

# ***'Building Soil Carbon – Nature's way'***

Factsheet – **LIQUID SEA MINERALS** - vs 7 – July 21

This Factsheet is part of a series about building-up Soil Carbon following Nature's Cycle.<sup>i</sup>

## **Summary**

Liquid Sea Minerals provide a bio-available form of many natural minerals, trace elements, minor minerals and nano minerals. Nano minerals are needed in extremely low quantities, often by soil biology. Soil biology is needed for the uptake of many minerals.

Sea minerals contain all elements from seawater in the right balance. It is not yet clear if some of those are needed and, if so, what they do. Sea minerals have been used for pastures, crops and human health for a long time.<sup>ii</sup>

## **Local results – increase in profits**

Liquid Sea Minerals have been applied to peanuts and avocados with promising results.

Avocado: Applications of Sea Minerals 5 L/ha and Humic acid 15 L/ha in under-tree sprinkler resulted in 20% increase in Brix and 10% increase in fruit weight and hence yield. Conservative calculations using 10 trays/tree and \$15/tray give an increase of \$600/ha. The sea minerals and humic acid feed the biology and cost \$65/ha.

Peanuts: Applications of Sea Minerals 5 L/ha and Humic Acid 15 L/ha were applied by boom spray soon after emergence. Later in the crop Brix readings were 20% higher. This resulted in only a small yield increase but gave almost 50% increase in large Jumbo grade which commands a premium price. This gave \$520/ha increase in returns to the farmer.



## **Elements in Sea Minerals**

### Major elements

Nitrogen Phosphorus Potassium Calcium Magnesium Sulphur Sodium

### Minor elements

Manganese Zinc Iron Copper Boron Molybdenum

### Micro and nano elements

Nickel Chlorine Selenium Silicon Aluminium Cobalt Titanium Nickel Barium Tin Beryllium Lithium Uranium Vanadium Mercury Cadmium Chromium Lead Silver.

There is little risk of toxicity by heavy metals as the concentrations are extremely low.

## **Applications**

### Seedlings

- Transplanting: drench with 15 ml/L water and repeat in 14 days
- Soil drenching: cover 10 square m with 15 ml/L water
- Foliar spray: mix 5 -10 ml/ L water and apply early morning or late afternoon  
add a wetting agent to increase wetting.

### Farming

- Soil applications: 3 – 5 L/ha
- Foliar applications: 5 ml/L will often reduce insect numbers.

Sea minerals are extracted from sea water by natural processes after removing most of the sodium salts. Improved plant health and reduced insect pressure have often been noticed, and increases in vitamins, yield and brix readings have been measured.

## Background



Kelp forest Tasmania. Source: [blogazine.hannahsmall.com](http://blogazine.hannahsmall.com)



Dust storm. Source ABC

On land, minerals get washed out, blown away in dust and ash or carted out in produce. As plants use minerals selectively, the balance of minerals can be severely distorted.

Plants can grow with a limited number of minerals: the well-known major ones and trace elements. Science has identified a growing number of minerals as needed to increase plant growth. However, science is still finding more minerals that are needed in very small amounts for optimum plant health.

## Soil biology

Soil biology is needed for the uptake of many minerals. Plants' health and resilience, optimal growth and thus production are affected by it. However, soil biology appears to need a much wider range of minerals to thrive than plants need to survive.

People's health is increasingly recognised as depending in part on the minerals and health of the plants we eat. The need for people to take mineral supplements against ailments is one indication. (See the box *Functions of Selected Minerals and Trace Elements* on page 3 for the role the 21 minerals listed fulfil in human health.<sup>iii</sup> It is in English.)

In short: sea minerals feed the soil biology that feeds the plants that feed us.

## Building Soil Carbon

Some soil biology, especially fungi, build up Carbon in the soil. Carbon is needed for good soil structure and to store minerals and water. Increasing the amount of carbon in the soil can lead to an extra 15 mm of rain stored for every percent increase. Most Australian soils are low to very low in carbon as it has been destroyed by modern farming methods. These methods inadvertently increase the rate of soil carbon breakdown by cultivation which cuts up the fungi. In addition, they kill the fungi with fertilizers and chemicals and unknowingly exhaust key elements fungi need and fail to replace these.

## Restoring fungi

Where soil biology is low to very low, restoring fungi is essential to gain benefits from sea minerals. How to do that is described in the Factsheets below.

Dr. Maynard Murray in his book, "Sea Energy Agriculture", gave a very detailed description for their use in agriculture in 1976. It is not new.

For further information and advice contact Trevor - 0417 196 315.

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<sup>i</sup> "**Carbon from Soil to Air**" explains the vital role plants play in getting Carbon from a gas in the air to a permanent solid form in the soil. "**Oakwood BEAM Starter for high fungal teas**" provides an oversight of where plants fit into *Nature's Cycle* and why to use local fungi to brew a high-fungal tea. "**Brewing your own Oakwood BEAM fungal tea**" provides details of how to grow the 'Oakwood BEAM Starter', how to use it to brew the tea and how to apply the tea.

<sup>ii</sup> <https://www.healthy-vegetable-gardening.com/oceantrace.html>

<sup>iii</sup> [https://www.robkalmeijer.nl/voedingsmiddelen/overige/zout/Mar06\\_Amena.pdf](https://www.robkalmeijer.nl/voedingsmiddelen/overige/zout/Mar06_Amena.pdf) Page 3.