NUTRIENTS ARE ESSENTIAL FOR HUMAN HEALTH

Fertilising Crops to Improve Human Health

'**Plant Nutrition and Health Risks Associated with Plant Diseases**' by Don M. Huber.

Part 05

Fertilisers & Human Health
An 8 Part Series

Main Message

Nutrient deficiencies need to be overcome to be able to deliver healthy plants and product to market. All pathways for nutrient health need to be managed, and these include both the plant itself and the soil in which it grows.

Whilst visual plant symptoms are very useful for identifying most nutrient deficiencies, plant growth and yield are often limited by a lack of nutrients **before symptoms become evident. This sub-clinical deficiency is often referred to as 'hidden hunger'.**

Hidden hunger triggers a sequence of events in the plant when a nutrient is in short supply – and this nutrient deficiency then disturbs a plant function or structure. The plant then uses, or attempts to use, a different means to overcome the problem. If the deficient nutrient cannot be overcome with the plants own adaptation mechanisms, the disruption continues and moves through a sequence of events which results in physical (or morphological) change that then becomes visible.

When these symptoms appear, the loss of productivity could be considerable and likely too late to recover lost yield potential.

Key Points

- The manifestation of nutrient deficiency may be very subtle, as in 'hidden hunger', or be quite pronounced and distinct, depending on the level of deficiency or severity of disease.
- Visible symptoms are often late manifestations of metabolic disruptions that occurred much earlier.
- Nutrient amendment, or fertilisation/modification of the soil environment, influencing a particular nutrient's availability are important techniques to ensure nutrient sufficiency to plants.
- The root cause of many nutrient deficiencies may be in the roots, and a plant will balance its many nutritional needs if it has access to nutrients through a fully functional and healthy root system.

> "Continuing with business-as-usual is not fit for purpose in the new nutrition reality. The good news is that there are some powerful opportunities to use the same platforms to address different forms of malnutrition. The time is now to seize these opportunities for 'double duty action' to get results".

Source: Professor Corinna Hawkes, Centre for Food Policy, City, University of London, UK. (from Agriculture for Nutrition and Health led by the International Food Policy Research Institute, WHO)

RLF crop nutrition trial on corn field Baofeng, Henan, September 2009

RLF. 25+ Years of Plant Nutrition.

RLF Specialty Liquid crop nutrition fertilisers have been developed, manufactured and continually refined over a period of more than 25 years to a position today where our products are targeted to provide the nutrition needs of any particular crop, or for any particular deficiency.

Our message has constantly been one of staying in front of the nutrient risk through the application of broad-spectrum foliar fertilisers, or by a targeted high-efficiency plant remedy if the particular nutrient deficiency is known. But, mainly through a fully integrated crop nutrition approach in which the nutrient levels in soil, seed and foliage are managed in a synergistic manner.

The RLF fully integrated crop nutrition management approach specifically addresses the hidden hunger issue through the use of Ultra Foliar Fertilisers that help avoid 'hidden hunger' and hidden yield losses by ensuring all nutrient availability is at, or above, optimum levels.

Complete Scientific Review Extracts are:

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All nutrients have specific metabolic functions, and impaired nutrient status of a plant may be indicated by symptoms associated with the malfunction of particular metabolic pathways.

The manifestation of nutrient deficiency may be very subtle ('hidden hunger') or quite pronounced and distinct depending on the level of deficiency or severity of disease. Visible symptoms, however, are often late manifestations of metabolic disruptions that occurred much earlier.

Reduced productivity as measured by yield or quality may have multiple causes such as weather, management practices, infectious diseases and the soil environment so that correcting the problem may require multiple approaches.

With multiple deficiencies, some symptoms may be alleviated only after all elements are available in sufficient quantity. Analytical tests of soil or plant tissue provide a basis to prevent or remedy potential deficiency conditions.

Nutrient amendment (fertilization) or modification of the soil environment influencing a particular nutrient's availability are important techniques to provide nutrient sufficiency to plants. The root cause of many nutrient deficiencies may be in the roots, and a plant will balance many nutritional needs if it has access to nutrients through a fully functional and healthy root system.

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