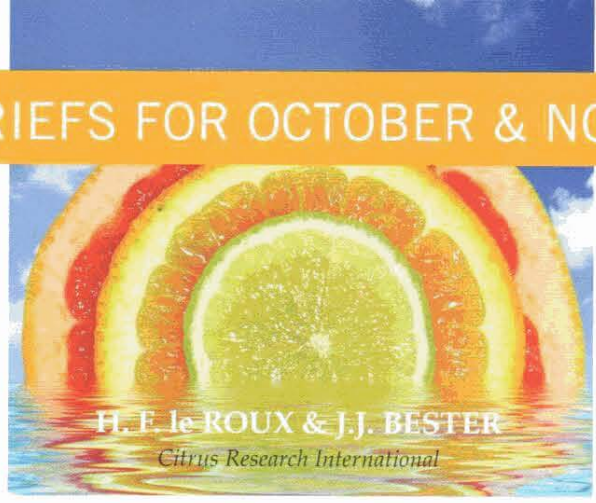
EXTENSION BRIEFS FOR OCTOBER & NOVEMBER 2008



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INTEGRATED PEST MANAGEMENT

T.G. GROUT

Thrips management

During October and November, citrus fruit are highly susceptible to damage from citrus thrips and orchards should be scouted at least once a week for this pest. This scouting should include looking under the sepals. Citrus thrips larvae cause more serious damage than adult thrips so low numbers of adults in the absence of larvae may not require immediate intervention. The intervention threshold for citrus thrips larvae is 2% for the first four weeks after petal fall, 3% for five to six weeks after petal fall, then 4% for seven to eight weeks after petal fall. These thresholds can be approximately doubled if the population comprises mostly adults. If thripicide treatments are required, use products suited to both the thrips population density and the spray machinery available for reapplication at short notice. The use of dedicated spray machines for the rapid application of thrips baits prevents clashes with black spot and red scale spray programmes. Citrus thrips are genetically predisposed towards developing resistance to pesticides so avoid spraying two consecutive sprays of the same active ingredient.

S.D. MOORE

Parasitoid releases

Growers planning to augment parasitoids for control of red scale or mealybug should initiate releases as early in the new season as possible. Augmentative releases of parasitoids are not a corrective option, and growers should therefore not wait until the pest reaches a problematic level. Research trials with mealybug parasitoids indicate that better suppression of the pest is achieved with releases initiated as early as October.

Preventative sprays for mealybug

Pre-harvest blemish analyses or winter inspections of trees might have indicated that preventative spraying for mealybug is unnecessary. This can be confirmed or refuted by inspecting fruit in October and November for the presence of mealybug. Sprays applied before calyx closure will most likely be more effective than those applied thereafter. An infestation level in excess of approximately 5% at petal fall, or up to 20% six weeks after petal fall, indicates the need for immediate chemical intervention. Anything short of an absolutely thorough full cover film spray will compromise the effectiveness of a chemical treatment.

It appears that the biocontrol complexes of oleander mealybug and longtailed mealybug, in particular, may not be as effective as that of citrus mealybug. Therefore, more conservative treatment thresholds can be used when either of these species is identified as the dominant species in a particular orchard. If citrus mealybug is not the dominant species, augmentative releases of *Coccidoxenoides perminutus* should be considered unsuitable.

Note that the preharvest interval for Applaud (buprofezin) has now been relaxed to 45 days for most citrus varieties and markets. This means that this product can therefore be used later in the season than most organophosphates.

Bollworm

In many regions, it might already have been necessary to treat bollworm during September. However, routine spraying for bollworm is generally not necessary. By monitoring the percentage of blossom clusters infested, it will be possible to determine whether a spray is necessary. A treatment should be applied when more than 20% of blossom clusters are infested with larvae or mature eggs. Enlarged navel end problems in navel oranges can be further exacerbated by bollworm attack. In such an instance, a threshold of 11% of clusters infested should be used.

Lemon borer moth

Moths of the lemon borer moth (or citrus flower moth), *Prays citri*, are attracted to lemon blossoms. Growers should inspect these blossoms in spring to determine whether they are infested with larvae or pupae. These can be identified by their colouration, which is usually greenish and the association of webbing with pupation. Even if the damage to, and loss of blossom is not considered sufficiently severe to justify control measures, no intervention will allow the development of a second generation. It is the moths of this second generation which lay their eggs on the lemon fruitlets. Hatching larvae can potentially cause severe damage. It is therefore more effective to control the first generation. No plant protection products are registered for use against the lemon borer moth. However, there are a number of pesticides which are registered for other pests on citrus that are effective, including Bt (DiPel) and mevinphos.

False codling moth

N.B. *Control of false codling moth (FCM) in all areas must be improved significantly this season because there will be a zero-tolerance for it in export cartons.* As soon after harvesting as possible, all out of season fruit should be removed from trees and destroyed. These fruit can act as a reservoir for FCM and fruit flies, enabling particularly the former to carry over onto the new crop set in spring. Field observations indicate that the removal and destruction of out of season fruit can have a significant impact in

reducing FCM levels. *Do not neglect orchard sanitation early in the season.* Infested fruitlets can contribute significantly to the reinforcement of FCM populations later on and any extra labour required is well worthwhile.

FCM pheromone traps should be hung during October. It is imperative that these traps be hung strictly according to the recommendations on the label.

The Lorelei trapping system can be ordered directly from CRI in Citrusdal. This trapping system is recommended, as it has been thoroughly researched, the dispenser releases pheromone at a constant rate, and threshold values can be ascribed to trap catches.

Growers wishing to control FCM with Cryptogran (FCM granulovirus) should apply the first treatment no later than the end of November or early December – aimed against the flight peak which occurs at this time in all production areas.

Recommendations for the use of Isomate (mating disruption) are that it should be hung during early October, followed by a second hang during early January.

CROP AND FRUIT QUALITY MANAGEMENT

J.S. VERREYNNE

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. Moisture stress should be avoided during full bloom, fruit set and early fruit growth.

The **acidity** of fruit at harvest is largely determined within 6 weeks of fruit growth and development. Thereafter, only minor modifications to acidity can be achieved.

Under conditions of anticipated high acidity at harvest, mono-ammonium phosphate (MAP) or mono-potassium phosphate (MKP) can be applied at 1%, i.e. 1 kg per 100 litres of water, 6 weeks after full bloom. Please note that these phosphate sources have not been tested on all citrus cultivars; until now 1% MAP or MKP have reduced acidity on Valencia orange and Temple tangor, but not on grapefruit.

Pruning of late cultivars should be done during this period as soon as possible after harvest. Pruning 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.

Prune heavier after a light crop if a heavy crop is expected and when the orchard has a history of alternate bearing.

Regrowth control, especially after heavy pruning earlier in the season, should commence. A lot of regrowth adversely affects fruit size and is antagonistic to fruit colour development, especially for early maturing cultivars.

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 ń bestuurshulpmiddel om ń koste doeltreffende aalwurmbeheerstrategie daar te stel.

Die gebruik van chemiese aalwurmdoders vir die beheer van die sitrusaalwurm word nie aanbeveel alvorens ten minste 30 mm reën geval het nie (Oktober). Elke aalwurmdodertoediening behoort op nat (veldkapasiteit) grond toegedien te word en met ń behoorlike besproeiing opgevolg te word om daardeur te verseker dat die middels deeglik in die grondprofiel ingewas word. *Toedienings behoort slegs volgens etiketaanbevelings toegedien te word. Afwykings van die geregistreerde dosisse, om kostes te bespaar, is nie ń effektiewe benadering nie.*

Phytophthora

Phytophthora wortelvrot – die gebruik van fosfonaat produkte wat sistemies is, is ń 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 fitotoksisiteit te voorkom. Indien kraagvrotletsels voorkom kan ń stamverf/blaarbespuiting aangewend word, drie aanwendings per seisoen met 6-8 weke intervalle. Vir wortelvrotbeheer word ń blaarbespuiting van ten minste twee of drie blaarbespuitings met 6-8 weke intervalle aanbeveel.

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 CONTINUED ON PAGE 63

Maersk Line celebrates 80th Anniversary

On 12 July 1928, Leise Maersk, the first Maersk Line vessel to depart in its liner service, sailed from Baltimore on the U.S. East Coast en route to the Far East via the Panama Canal. In her holds were Ford car parts and general cargo.

Leise Maersk was carrying 3 600 tons of cargo, the equivalent of 200 twenty-foot containers (TEU). She reached Japan 59 days after departing from Baltimore; her next destination was the Philippines where she arrived on the 72nd day.

On her homebound voyage, she carried sugar, silk, and oil products.

During the 1930's, Maersk Line expanded this service, called the Panama Line, which numbered nine modern vessels. There were no containers and cargo was transported on trucks and trains to the port and stored in warehouses. When the ship arrived, the cargo was moved from the warehouse to the quay and then lifted on board in cargo nets and stacked in the cargo holds. A port stay of a week or more was common, due to intensive labour.

Prior to 1950, Maersk Line also offered passenger transport. Cargo liners could carry 12 passengers who, for a reasonable fee, could enjoy a carefree and restful time.

During the 1950's Maersk Line expanded in the Far East, connecting Japan with South East Asia and the Middle East, introducing a "Round-the-world" line, including West Africa. In 1956, the first container was shipped aboard the Ideal X from Port Newark, New Jersey to Houston, Texas. The container was the invention of Malcolm McLean.

It was not until the late 1960's and early 70's that agreement was reached on the standards of containerisation we know today. In 1973, Maersk Line ordered its first dedicated container vessels and in 1975, Adrian Maersk with a 1 400 TEU capacity undertook Maersk Line's first containerised sailing.

The container revolution gained momentum in the 1970's and 80's. In order to best support containerisation, A.P. Moller applied a more holistic approach to the transport chain which led to further involvement in terminal and port development and the establishment of a logistics company, Maersk Logistics, originally Mercantile.

In the 1990's, Maersk Line's focus was cooperation with other lines, P&O Container Lines and Sea-Land, as well as acquisitions, East Asiatic Company in 1993 and Sea-Land in 1999. The objective was to grow with the customers and meet their requirements as driven by increasing trade and globalisation. Simultaneously, Maersk Line developed its vessels. In 1996, Regina Maersk became the world's largest, most modern container vessel with a 6 000 TEU capacity and a crew of 15. She only ruled the seas for a year as in 1997, the 6 600 TEU Sovereign Maersk took over.

In 2006, Emma Maersk with a capacity to carry more than 11 000 TEU (Leise Maersk times 65) set new standards for economical, safe, and environmentally friendly shipping.

Today, 80 years after it all began, Maersk Line is an industry leader and the largest liner shipping company in the world. Maersk Line will continue to pursue a balanced and sustainable approach towards its business, trade in general, and long term economic growth.

'Thank you' to all our customers, suppliers and partners for the past 80 years.

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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 leads 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°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.