

Putting the Microbes Behind the Minerals

by Graeme Sait, Nutri-Tech Solutions

Mineral uptake is facilitated by micro-organisms, whether it takes place in the soil, the gut or the leaf surface. A simple recognition of this fact is a prerequisite if we are seeking to abandon old, unproductive paradigms. It is the belief that “science will look after us” that is at the core of the modus operandi that underlies modern agricultural, veterinary and medical science. Acid/salt fertilisers, rescue chemicals, antibiotics and symptom-treating pharmaceuticals are all part of the product-driven “scientific” approach. The definition of the word “science” involves “adherence to natural laws and principles”. A great deal of what we have done in the name of food production and health care has been anything but scientific.

A common theme in this symptom-centred, pseudo science is profit taking at the expense of sustainability and, in many instances the “takers” have ignored or abused biology. There are agricultural scientists who have never considered soil biology, veterinarians who have eschewed gut biology and physicians who have ignored the collateral damage caused by their chief tools in trade. In all cases, we have paid the price for this oversight. Farming practices and farm chemicals have decimated beneficial soil biology, reducing disease suppression and increasing the need for chemical intervention. Veterinarians have shortened the average life of a dog from 18 years in 1900 down to just 8 years (Dr Tom Lonsdale, “Raw Meaty Bones”), a century later. Doctors have misused the chemical “solution” to the point that prescription medicine is now our 4th largest killer.

The essence of working with nature, rather than against her, involves nurturing biology on all fronts. Nowhere is this more important than in relation to immune-supporting nutrition because biology and nutrient uptake are intimately intertwined.



Supporting the Synergy

Mineral supplementation of the soil or animal should ideally involve the inclusion of biology to boost mineral performance. It has been recently discovered that combining a probiotic with a mineral supplement increases the uptake of the mineral by up to 45%. Similarly, the inclusion of compost with fertilisers can promote a comparable improvement. It is always a wasted opportunity to apply a compost tea or liquid fertiliser without adding some microbial inoculum because you will always require much less fertiliser when you stimulate uptake with biology. The synergy works on several levels. In the gut, the probiotic organisms aid in the digestion of food and supplements, and the transfer of nutrition from the gut into the blood. In the soil, the beneficial organisms are literally the stomach for the plant. The plant shares over 30% of its glucose production with these creatures to ensure that digestion and recycling is maximised. The biology that crowds the leaf surface to access the carbon exudates produced by the plant, produces biochemicals to boost foliar uptake of nutrients. These leaf dwelling organisms also assist their host by releasing CO₂, which stimulates stomatal opening and further enhances the uptake of foliar nutrition.

The aim of the biological farmer, if he or she chooses to use acid/salt fertilisers, is to reduce the impact and the dose rates of these costly inputs by carbon buffering and boosting fertiliser efficiency with biology. It is a combination of minerals and microbes that determine both productivity and crop resilience. This is where composted fertilisers really come into their own.

Nutri-Store Gold™ – An All-inclusive Living Fertiliser

Growers can put the microbes behind the minerals by always applying crop nutrition with a compost or they can purchase a well formulated composted fertiliser that will supply minerals and biology together. Nutri-Store Gold™ is an unsung hero in the large NTS range. It has never been advertised and yet sales have steadily grown since it was first introduced to the market some 15 years ago. This is a “champagne” biological blend that features the good guys and everything that supports them, together in one potent mix. This living fertiliser was originally designed for farmers who had not had the prerequisite soil test that could be used to design a personalised prescription blend. This “complete” fertiliser was seen as a viable alternative to this level of precision because it could offer coverage of all key minerals to ensure success. However, it is now also widely used in the home garden arena as few gardeners

can justify the luxury of a soil test. Many gardeners now recognise that the quality of their home-produced food will depend upon the mineralisation of their soils and the presence of beneficial soil life.

Nutri-Store Gold™ contains soil conditioners, soil-life promotants and all of the key minerals required for healthy, resilient plant growth. Most importantly, these components are combined with a high-carbon compost containing billions of beneficial microorganisms.

The inputs included to improve soil structure in this unique formulation include lime, gypsum and magnesium carbonate. The soil-life boosters include humic acid, fulvic acid and kelp. The remineralising component involves good levels of major minerals in both available and slow release form. All seven trace minerals are present at luxury levels including cobalt and molybdenum and there is also a healthy dose of silica involved. This composted fertiliser is in powder form, as granulation involves heat that compromises the biology.

I have used Nutri-Store Gold™ as my base fertiliser in my three acres of gardens at Noosa Valley and at my farm on Norfolk Island. In the case of Norfolk Island we tweaked the formula to address the five minerals that are commonly lacking in Norfolk's humus-rich volcanic soils.

Six Synergy Secrets

- 1) Fertiliser requirements can be seriously reduced when you put the minerals behind the microbes. For example, you can apply just 10% of soil test recommendations and still achieve a good result when those minerals are combined with compost.
- 2) A typical foliar application of chelated zinc might require around 5 litres per hectare. If the zinc is combined with a compost tea you may be pleased at the response achieved using just one litre per hectare.
- 3) It is always a good idea to send your new workforce to work with a lunch box. This will improve both performance and colonisation. The favourite "lunch" treats include the three most important inputs in biological agriculture, humates, fish and kelp.
- 4) Be careful when including copper with compost teas, inoculums or composts as it is a biocide which kills both fungi and bacteria. The rule of thumb is to limit copper inputs to just 1kg per tonne of compost or 100 grams per 100 litres of compost tea.
- 5) The very best result is achieved when the fertiliser inputs are combined at the completion of the heating phase (thermophilic stage) of the composting, which is usually completed after two weeks. You must be careful with the inclusion of lime as it can change the pH of the composting material and slow the biodegradation accordingly. Here the rule of thumb is not to exceed 100 kgs of lime per tonne. However, if needed you can include more lime with the end product just before application.
- 6) Brown coal (Nutri-Mate Organic Humates™) is a wonderful ingredient for your compost as it helps to stabilise, magnify and retain nutrients while also providing the highly desirable "lunchbox" effect. The ideal rate here is 100 kg per tonne of compost and this is sufficient to chelate the mineral component once the humic and fulvic acid (powerful natural chelating agents) have been released from the coal via the decomposing organisms.

In Conclusion

We have practised extractive agriculture for much of the past century, plugging the increasing number of leaks with increasingly costly farm chemicals. It is past time that we returned to a genuine agricultural science and that involves working more closely with both minerals and microbes. Putting the microbes behind the minerals is real science that serves food producers on many levels. It does not, however, spell profits for the chemical salespeople, so you will need to experiment and discover the potential for yourself. I wish you every success.

