



VITICULTURE/HORTICULTURE
NUTRITION SOLUTIONS



Welcome to AgriSea

Our family philosophy is simple:

"To provide highly effective products with bucket loads of integrity"

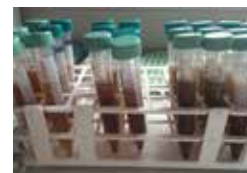
AgriSea NZ Ltd is a multi-award winning sustainable New Zealand company, family owned and operated. The company produces Seaweed concentrates and bioactive extracts for Soil, Foliar, Apiculture, Pasture and Animal Nutrition available in both liquid & solid form.

The New Zealand native seaweed species (*Ecklonia radiata*) is batch-brewed with specially selected essential herbs for up to 90 days. The natural fermentation process eliminates the use of processing with heat, chemicals, freezing or dehydration that might 'denature' the sensitive nutrient balance, allowing the natural growth stimulants, micro-nutrients and bioactive compounds to be released in an active form to enhance soil, plant and animal health. AgriSea's natural brewing methods are unique for commercial production.

Research into the benefits of seaweed has been more advanced internationally than in New Zealand, as seaweed products have been used internationally for generations. AgriSea would like to provide research that is specific to NZ seaweed. AgriSea is committed to funding ongoing research trials in NZ to establish accurate data relating to the efficacy of its products.

We stand behind our products...you can ring to speak to us on

0800 SEAWEED



A Kiwi company
through and through

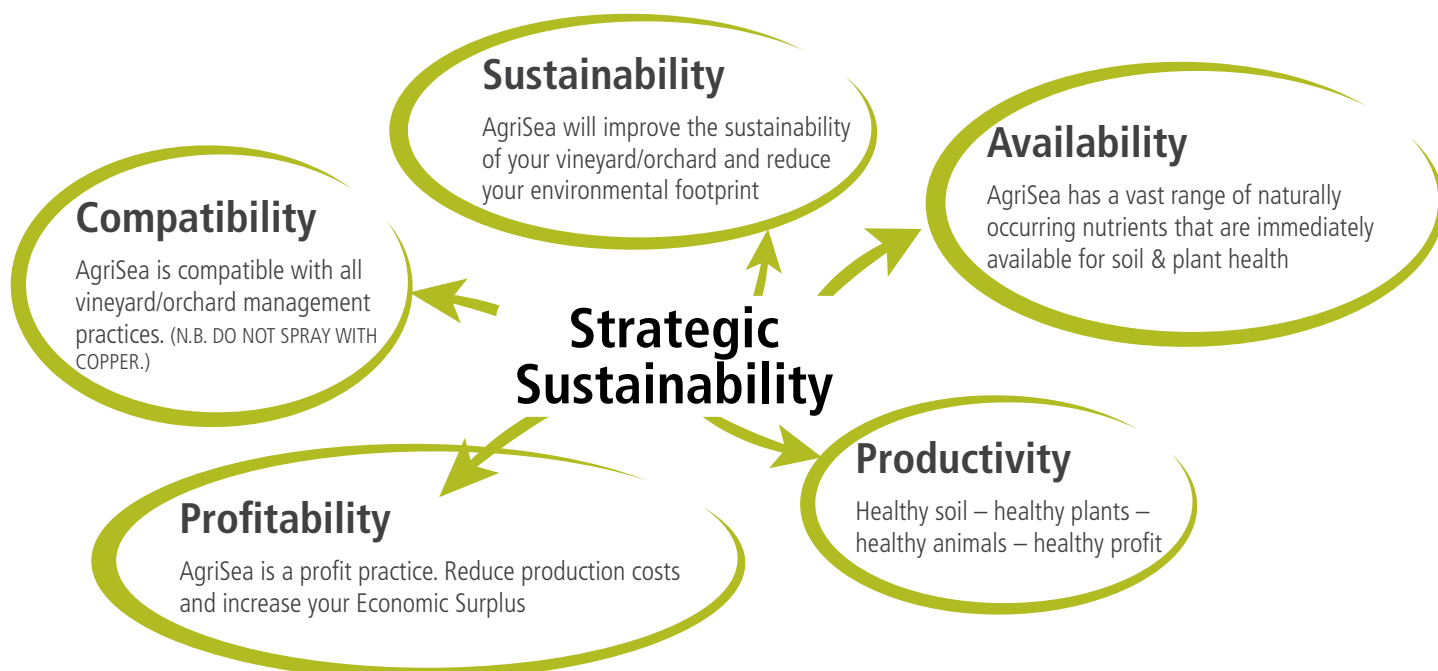




Why AgriSea?

There are significant economic and environmental challenges facing the Viticulture/Horticulture industry today. AgriSea provides highly effective, financially and environmentally sustainable farming solutions. While all our products are certified organic, (Bio Gro) 98% of our growers are non organic.

AgriSea maximises all orchard/vineyard management systems (conventional, biological or organic) resulting in significantly increased orchard/vineyard health, production and profitability. This is achieved via better:





AgriSea Soil Nutrition

Since the 1950's, farming practices have focused on the soil chemistry – high input, synthetic compounds to push production and yields. While the initial results were good, we are now increasingly aware of the long term effects of these practices – on the quality of our orchards, fruit, our land and waterways.

Healthy soil is the basis for viticulture/horticulture and the necessary foundation for healthy plants and healthy animals.

AgriSea Soil Nutrition is a soil bio-stimulant which will feed your soil biology thereby improving your soil structure and soil fertility. Soil biology (or soil life) creates soil structure and produces soil nutrients in a plant available form.

An active and diverse soil biology ensures an ongoing feed source for your pasture and animals. AgriSea Soil Nutrition also allows for the numerous minerals and nutrients already in your soil to be utilised – ensuring the ongoing benefit of the previous solid / nitrogen investments made on your farm.

Healthy soil - Healthy pasture - Health animals

Soil+

Now available in a solid and liquid form

AgriSea Soil + is a unique blend of AgriSea liquid Soil concentrate and natural Zeolite allowing for a solid, sustained slow release, high nutrition product.

WHAT IS THE ROLE OF ZEOLITE?

Zeolite in Soil + is a high quality carrier for AgriSea liquid seaweed concentrates. Zeolite is a natural Aluminosilica formed by volcanic activity 200,000 years ago. All AgriSea Zeolite is mined locally in the central North Island of New Zealand.

Zeolite holds nutrients in the root zone for plants to use when required. The nutrient release from Zeolite is plant driven setting up a natural cycle for uptake. This leads to more efficient use of fertilisers and conditioners as the zeolite "recharges or reabsorbs" once its initial nutrients have been released.

Unlike other soil amendments it does not break down, remaining in the soil to help improve nutrient and water retention permanently.

The Benefits of AgriSea Soil Nutrition include:

- Huge increase in your soil biology and 'voluntary army' (microbes and earthworms)
- Increased root length and mass
- Increased soil quality and fertility
- Improved soil structure (aeration, drainage, can withstand traffic)
- Deeper humus layer (nutrient storehouse of your soil)
- Locked minerals and nutrients in the soil become bio-available
- Increased clover content – stable nitrogen source (reduced need for solids)
- Less pugging and pulling
- Increased germination rates for cropping and regrassing
- Increased crop yield and pasture quality
- Farm holds longer and recovers quicker in drought

Ease of Use

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





AgriSea Foliar Nutrition

Foliar spraying with seaweed supplies nutrients to the plant via the leaves, a method which has been shown to be 95% efficient – when applied under ideal conditions, nutrients have been translocated into the plant within one hour.

The success of AgriSea's Foliar Nutrition is due to the presentation of a balanced package of micro-nutrients to the plant in proportions that are conducive to absorption.

Seaweed is a growth enhancer that provides the natural plant hormones – auxins, gibberellins and cytokinins. These plant hormones are growth stimulants that are an important aid to: larger fruit size through cell division and cell expansion increased root growth which in turn accelerates nutrient and water uptake.

These hormones are carefully protected during AgriSea's unique hand manufacturing system that does not use heat, chemicals, freezing, drying or other processes that will de-nature the sensitive balance of micronutrients that are so important to the plant.

AgriSea Foliar Nutrition provides a natural balance of nutrients in a form your vines/ crops can readily absorb and convert – maximising quality, palatability and yield.

The Benefits of AgriSea Foliar Nutrition include:

- Moderate levels of boron to enhance pollen viability
- Valuable fruit sizing mechanism via natural plant growth hormones
- Greener, healthier vines/ crops due to increased chlorophyll levels
- Significant lift in the fibre, protein and overall nutritional value of your vines/ crops
- Increased DM yields
- Increased brix (natural sugars) levels
- Increased natural nitrogen fixation
- Increased palatability & larger storage capacity
- Crops more vigorous and durable in times of stress
- Increased resistance to disease and pests
- No chemical additives; no residues; no withholding

Ease of Use

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





AgriSea Testimonials



// *AgriSea Soil Nutrition - Foliar Nutrition is used in 65% of NZ vineyards. Grower comments for the Soil Nutrition is that the microbial activity has increased. With the AgriSea Foliar Nutrition the vines are healthier and less disease is occurring* //

Lindsay Wehipeihana
Agrisea Hort/Turf Manager



// *Increasing numbers of Grape growers are recognising the benefits of incorporating Agrisea in their nutrition programmes. They find applying AgriSea Foliar and Soil products over the season improved vine health resulting in a better natural resistance and less susceptibility to disease attack. This makes for a better result not only in management but in yield. After all if you want to make Gold medal wines you need to use Gold Medal products to grow your grapes. AgriSea Foliar and Soil certainly make the grade so why would you use anything else. Easy to apply it can be incorporated into an existing spray programme and will enhance any nutritional programme that is already in place.* //

Mark Powick
Technical Advisor



// *I have been using the AgriSea products for almost 10 years now, the company are very easy to deal with, the products are consistent, easy to apply and help maintain and enhance the soil and canopy health. They play an integral part in the management of many of the vineyards that I'm associated with.* //

Bart Arnst, Marlborough Organics | The Darling Wines



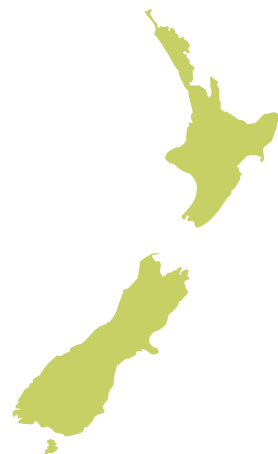
// *I have been applying AgriSea Soil and Foliar products to my vineyard throughout the season. The magnesium deficiency is corrected and the bunches are much bigger than usual. My vines have benefited dramatically and I thoroughly recommend your products.* //

Duncan Smith, Plant Pathologist
Gisborne, DipAg, M.I.Biol., B.Sc(Hons), MSc



// *Our relationship with AgriSea is an integral part of our management programme. We have been using the AgriSea soil and foliar nutrition for the last 6 seasons and have maintained excellent soil biology and strong healthy canopies.* //

Craig Julian, Quickpick Ltd Whakatane New Zealand





AgriSea Kiwifruit Research

Independent research into the efficacy of AgriSea Soil and Foliar products was conducted by ECO Soils Research, 5 Bay of Plenty kiwifruit orchards were enrolled in the study over a period of three years 1999-2001. The benefits to the growers were as follows:

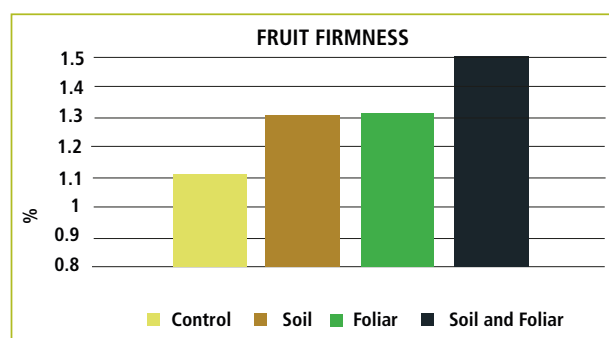
- 1) Improved fruit firmness during coolstorage.
- 2) Improved post coolstorage shelf life.
- 3) Reduced the number of new season canes lost due to wind damage (blow-outs).
- 4) Encouraged more new canes to grow adjacent to, and from the main leader.
- 5) Reduced the incidence of coolstorage pitting.
- 6) Increased the calcium content of the fruit.
- 7) Reduced the nitrogen/calcium ratio in the fruit.
- 8) Increased the fruit weight at harvest.
- 9) Increased the percentage of 22 count size fruit.
- 10) Increased the number of Earthworms in the soil.

RESULTS

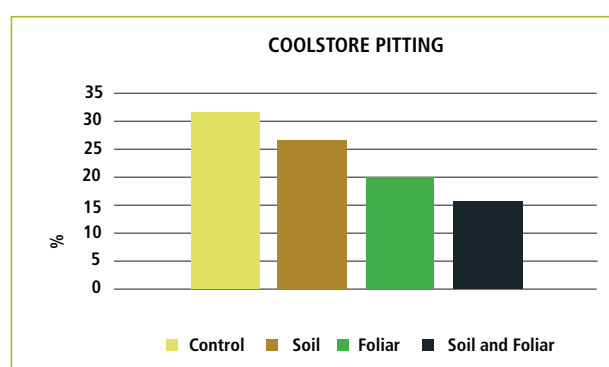
The scientific significance of the differences found between the seaweed treatments and controls presented here was in the range of pO.1 0 to pO.01. That is to say that the probability that the AgriSea seaweed applications did in fact effect the various growth factors (as opposed to occurrence by chance) ranged between 90% and 99%. The confidence level for chance being entirely responsible for the effects would therefore be in the range of 1% to 10%. Many of the findings were highly significant i.e. between 99% and 99.99% probability.

Fruit Firmness following 6 Months Coolstorage.

For this part of the study all fruit from each plot was harvested into bins and during fruit grading at set time intervals, individual 36 count fruit were sampled and packed into trays which were arranged at random on pallets and coolstored. Following the coolstorage period the trays were stored for 36 hours at ambient room temperature before being inspected and penetrometer tested for firmness.

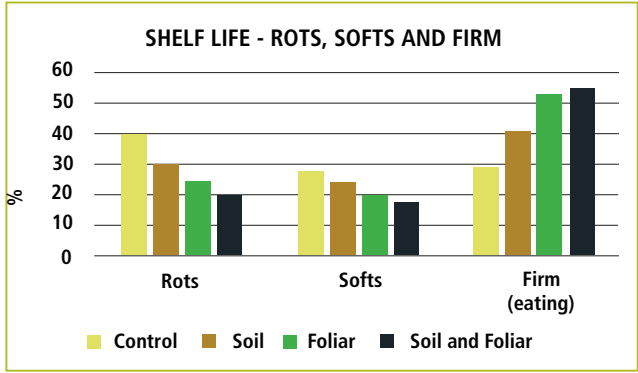


The accompanying chart shows the three year average fruit firmness values (kg) for each different treatment. Compared to the control, the soil treatment improved firmness by 15% , the foliar by 16% and the combined Soil & Foliar by 30%.



Coolstorage Pitting

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



Post-Coolstorage Shelf Life

In 2001 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%.

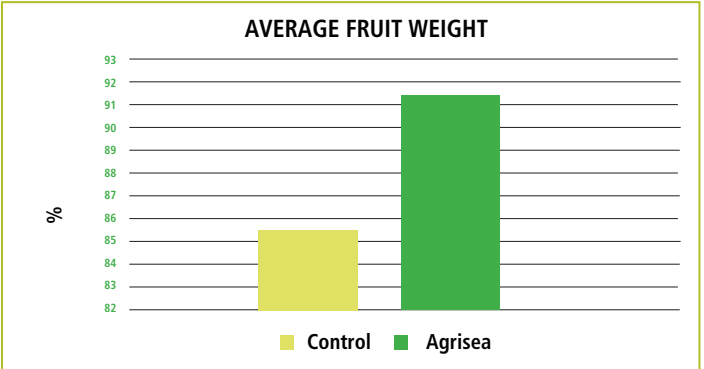
Firm (eating quality).

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

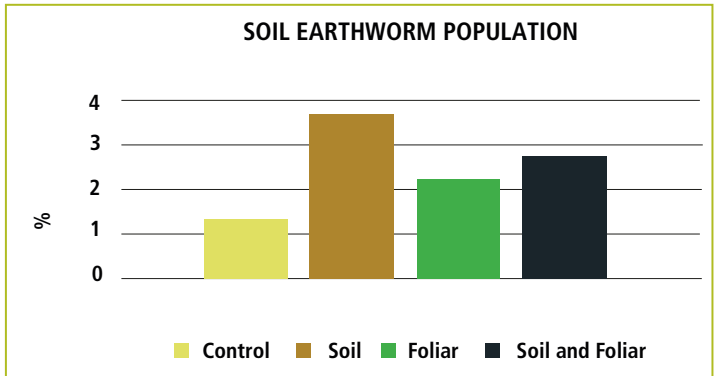


FURTHER RESEARCH

In 2007/2008 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.



- Due to increased average fruit size and decreased reject rate, the added value for the grower was \$3000 per/Ha



Earthworms in the soil

In July 2001 a golf greens hole cutter was employed to extract 5 intact soil samples to a depth of 18cm randomly along a central area from each of the 20 treatment plots. These samples were broken down and the number of Earthworms found in each was recorded.

The chart shows Earthworm population expressed as millions/ha. The soil treatment increased Earthworm numbers by 150% (p0.01). The foliar treatment showed an increase of 57% and the Soil & Foliar 84%.



AgriSea Viticulture Research

Seaweed Foliar and Soil Nutrition trials on vineyards for AgriSea Ltd

OVERVIEW

Over the last three years, observation trials have been carried out using AgriSea soil conditioner and foliar sprays on Duncan & Judy Smith's vineyard property situated in the Waimata Valley near Gisborne. Results suggest that the vines appear healthier when compared with untreated plants, and that they are greener up to and beyond harvest. The fruit bunches also appear to be fuller and heavier.

Extensive scientific trials were set up on four commercial vineyards to verify these initial findings.

METHOD

Number of trials: A total of four sites were laid down in Chris Parker's and Peter Briant's vineyards, Patutahi, Gisborne. Two merlot and two chardonnay blocks were selected.

Plots/replicates: Plots consisted of all vines growing within a bay (A bay is the area between two posts within a vine row). Five bays were selected at random from each vineyard and permanently marked so that treatments would be confined to the same ones each year.

Sprayer: All treatments were applied with a Solo knapsack sprayer.

Treatments: AgriSea Soil Nutrition 5 l/ha - Spring and Autumn

AgriSea Foliar 1 :200 dilution -First application shoots emerging, then at 3 weekly intervals to harvest.

First application: 15th October 2004

ASSESSMENTS

1. Soil analysis -Taken in mid winter (June/July 2005) to determine the level of the main mineral and trace elements important for grape production.
2. Bunch weight -A random sample of 50 bunches of grapes per treatment were taken at harvest and weighed.



RESULTS

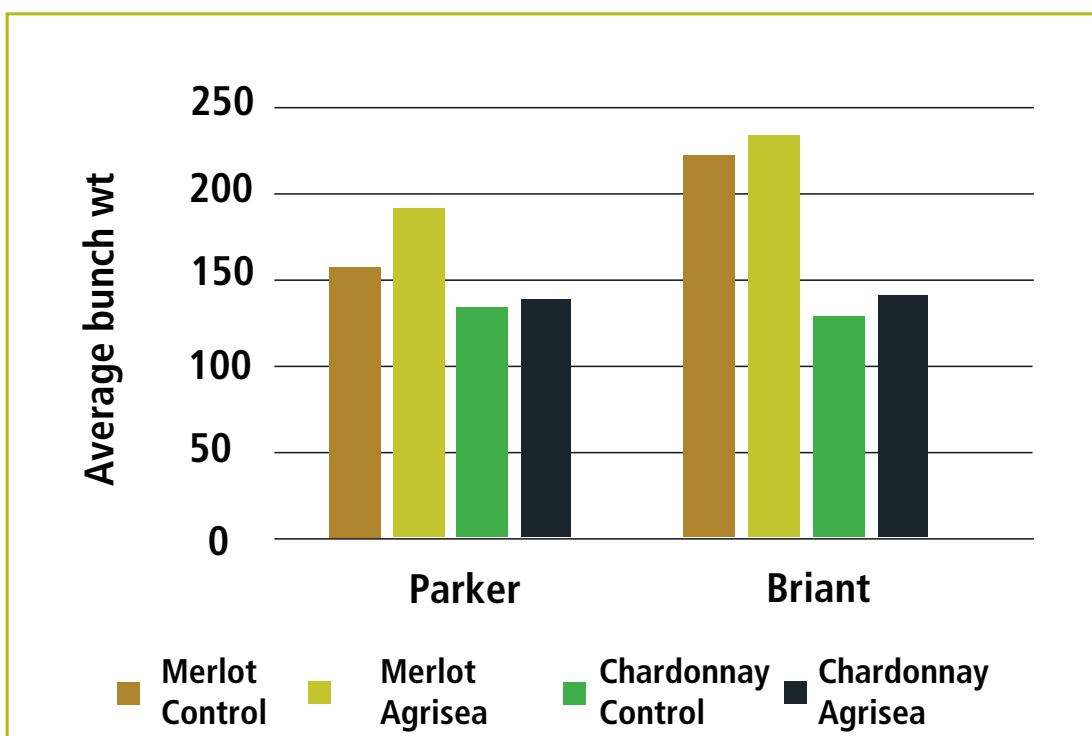
All trials showed an increase in the bunch weight of the fruit. There was an average increase of 11.1% in all four trials, with a range of between 4.4% and 17.8%.

It has to be remembered that whilst this trial was being carried out, normal commercial applications of pesticides and artificial fertilisers were still being applied over the trial plots. It is very difficult to build up beneficial soil microbes under this regime.



AGRISEA FIELD TRIALS - GRAPES 2004/05

Table 1- Summary of Results



Variety	Vineyard	Treatment	Average bunch wt	% 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 Av			189	111.1%
Control Av			170	100%



AgriSea

How To Guide

For your free, no obligation soil assessment, please contact your local AgriSea Field Agent or Customer Services on **0800 SEAWEED** who will arrange this for you.



GRAPES: Apply AgriSea Soil Nutrition @ 5L per ha (1:50) in the Autumn (April /May) and Spring (when soil warms) to encourage soil health and root development.

Apply AgriSea Foliar Nutrition @ 5L per ha. (1:100) at 20 cm cane

1st application at flowering (50% bloom)
2nd application immediately post fruit set.
3rd application 3 weeks post fruit set



KIWIFRUIT: 1st application – 7 to 10 days prior to flowering (this will aid flower and pollen development). 2nd application – Mid blossom or immediately post blossom. 3rd application – 14 days post blossom or in conjunction with leaf roller spray. Apply AgriSea Soil Nutrition to the weed strip soon after harvest to aid root mass/length and soil biological population. Rate - 5L / ha



AVOCADOS: Apply AgriSea Foliar Nutrition to trees @ 5L per ha in early spring and every 4 weeks after that either in conjunction with other sprays or on its own. Apply 2 applications , 4 weeks apart of AgriSea Soil Nutrition around root zone @ 5L per ha in Autumn.

- 1) To get good absorption leaf surfaces should be relatively free of wax – therefore applications of AgriSea Foliar Nutrition is likely to be more efficient when the leaf is young and soft – i.e. spring time
- 2) Seaweed products have good boron levels, therefore pollen viability is likely to be maximized if Foliar nutrient is applied during early flowering.
- 3) A second application of AgriSea Foliar Nutrition should be made at fruitlet stage where the cytokynins (natural plant growth hormones) will increase cell division and thereby produce larger fruit.

FOR OTHER ORCHARD APPLICATIONS PLEASE SEE OUR TECHNICAL TEAM



Top Customer Service

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

We'll partner you with a highly trained Area Field Consultant along with specialist Advisors.

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 farm.

For more information or for your free, no obligation soil assessment please phone your Area Field Consultant or AgriSea Customer Services on **0800 SEAWEED**.



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www.agrisea.co.nz

Foliar Product Typical Analysis

Minerals and Trace Elements (mg/L - ppm)

Nitrogen 61.68
Calcium 92.52
Copper 0.077
Selenium 0.01

Phosphorus 54.48
Magnesium 185.04
Manganese 0.989
Zinc 1.11

Potassium 1953.20
Sodium 1336.40
Iodine 257
Boron 5.14

Sulphur 298.12
Iron 1.241
Molybdenum 0.01
Cobalt 0.01

Vitamins

Vitamin A, Vitamin C, Vitamin E, Folic Acid, Vitamins B1, B2, B3, B5, B12, Fucoxanthin, Choline

Amino Acids (mg/100g)

Aspartate 971
Asparagine 1.141
Serine 381
Methionine 253

Histidine 50
Proline 398
Arginine 451

Lysine 391
Glutamine 976
Leucine 649

Phenylalanine 381
Alanine 583
Threonine 415

Tyrosine 171
Isoleucine 380
Valine 402

Cytokinins & Auxins

Trans-zeatin riboside, Trans zeatin, Indole Acetic Acid, Isopentenyladenosine, Isopentenyladenine

Phlorotannins 8-10% g dwt

Mannitol 3500 µmol g dwt

*Declared values are considered averages and are subject to seasonal variation.

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