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Ignore Trace Elements At Your Peril

Trace elements are vitally important for good plant and animal health and resulting productivity. However, because the amounts required by both plants and animals are tiny compared with their requirements for nitrogen, phosphorus, sulphur, magnesium, potassium etc, it can be tempting to focus more on maintaining the supply of these later macro-nutrients than the seemingly insignificant trace elements.

Overall, of the 18 elements currently known to be essential for plant growth, 9 are required in such small amounts that they are known as either micro-nutrients or trace elements. These are boron, manganese, iron, copper, zinc, cobalt, molybdenum, nickel and chlorine. Other elements i.e. sodium, silicon and vanadium, appear to improve the growth of some plant species but seem not to be essential in others.

Animals, including humans, also require most of the same trace elements in their diet. In addition, other trace elements including selenium, chromium, tin, iodine and fluorine are known to be essential for animal health and well being, although they do not seem to be necessary in plants.

It is critical that the term “trace” element, meaning “just a little” is not misconstrued to suggest that the trace elements are less important than the macro-nutrients. For many years now the severe impact of trace element deficiency has been well documented in a range of plant and animal problems ranging from stunted growth, poor yields and even death. Conversely, remedying trace element deficiencies with the application of small amounts of these elements can produce dramatic and startling results.

Though they are only required in “trace” amounts, the level of each trace and major element can influence the availability and utilisation of other trace and major elements. The soil pH plays a major role in the availability of trace elements i.e. the availability of boron, zinc, copper, iron, cobalt and manganese generally reduces with an increasing pH (hence over-liming too high above pH 6.4 is not usually recommended). Molybdenum and selenium availability, on the other hand, increases with increasing soil pH. Availability is also influenced by the level of the cation exchange capacity - a higher CEC soil may require a higher level of cation trace elements for adequate plant/stock nutrition than a lower CEC soil. Plants and animals are reliant on good and balanced levels of each essential trace element.

In view of their importance to plant and animal health, it is crucial that trace element levels are tested for regularly, as appropriate. When deficiencies are discovered, they should be quickly addressed through some form of supplementation i.e. fertiliser etc.