

EXTENSION BRIEFS FOR AUGUST/SEPTEMBER 2010

H. F. LE ROUX & J. J. BESTER

Citrus Research International

6de SITRUSNAVORSINGSIMPOSIUM: 15-18 Augustus 2010

Hiermee word kennis gegee van die 6de Sitrusnavorsingsimposium wat vanaf 15-18 Augustus 2010 aangebied sal word by die Champagne Sports Resort in die Drakensberge naby Winterton.

Vir meer inligting: www.citrusresearchsymposium.co.za
of kontak Mev. Jean De Gasperi by jeandeg@cri.co.za of
013 7598000.

6TH CITRUS RESEARCH SYMPOSIUM: 15-18 August 2010

This is a final reminder of the 6th Citrus Research Symposium which will take place from 15-18 August 2010 at the Champagne Sports Resort in the Drakensberg mountains near Winterton.

For more information: www.citrusresearchsymposium.co.za
or contact Ms. Jean de Gasperi at jeandeg@cri.co.za or
013 759 8000.

INTEGRATED PEST MANAGEMENT

CITRUS THRIPS

(T.G. GROUT)

Suppressing citrus thrips populations on the spring growth flush will assist in lowering populations experienced at petal fall. On younger trees a methamidophos stem treatment is a useful option for this. An alternative may be an organophosphate that cannot be sprayed after petal fall. Try to avoid using abamectin or tartar emetic which are good options for citrus thrips control in summer.

FALSE CODLING MOTH

(S.D. MOORE)

It may be very tempting to neglect orchard sanitation in winter, as FCM levels are usually low and Valencias being harvested at this time are generally less susceptible to FCM than some of the earlier season cultivars. However, this would be a big mistake.

fruit journal
DIE JURNALE VIR DIE VRUGTEBEDRIEF IN SUID-AFRIKA

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6th Citrus Research Symposium
6de Sitrus-navorsingsimposium
15 - 18 Aug 2010
Champagne Sports Resort
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It has been shown that Valencias can fulfil an overbridging role for FCM from one season to the next. The most effective way in which to ensure the lowest FCM inoculum possible at the start of a season, is to diligently continue sanitising orchards until the previous season is truly over. Most importantly, growers must ensure that no fruit whatsoever remains on trees or on the orchard floor after harvesting is completed.

BOLLWORM (S.D. MOORE)

Depending on the region of the country, which influences temperature and blossom phenology, bollworm may begin invading orchards as early as September or even August. Growers should therefore begin weekly blossom inspections for bollworm eggs and larvae no later than early September. Particularly if a biological product, such as DiPel or HELICOVIR (a recently registered virus product), is going to be used, sprays should be applied as soon as eggs begin to hatch. This can only be determined by vigilant and regular scouting.

CROP AND FRUIT QUALITY MANAGEMENT (J.S. VERREYNNE)

Maturity indexing on late cultivars in late areas 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 and post harvest rind disorders. The two publications "Common Defects Associated with Degreening of Citrus" by Andy Krajewski and Tim Pittaway and "Postharvest Rind Disorders of Citrus Fruit" by Paul J.R. Cronje are a must for any grower. Both are available from CRI. Contact Bella Thulare at 013 759 8000 or bella@cri.co.za.

Pruning of early and late cultivars should be done during this period as soon as possible after harvest. Prune more heavily 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% inside the tree and adversely affect fruit size.

One or two pre-bloom foliar urea applications (low biuret urea at 1%) should be applied for uniform flowering and fruit set, especially when leaf N levels are low and a light blossom is expected.

Fruit set treatments according to cultivar requirements need to be applied. Specific treatments include the application of gibberellic acid (GA) and girdling, especially for parthenocarpic cultivars that have a poor set. Girdling during full bloom improves set. A general guideline cannot be given as fruit set treatments differ by cultivar and, in many cases, by orchard depending on the previous crop load. Moisture stress should be avoided during full bloom, fruit set and early fruit growth.

GEÏNTEGREERDE BEMESTING (J.G.K. COETZEE)

GOUE REÛLS VIR BEMESTING VAN SITRUS

1. Neem blaar- en grondmonsters gedurende Februarie tot Mei.
2. Begin met die stikstof-toedienings in Augustus in die Wes-Kaap en Hartswater of in Julie vir die res van suidelike Afrika.
3. Spuit die ureum in Julie om vrugset te bevorder of na Oktober vir stikstof-aanvulling.
4. Dien die mikro-elemente deur blaarbespuitings in Julie/Augustus toe indien tekorte teenwoordig is of gedurende Oktober tot Desember vir instandhouding.
5. Kaliumsulfaat kan in Augustus tydens seldeling gespuit word om die potensiaal vir groter vrugte te verhoog.
6. Die kritiese vereistes vir suksesvolle blaarvoeding is die lengte wat die blare nat bly (kontaktyd), konsentrasie en humiditeit.
7. Dien kaliumsulfaat in plaas van kaliumchloried op die grond toe, net indien die konsentrasie chloried in die blare hoër as 0,30% is.

Waar mikro-spuite of enige ander stelsel behalwe druppers gebruik word

8. Verdeel die stikstof-toediening in een tot 4 porsies, afhange van die klei-inhoud van die grond.
9. Dien kalk toe waar die pH (water) van die grond laer as 6.0 is.
10. Bandplaas die supers deur dit in 'n smal band van so 5 cm breed, onder die druplyn. Moet dit nie met iets anders vervang (behalwe met dubbel supers), deur die water toedien, uitstrooi of met die grond meng nie.

11. Indien kalsium benodig word, moet dit in Augustus toegedien word.

Waar druppers gebruik word.

12. Verdeel die massas/volumes wat per maand aanbeveel is, verder in ten minste weeklikse toedienings. Dien dit gedurende die hele lengte van die besproeiingsiklus toe. Maak seker dat die water nie dieper as die worteldiepte indring nie.

13. Waar die pH (water) in die grond/wortelsone laer as 6.0 is, moet meer as 80% van die stikstof in die vorm van nitraat wees.

14. Indien kalsium benodig word moet dit gedurende Augustus tot Oktober toegedien word.

GOLDEN RULES WHEN FERTILISING CITRUS

1. Take leaf and soil samples during February to May.
2. Start with the nitrogen fertilisation in August in the Western Cape and Hartswater or in July for the rest of southern Africa.

3. Spray the urea in July to improve fruit set and after October to supplement nitrogen.

4. Where micro nutrient deficiencies are experienced, apply foliar sprays in July/August and repeat in October/November. When only maintenance is required, spray in October/November.

5. Apply potassium sulphate as a foliar spray in August during cell division to improve the potential of larger fruit.

6. The critical requirements for successful foliar sprays are contact time, concentration and humidity.

7. Use potassium sulphate instead of chloride as an application to the soil only when the concentration of chloride in the leaves exceeds 0.30%.

When micro-jets or any other system except drippers are used

8. Split the nitrogen application in one to 4 portions, depending on the clay content of the soil.

9. Apply lime when the pH (water) of the soil is less than 6.0.

10. Apply the supers in a narrow strip of about 5 cm wide, below the drip line. Do not substitute (except with double supers), fertigate, spread or mix it with the soil.

11. Where calcium is required, apply it in August.

When drip irrigation is used

12. Split the volumes/masses recommended per month into at least weekly applications. Even better, into daily applications. Ensure that the water and fertilisers do not penetrate deeper than the

upper root zone (30-40 cm).

13. Where the pH (water) in the soil/root zone is less than 6.0, 80% of the nitrogen should be in the form of nitrate.

14. When calcium is required, apply it during August to October.

GRONDGEDRAAGDE SIEKTES

(M.C. PRETORIUS)

Aalwurms

Grond- en wortelmonsters kan nou in die lente getrek word en na die Diagnostiese Sentrum in Nelspruit gestuur word vir ontleding sodat die aalwurmpopulasie in die wortels bepaal kan word. Die resultaat sal dien as 'n bestuurshulpmiddel om 'n koste doeltreffende aalwurmbeheerstrategie daar te stel.

Die gebruik van chemiese aalwurmdoders, Temik uitgesluit, vir die beheer van die sitrusaalwurm word nie aanbeveel alvorens ten minste 30 mm reën geval het nie (Oktober). Elke aalwurmdodertoediening behoort met 'n behoorlike besproei-

SUID-AFRIKA

GESERTIFISEERDE

KWEKERY	ADRES	DORP	KODE	KONTAK
Apapanzi Kwekery	Posbus 147	KIRKWOOD	6120	Mnr C J Meiring
Casmar Kwekery	Posbus 3	MOOINOI	0325	Mnr N Wenhold
Cederberg Tree Nursery	Posbus 69	SIMONDIUM	7670	Mev T Chatburn
Du Roi Kwekery	Posbus 66	LETSITELE	0885	Mnr S le Roux
Esselen Kwekery	Posbus 100	MALELANE	1320	Mnr L Esselen
Gamtoos Kwekery	Posbus 140	PATENSIE	6335	Mev J de Vos
B F Joubert Kwekery	Posbus 193	KIRKWOOD	6120	Mnr F Joubert
H J Joubert Kwekery	Posbus 207	MONTAGU	6720	Mnr H J Joubert
Letsitele Kwekery	Posbus 114	LETSITELE	0885	Mnr B Vorster
Mistkraal Kwekery	Posbus 106	KIRKWOOD	6120	Mev T Ferreira
Ngwenya Kwekery	Posbus 36	MALELANE	1320	Mev M van der Merwe
Oranjerivier Sitrus Kwekery	Posbus 875	KAKAMAS	8870	Mnr R van Zyl
Paksaam Kwekery	Posbus 16	PATENSIE	6335	Mnr P Lamont
Sondagsrivier Kwekery	Posbus 304	KIRKWOOD	6120	Mnr F Olivier
Stargrow Kwekery	Posbus 189	CITRUSDAL	7613	Mnr M du Toit
Tulbagh Kwekery	Posbus 99	TULBAGH	6820	Mnr P B Roux
Tweeling Kwekery	Posbus 190	KIRKWOOD	6120	Mnr J Potgieter
Vaalharts Kwekery	Posbus 317	HARTSWATER	8570	Mnr E Greyling
Waterfall Kwekery	Posbus 339	ADELAIDE	5760	Mnr R van der Meulen
Witkrans Kwekery	Posbus 17	BOSHOEK	0301	Mnr J Grobler

MOZAMBIQUE

KWEKERY	ADRES	DORP	KODE	KONTAK
Produsola LDA	Messica Farm	Lake Chicamba, Manica Province		Dave and Kathie Sole

ing opgevolg te word om daardeur te verseker dat die middels deeglik in die grondprofiel in gewas word. Toedienings behoort slegs volgens etiketaanbevelings toegedien te word. Afwykings van die geregistreerde dosisse, om kostes te bespaar, lei tot oneffektiwiteit. Dit is belangrik om 'n program te volg, een aalwurm-dodertoediening per seisoen is 'n mors van geld!

Phytophthora

Phytophthora wortelvrot – die gebruik van fosfonaat produkte is 'n uiters effektiewe en bekostigbare beheermaatreël wat suksesvol deur produsente gebruik word. Dit is van uiterste belang dat die etiket deeglik bestudeer word asook die waarskuwings voordat die produk gebruik word om effektiwiteit te verseker en fitotoksiteit te voorkom. Indien kraagvrotletsels voorkom kan 'n stamverf/blaarbespuiting aangewend word, drie aanwendings per seisoen met 6-8 weke intervalle. Vir wortelvrotbeheer word drie blaarbespuitings, met 6-8 weke intervalle aanbeveel.

SITRUSKWEKERIE

TELEFOON	FAKS	SELFOON	E-POS
042 230 1483	042 230 0923	082 550 6210	cjm@srvalley.co.za
014 574 3152	014 574 3798	082 881 4189	casmarnursery@absafreemail.co.za
021 874 1033	021 874 2110	076 622 7007	teresac@topfruit.co.za
015 345 1650	015 345 1650	082 874 8040	smit@duroi.co.za
013 790 0160	013 790 0492	083 325 0565	esselenk@mweb.co.za
042 283 0506	042 283 0978	072 260 9813	marese@rikusld.co.za
042 230 0309	042 230 0280	084 951 1922	bfjkweek@srvalley.co.za
023 614 2237	023 614 2237	082 578 5747	hopewell@lando.co.za
015 345 1600	015 345 1601	083 259 5590	mahela@mweb.co.za
042 230 1461	042 230 1461	082 789 5150	beans@kirkwood.co.za
013 790 3004	013 790 3480	082 418 7693	milaniemerwe@hotmail.com
054 441 0183	054 441 0165	082 578 7322	osk@vodamail.co.za
042 283 0201	042 283 0884	072 575 4471	pakaam@lantic.net
042 230 0349	042 230 0510	083 227 6655	brenda@srvalley.co.za
022 921 2232	022 921 2747	082 921 3137	stargrowcitrus@alazon.co.za
023 230 0694	023 230 1353	082 214 2520	admin@tulbaghKwekery.co.za
042 230 1408	042 230 1408	082 560 2179	tweeling@isat.co.za
053 474 0565	053 474 1926	082 948 2552	orange@lantic.net
046 684 0738	046 684 1451	082 695 3433	waterfall@intekom.co.za
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FRUIT AND FOLIAR DISEASES

(G.C. SCHUTTE)

Alternaria core rot

Alternaria core rot, also known as navel-end rot and black rot, occurs in all areas of southern Africa. The disease is most prevalent on those citrus cultivars such as navels and Clementines characterised by the presence of a secondary fruit called the fruit-navel, which varies in size and develops at the stylar end of the primary or main fruit. These fruitlets are extremely sensitive to environmental stress conditions during early stages of development and are therefore also prone to diseases such as navel-end rot and physiological disorders.

Alternaria core rot is linked to large fruit-navels or to the abnormal growth of the secondary fruit into primary-fruit locules which lead to the formation of points of entry through which fungi can penetrate to form infections which remain quiescent until favourable conditions stimulate further fungal growth.

The style and stigma of navel blossoms are milky white at first and then turn light brown in colour and abscise cleanly. This happens one week after petals have dropped and young fruit are ± 8 mm in size. The two sets of stylar tissue present in the primary and secondary fruit locules can be injured during the blossom period if harsh weather conditions prevail for one or more days (hot days $>25^{\circ}\text{C}$), and low relative humidity ($<20\%$) followed by heavy dew during the evenings. This causes the outer or primary style to turn brown and dry out, while the inner or secondary style remains unaffected inside the outer style and continues to develop and swell in size to result in longitudinal cracks in the outer tissue. The longitudinal cracks enlarge as the orange increases in size. The inner ovary projects even more as the orange approaches maturity. This results in a large, irregular-shaped navel-end and creates an ideal site for Alternaria infections.

Score (50 ml/100 l water) and Folicur (80 ml/100 l water) are registered for control of the disease.

POST HARVEST PATHOLOGY – WASTE PREVENTION

(K.H. LESAR)

Post-harvest decay warning

Intermittent rainfall and hail in the summer rainfall production areas and rain in the winter rainfall production areas during the season has resulted in the following problems:

- high pathogen inoculum levels in orchards on all surfaces resulting in



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- infections by latent pathogens – Anthracnose, Diplodia Stem end rot and Phomopsis stem end rot;
- infections by wound pathogens – green and blue mould and sour rot;
- infections by soil pathogens – Phytophthora brown rot.

PRECAUTIONS

- Minimise injuries to fruit during picking, handling and transport to the packhouse.
- Monitor the incidence of insect activity in the orchards and institute appropriate measures to reduce their populations.
- Insect damage to fruit contributes to injuries and possible infection by the wound pathogens.
- Make use of the indigo carmine mixture to monitor the incidence of injuries to the fruit during picking.
- Handle the fruit as a perishable product, because it is a perishable product.
- Ongoing removal of dead wood from trees.
- Ongoing orchard sanitation is a non negotiable requirement.
- Minimise the delay between picking and treatment. The longer the delay the higher the risk for high decay.
- Packed fruit must be cooled down as soon as possible.

PHYTOPHTHORA BROWN ROT

Adequately skirt trees to minimise the risk of Phytophthora brown rot infection after rainfall

Do not pick skirt (low hanging) fruit for packing. Remove this fruit before harvesting and discard.

Spray contact fungicides only (copper at 200 g per 100 l) as a preventive measure against Phytophthora brown rot after rainfall. Contact fungicides must be resprayed after any follow-up rainfall. Foliar applications of phosphonates for the control of Root and Collar rot will be effective against brown rot. Brilliant (ammoniumphosphonate) is registered against brown rot. (See label).

PACKHOUSE

Ensure that packhouse chemicals are applied at recommended concentrations and packhouse procedures and critical control points are managed diligently. Pack very strictly with regard to injuries, creasing, over mature fruit, etc.

IMPORTANT POINTS TO REMEMBER

All damaged fruit are HIGH RISK for export.

Latent and wound pathogen infections on the tree lead to further development of latent pathogen infections, and the spread of wound pathogen infections in exported cartons.

Over-ripe fruit, past optimum internal quality, that are destined for cold disinfestation markets are less resistant to cold damage during storage/shipping and more susceptible to decay.

Minimise the delay between picking and packing.

Fruit arriving in the market with quality problems often sells at reduced prices and ultimately becomes a major loss for the grower.

Producers must be aware of the risk involved in exporting this fruit and decide whether to export the fruit, or not.