

RESEARCH AND TECHNOLOGY

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Extension briefs

AUGUST AND SEPTEMBER 2026

By the Citrus Research International Extension Team

Integrated pest management

Citrus thrips (SD Moore)

Citrus thrips populations can be suppressed on the spring growth flush to help reduce populations experienced at petal fall. The decision to suppress thrips can be based on the presence of the pest on yellow sticky traps, and new flush on data trees. Yellow sticky traps can be placed in orchards in the weeks leading up to petal drop. A minimum of three traps can be used in orchards up to 3 ha. These can be placed diagonally across the orchards, with the corner traps being at least three trees in from the border rows. The new flush can be checked for the presence of citrus thrips (adults and larvae) and for damage symptoms. Thrips damage on flush is marked by scarring on either side of the midrib of the dorsal surface of leaves. Under high infestation, the leaves may curl inwards.

If control is warranted, a *methamidophos* or *acephate* (Spectra Stem) stem treatment would be a suitable control option on younger trees. On bearing trees, if mealybug requires control, an organophosphate (take note of product market/use restrictions) could be sprayed as a full cover. This will also reduce developing populations of citrus psylla. Sprays must be completed before flowers open to reduce any impact on honeybees. If no spray for mealybug is required, a bait spray can be applied on the flush. This must be done prior to blossoms opening, so that nectar doesn't compete with the bait for thrips' attention. Avoid using *abamectin* at this time, because it will be needed for citrus thrips control in summer, and only three applications are permitted per season.

Mealybug (S.D. Moore)

Mealybug infestation levels continue to be problematic, particularly under nets. This can be exacerbated by high thrips pressure,

leading to disruptive applications of thri-
picides late in the season. Early preventa-
tive treatment of mealybug is almost twice
as effective as a late corrective treatment.
However, as mealybug has such an effective
biocontrol complex, spraying for mealybug
in a good integrated pest management
(IPM) context is often unnecessary.

The need for an early spring spray can
be determined based on the following
criteria: **a)** if $\geq 10\%$ of fruit were infested
when a pre-harvest infestation analysis was
conducted in the previous season, **b)** if a late
corrective spray for mealybug was justified
in the previous season, **c)** if there were any
rejections for mealybug on inspection in
the packhouse or port, **d)** if any infestation
on the wood was noted during winter or
on the new growth in spring, and **e)** if
spraying of any broad spectrum thripicides



Hannes Bester



MC Pretorius

is planned during summer. Spraying at or just before petal drop has been shown to be more effective than spraying pre-blossom. This can be done using Tivoli, sulfoxaflor (Closer or Transform), *buprofezin* or an organophosphate (take note of product market/use restrictions). If mealybug was problematic in the previous season, two early sprays four to six weeks apart might be justified. Treatments must be applied as high-volume, full-cover film sprays, which can only be achieved if trees have been pruned and the spray machine is properly calibrated. Where a parasitoid augmentation programme is being followed for mealybug, the earlier in the season releases are initiated, the more effective they are. This might be difficult where early thripicides are detrimental to the parasitoids.

Ant control should be implemented in all orchards, where monitoring indicates infestation levels above thresholds. Effective ant control will prevent disruption of natural enemies of mealybug. This is important for all orchards, not only where mealybug parasitoids are being released. Where either or both the pugnacious ant and brown house ant are present, Saga ant bait can be used.

The incidence of mealybug tends to be higher under nets and the visible impact of biocontrol agents tends to lag. Consequently, one should act more conservatively under nets when deciding whether to spray early maturing orchards.

False codling moth (S.D. Moore)

It may be tempting to neglect orchard sanitation in winter, as false codling moth (FCM) levels are usually low and Valencias – which are harvested at this time – are generally less susceptible to FCM than some of the earlier season cultivars. However, this would be a big mistake. It has been shown that Valencias can fulfil an overbridging role

for FCM from one season to the next. To ensure the lowest FCM inoculum possible at the start of a season, diligently continue sanitising orchards until the previous season is truly over. Most importantly, growers must ensure that no fruit remain on trees or on the orchard floor after harvesting. Sanitation must also be done in lemon orchards. Although lemons at the commercially-ripe stage for harvesting for export are not a host for FCM, overripe lemons can be. Therefore, they must be removed and destroyed. In the warm northern areas of the country, FCM activity starts a lot earlier than in the Cape regions. This could present a risk for late maturing Valencias. However, it also presents an opportunity for earlier initiation of a mating disruption programme, i.e., earlier than the standard recommendation of October.

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 August or September. Hence, growers should begin weekly blossom inspections for bollworm eggs and larvae in early September (no later). Particularly if a biological product such as DiPel, Helimax or Bolldex is going to be used, sprays should be applied as soon as eggs begin to hatch. This can only be determined through vigilant and regular scouting. Honeybee populations will benefit if sprays need to be applied during bloom, because these products are harmless to bees.

Citrus flower moth (S.D. Moore)

Moths of the citrus flower moth (also known as the lemon borer moth), *Prays citri*, are attracted to lemon blossoms. Occasionally, blossoms of other citrus types are attacked. Growers should inspect these blossoms in spring to determine if they are infested with larvae or pupae. These can be identified by their colouration, which is usually greenish,

as well as by the association of webbing with pupation. Even if the damage to and loss of blossom are not considered sufficiently severe to justify control measures, no intervention may allow the development of a second generation. It is the moths of this second generation that lay their eggs on the lemon fruitlets. Hatching larvae can potentially cause severe damage. Therefore, it is essential to control the first generation if one wants to prevent damage to the fruit. Experimental thresholds for intervention, based on pheromone-baited delta trap catches, have associated 150 moths per trap per week with a 5% infestation of blossom clusters with larvae and pupae, which will lead to approximately 5% fruit damage. Fifty moths per trap per week will lead to an estimated 1-2% fruit damage. Bt (Delfin WG) and *chlorantraniliprole* (Chlo-Pro) are the only plant protection products registered for use against the citrus flower moth. However, there are several other pesticides that are registered for other citrus pests that might be used effectively at that time, such as chemistries used for bollworm.

Crop and fruit quality management (P. Cronjé)

Generally, it is important to keep managing and monitoring fruit pickers throughout the harvest season to reduce culling of export fruit, caused by picking injuries. Pruning of early- and mid-season cultivars should commence soonest after harvest, to allow ample time for flower induction.

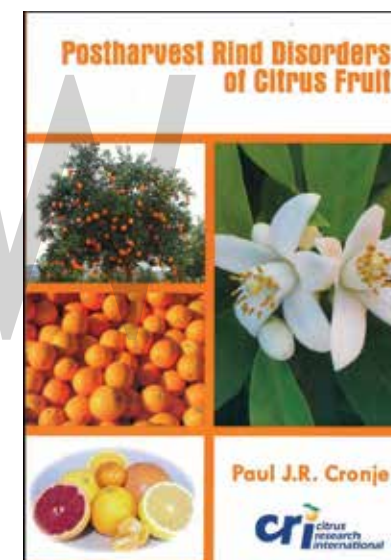
Maturity indexing

It is done to predict the rate of change in fruit maturity, to harvest fruit at a maturity that would maintain an optimal commercial shelf life. The aim is to define changes or the rate of change in acids and sugars and to build up a database over several years, for comparisons. Random sampling of fruit every week from each of 10 representative trees, should be four to six weeks

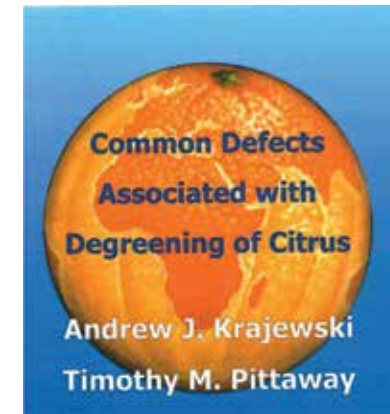
before the expected harvest date. Titratable acidity is determined by titration with sodium hydroxide. Sugar content (Brix) is determined using a refractometer, and the sugar-to-acid ratio calculated. Fruit colour should be read from a colour chart. This data should be plotted on a graph to determine the optimal picking window. Growers should adhere to the time and temperature protocols for each citrus type to ensure optimal shelf life of the fruit (Cutting Edge No. 99). It is important to maintain good records of the maturity indicators over several years, to identify and possibly manipulate potential problems associated with internal and external quality parameters.

Degreening and postharvest 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. Cronjé, are must-reads for growers. Both are available from the CRI online shop at www.citrusres.com.



Postharvest Rind Disorders of Citrus Fruit
- CRI Shop



Common Defects Associated with Degreening of Citrus
- CRI Shop

Pruning for early and late cultivars

It should be done soonest after harvest. The following should be removed during pruning: old, broken and dead shoots/twigs; weak and entangled shoots crossing each other, and rootstock regrowth (water shoots). Removal of all dead wood is important to reduce fruit blemishes and the inoculum of latent pathogens, which cause postharvest decay. A light intensity level of at least 30% of full sunlight is necessary for optimal photosynthesis, and sufficient light intensity levels also improve fruit colour development. In dense and old trees, light intensity inside the tree canopy can drop to below 30% and adversely affect fruit set and size. At least one “window” cut should be made to allow for adequate light distribution to improve bearing wood within the tree canopy. An increase in photosynthesis and light distribution will promote increased fruit size and internal fruit quality, better fruit colour, increased rind condition and less variation in fruit quality within the canopy. Pruning should be used as a thinning technique; prune more heavily after a light crop (if a heavy crop is expected in the subsequent season) and if the orchard has a history of alternate bearing. A follow-up of regrowth management in the summer

is critically important to maintain light management throughout the season. Proper pruning also improves spray penetration, leading to effective control of target pests and diseases. This is especially important for the effective control of phytosanitary pests and diseases. Pruning tools must be regularly sanitised with a 10% Jik solution to prevent the spread of viral diseases. This should be done at least after each row, and when moving from one orchard to another.

Flowering

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 nitrogen (N) levels are low, and a light blossom is expected. If leaf nitrogen (N) levels are sufficient, consider replacing the foliar urea application with a 1.5% potassium nitrate (KNO₃) application, only if leaf K levels are below optimum (<0.9ppm).

Fruit set

Treatments need to be applied according to cultivar requirements. A general guideline cannot be given, as fruit set treatments differ by cultivar and – in many cases – by orchards, depending on the previous crop load. Specific treatments include the application of gibberellic acid (GA₃) and main trunk or scaffold branch girdling, especially for parthenocarpic cultivars that have a poor set. Girdling during full bloom improves set, as a cut through the bark temporarily restricts carbohydrate allocation to roots and allows for utilisation by flowers. Be careful not to girdle too deeply into the trunk, or to remove a strip of bark. Focus on girdling scaffolding branches, for example, three of the five scaffolding branches rather than the main stem. If girdling is not conducted properly, losing a scaffold branch is better than losing a tree. Moisture stress

should be avoided at all costs during full bloom, fruit set and early fruit growth, as these periods are characterised by the cell division stage of fruit development, during which water supply is of critical importance. Any form of stress during this period has an irreversible effect on fruit size. Remember that managing the soils to wet during this period would also cause severe stress. Try and maintain the root zone at a field observation level of three out of five.

Geïntegreerde bemesting (P. Raath)

Stikstofbemesting van sitrus aan die einde van die groeiseisoen

1. Blaar- en grondmonsters moes aan die einde van die groeiseisoen geneem gewees het (Februarie tot Mei).
2. Resultate van die blaar- en grondontledings tesame met boord-inligting (bv. ouderdom van bome, onderstam, kultivar, verwagte opbrengs, groeikrag en blaarkleur) word gebruik vir bemestingsaanbevelings.
3. Bestudeer die "Handleiding vir bemesting van sitrus in Suid-Afrika" om die analyses te vergelyk met die norme in die handboek verskaf.

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

1. Begin met stikstoftoedienings in Julie, met die uitsondering van die Wes- en Noord-Kaap wat in Augustus begin, of sodra die grondtemperatuur in die wortelsone vir 'n paar dae bo 13°C is.
2. Afhangende van die klei-inhoud van die grond, word die stikstof (N) in een tot vier toedienings verdeel.

Waar druppers gebruik word

1. Begin met die stikstoftoedienings in Julie, met die uitsondering van die Wes- en Noord-Kaap wat in Augustus begin, of sodra die grondtemperatuur in die wortelsone vir 'n paar dae bo 13°C is.

2. Verdeel die volumes wat per maand aanbeveel is, in ten minste weeklikse toedienings.
3. Moenie dat die besproeiingswater/kunsmengsel dieper as die boonste deel van die wortelsone (30–40 cm) indring nie. Stikstoftoediening geskied volgens die fenologiese stadia van die boord. Verwys na die onderstaande riglyne.

Blaarbespuitings met stikstof

1. Dien LB ureum as 'n blaarbespuiting in Julie (aanvang van knopswel) toe om blom en vrugset te bevorder, of ná Oktober vir stikstof-aanvulling.
2. Die kritiese vereistes vir suksesvolle blaarvoeding is die kontaktyd waartydens die blare nat bly, druppelgrootte, en die konsentrasie van die voedingselement in die spuit-oplossing.

Om die loging van stikstof te beperk kan die volgende gedoen word

1. Dien stikstof in die middel, of aan die einde van die 'n besproeiingsiklus toe.



Coenraad Fraenkel



André Combrink

2. Voorkom 'n oormaat van stikstof in die grond-oplossing. Stikstofkonsentrasies wat hoër as 150–200 mg/l is, het geen addisionele voordeel nie. Dit verhoog net die logingsrisiko deur opvolgende besproeiings of reëngebeure. Oormatige stikstoftoediening kan ook probleme met vrugkwaliteit tot gevolg hê.
3. Stikstoftoediening moet verkieslik aan die einde van die groeiseisoen gestaak word, sodat die stikstof-inhoud in die grond gedurende die rypwordingsperiode kan afneem. Enige nuwe groei aan die einde van die seisoen bevat Gibbrelliensuur in die groeipunte en sal kleurontwikkeling belemmer.
4. Die regte hoeveelheid water moet tydens besproeiing toegedien word. Dit is onvermydelik dat 'n sekere hoeveelheid stikstof tydens besproeiing geloog word, maar oorbesproeiing versnel die proses en 'n groot hoeveelheid stikstof kan dan verby die wortelsone geloog word. Reënval moet ook tydens besproeiingskedulering in ag geneem word. Indien daar minder as 5 mm reën ontvang is, kan daar wel normaal met besproeiing voortgegaan word.

Nitrogen fertilisation of citrus

At the end of the growing season

1. Leaf and soil samples should have been taken between February and May.
2. Results from the soil and leaf analyses combined with additional orchard information (tree age, tree vigour, tree colour, expected yield, and rootstock) are used to compile a fertiliser programme.
3. Use the "Handbook for fertilization of citrus in South Africa" to compare the analysis with the norms provided.

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

1. Start with nitrogen fertilisation in July, except for the Western and Northern Cape, which should start in August, or when the soil temperature in the root zone is above 13°C for a few days.

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PRODUKTE WAT WERK VAN MENSE WAT OMGEE

- Split the nitrogen application into one to four instalments, depending on the clay content of the soil.

When drip irrigation is used

- Start with nitrogen fertilisation in July, except for the Western and Northern Cape, which should start in August, or when the soil temperature in the root zone is above 13°C for a few days.
- Split the volumes recommended per month into weekly applications, at least. Ensure that the water and fertilisers do not penetrate deeper than the upper root zone (30–40 cm).
- Application of nitrogen should be done according to the phenological stages. Refer to the guidelines below.

Foliar spray of nitrogen

- Spray the LB urea in July to improve flowering and fruit set, and after October to supplement nitrogen.
- The critical requirements for successful foliar sprays are contact time, droplet size, and concentration of the nutrient element in the spray solution.

Four measures can be used to prevent or minimise the leaching of nitrogen

- Inject nitrogen in the middle of, or late in an irrigation event.
- Avoid excessive concentrations of nitrogen in the soil solution. Nitrogen concentrations greater than 150–200 mg/l do not provide any additional benefit. It increases the risk of leaching by successive irrigation or rainfall events. Oversupplying nitrogen can also lead to fruit quality issues.
- Complete the nitrogen fertilisation programme by the end of the growing season to allow lower concentrations of nitrogen in the soil by winter. Any new growth during the last part of the season

will contain gibberellic acid that might cause a delay in fruit colouring closer to harvest.

- Ensure that only the right amount of water is applied. Some movement of nitrogen may be inevitable with each irrigation cycle, but overwatering is likely to speed up that process and move nitrogen beyond the root zone. Allow for expected rainfall when calculating the depth of water to apply – this will also help reduce the likelihood of leaching.

Grondgedraagde siektes (MC Pretorius en J. van Niekerk)

Aalwurms Grond- en wortelmonsters kan in die lente getrek word en vir ontleding na die Diagnostiese Sentrum in Mbombela (Nelspruit) gestuur word, sodat die aalwurmpopulasie in die wortels bepaal kan word. Die resultaat sal dien as 'n bestuurs hulpmiddel om 'n kostedoeltreffende aalwurmbeheerstrategie daar te stel. Die gebruik van chemiese aalwurmdoders vir die beheer van die sitrusaalwurm word nie aanbeveel voor ten minste 30 mm reën geval het nie. Elke aalwurmdodertoeëiening behoort met behoorlike besproeiing opgevolg te word om te verseker dat die middels deeglik deur die grondprofiel gewas word. Toeëienings behoort slegs volgens etiketaanbevelings toegedien te word. Afwyking van die geregistreerde dosisse, om kostes te bespaar, lei tot oneffektiwiteit. Dit is belangrik om 'n program van twee tot drie toeëienings te volg, met twee maande intervalle (om toksiese vlakke vir 'n langer periode hoog genoeg in die grond te hou) – behalwe vir fluopyram. Volg etiketaanwysings van die betrokke produk. Afwyking van hierdie aanwysings kan lei tot oneffektiewe beheer, en dus 'n mors van geld.

Phytophthora Phytophthora-wortelvrot – die gebruik van fosfonaatprodukte is 'n uiters effektiewe en bekostigbare beheermaatreël wat suksesvol deur

produsente gebruik word. Dit is van uiterste belang dat die etiket deeglik bestudeer en dat daar op die waarskuwings gelet word, voordat die produk gebruik word. Hierdie is noodsaaklik om effektiviteit te verseker en fitotoksiteit te voorkom. Om effektiewe werking van die fosfonate te verseker behoort ten minste twee, maar verkieslik drie, opvolgtoëienings agt weke uitmekaar toegedien te word. Indien kraagvrotletsels voorkom kan 'n stamverf of blaarbespuiting aangewend word (drie aanwendings per seisoen met agt weke intervalle). Vir wortelvrotbeheer word drie blaarbespuitings (met agt weke intervalle) aanbeveel. Bespuiting tydens blom kan die moontlikheid van blomblaarval verhoog. Doen dus die eerste bespuiting direk na blomblaarval. Dit word sterk aanbeveel om nuwe aanplantings en nie-draende bome op 'n fosfonaatprogram van drie aanwendings per jaar, twee maande uitmekaar, te hou om gesonde wortelontwikkeling te verseker. Produsente word gemaan om seker te maak dat bome nie oor- of onderbesproei word nie.

Fruit and foliar diseases (J. van der Waals)

Alternaria Brown Spot (ABS) is caused by the fungus *Alternaria alternata* and occurs in all citrus-production areas of SA. The most susceptible cultivars are those with Dancy parentage, e.g., tangerines and tangelos. ABS results in leaf, twig and fruit symptoms, which can be a limiting factor in production areas with high humidity or rainfall. Spore release, from lesions (spots) on mature leaves, is triggered by rain and sharp drops in humidity. The optimal temperature range for infection is 23–27°C, but infection can occur at temperatures as low as 17°C and as high as 32°C, with extended wetness periods. Low levels of infection can occur with leaf wetness duration of four to eight hours, but usually 10–12 hours of wetness is needed for substantial infection. Spread

of the pathogen from one tree or orchard to another occurs through airborne spores produced on leaf, stem, and fruit lesions.

Alternaria alternata damage to young vegetative shoots varies from small circular leaf spots to large necrotic blighted lesions that cover a major portion of the leaf. Lesions tend to extend along the veins as the toxin produced by the fungus spreads through vascular tissues. Infected twigs provide the most continuous source of infection of lower-hanging fruit. Leaves become resistant to further attack once they are fully expanded. When young fruitlets become infected, they usually drop. Older infected fruit may be retained, as they form secondary tissues in a series of radial tissue layers that isolate the pathogen and give rise to corky protrusions on the rind. These can easily be dislodged, leaving pockmarks. The healing reaction of the outer cell layers can be enough to completely inactivate the pathogen. However, some pustules, though apparently completely healed, may become active again and give rise to slowly expanding necrotic brown spots of approximately 5 mm in diameter. Management is aimed at reducing inoculum, increasing airflow through the canopy, and protecting uninfected fruit in a preventive approach. Chemical management of Alternaria Brown Spot can be integrated with fruit protection programmes aimed at Citrus Black Spot (CBS) control. However, chemical programmes aimed at ABS control should commence as soon as the first spring flush emerges, which is earlier than needed for CBS management, and should continue for longer as fruit remain susceptible until harvest. Copper, mancozeb, dodine (guanidine) and azoxystrobin are registered for ABS control on citrus in SA.

Alternaria core rot (also known as navel-end rot or black rot) is caused by the fungus *Alternaria alternata* and occurs in all areas of Southern Africa. The disease is most prevalent on citrus cultivars like navels and Clementines, which are characterised by the



Natasha Jackson



Jan Landman

presence of a secondary fruitlet called the navel. The navel develops at the stylar end of the fruit and varies in size.

The formation of the navel-end opening and its size are influenced by climatic conditions during fruit set. Under cool weather conditions, the secondary fruit style successfully fuses with the style of the primary fruit, such that both the secondary and primary style abscise during petal fall, resulting in a closed navel end. However, under extreme weather conditions (e.g., warm, dry and windy conditions), the primary fruit style abscises prior to fusion with the secondary fruit style resulting in the formation of a cavity between the primary and the secondary fruit. Such cavities provide entry points for fungi, such as *A. alternata*, to penetrate and form infections that remain quiescent until favourable conditions stimulate further growth of the fungus. Alternaria core rot

is linked to fruit with large or malformed navel ends.

Tebuconazole, *difenoconazole* and 2,4-D are registered for control of this disease. *Tebuconazole* and *difenoconazole* can be applied at 50% petal fall with a second application no later than 90% petal fall. *Tebuconazole* and 2,4-D can be applied together, once at full bloom.

Botrytis on lemons The role played by *Botrytis* in lemon fruit drop and the formation of ridging of the rind are still unclear. Damage can occur on lemon petals during blossom when prolonged wetting and cool weather occur simultaneously. Pyrimethanil, azoxystrobin and a pyrimethanil+fludioxonil combination product are registered against *Botrytis cinerea* on citrus. The fungicides are applied once at full blossom. Two biological control products are registered for control of *B. cinerea* on citrus, namely a *Trichoderma asperellum* strain and a *Bacillus amyloliquefaciens* subsp. *plantarum* strain. The *T. asperellum* product is recommended as a foliar spray every 10–14 days, and the *B. amyloliquefaciens* product is recommended to be applied at the first sign of disease, with four to six weekly applications thereafter, depending on disease pressure. The *T. asperellum* strain can also be applied monthly as a soil drench throughout the year.

Postharvest pathology - waste prevention (W. du Plooy, L. Mamba, N. Jackson and J. Landman)

By this time of the citrus season, fruit volumes are quite high and packhouses are straining under the demand for processing. This will take its toll on management and may lead to compromised diligence in the management of critical control points.

Critical control points for improved postharvest disease management
Communicate with the pre-harvest managers and ensure up-to-date exchange of information:

- Monitor the incidence of insect activity in the orchards and institute appropriate measures to reduce their populations, especially fruit fly and FCM numbers that could increase with hotter weather.
- Monitor orchard practices and sanitation:
 - Follow the FMS correctly. Advise the orchard managers and producers if sanitation is being improperly managed or neglected, as this can also play an overbridging role for FCM from one season to the next.
 - Removal of rotten and fallen fruit is crucial to keep spore loads down and to reduce the risk of postharvest decay.
 - Monitor injuries to fruit during picking, handling and transport to the packhouse. Advise orchard managers and/or producers accordingly.
- Limit the time from harvest to the first fungicide treatment. It is strongly recommended to treat fruit within six hours of picking (24 hours at the most).
- Ensure that all fungicide applications are replaced frequently, as per protocol, and kept clean.
- Keep the fruit dumping site cleanest where fruit will enter the packhouse.
- Ensure proper removal of any rotten fruit before sanitising and treating the fruit.
- Have a sanitation action between fruit sorting and the first fungicide application.
- Ensure that fruit is dry before entering the fungicide treatment.
- Do regular titrations to manage the concentration of *imazalil* in the fungicide treatment.
- Do not wax wet fruit, this will put fruit quality at severe risk.
- Apply the correct amount of wax to the



Irma Rasper



Vernon Jacobs

fruit (i.e., 1.0–1.2 ℓ per tonne of fruit) and ensure an spread of the wax over the entire fruit surface.

- Reduce the time from harvest to cold chain storage.
- Packhouse sanitation should be a continuous process, and not just a once daily or weekly activity.
- Store fruit destined for the juicing factory far away from the packhouse and have it removed promptly.

Checklist for chemical application

- Chlorine application
 - Solution pH: 6.5–7.5.
 - Chlorine concentration: 75–100 ppm (free active chlorine).
 - ORP: 800 mV.
- Fungicide dip tank
 - *Imazalil* concentration: 500 ppm.
 - Solution pH: not higher than six.
 - Exposure time: one to three minutes in a solution at pH3 or not longer than 45 seconds in a solution at pH6.

- Maintain the concentration by following the advised *imazalil* top-up protocol or according to regular titrations.
- Wax application
 - Brushes must be kept clean and maintained to a very high standard, to achieve the best results.
 - Fruit should be dry when they reach the wax applicator, as film formation on wet fruit is not ideal and will cause disintegration during transport.
 - Wax load should be between 1.0 and 1.2 ℓ per tonne of fruit, depending on manufacturers' recommendations:
 - Over-application can lead to MRL exceedance.
 - Under-application will lead to poor fruit quality and poor disease control.
 - When using impeller or venturi type of wax blending tanks, the wax solution should be agitated continuously (24 hours per day, seven days per week):
 - *Thiabendazole* tends to precipitate to the bottom of the wax drum and cannot be fully re-suspended in these types of tanks.
 - The funnel-shaped tanks, and horizontal tanks with a scraper paddle, can be switched off during non-operational hours, but need to be switched back on an hour before the pack line starts in the morning.
 - Drying tunnels after the wax applicator should not be overheated:
 - Obtain the optimal temperature for the specific wax from the wax manufacturer.
 - The correct drying of the wax is crucial to ensure that the desired effect is gained.



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Sumimax® WP | Kry Beheer. Hou Beheer.

Sumimax® WP bied breëspektrum beheer van breëblaaronkruid in verskeie boomgewasse. Die unieke chemie van die aktiewe bestanddeel, flumioksasin, werk as 'n PPO-inhibeerder. Om die effektiewe beheer van reeds bestaande onkruid in boomgewasse te verseker kan glifosaat in 'n tenkmengsel saam met Sumimax® WP toegedien word en sodoende word onkruid doder-weerstandsbestuur toegepas.

Met die kragtige werking van Sumimax® bly onkruid vir 'n lang periode weg. Dit hou 'n wye verskeidenheid breëblare, waaronder moeilike onkruid soos mielie crotalaria, smalweëblaar (tongblaar), kleinkakiebos, purperwinde, nagblom, dubbeltjie en sekere grasse, onder bedwang.

Ekonomiese opsie

Sumimax® WP word op die grond toegedien voor opkoms van die onkruid vir optimale onkruidbeheer. In boorde en wingerde kan dit met glifosaat volgens die aanwysings in 'n tenkmengsel op bestaande onkruid toegedien word. Hierdie strategie bied groot ekonomiese voordele omdat slegs een toediening gewoonlik voldoende beheer bied teen die maksimum dosis.

Talle voordele

Sumimax® WP spog met verskeie voordele:

- Bekostigbaar: met slegs een toediening bespaar jy geld, tyd en arbeid
- Beheer 'n wye spektrum onkruid
- Na toediening kan die produk vir 'n bepaalde periode bo-op die grond lê tot reënval of besproeiing die produk aktiveer
- Die produk kan nie tot in die wortelsone van die gewas loog nie
- Kan op jong, pas-gevestigde bome toegedien word mits boompies afgeskerm word (uitsluitend wingerd jonger as drie jaar)
- Geen residu op vrugte as dit volgens aanwysings gebruik word nie
- Werk doeltreffend in 'n wye verskeidenheid grondtipes
- Geen negatiewe invloed op grondgesondheid nie

Hoogs betroubaar

- Sumimax® WP is maklik om te gebruik, veilig vir jou gewasse, en bied betroubare onkruidbeheer in 'n wye verskeidenheid omstandighede. Met al hierdie voordele hoef jy nie verder te kyk nie.

Praat gerus met jou naaste Philagro-agent oor betroubare produkte wat werk.

LEES DIE ETIKET VOOR GEBRUIK

SUMIMAX® WP (Reg. Nr. L6358, Wet Nr. 36 van 1947) bevat Flumioksasin (N-fenilimid) (500 g/kg). WAARSKUWING: Vermoede dat dit die ongebore kind beskadig. Baie giftig vir waterlewendes met langdurige gevolge. Philagro SA (Edms) Bpk. (Reg. Nr. 1998/010658/07), Postnet Suite #378, Privaatsak X025, Lynnwoodrif, 0040. Tel: 012 348 8808. SUMIMAX® is 'n geregistreerde handelsmerk van die Sumitomo Chemical Company, Tokyo, Japan.

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1 Maand na toediening met Sumimax en glifosaat.

Kontrole.