



Managing citrus black spot during wet weather periods

Providence Moyo, Elma Carstens, Tankiso Mpholo* and Jan van Niekerk
 Citrus Research International (CRI); *Department of Agriculture, Land Reform and Rural Development

Wet weather conditions experienced in certain production areas of Limpopo, Mpumalanga, KZN and the Eastern Cape during the months of October and November 2021 were favourable for citrus black spot infection. As a risk mitigation measure, it is important to ensure that fruit were adequately protected during such wet conditions and that CBS spray programmes were diligently followed, as per the recommendations in the CBS Cutting Edge Number 329.

By the current time of the season, the first contact and follow-up systemic fungicide sprays (benomyl/carbendazim/strobilurin) should have been applied. In cases where a systemic fungicide was applied as a first spray, the follow up sprays should be applied shortly, and correct spray intervals should be upheld. The option of a 3rd strobilurin application in a season for CBS control is now available. Constrictor 250 EC (a.i. pyraclostrobin) is now registered to be applied 3 times during the season for CBS control. Please note that this is currently the only strobilurin product with such a registration. **Also note that *Alternaria alternata* that causes *Alternaria brown spot (ABS)* of mandarins has a high risk of developing strobilurin resistance, and therefore, exposure to strobilurin fungicides must not exceed two applications per season in orchards with ABS.**

The registered CBS programme with 3 Constrictor 250 EC applications is as follows:

80% petal fall	42 days later	42 days later	42 days later
Constrictor + Mancozeb (Mz)/Copper (Cu) + Mineral Oil	Constrictor + Mz/Cu + Mineral Oil	Constrictor + Mz/Cu + Mineral Oil	Mz/Cu

In the 2021 export season, 43 interceptions of CBS were reported by the European Union (EU). The ongoing EU interceptions are of utmost concern for the industry and failure to ensure compliance places the industry's continued access to this critical market in serious jeopardy. After detailed analysis and deliberation by the CBS RMS working group and DALRRD, additional measures to strengthen the CBS RMS for the 2022 citrus export season were announced by DALRRD at the Annual Citrus co-ordinating meeting held on 18 November 2021. These additional measures apply in particular to areas potentially exposed to early rain-related CBS infection risks. The additional measures are as follows:

- Based on CRI-PhytRisk analysis and any other relevant resource, DALRRD will identify production areas with high risk of infection due to early rain in September and early October, as well as high rainfall between December and January. The spray records of PUCs in such areas will be evaluated and any orchards with gaps in the spray records will not be allowed to register (or will be de-registered) for the EU.
- The date of 80% petal fall must be recorded and be available on request. This is important as this is the phenological stage from which fruit should be protected from CBS infection, as per Cutting Edge 329. Furthermore, recording of 80% petal fall per orchard is important, as this phenological stage can vary from orchard to orchard, or between seasons, as has been the case in some production areas last season and this season.

Important to note:

- In a wet season, it is strongly advised that growers stick to chemical fruit protection programmes that they know from experience give good results. In the event that spray applications cannot occur at the correct timing due to wet orchards, growers can consult Cutting Edge Number 329 for alternative options or consult the relevant CRI extension officers or



researchers, or their chemical representative.

- Always use an adjuvant with a systemic fungicide in a tank mixture as recommended on the product's label. DALRRD will scrutinize the records to determine whether the recommended adjuvant was used.
- Proper spray techniques and correctly calibrated, well-maintained spray machines must be used in the correct manner to ensure adequate fungicide deposition.
- Further CBS control measures recommended include proper pruning of trees to improve airflow, spray penetration and coverage, as well as inoculum management. Inoculum management practices to be followed include removal of leaf litter and out of season fruit from orchards.
- Remove diseased and declining trees from orchards because they are a source of inoculum.



Bestuur van Sitruswartvlek tydens nat weerstoestande

Providence Moyo, Elma Carstens, Tankiso Mpholo* en Jan van Niekerk
Citrus Research International (CRI); *Department van Landbou, Grondhervorming en Landelike Ontwikkeling

Gedurende Oktober en November 2021 is nat weerstoestande in sekere Limpopo, Mpumalanga en Oos-Kaap produksie-areas ondervind. Hierdie toestande is gunstig vir sitruswartvlek (SSV) infeksies. As 'n risikobestuursmaatreël is dit belangrik om te verseker dat vrugbeskerming voldoende was gedurende hierdie nat toestande en dat SSV spuitprogramme nougeset soos in SSV Snykant Nommer 329 aanbeveel, gevolg is.

Op hierdie stadium van die seisoen moes die eerste kontakswamdoder en opvolg sistemiese swamdoder (benomiël/karbendaziem/strobilurien) reeds toegedien wees. In gevalle waar 'n sistemiese swamdoder as die eerste bespuiting toegedien is, moet die opvolg bespuiting binnekort plaasvind. Die korrekte spuitintervalle moet toegepas word. Die opsie van 'n 3^{de} strobilurien toediening in 'n seisoen vir SSV bestuur is nou beskikbaar. Constrictor 250 EC (aktief: piraklostrobien) is nou geregistreer om 3 keer in 'n seisoen vir SSV beheer toegedien te word. Neem asseblief kennis dat hierdie tans die enigste strobilurien met hierdie registrasie is. **Onthou dat *Alternaria alternata*, wat *Alternaria Bruinvlek (ABV)* op mandaryne veroorsaak, 'n hoë risiko het om strobilurien weerstand te ontwikkel. In boorde met ABV moet strobilurien nie meer as 2 keer per seisoen toegedien word nie.**

Die geregistreerde SSV program met 3 Constrictor 250 EC toedienings, is as volg:

80% blomblaarval	42 dae later	42 dae later	42 dae later
Constrictor + (Ms)/Koper (Cu) + Minerale olie	Constrictor + Ms/Cu + Minerale Olie	Constrictor + Ms/Cu + Minerale Olie	Ms/Cu

In die 2021 uitvoerseisoen is 43 SSV onderskeppings deur die Europese Unie (EU) gerapporteer. Die voordurende EU onderskeppings is uiters kommerwekkend vir die industrie en gebrekkige toepassing van regulasies plaas die industrie se voortgesette toegang tot hierdie belangrike mark in groot gevaar. Na noukeurige analise en beraadslaging deur die SSV RBS (Sitruswartvlek risikobestuursisteem) werkgroep en DALRRD, is 'n besluit geneem om addisionele maatreëls vir die 2022 sitrusuitvoerseisoen in te stel ten einde die SSV RBS te versterk. Hierdie aankondiging is gemaak tydens die jaarlikse DALRRD Sitruskoördineringsvergadering wat op 18 November 2021 gehou is. Die addisionele maatreëls is veral van toepassing op areas wat potensieel blootgestel was aan vroeë reënverwante SSV infeksierisiko. Die addisionele maatreëls is as volg:

- Op grond van CRI-PhytRisk analise en enige ander relevante bron, sal DALRRD produksie areas met hoë infeksierisiko, agv vroeë reën in September en vroeg Oktober, asook hoë reënval tussen Desember en Januarie, identifiseer. Die spuitrekords van PUC's in sulke areas sal evalueer word en enige boorde met gapings in die spuurekords, sal nie toegelaat word om vir uitvoere na die EU te registreer (of sal gederegistreer word) nie.
- Die 80% blomblaarval datum moet aangeteken word en moet op versoek beskikbaar wees. Hierdie is 'n belangrike fenologiese stadium omdat vrugte van hierdie stadium af teen SSV-infeksie, volgens Snykant 329, beskerm moet wees. Verder is dit belangrik om die 80% blomblaarvaldatum per boord aan te teken omdat dit kan wissel tussen boorde en seisoene soos wat die geval in sekere produksieareas verlede seisoen en hierdie seisoen was.

Belangrik om van kennis te neem

- In 'n nat seisoen word dit ten sterkte aanbeveel dat produsente moet hou by chemiese vrugbeskermingsprogramme



wat hulle uit eie ondervinding weet goeie resultate gee. Indien spuitodienings nie met die korrekte intervalle toegedien kon word nie agv nat boorde, moet produsente Snykant 329 raadpleeg vir alternatiewe opsies of hulle kan die relevante CRI voorligtingsbeamptes of navorsers of chemiese verteenwoordiger raadpleeg.

- Gebruik altyd'n byvoegmiddel tesame met 'n sistemiese swamdoder in 'n tenkmengsel soos op die produk se etiket aanbeveel. DALRRD sal die rekords nagaan om te bepaal of die aanbevole byvoegmiddel gebruik is.
- Behoorlike bespuitingstegnieke en korrek gekalibreerde, goed instandgehoue spuitmasjiene moet op die korrekte wyse gebruik word om voldoende swamdoderdeposisie te verseker.
- Verdere SSV beheermaatreëls wat aanbeveel word is korrekte snoei van bome om lugvloei, spuitpenetrasie en bedekking te verbeter, tesame met inokulumbestuur. Inokulumbestuur sluit verwydering van blaarafval en buite seisoen vrugte uit boorde in.
- Verwyder siek en swak bome uit boorde omdat hulle 'n bron van inokulum is.