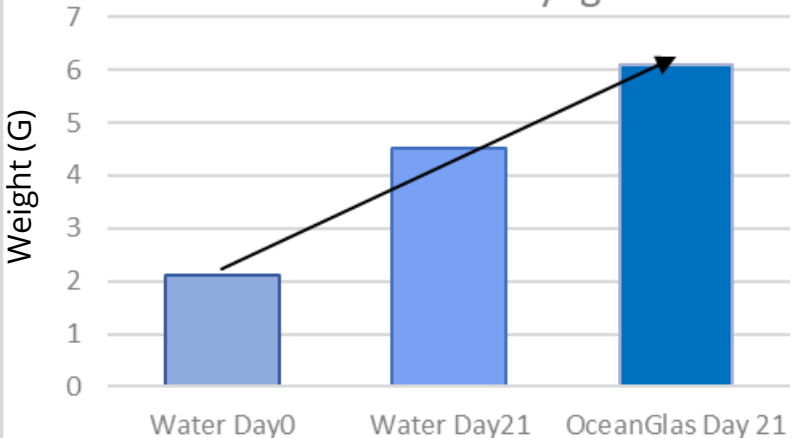
Application of OceanGlas Liquid doubled chlorophyll levels in *Poa annua*

Significant improvements in Chlorophyll levels were seen in *Poa annua* with an increase from 6 ug/g in control pots to 15 ug/g in OceanGlas treated pots



OceanGlas = 114% Increase

Root Volume - Ryegrass



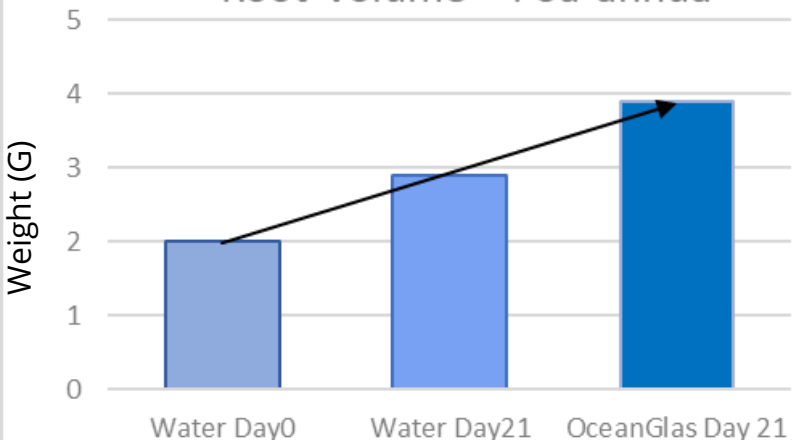
Increased root volume was evident in OceanGlas treated perennial ryegrass

Application of OceanGlas resulted in increased root volume in perennial ryegrass after 21 days. The control pots had an average root volume of 4.5g on day 21 and the OceanGlas treated pots had an average root volume of 6.1g on day 21.



OceanGlas = 35% Increase

Root Volume - Poa annua

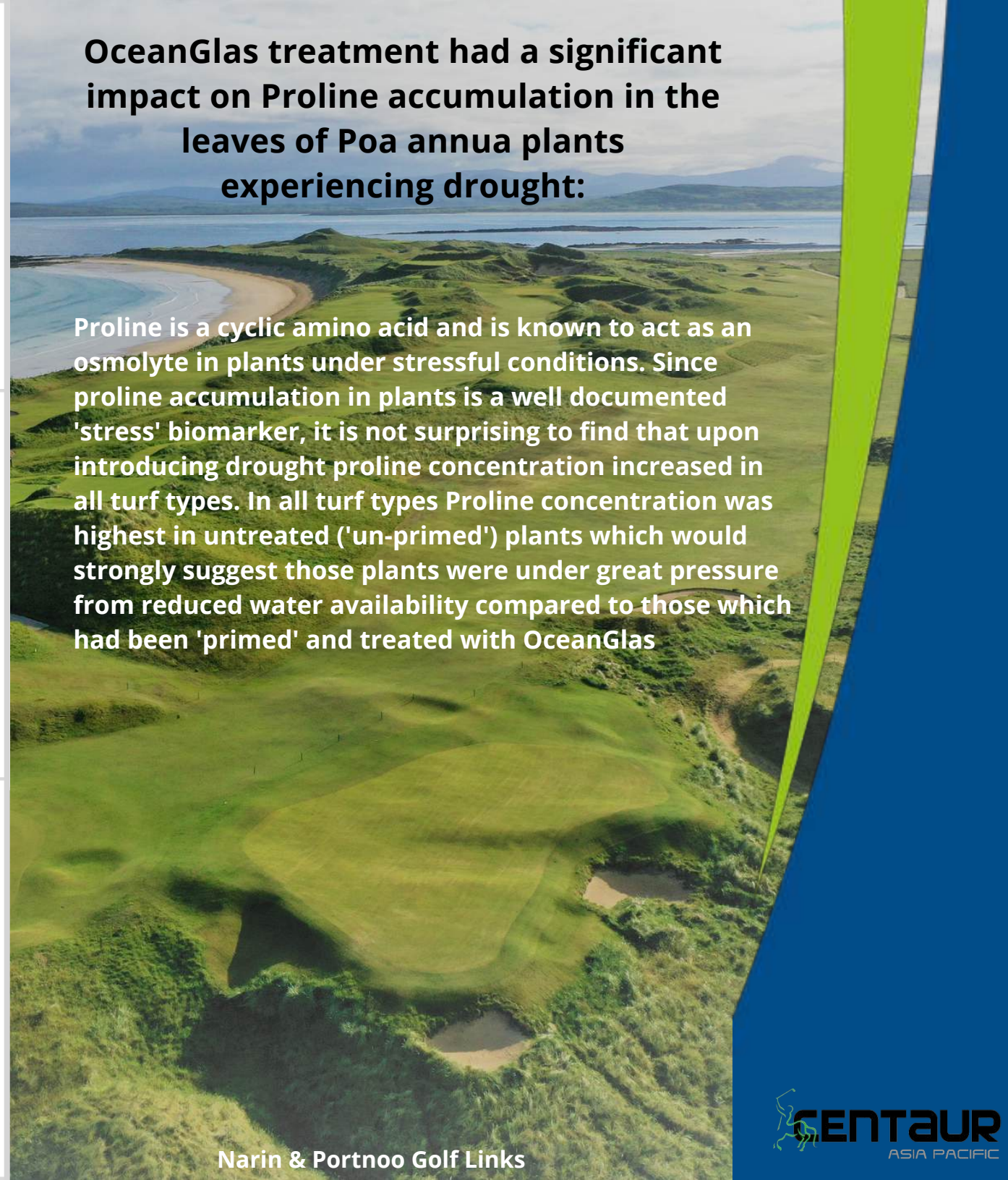
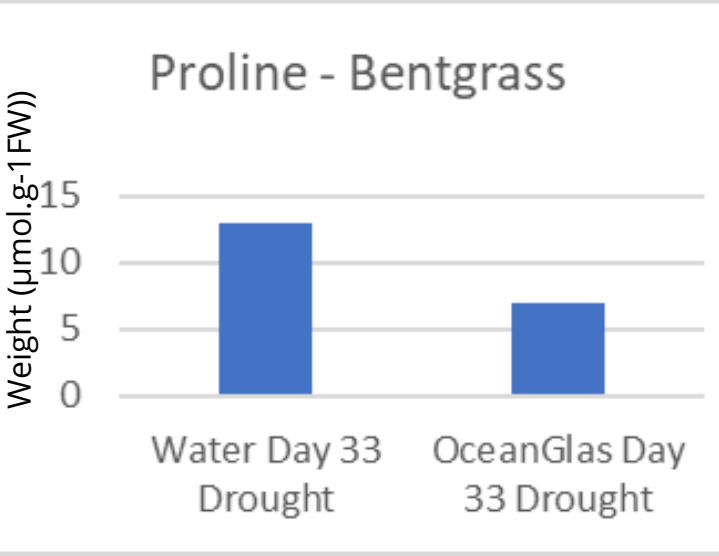
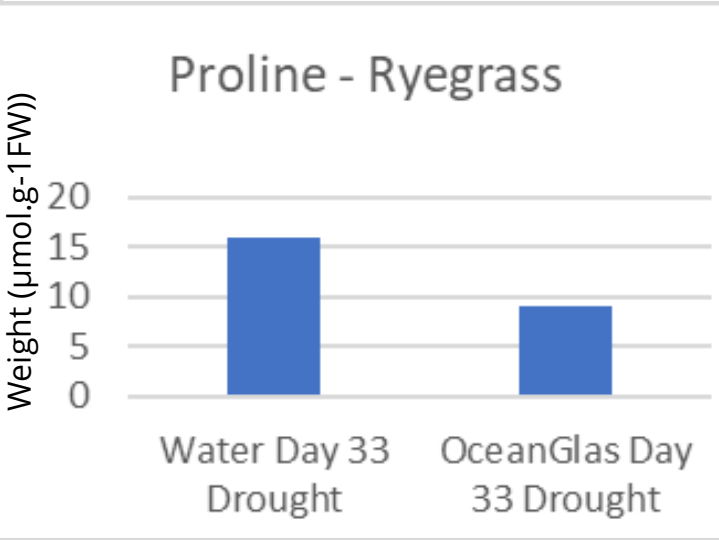
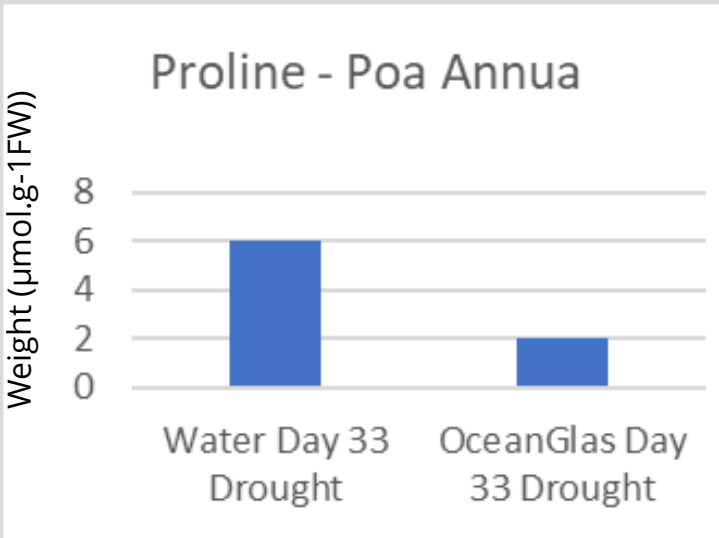


Application of OceanGlas liquid resulted in increased root volume in *Poa annua*.

A significant increase in root volume of OceanGlas treated *Poa annua* was seen after 21 days (OceanGlas Day 21) when compared with the control (Water Day 21). The average volume of the control on day 21 was 2.9g and the average volume of OceanGlas treated grass on day 21 was 3.9g.



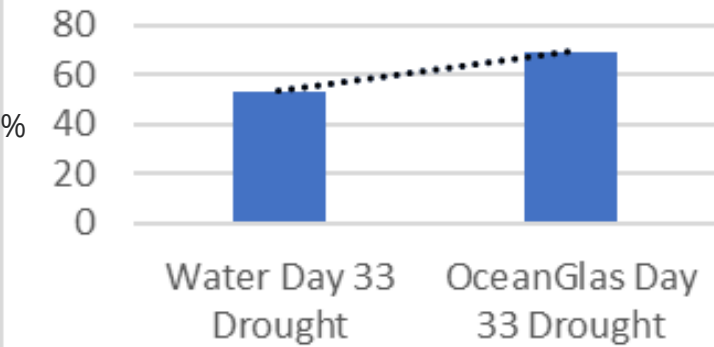
OceanGlas = 34% Increase



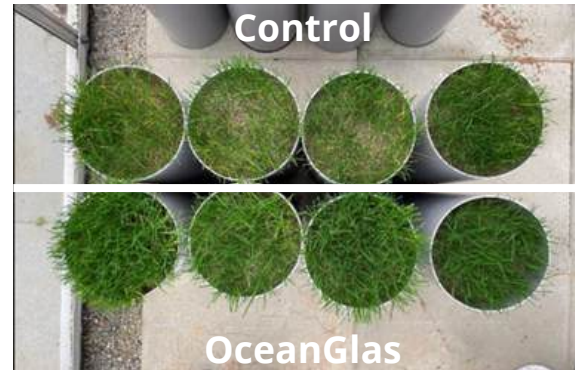
OceanGlas treatment had a significant impact on Proline accumulation in the leaves of Poa annua plants experiencing drought:

Proline is a cyclic amino acid and is known to act as an osmolyte in plants under stressful conditions. Since proline accumulation in plants is a well documented 'stress' biomarker, it is not surprising to find that upon introducing drought proline concentration increased in all turf types. In all turf types Proline concentration was highest in untreated ('un-primed') plants which would strongly suggest those plants were under great pressure from reduced water availability compared to those which had been 'primed' and treated with OceanGlas

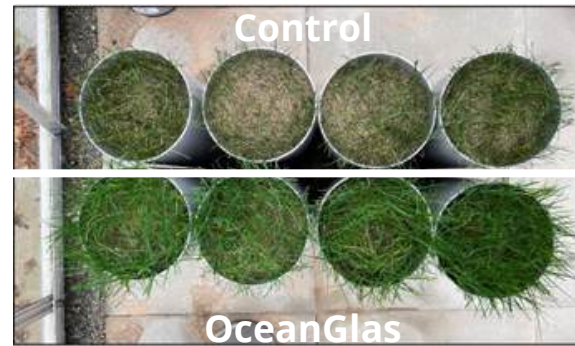
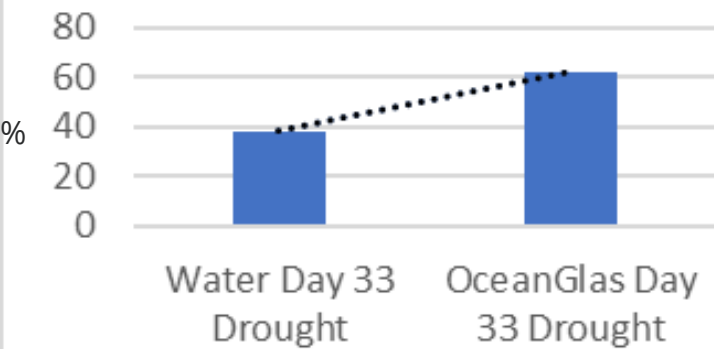
% Coverage - Poa annua



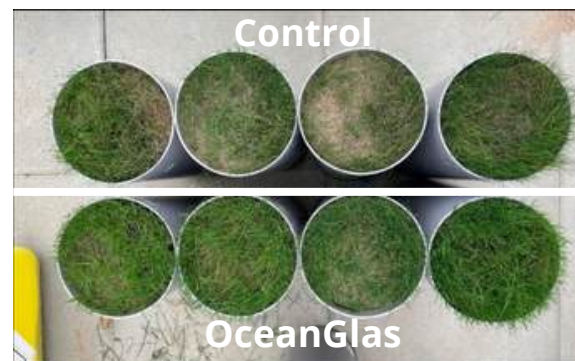
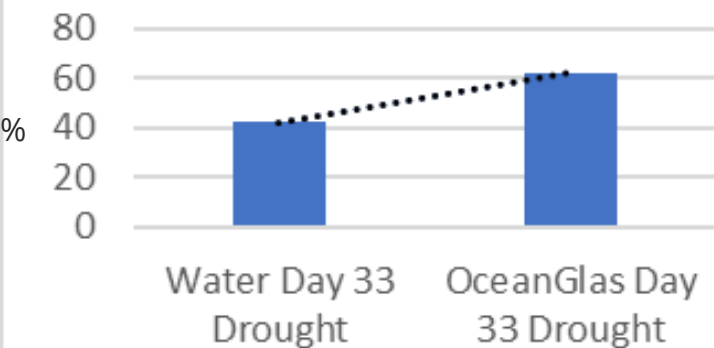
OceanGlas treatment had a significant impact on Poa annua plants experiencing drought:
 In all turf types Proline concentration was highest in untreated ('un-primed') plants which would strongly suggest those plants were under great pressure from reduced water availability compared to those which had been 'primed' and treated with OceanGlas



% Coverage - Ryegrass



% Coverage - Bentgrass



Vision For The Future



We aim to continue our growth in becoming the main supplier of seaweed/kelp fertilizer to the sportsturf market through doubling our workforce and production capacities



With this development within the sportsturf market we then plan to enter and establish ourselves in the agriculture market in Ireland, U.S.A and the U.K. in 2023



Currently OceanGlas is available in 18 countries worldwide - our aim is to be available in 30 countries within the next two years



Continuously invest in product innovation and field research internally in our research centre and with external partners



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10 Litre/2.5 Gallon Bag in Box

The Future is Greener with OceanGlas