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## **Zinc (Zn)**

Zn is an important element for stock health, more so in sheep than in cattle. Zinc also plays a significant role in preventing and limiting facial eczema.

Zn is also an important element for plant growth, being required in several enzymes, growth promoting hormones and in the formation of starch formation as well as in seed production and maturation.

Zn is the most readily soluble of all the heavy metals in soils. Total Zn levels tend to be higher in clay soils and lower in sandy soils and peat soils. However, the availability of Zn is influenced primarily by soil pH and soil organic matter content i.e. availability is greatest below pH 5.5 and where organic levels and decomposition rates are good. Unlike copper, which is essentially immobile in soils, Zn is easily absorbed by mineral and organic substances. Because plant-available Zn is usually associated with organic matter, Zn usually accumulates in the topsoil. If Zn deficiency occurs, it is most likely in leached sandy soils, in soils with low organic matter and in soils that are high in available phosphorus and nitrogen.

True Zn deficiencies are rare in New Zealand agriculture and livestock but may be induced by excessive lime applications. Plant available zinc decreases with increasing pH especially above pH 6.0. Where soil pH is high or organic matters are low, there is often a positive response from zinc fertiliser applications. Availability of zinc may also be reduced by water logging and in situations where root growth is restricted. Cool wet weather and low light intensity may intensify Zn deficiency.

Zn deficiencies are reasonably common in stone fruit and citrus trees, especially on high pH soils. Zinc deficiency can also affect fruit shape. Manganese and Zn deficiency often occur together and can be corrected together or singly. The most effective means of correcting both disorders is by foliar sprays.

When high levels of Zn are used to protect stock against facial eczema, this can lead to an unexpected side effect of adversely impacting copper absorption. Dosing with Zn for long periods will result in depleted liver copper levels for the same reason. In addition to copper; iron and arsenic interactions can also interfere with and impact Zn metabolism.

To summarise; if soil pH is < 6.0 and organic matter levels are adequate, Zn deficiency should not be an issue.