



Updated laboratory testing to exclude mealybug species of phytosanitary importance on fruit destined for the South Korean export market

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Continued access to the South Korean export market is under threat due to problematic levels of mealybug rejections.

There are seven mealybug species recognised as pests on citrus in South Africa including: *Planococcus citri* (Risso), Citrus mealybug; *Paracoccus burnerae* (Brain), Oleander mealybug; *Nipaecoccus viridis* (Newstead), Karoo thorn mealybug; *Delottococcus aberiae* (De Lotto); *Pseudococcus longispinus* (Targioni-Tozzetti), Longtailed mealybug; *Pseudococcus calceolariae* (Maskell), Citrophilous mealybug and *Ferrisia virgata* (Cockerell), Striped mealybug. Although not a pest on citrus, *Phenacoccus solenopsis*, Cotton mealybug, also periodically occurs on citrus. All mealybug species, apart from *P. citri*, are considered phytosanitary pests for South Korea.

A pre-export diagnostic procedure to identify *P. citri* has been reinstated to reduce the incidence of rejections. If the mealybug specimen is identified as *P. citri*, the find is non-actionable. A negative molecular analysis result on the test (i.e. a species other than *P. citri*) indicates the presence of a phytosanitary pest and the find is actionable (basis for rejection).

A standard operating procedure has been developed by CRI and DALRRD as a guide for visual screening and recognition of mealybug species, collection of samples for laboratory analysis and submission of samples to the laboratories. The following points are extracted to assist growers, packhouses and inspectors.

Visual screening

The scout or inspector (at the farm, packhouse or port) must first visually discern if the sample consists of one or more than one species of mealybug. If the latter, the specimens must be separated as different samples so that these can be tested separately. Mixture of species within a sample is unlikely but can occur. A mealybug identification chart and visual identification key are available from CRI to guide scouts and inspectors.

Sample collection

Materials needed for mealybug sampling

For orchard- vials (either 1.5ml, 2 ml or 5 ml in volume) containing 70-100% molecular grade ethanol will be required. For packhouse and port, a plastic bag and cling film will be required.

1. Orchard

One to five mealybugs from a single leaf/twig or fruit (a single infestation) must be placed in 1.5 ml / 2 ml or 5 ml vial with 70 - 100% molecular grade ethanol. The leaf/twig or calyx can be placed in the vial without removal of mealybugs. Specimens from different leaves/twigs or fruit must not be pooled. This is to avoid any contamination of a phytosanitary species with *P. citri*, which would incorrectly result in a non-actionable event.

2. Packhouse

If mealybugs are observed on a fruit, fruit should be placed in a plastic bag. If the calyx becomes detached, it should be wrapped in a piece of cling film and placed in the same bag as the fruit. Avoid placement of stickers to reposition calyx on fruit. Parasitised mealybug will be considered as dead mealybug.

3. Port

If mealybugs are observed on a fruit, fruit should be placed in a plastic bag. If the calyx becomes detached, it should be wrapped in a piece of cling film and placed in the same bag as the fruit. Avoid placement of stickers to reposition calyx on fruit. Parasitised mealybug will be considered as dead mealybug.



Shipment of samples to the participating diagnostic laboratories

1. Samples of mealybugs intercepted by PPECB in KZN, Eastern Cape and Western Cape and those intercepted by DALRRD inspectors at the Durban port facility will be forwarded to the DALRRD Plant Health Diagnostic Laboratory in Stellenbosch (Plant Quarantine Station, Polkadraai Road, Stellenbosch, 7600 – Attention: Clinton Joshua, Tel. 021 8091682).
2. Samples of mealybugs intercepted by PPECB in Mpumalanga and Limpopo areas will be forwarded to Citrus Research International (CRI) diagnostic laboratory situated in Nelspruit (CRI Diagnostic Centre, Citrus Research International, 2 Baker Street, Nelspruit, 1201 - Charmaine Olivier, Tel. 013 7598031).
3. Unofficial grower or packhouse samples should be sent to CRI Nelspruit (CRI Diagnostic Centre, Citrus Research International, 2 Baker Street, Nelspruit, 1201 - Charmaine Olivier, Tel. 013 7598031).
4. All samples submitted to CRI and received before 15:30 from Monday through to Thursday will have a turn-around time of 24 hours.
5. All samples submitted to DALRRD for molecular identification from Monday through to Thursday will have a turn-around time of 48 hours.
6. Samples of adult specimens submitted to DALRRD for morphological identification will be identified within 48 hours.
7. No samples will be accepted by the laboratories on Saturdays and Sundays.

Packaging

Vials should be enclosed with packaging material to prevent breakage, placed in box or packaging envelope and sent with an overnight courier or delivered by hand.

Sample information must be supplied in full as per diagnostic form requirements, including the following (a - e). Samples with incomplete information will not be processed.

- a. Details of sample origin (Orchard / Packhouse / Port)
- b. Contact person with telephone number and email address
- c. Orchard details
- d. PUC number
- e. Orchard number

Costs

Clients (PUC or packhouse or grower) will be invoiced according to the tariffs published in the Government Gazette (No 43016) for the PCR identification – R602 per sample for the first test plus R108 for every additional test. Furthermore, costs of tests for the occurrence of insects and the morphological identification will be R168 and R324 respectively.

For further assistance (including materials for sampling) contact Charmaine Olivier at the CRI Diagnostic Centre (013 7598031, crdc@cri.co.za), Wayne Mommsen for Northern region queries (0833219091, mommsenw@cri.co.za), MC Pretorius for Mpumalanga and KwaZulu-Natal queries (0823389853, mc@cri.co.za), Andre Combrink (0832297969, ac@cri.co.za) for Eastern Cape queries, Coenraad Fraenkel (0799134755, coenraadf@cri.co.za) for Western Cape queries and Nolan Africander (0663416820, NolanA@Dalrrd.gov.za) (DALRRD) for DALRRD queries.



Laboratoriumtoetsing vir witluisspesies van fitosanitêre belang op vrugte wat vir die Suid-Koreaanse uitvoermark bestem is

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Voortgesette toegang na die Suid-Koreaanse uitvoermark word bedreig as gevolg van problematiese vlakke van witluis-onderskeppings op vrugte.

Daar is sewe witluisspesies in Suid-Afrika wat as plaë van sitrus beskou word, insluitend: *Planococcus citri* (Risso), Sitrus witluis; *Paracoccus burnerae* (Brain), Oleander witluis; *Nipaecoccus viridis* (Newstead), Karoo-doring witluis; *Delottococcus aberiae* (De Lotto); *Pseudococcus longispinus* (Targioni-Tozzetti), Langstert witluis; *Pseudococcus calceolariae* (Maskell) Citrophilous witluis en *Ferrisia virgata* (Cockerell), Gestreepte witluis. Alhoewel dit nie 'n plaag van sitrus is nie, kom *Phenacoccus solenopsis*, Katoen witluis, ook van tyd tot tyd op sitrus voor. Alle witluisspesies, behalwe *P. citri*, word as plaë van fitosanitêre belang vir Suid-Korea beskou.

'n Voor-uitvoer diagnoseprosedure om *P. citri* te identifiseer, is weer ingestel om die voorkoms van onnodige afkeurings te verminder. As die witluis monster as *P. citri* geïdentifiseer word, is daar geen aksie nie. 'n Negatiewe resultaat van die toets (dit wil sê 'n ander spesie as *P. citri*) dui op die aanwesigheid van 'n fitosanitêre plaag en dan sal daar 'n aksie wees (basis vir afkeuring).

'n Standaard operasionele prosedure is deur CRI en DALRRD ontwikkel as 'n riglyn vir visuele sifting en herkenning van witluisspesies, versameling van monsters vir laboratorium-analise, en indiening van monsters aan die laboratoriums. Die volgende punte word uitgelig om produsente, pakhuis en inspekteurs te ondersteun.

Visuele sifting

Die verkenner ("scout") of inspekteur (op plaas, by pakhuis of hawe) moet eers visueel bepaal of die monster uit een of meer as een witluisspesie bestaan. Indien laasgenoemde, moet die verskillende witluise as verskillende monsters geskei word sodat dit apart getoets kan word. Mengsel van spesies binne 'n monster is onwaarskynlik, maar kan wel voorkom. 'n Kaart vir witluise-identifikasie en 'n visuele identifikasie-sleutel sal beskikbaar wees om verkenners en inspekteurs te ondersteun en sal in 'n aparte Snykant gekommunikeer word.

Versameling van monsters

Materiaal benodig vir die neem van witluismonsters

Botteltjies/flessies wat 70-100% molekulêre graad etanol bevat. Botteltjies/flessies van óf 1.5 ml, 2 ml óf 5 ml, afhangend van die monstermateriaal.

1. Boord

Een tot vyf witluise vanaf 'n enkele blaar / takkie of vrug ('n enkele besmetting) moet in 'n 1.5 ml / 2 ml of 5 ml botteltjie/flessie met 70 - 100% molekulêre graad etanol geplaas word. Die blaar / takkie of vrugkelk kan in die botteltjie/ flessie geplaas word sonder om witluise te verwyder. **Monsters van verskillende blare / takkies of vrugte mag nie saamgevoeg word nie.** Dit is om enige besmetting van 'n fitosanitêre spesie met *P. citri* te vermy, wat verkeerdelik tot 'n nie-aksie optrede sal lei.

2. Pakhuis

As lewendige witluise op 'n vrug waargeneem word, moet dit in 'n plastieksakkie gesit word. Indien die vrugkelk los kom, moet dit in 'n stukkie kleefilm gevou word, en in dieselfde sakkie as die vrug gesit word. Vermy die plasing van plakkers om die kelk op die vrug vas te sit. Gearasiteerde witluise sal as dooie witluise beskou word.

3. Hawe

Indien witluise op 'n vrug waargeneem word, moet die vrug in 'n plastieksakkie gesit word. Indien die vrugkelk los kom, moet dit in 'n stukkie kleefilm gevou word, en in dieselfde



sakkie as die vrug gesit word. Vermoed die plasing van plakkers om die kelk op die vrug vas te sit. Gearasiteerde witluise sal as dooie witluise beskou word.

Versending van monsters na die deelnemende diagnostiese laboratoriums

1. Monsters van witluise wat deur PPECB in KZN, Oos-Kaap en Wes-Kaap onderskep word en deur DALRRD-inspekteurs by die Durban hawe onderskep word, moet aan die DALRRD Plantgesondheid se Diagnostiese Laboratorium in Stellenbosch gestuur word (Plantkwarantynstasie, Polkadraaiweg, Stellenbosch, 7600 - Aandag: Clinton Joshua, Tel. 021 8091682).
2. Monsters van witluise wat deur PPECB in Mpumalanga- en Limpopo-areas onderskep word, moet aan die Diagnostiese Laboratorium van Citrus Research International (CRI) in Nelspruit gestuur word (CRI Diagnostiese Sentrum, Citrus Research International, Baker Straat 2, Nelspruit, 1201 – Charmaine Olivier, Tel. 013 7598031).
3. Nie-amptelike produsent- of pakhuismonsters moet aan CRI Nelspruit gestuur word (CRI Diagnostiese Sentrum, Citrus Research International, Baker Straat 2, Nelspruit, 1201 – Charmaine Olivier, Tel. 013 7598031).
4. Alle monsters wat van Maandag tot Donderdag voor 15:30 by CRI ingedien word, sal 'n omkeertyd van 24 uur hê.
5. Alle monsters wat by DALRRD vir molekulêre identifikasie van Maandag tot Donderdag ingedien word, sal 'n omkeertyd van 48 uur hê.
6. Volwasse monsters wat by DALRRD vir morfologiese identifikasie ingedien word sal binne 48 uur geïdentifiseer word.
7. Geen monsters word op Saterdag en Sondag deur die laboratoriums aanvaar nie.

Verpakking

Botteltjies/flessies moet met verpakkingsmateriaal toegedraai word om te voorkom dat dit breek, in 'n boks of verpakkingskoevert geplaas, en met 'n

oornag-koerier gestuur word of per hand afgelewer word.

Monster-inligting moet volledig volgens die diagnostiese vorm se vereistes verskaf word, insluitend die volgende (a-e). Monsters met onvolledige inligting sal nie verwerk word nie.

- a. Besonderhede van die oorsprong van die monster (Boord / Pakhuis/ Hawe)
- b. Kontakpersoon met telefoonnommer en e-posadres
- c. Boordbesonderhede
- d. PUC-nommer
- e. Boordnommer

Kostes

Kliënte (PUC of pakhuis of produsent) word gefaktureer volgens die tariewe wat in die Staatskoerant (nr. 43016) vir die PKR-identifikasie gepubliseer is – R602 per monster vir die eerste toets plus R108 vir elke addisionele toets. Verder is die toetse vir die voorkoms van insekte en die morfologiese identifikasie onderskeidelik R168 en R324.

Vir verdere ondersteuning (insluitend materiaal vir monsterneming) kontak Charmaine Olivier by die CRI Diagnostiese Sentrum (013 7598031, cridc@cri.co.za), Wayne Mommsen vir die Noordelike areas se navrae (0833219091, mommsenw@cri.co.za), MC Pretorius vir Mpumalanga en KwaZulu-Natal se navrae (0823389853, mc@cri.co.za), Andre Combrink (0832297969, ac@cri.co.za) vir Oos-Kaap se navrae, Coenraad Fraenkel (0799134755, coenraadf@cri.co.za) vir Wes-Kaap se navrae, en Nolan Africander (0663416820, NolanA@Dalrrd.gov.za) (DALRRD) vir DALRRD se navrae.