

Horticulture, Viticulture

Nutritional Solutions



In partnership with



Elevate the fruit and produce quality, and your soil and plant health with
AgriSea nutrition solutions.

AgriSea uses sustainably sourced seaweed packed full of micronutrients that
works with the entire ecosystem of orchards, vineyards and market gardens.



Welcome to AgriSea

AgriSea biostimulant nutrients are the trusted source for growers seeking greater profitability through hardier, heftier fruit and produce and healthier plants.

AgriSea continues to innovate and conduct independent scientific research to help growers. Our unique seaweed is not fertiliser but is a certified organic formulation with the key ingredient of *Saccharina latissima* (sugar kelp) seaweed.

It is packed full of minerals, vitamins, trace elements and amino acids that encourages fruit growth and resilience during storage and delivery to the consumer.

AgriSea has a range of products for plants and soil. These are all cold-brewed in batches that are traced to the source, giving you product for US growing conditions.

How it works...

Our proprietary cold-fermentation method preserves the beneficial microbes in the seaweed to retain the nutrients.

AgriSea biostimulants work with soil biology by providing a balanced and more complete food source for beneficial soil microorganisms.

Talk to us about how we can help you enhance your soil life and guard against grower challenges from the soil to the shelves.



Profitability

REDUCE COST OF
INPUTS



Productivity

HEALTHIER SOIL,
PLANTS & ANIMALS



Availability

UNLOCK
NUTRIENTS
IN SOIL



Compatibility

COMPLEMENT
EXISTING
SUPPLEMENTS



Sustainability

ORGANIC, TRACEABLE,



Kiwifruit research

Independent research into the efficacy of AgriSea Soil and Foliar products was conducted by ECO Soils Research, five Bay of Plenty kiwifruit orchards were enrolled in the study over a period of three years.

Benefits to growers:

- 10% Added value for the grower
- Improved fruit firmness during coolstorage.
- Improved post coolstorage shelf life.
- Reduced the number of new season canes lost due to wind damage (blow-outs).
- Encouraged more new canes to grow adjacent to, and from the main leader.
- Reduced the incidence of coolstorage pitting.
- Increased the calcium content of the fruit.
- Reduced the nitrogen/calcium ratio in the fruit.
- Increased the fruit weight at harvest.
- Increased the percentage of 22 count size fruit.
- Increased the number of Earthworms in the soil.



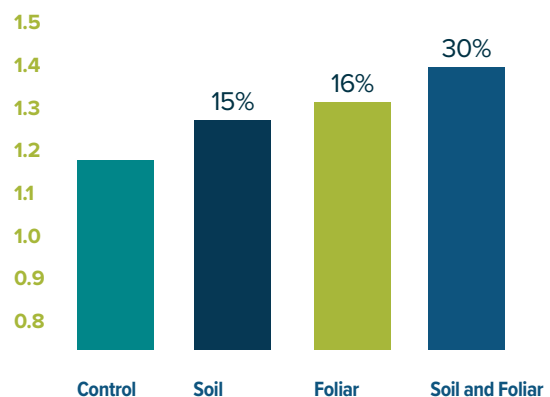
Results

The scientific significance of the differences found between the seaweed treatments and controls presented here was in the range of p0.10 to p0.01. Many of the findings were highly significant i.e. between 99% and 99.99% probability. Three year improved average.

Fruit Firmness following 6 Months Coolstorage

For this part of the study, fruit harvested from each plot was sampled and packed into trays arranged at random on pallets and cool stored. After cool storage, the trays were stored for 36 hours in ambient room temperature and inspected. A penetrometer tested for firmness (see graph).

FRUIT FIRMNESS



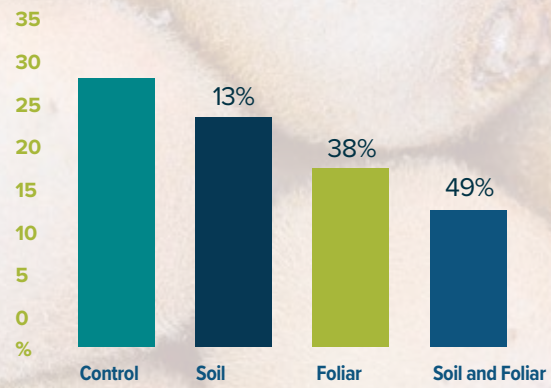
Due to
INCREASED
average fruit size
and
DECREASED
reject rate, there was;

10%
for the grower
\$3000 PER/HA
for that season.

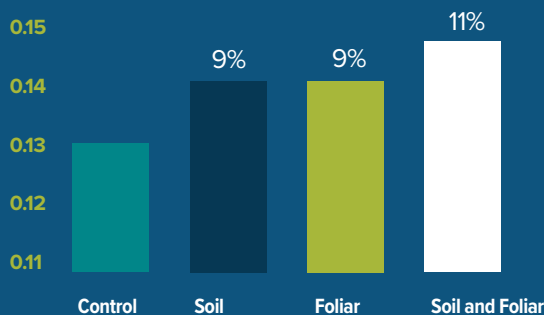
REDUCTION IN COOLSTORE PITTING

Coolstore Pitting

Following coolstorage, all fruit were inspected for the incidence of coolstorage pitting. The chart shows the mean values for percentage pitting found. The soil treatment showed a reduction of 13%. The foliar reduced pitting by 38% and the Soil & Foliar by 49%.



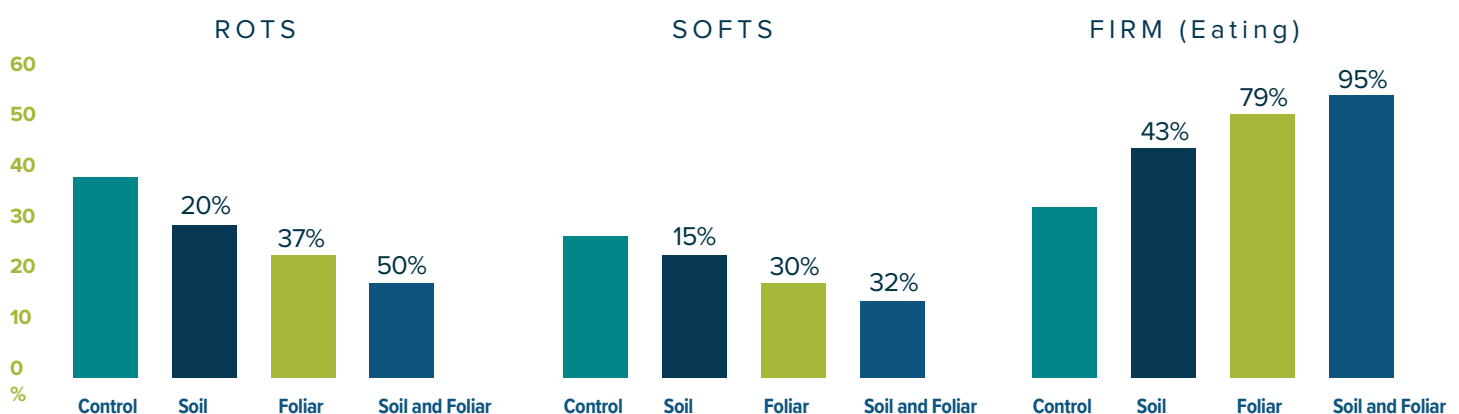
INCREASE IN FRUIT CALCIUM



Calcium

Calcium in the fruit was the single element to show the most significant differences arising from the seaweed applications. Fruit from the Soil-only and Foliar-only treatments had 9% more calcium than the control while the **Soil & Foliar treatment was found to contain 11% more calcium.**

REDUCTION IN SHELF LIFE - ROTS, SOFTS AND FIRM



Post-Coolstore Shelf-Life

A sub-sample of the coolstored fruit was held for a further 14 days at ambient room temperature. The samples were then inspected for percentage rots, softs and firm (eating quality).

Rots

The soil treatment showed a reduction of 20%. The foliar treatment showed rots to be reduced by 37% and the combined Soil & Foliar treatment reduced incidence of rots by 50%.

Softs

The soil treatment showed a 15% reduction of soft fruit. The foliar reduced soft fruit by 30% and the Soil & Foliar by 32%. The soil treatment increased the percentage of firm fruit by 43%, the foliar by 79% and the Soil & Foliar by 95%.

Firm (eating quality).

The soil treatment increased the percentage of firm fruit by 43%, the foliar by 79% and the Soil & Foliar by 95%.

Blowouts

The number of new season canes lost to wind damage in each of the 20 plots was assessed by way of surveys made when adequate leaf fall had exposed winter canes sufficiently to count the number of blowouts based on the scar (sockets) remaining and each treatment plot, observations were made on each of four entire kiwi fruit vines.

The chart shows the average of the two years expressed as the number of new season canes lost per winter cane tied down. The Soil treatment reduced blow outs by 30%,

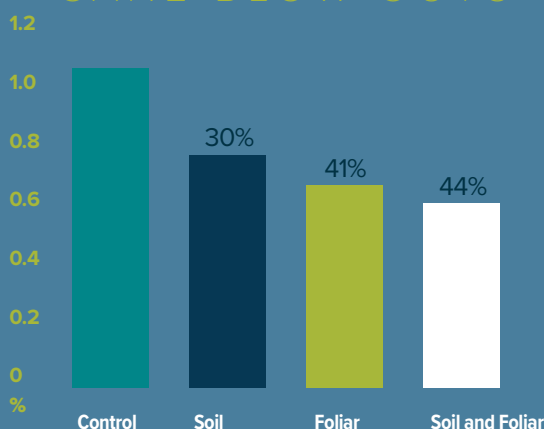
New Canes Grown

(adjacent to, and from the main leader)

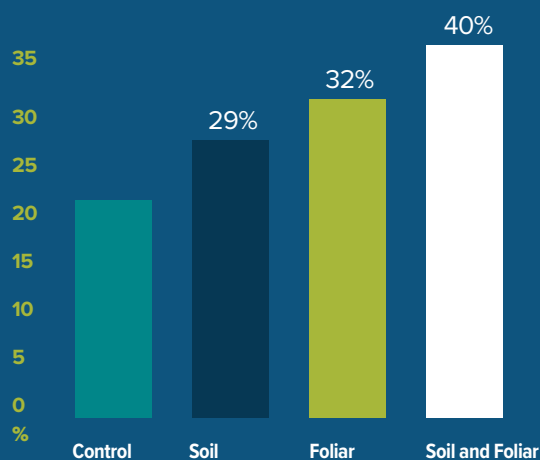
In conjunction with the blow out survey, new season canes were counted growing within the first wire from winter canes, and also those originating from the main leader itself.

The chart shows the total number of canes grown per vine and that the Soil treatment promoted the growth of 29% more canes, the Foliar 32% and the **Soil & Foliar 40% more canes.**

REDUCTION IN CANE BLOW OUTS



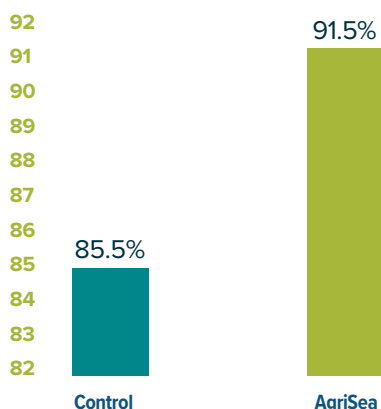
NEW CANES GROWN



Further Research

The research conducted at a Te Puke kiwifruit orchard looked at the effects of an AgriSea seaweed programme on kiwifruit size. This research was conducted by Bio Crop and Soil Ltd NZ and was presented in the NZ Kiwifruit Journal. All treatments (fertilizers) remained the same across both groups. However the AgriSea treated group received 5L of AgriSea Soil & Foliar Nutrition.

AVERAGE FRUIT WEIGHT

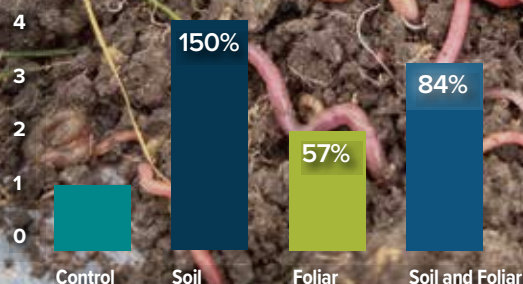


Added value was
\$3000 PER/HA

Earthworms in the soil

Five intact soil samples, each 18cm deep, were randomly collected from the central area of each of the 20 treatment plots. AgriSea Soil Nutrition resulted in a remarkable 150% increase in earthworm population, while Foliar Nutrition led to a 57% increase. Combining Soil and Foliar nutrition produced an impressive 84% rise in earthworm population.

SOIL EARTHWORM POPULATION



Earthworm population
INCREASED BY 150%

Viticulture research

Seaweed Foliar and Soil Nutrition trials on vineyards for Agrisea Ltd

Overview

Over three years, trials on multiple commercial vineyards in New Zealand's North Island were conducted to verify initial findings on a vineyard in

Gisborne, showing fruit bunches were fuller and heavier and vines appeared healthier and greener before and after harvest.



Method

Sites chosen with merlot and chardonnay blocks were selected for the trial. All vines grown within a bay constituted a trial plot. Five bays were selected at random from each vineyard, permanently marked, with treatments applied by knapsack sprayer in the same plot each year.

Normal commercial applications of pesticides and artificial fertilisers were still being applied during trial, yet the results were recorded despite the difficulty of building up beneficial soil microbes under this regime.

Treatments:

AgriSea Foliar Nutrition at 1/200 dilution first applied when shoots emerging, then at 3 weekly intervals to harvest. AgriSea Soil Nutrition at 5L/ha Spring and Autumn applied.



Results

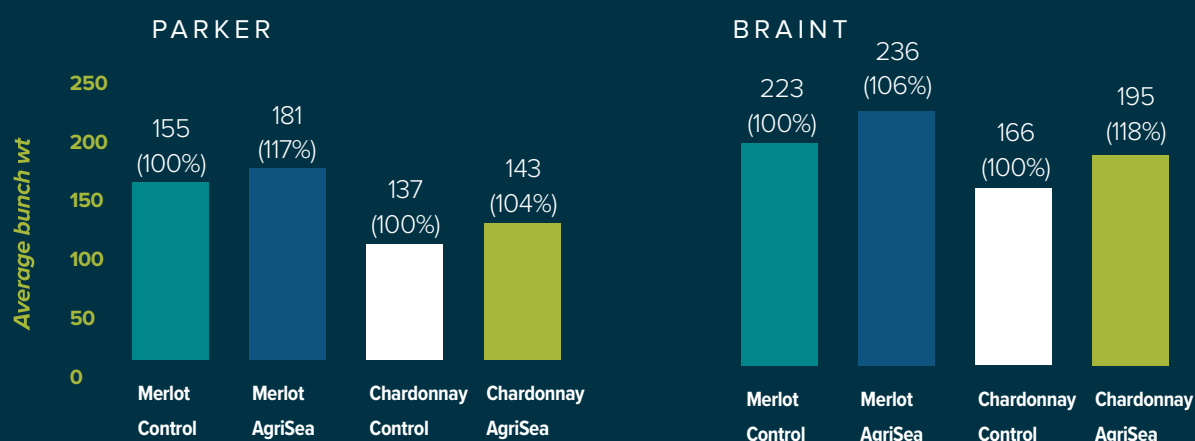
All trials showed an increase in the bunch weight of the fruit.

There was an average increase of 11.1% in all four trials, with a range of between 4.4% and 17.8%.



**11.1%
AVERAGE
INCREASE
bunch weight**

AGRISEA FIELD TRIALS - GRAPES, AVE BUNCH WEIGHT



VARIETY	VINEYARD	TREATMENT	AVERAGE BUNCH WEIGHT	% BUNCH WEIGHT CF. CONTROL
Merlot	Parker	AgriSea	181	116.7%
		Control	155	100%
Merlot	Briant	AgriSea	236	106.2%
		Control	223	100%
Chardonnay	Parker	AgriSea	143	104.4%
		Control	137	100%
Chardonnay	Briant	AgriSea	195	117.8%
		Control	166	100%
AgriSea Ave			189	111.1%
Control Ave			170	100%



AgriSea Soil Nutrition

Available in liquid form

AgriSea Soil Nutrition is a Biology Activator.
An active and diverse soil biology will support and improve your soil's structure and nutrient cycling leading to healthier plants and better returns.

AgriSea Soil Nutrition is a specialised seaweed bio-stimulant that enhances your soil's ability to cycle nutrients naturally through mineralisation.

An active and diverse soil biology produces plant-available nutrients and ensures a continuous feed source for your plants, maximising return on previous soil and nutrient investments.

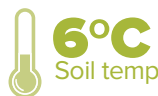
Reduce the need for extra nutrients and save money, improve your soil microbiome, enhance soil structure, aeration, water retention, and plant root systems, which builds overall resilience.

Application Rates

80 Fluid Ounces
liquid / per / acre



Optimum application times are early morning. Air temp must be no lower than 10°C or apply in late evening. Soil temp must be no lower than 6°C.



Apply in: Autumn and Spring

LIQUID- 5GAL, 26GAL, 52GAL, 264GAL

Benefits can include:

Works with your soil biology and underground army (microbes and earthworms)

- Increase to root and shoot growth
- Increase to soil quality and nutrient efficiency
- Improved soil structure (aeration, drainage, can withstand traffic)
- Unlock minerals and nutrients already in the soil
- Increased clover content – stable nitrogen source (reduced need for solids)
- Less pugging and pulling
- Reduced impact of pest and diseases
- Reduced impact of weather extremes
- Increased germination rates for cropping and regrassing
- Increased crop and pasture quality
- Farm holds longer and recovers quicker in drought

Ease of Use

- Safe and non-toxic
- Spray – Boom, Rose, Jet, Chopper
- Compatible for use with other products
- Fine filtration ensures no clogged lines or spray nozzles
- No withholding period





AgriSea Foliar Nutrition

Available in liquid form

AgriSea Foliar Nutrition provides an instant and natural boost of bioactives to your vines, trees and crops. Maximise your crop quality and yield with AgriSea foliar nutrition.

AgriSea's Foliar Nutrition delivers a balanced package of micro-nutrients, bioactives and compounds to the plant in proportions that are conducive to absorption.

Not all seaweed products are created equal. The effects of seaweed-based biostimulants vary depending on the type of seaweed used, the overarching source of the raw material, harvesting conditions and the manufacturing and extraction process.**

AgriSea has perfected its process over 28 years and employs a unique hand manufacturing system without heat, chemicals, freezing, drying or other processes that will denature the sensitive balance of micronutrients.

Seaweeds have been used since antiquity to improve the productivity of crops and studies have been made on liquid seaweed extracts produced since the 1950s.

The benefits of seaweed biostimulants have been independently tested and observed in multiple scientific trials and the benefits of AgriSea biostimulants were also independently tested and observed in commercial New Zealand orchards.

While some early studies implied that plant hormones in seaweed extracts could explain their bioactivity, later studies have clarified that the effects observed in plants are due to the stimulation of molecular pathways in plants themselves**.

Application Rates

80 Fluid Ounces

liquid / per / acre

Apply:

- Early Spring - two weeks before bud.
- Fortnightly until has settled
- 1/100 dilution rate

LIQUID- 5GAL, 26GAL, 52GAL, 264GAL

*AgriSea ECO Soils Research, 3 year trial, Bay of Plenty kiwifruit orchards;

**EBIC White Paper, 16 Jan 2023, Recent insights into the mode of action of seaweed-based plant biostimulants.

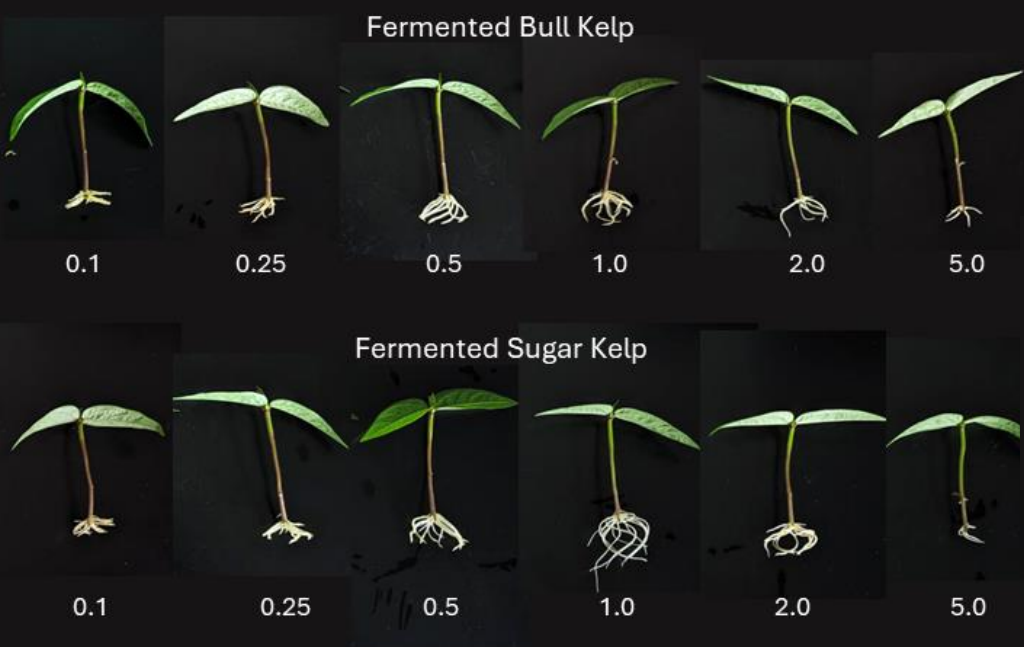
Benefits can include:

- Supports natural plant growth and fruiting mechanisms
- Greener, healthier vines & crops due to increased chlorophyll levels
- Increases natural nitrogen fixation
- Enhances nutrient use efficiency
- Increased shelf life*
- Helps root and shoot formation
- Plants are more vigorous and durable in times of stress
- Increases resistance to diseases and pests
- No chemical additives
- No colours, no thickeners, no preservatives added.
- No residues, no withholding period

Ease of Use

- Safe and non-toxic
- Spray – Boom, Rose, Jet, Chopper
- Compatible for use with other products (can be applied with other applications except fungicides).
- Fine filtration ensures no clogged lines or spray nozzles





Research conducted by The Verscuren Centre

AgriSea's proprietary fermentation technology was utilised in fermentation of Sugar Kelp (sourced from North American seaweed farmers). To assess the effectiveness of the fermented product, a plant growth bioassay was conducted, specifically focusing on mung bean root growth as an indicator.

During the bioassay, different concentrations of the fermented products were tested ranging from 0.1g/L to 5.0 g/L. Results from the assay indicated that 1.0 g/mL treatment concentration was the optimal range for adventitious root growth. In addition to the Sugar Kelp fermented products, a commercial control was also included, along with water (negative control) and Bull Kelp fermented product (comparison to another seaweed biostimulant).

Some of the parameters tested were root count, root length, root fresh weight, root dry weight, root volume, root surface area and root diameter. The Sugar Kelp fermented product outperformed the Bull Kelp product against all the tested parameters and was comparable to the commercial control in the tested parameters, suggesting its efficacy as a plant growth promoter.

Root Length

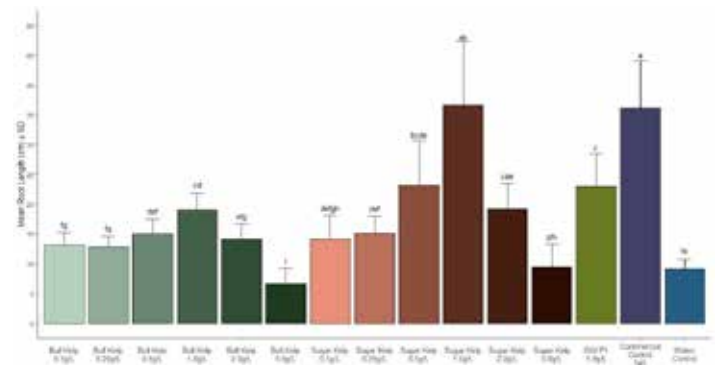
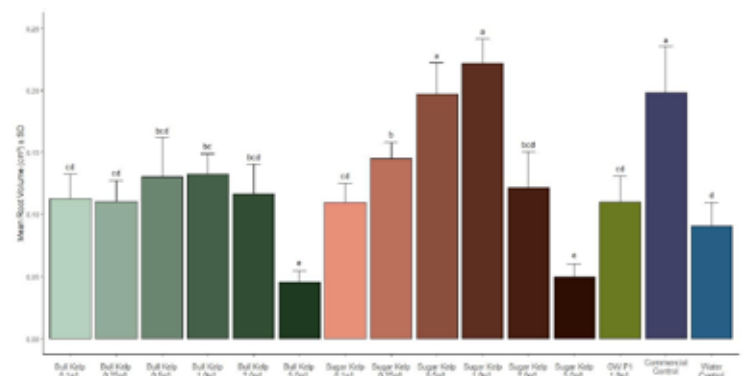
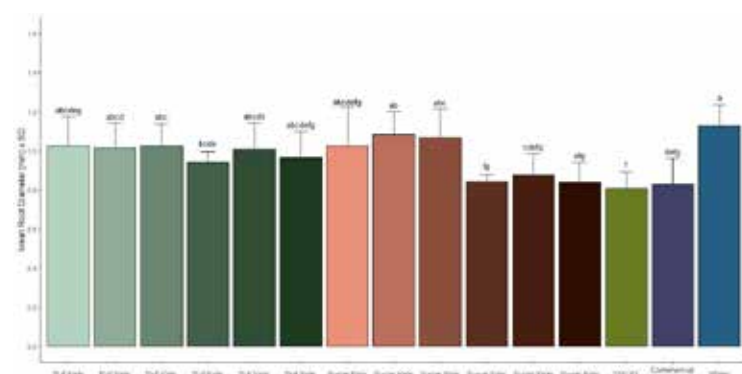


Figure 2: Root length results for dose response bioassay comparing two fermented kelp products (Bull and Sugar)

Root Volume



Root Diameter



AgriSea

Leader in innovation and seaweed tech

Nano-Sea Hydrogel Innovation

In recent years AgriSea partnered with Crown Research Institute Scion where Dr Stefan Hill and his team have been working for many years on helping build New Zealand's high value industries. Our partnership with Scion allows us to take the waste stream from our seaweed industry and apply green chemistry to convert that waste for the first time at scale into the manufacture of nanocellulose. The result is Nano-Sea, a seaweed hydrogel that can be used in personal care products, biomedicine and agriculture. Through AgriSea's unique manufacturing process, we avoid the use of toxic chemicals in the creation of this seaweed nanocellulose.

Find out more about Nano-Sea:
<https://www.nano-sea.com/>



From Soil to Sea to Society - Rere ki uta rere ki tai

Find out more at:
www.agrisea.co.nz/science-certification/rere-ki-uta-rere-ki-tai/



Alternative proteins

AgResearch scientists hope to unlock the potential of seaweed as a go-to food with proven health benefits. Joining counterparts in a co-funded New Zealand and Singapore government \$3.3 million research programme, AgriSea is among commercial partners. Unlocking the nutritional value of seaweed and developing flavourful and nutritious seaweed prototype food are part of our goal to increase the value of seaweed to New Zealand's economy while recognising the huge role seaweeds play ecologically. Read and watch the TV3 story on the partnership;

<https://www.newshub.co.nz/home/rural/2020/10/agresearch-scientists-work-to-unlock-the-hidden-potential-of-seaweed.html>

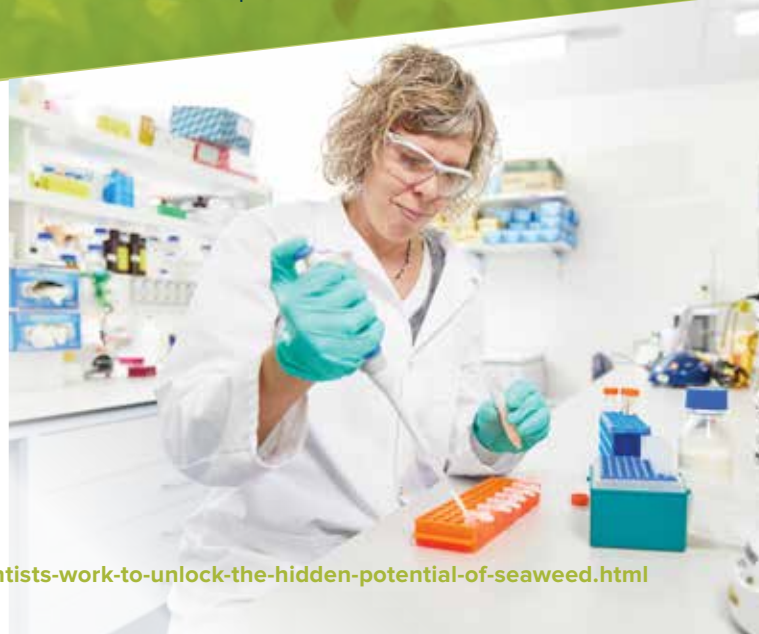
Bioremediation

We've wrapped up our trial of the potential for sea lettuce (Ulva) to absorb excess nitrogen and phosphorus from waterways. Our bioremediation trial took place alongside the Waihou River, in partnership with MPI for funding, and the research was led by the University of Waikato. The project allowed us to monitor the potential for this type of seaweed to absorb unwanted nutrients from waterways, enabling cleaner water to be returned to rivers, streams and the sea.

Find out more at
www.agrisea.co.nz/hauraki-bioremediation-project/



For the past two years, AgriSea has powered a trial on 10 Bay of Plenty and Waikato farms and alongside Lincoln University to measure ways to improve soil, animal and farm health and to test the concept that human health is not isolated but connected to the health of animals, plants and environments. Our rere ki uta rere ki tai trial is providing far-reaching insights based on farmer knowledge, scientific measurement and real-world experimentation.



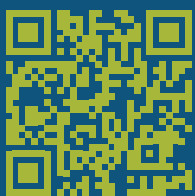


Top Customer Service

Ours is a partnership – we're committed to assisting you to reduce production costs while maintaining high growth, high yields, high quality and profits.

Personal Guarantee

Our family stands behind our products. We promise to deliver high quality, effective products which will reduce your environmental footprint and add value to your operation.



Contact your local
Area Field Consultant today
info@agri-sea.com



AgriSea
315 Front Street
New Haven, CT 06513
USA

www.agri-sea.com