

# A BASIC FERTILISATION STRATEGY TO ENSURE SUSTAINABILITY

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*Pieter Raath & Coenraad Fraenkel*

In addition to the negative publicity that the agricultural sector faces regarding the detrimental impact of unnecessary fertilisation on the environment, the cost of fertilisers is forcing producers to pursue ways to reduce fertilisation inputs. A proper balance between unreasonably conservative fertilisation and unwarranted application of nutrients is therefore required, where the emphasis should be to maintain tree health and sustain an orchard's ability to produce sufficient yields of good quality. A producer who wants to manage his fertilisation inputs accordingly needs to comprehend certain principles and take them to heart.

## **SOIL AND LEAF ANALYSIS IS CHEAPER THAN UNNECESSARY FERTILISATION.**

The first habit to develop is a routine of taking proper, representative soil and leaf samples. Soil samples do not have to be taken annually, but a wise decision regarding fertilisation requirements cannot be made without proper knowledge of the orchard's soil chemistry and nutrient content. The foliar analysis provides you with insight regarding the extent to which nutrients in the soil are taken up – it might point you to a need to address root health and functioning. Leaf analysis also provides insight regarding the need to apply nutrients like P, Ca, and Mg that one wants to avoid due to their added cost.

## **THE TREES CAN PERFORM WELL WITH LESS FERTILISATION THAN YOU RECKON.**

Be conservative in your fertilisation approach – the trees do not perform better when supplied with more than the required nutritional rates. Although prolonged undersupply of necessary nutrients will lead to diminishing tree performance, it is not affected overnight. Furthermore, trees with healthy roots can utilise the pool of available P, K, Ca, and Mg effectively and for a long time – making fertilisation redundant or reducing its need. It is also worthwhile calculating the extent of the available pool of these nutrients before they are included in a fertiliser programme.

## **OVER-IRRIGATION IS A WASTE OF FERTILISERS.**

The sustained performance of many orchards during dry seasons, when less irrigation is applied, can be ascribed to improved tree nutrition. The healthier roots and less leaching from the root zone improve nutrient uptake. Avoid over-irrigation at all costs.

## **TREES WITH LARGE ROOT SYSTEMS REQUIRE LESS FERTILISATION.**

The larger the volume of soil occupied by the roots, the longer it takes to deplete the nutrients to a deficient level. It has been shown that by applying as low as 40% of crop removal of P and K one is able to keep the soil P and K near optimal levels, while not reducing crop yield and quality in the short term. Active, protected roots close to the soil surface can potentially utilise much N from organic material being mineralised. However, roots affected by nematodes or phytophthora (mostly due to over-irrigation) will not function optimally, and the efficiency of nutrient uptake will be reduced – producers need to make sure their roots are healthy and take steps to rectify any issues in this regard.

## **THE LAW OF DIMINISHING RETURNS.**

Tree performance will improve linearly as nutrients are supplied from extremely deficient levels. However, as the optimal nutritional status of the tree is progressively being reached, the additional benefit of increased fertiliser reduces (see the figure below). Eventually, any further inputs have no advantage and can even be harmful to the trees or crop.