

Seaweed – Myth or Magic?



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Recently, I was at a field day and overheard a farm advisor talk disparagingly about a well-known seaweed product. Eureka! has worked on seaweed products for nearly 15 years and undertaking dozens of studies for companies in our pot and greenhouse facility on the rural fringe of Melbourne. We have also formulated new, improved products for the leading brands in our specialty laboratories in Altona, Melbourne. We can say with authority that it does work, providing you are using the right product, for the right reason and in the right way.

Seaweed products differ greatly. In Australia and New Zealand, products differ in the quality and proportion of seaweed that they contain. Some are made from kelp, which is an algae, while others are made from seagrasses. These are very different organisms and the ingredients that they contain differ greatly too. The processes used to extract the "goodies" from the seaweed also vary. Some extractions are done under high temperature and pressure (rather like an old fashioned pressure cooker) in highly alkaline or acid conditions while others use cold press or solvent extraction techniques. These processes result in very different ingredients being collected and the quality of the ingredients can vary too. So in short, even products made from the same algae or plant can end up containing different ingredients.

Some products sold in Australia and New Zealand are made from kelp that grows in cold, shallow water close to the coast in these countries. Kelp has been living in these seas for an extremely long time and have adapted well to their rapidly changing environment. Living close to the shore, and especially in estuaries, these kelp have had to adapt to cope with rapid changes in salinity (being exposed to fresh water when a river is flowing and the tide is falling to salt water when the tide rises bringing with it salty water from the sea). Sometimes they have to cope with being exposed to the air during low tide. Kelp contains a suite of chemicals and hormones that help regulate their internal environment to cope with these big changes in external conditions. These chemicals can be extracted and put

into a bottle and some can transfer their benefits to land plants that they are applied to.

Kelp contains auxin, cytokinins, betaines and other hormones. When applied to plants they can increase root growth which obviously improves transplant survival and water and nutrient extraction from the soil but also have indirect effects such as improving disease tolerance.

Used in the correct manner, other natural kelp hormones help protect against stresses, particularly water based stresses such as drought/heat, salinity and frost. A study by the University of Tasmania, Australia showed that one popular seaweed product, which is extracted from kelp, protected plants against frost, although this protection could be overcome if the frost was sufficiently severe. Our own studies, conducted under controlled conditions, have shown kelp products to offer protection to drought and prolonged exposure to heat. Sometimes this protection is very dramatic. How much of this protection comes from an improved root system compared to beneficial hormones we can't say.

Last year, the Department of Primary Industry in Victoria, Australia and Latrobe University reported on studies that showed that a kelp product had a number of positive effects on the growth of broccoli. More surprising was the finding that this product also reduced the incidence of white blister, a very problematic disease for growers. Protection against disease has long been claimed for kelp products but solid proof is only now becoming available.

Kelp products can be enhanced or ruined by mixing them with other ingredients such as plant nutrients (most kelp extracts are lean in nutrients), humates, fish extracts, amino acids and so on. Such blends must be done with caution or else these combinations can nullify the benefits of the kelp extract, ruin their chemical stability or result in a product that has poor physical stability.



Figure 1. Petunia plants exposed to a moderate drought stress. The plant on the left was not stressed. The plant in the middle was treated with water + a kelp product two weeks before the drought stress and again after the stress. The plant on the right was also stressed but was only given water. The stressed plant that received water only is stunted and has aborted most of its flowers. The stressed plant treated with the kelp is thriving.

So the benefits from seaweed products are neither myth nor magic. You just have to understand how they work and use this knowledge to better protect your crops or the crops of your clients.

If you are interested in having your products tested or a new product developed you can contact me, Anthony Flynn, at anthony@eurekaag.com.au