

HENNIE LE ROUX

*Citrus Research International, Nelspruit*

### INTEGRATED PEST MANAGEMENT

#### Red scale

T.G. GROUT

Those growers who have experienced red scale problems during the past season should consider applying narrow distillation range horticultural mineral oils. The generally accepted period to apply this treatment is from budswell to budburst (mid-July to mid-August). The concentration to be used is dependent on the grade of the oil to be applied (generally 1.0 - 1.25% medium grade oil). When spraying oil, care must be taken to apply the oil as a full cover, film wet spray. This is because oil suffocates the insect, a job it cannot do if the scale is not covered with oil. Trees to be sprayed must also not be under any stress.

### CROP LOAD AND FRUIT QUALITY MANAGEMENT

#### Maturity indexing

J.S. VERREYNNE, G.H. BARRY

Maturity indexing on mid-season to late cultivars should commence. Maturity indexing is done to predict the rate of change in fruit maturity in order to harvest fruit at a maturity that would maintain acceptable commercial shelf life. The aim is to define changes or rate of change in acids and sugars and to build up a database over a number of years for comparison. Random sampling of fruit every week from each of ten representative trees should start 4 to 6 weeks before the expected harvest date. Titratable acidity is determined by titration with sodium hydroxide, sugar content (Brix) is determined using a refractometer, the sugar:acid ratio calculated and fruit colour should be read from a colour chart. All the parameters mentioned above should be plotted on a graph over time. Once plotted, trends will become apparent, harvest dates can be estimated and problem areas in internal and external quality parameters can be identified and manipulated.

**Degreening:** The publication "Common Defects Associated with Degreening of Citrus" by Andy Krajewski and Tim Pittaway is a must for any grower who degreens fruit. It is available from CRI. It puts degreening in perspective, gives the correct manner of treatment as well as a photographic identification of degreening defects. Contact Bella Thulare at 013 759 8000.

**Pruning:** Pruning for the earlier and mid-season cultivars should be done during this period as soon as possible after harvest. Prune heavier after a light crop if a heavy crop is expected and when the orchard has a history of alternate bearing. Pruning in the winter and not later than September improves the light distribution inside the tree and improves the quality of the bearing wood inside the tree. Pruning can also be used as a thinning technique. Light levels of 30% of full sunlight are necessary for optimal photosynthesis and light also improves

colour development. In very dense trees and especially older trees light levels drop to below 30% in the inside of the tree and adversely affects fruit size.

**Flower induction:** Citrus trees require a rest period of about 6 weeks to ensure that adequate flower induction takes place. The two mechanisms involved in floral induction in citrus involve (i) low temperature, or (ii) controlled-drought stress, both to ensure no root activity. In the absence of low-temperature rest, citrus trees should be exposed to controlled-drought stress for a 4 to 6 week period during June and July if possible.

Where alternate bearing occurs and orchards are expected to be in an "on" year in the coming season, floral intensity can be reduced with the application of 10 ppm gibberellic acid applied during early June. N.B. Do not apply winter GA where a light or normal crop is anticipated. Similarly, the flower intensity on young, non-bearing trees can be reduced by the application of winter GA. A reduction in flower number will stimulate vegetative growth on the non-bearing trees.

### BEMESTING EN BLAARONTLEDING

J.G.K. COETZEE

Die nuwe produksieseisoen is al onderweg en die bemestingsprogram moet dit vanaf Julie/Augustus ondersteun om die beste voordeel daaruit te haal. Begin dus met die eerste stikstoftoediening in Julie en poog om al daardie elemente waarvan die konsentrasies in die tekort gebied is, so gou doenlik reg te stel.

In cold areas (Vaalharts, Kat River) or the Western Cape with winter rains, the first nitrogen must be applied during August but the foliar sprays with either urea or potassium nitrate have to be applied in July, even with fruit still on the trees.

The other important aspect is to eliminate all deficiencies before blossom. This could mean that zinc, manganese, boron and magnesium need to be sprayed quite early as indicated on the recommendations supplied by CAL.

Somtyds is dit nodig om bemesting met kalium, kalsium, fosfor en magnesium op ongewone tye toe te dien om te verseker dat die bome nie tekorte tydens blom ondervind nie. Sink is een van die elemente wat stres-skade van selle kan beperk. Enige stres gedurende bot, blom en vrugset het 'n groot potensiele effek op produksie. Daarom moet die sinkstatus van die bome optimaal tydens dié periode wees. Sink kan nie stresverwante skade regmaak nie, maar dit kan die omvang daarvan beperk.

When required, most micronutrient elements can be mixed with the urea spray. However, beware, zinc and magnesium nitrate are not compatible with copper-oxchloride. Zinc nitrate is also not compatible with potassium nitrate.

Sekere voedings-elemente kan gestoor word vir latere gebruik. Kalsium is nie mobiel nie en waar addisionele kalsium

benodig word, moet dit gedurende Augustus tot Oktober voorsien word. Toedienings van gips moet dus in Augustus/September gedoen word om ekstra Ca gedurende die kritieke tyd van seldeling te voorsien.

**Blaarontleding / Leaf analysis:** During 1967/68 Dr Doug Stanton reminded citrus growers of the limitations of leaf analyses. He pointed out that leaf analyses can only assist in getting the trees in an optimum nutritional state. Nutrition cannot substitute any of the other production factors. Without optimal root conditions, irrigation, pest control and other horticultural practices, fertilization cannot sustain optimal production.

Gedurende die 2005 blaarontledingseisoen is die feit weer onderstreep. Menige boorde met 'n optimale voedingstatus produseer nie na wense nie. Die basiese feit is dat voeding maar een van die produksiefaktore is wat die finale produk bepaal. Die invloed van voeding op produksie kan grootliks uitgeskakel word indien op die volgende gelet word.

- Stel alle tekorte reg.
- Stel alle oormate reg.
- Handhaaf 'n optimale voedingstatus.
- Gebruik bespuitings met ureum en kaliumnitraat om blom en vrugset te bevorder.

Taking care of all these and still not getting the production, one has to resort to other methods to correct the problem. That implies that one has to investigate and identify the limiting factor or factors.

These methods will include any of the following depending on the problem.

- Applications of gibberillic acid.
- Pruning.
- Fruit thinning.
- Changing the irrigation schedules.
- Application of nematocides.
- Treatments for Phytophthora.
- Etc etc.

Met bemesting kan ons net sover gaan en nie verder nie. Dit is byvoorbeeld sinloos om meer en meer kalium toe te dien as kalium nie die oorsaak van die te klein vrugte is nie. Oorweeg dan een of meer van die praktyke wat vruggrootte sal verbeter. Sulke praktyke sluit optimale besproeiing, uitdun van vrugte, bespuitings met oksiene en snoei in.

Dit is dus uiters belangrik om eers die beperkende faktore te identifiseer voordat besluit word wat daaraan gedoen kan word. Onthou bespuitings met ureum stimuleer 'n sterk en egalige blom, maar sal nie heeltemal die genetiese probleme van Mid-knights met vrugset kan oorkom nie. Ringelering of bespuitings met gibberieluur is nodig. Verder sal bespuitings met kaliumnitraat vruggrootte verbeter slegs indien die kaliumstatus van die bome te laag is.

Blaarontleding is nie 'n towerstaf nie. Dit is 'n betroubare manier om die voedingstatus te bepaal en help om die regte bemestingsprogram te formuleer. Blaarontleding vorm 'n integrale deel van die totale proses van sitrusproduksie.

fruit journal  
DIE JOERNAAL VIR DIE VRUGTEBEDRYF IN SUID-AFRIKA

PROMOSIE

## SITRUS- EN KOEJAWELPRODUSENTE BEHAAL REKORD OPBRENGSTE DEUR VAN NUTRICHEM GEBRUIK TE MAAK

Verskeie van Suid-Afrika se leier sitrus- en koejawelprodusente behaal die afgelope 4 jaar rekord opbrengste deur van Nutrichem se spesialis kennis en aanbevelingsprogramme te gebruik. Sommige van die produsente het oor 'n tydperk van 3 jaar opbrengste met tot 50% verhoog.

Nutrichem vervaardig 'n wye reeks gespesialiseerde bemestingstowwe asook blaarvoedingsprodukte volgens 'n unieke gepatenteerde proses. Die aminosuur-en fulviensuur chelate wat gebruik word as blaarbespuitings se effektiwiteit is deur die verskillende onafhanklike organisasies getoets. Navorsingsdata het bewys dat Nutrichem se gecheleerde produkte soos Aminocopper, Aminocalcium en Fulviensuur Spooormix die opname van Magnesium by plante bevorder. Die belangrikste funksies van magnesium is by die fotosintese proses en koohidraatmetabolisme.

Nutrichem behaal sukses met hoë opbrengste deur gebruik te maak van die volgende werkswyse:

- Neem van grond- en blaarmonsters vir optimale aanbevelings.

- 'n Waterekstraksie analise van die grond om die wateroplosbaarheid en dus toeganklikheid van plantvoedingstowwe aan te dui.
- Saamstel van 'n gebalanseerde bemestingsprogram wat al 12 plantvoedingstowwe insluit.
- Verskaf 'n resepte aan die produsent om self kunsmis in 'n A en B tenk te meng.
- Saamstel van 'n blaarvoedingsprogram wat gebaseer is op die 1:2 waterekstraksie-ontleding van die grond en blaaranalise.

Verskillende individuele produkte soos Kalsiboor, Aminocopper, Aminocalcium, Aminopotas, Aminozyne en Spooormix word in water gemeng en hoë konsentrasies van elke plantvoedingselement word gespuit.

Die oordeelkundige gebruik van blaarvoedingsprodukte saam met 'n gebalanseerde bemestingsprogram, wat voorsien aan al die makro- en mikro plantvoedingstowwe, lei tot groter winsgewendheid vir die produsent.

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