SHORT COURSE on the fertilisation of citrus in SA

Last year a short course in the fertilisation of citrus was presented by CRI in September and October, in four different regions (Sundays River Valley, Paarl, Hoedspruit and Groblersdal). By **Coenraad Fraenkel**, **Pieter Raath**, **Vivian White** (all CRI), **Hein Gerber** (First Fruit Consulting)


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The citrus fertilisation short course was focused on the content of the *Handbook for Fertilisation of Citrus in South Africa*, and formed part of its unveiling. Dr Pieter Raath (Preharvest Production and Quality Programme Coordinator, CRI) compiled the handbook, along with a team of consultants and researchers.

Highlights from the course

Mineral nutrition

- Conditions that influence uptake must always be considered (e.g. phenology, soil EC and pH, weather –VPD – and element antagonisms)
- Focus should be on supply and effective uptake
- Management of a healthy root system and the value of proper irrigation scheduling
- Sampling soil, leaves and water
- Selecting representative index rows is critical for the sampling of soil and leaf samples
- Effort with sampling should not be neglected – together with the analysis, it is the first step to set up an effective nutritional programme

Pre-plant requirements of citrus orchards and fertilisation of young non-bearing trees

- Soil preparation prior to tree establishment is the only opportunity to correct subsoil pH and P-concentration
- If the soil pH(KCl) is below 5.5, it is crucial for a perennial crop like citrus that the residual acidity of the soil is analysed, to address the buffer capacity of the soil. Most laboratories do not analyse this unless requested.

Fertilisation of bearing trees

- There are different models to determine the NPK requirements
- Good quality data are very important as a basis for setting up a nutritional programme
- There needs to be a balance between nutrition and cultural practices, to secure a good quantity of high quality fruit
- Ideal timing of NPK applications is determined by various factors that must be kept in mind
- Evaluation of orchards is crucial to making adjustments to the nutritional programme.

Practical considerations for implementing a fertilisation programme

- Focus on the Nutrient Use Efficiency (NUE)
- Use realistic NPK amounts, especially on young trees and maintain an ideal soil moisture during application
- Use the correct equipment for effective application of fertilisers.

Deficiency symptoms

- Deficiency symptoms are distinguished from other symptoms in that the first mentioned are always symmetrical around the main vein
- Always confirm a deficiency symptom with leaf analysis
- The phenology and growth should be considered
- On bearing orchards soil samples should be taken in the root zone (0 - 40 cm). A sample of 0.5 - 1 kg is adequate.
- Only sample leaves that appear behind a terminal fruit, that have developed in spring on the same shoot as the fruit. Sample 50 - 70 leaves on various trees.

Interpretation of soil, leaf and water analysis

- A soil analysis report must include an indication of the texture, stone volume and extractants used – without which it is difficult to interpret any soil analysis report
- Sample the correct leaves, at the right time during the season
- Leaf norms per region and variety must support the yield and quality aims
- Interpret NPK analysis in conjunction with growth and leaf colour.
- Also take into consideration the mobility of elements.


Short course attendees on a field trip to see a demonstration of training concepts

The course also included a field trip where concepts described during the training were demonstrated.

To order a copy of the *Handbook for Fertilisation of Citrus in South Africa*, please visit the CRI online store at www.citrusres.com, contact your area extension manager or e-mail bella@cri.co.za.