

# Why calcium is important in production

A litchi is generally regarded as one of the most complex trees to fertilise and consequently requires more specialised attention when it comes to drawing up fertiliser programmes. Generally, yields tend to be much lower than the true potential of the crop.

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**WHY IS FERTILISATION** important for the crop then? There are a couple of factors. First of all, to ensure optimum yields and fruit quality, thereby the highest possible returns. Secondly, to encourage sustainable production and minimise the effects of alternate bearing.

When we look at the whole nutrient spectrum to obtain the desired yields, we need to understand the theory behind Liebig's barrel – the law of the minimum.

Essentially, this law states that a plant's performance is determined by the most limiting resource. This is precisely the reason why soil and leaf analyses are so important.

as well as being a key element in the immune system of the plant and the suppression of disease. It is a secondary macronutrient and is generally regarded as the building block of plant growth, and for those reasons, it is required by the plant in large quantities. A lack of sufficient levels and availability of the element will have a negative influence on the fruit quality and subsequently the shelf life of the produce.

Calcium is normally stored in the cell walls and the Albido layer where it forms an insoluble calcium pectate and is not easily translocated to where it is needed. Consequently, a constant supply is necessary to keep up with the demand. Calcium is widely known as the "transport" element, playing a very important role in the uptake and translocation of almost all other minerals. The element is taken up in the plant via "transpiration pull", in other words, the plant must be actively transpiring in order to take up the required levels of calcium.

## FACTORS INHIBITING THE UPTAKE OF CALCIUM

Overcast cloudy weather, low levels of sunlight, high levels of humidity, inadequate levels of boron in the soil, too much nitrogen, potassium and magnesium in the soil and very hot and dry weather inhibit the uptake of calcium.

## CALCIUM BASED PRODUCTS THAT ARE AVAILABLE:

Calcium for soil applications	
Primary source	Amount of Ca available
Calcitic lime	32%
Gypsum	22%
Calcium nitrate	19.5%
Micronised lime	35%
Gyp - flo	28.5 – 35%

Litchis need approximately 60-80 kg of readily available calcium per hectare. Normally, the soil will contain way more than this, but unfortunately, most of the calcium in the soil is locked up in unavailable complexes. It can not be readily accessed by the plant, but being a macronutrient it is needed in large quantities and must be taken up through the roots.

## Calcium for foliar applications

Primary source	Amount of Ca available
Calcium chloride	38% (use with caution)
Plantos verde calcium	32.8%
Calcium nitrate	19.5%
Lignosulphonates and gluconates	Low Ca content
Amino acid based products	Low Ca content

It is important that a good litchi fertiliser programme should include a strategic foliar programme to support flower and fruit set. At least two of these foliar sprays should include calcium (July and August) to support cell division and cell expansion. Further, although not fully researched, it has been suggested that a calcium spray should be applied every two weeks during the maturation phase of the fruit. ❖



## IN THIS ARTICLE, WE ARE GOING TO HAVE A LOOK AT CALCIUM AND ITS ROLE IN LITCHI PRODUCTION.

The role and importance of calcium in the production of litchis may well have been underestimated, as it is one of the most misunderstood elements. Calcium, we know, plays an important role in fruit size and quality. In addition, adequate calcium may well reduce the incidences of fruit splitting. Fruit splitting was an issue last season, especially in the protracted hot and dry spells the country experienced. The net result was a decline in sap flow and available moisture to the tree. Calcium is also responsible for strengthening cell walls and may well be important in minimising the effects of sunburn.

Calcium is in very short supply in South African soils. It plays a major role in cell division and cell expansion,