



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 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 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 colour chart and visual identification key will be available to guide scouts and inspectors and will be communicated in a separate Cutting Edge.

Sample collection

Materials needed for mealybug sampling

Vials containing 70-100% ethanol. Either 1.5 ml, 2 ml or 5 ml volumes depending on sample material.

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% 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, the calyx with mealybugs from a single fruit or mealybugs from a single fruit should be removed and placed in a vial with 70-100% ethanol. If mealybugs are observed on more than one fruit, mealybug specimens from different fruit must be placed in separate vials.
3. Port
If mealybugs are observed on a fruit, the calyx with mealybugs from a single fruit or mealybugs from a single fruit should be removed and placed in a vial with 70-100% ethanol. If mealybugs are observed on more than one fruit, mealybug specimens from different fruit must be placed in separate vials.

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 - Attention: Elaine Basson, 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 - Attention: Elaine Basson, Tel. 013-7598031).
4. All samples submitted to CRI and received before 15:30 pm from Monday through to Thursday will have a turn-around time of 24 hours.
5. All samples submitted to DALRRD for molecular identification received before 15:30 pm from Monday through to Thursday will have a turn-around time of 24 hours.
6. Samples of adult specimens submitted to DALRRD for morphological identification and received by 10:00, Monday through to Friday, will be identified before end of business.
7. No samples will be accepted by the laboratories on Saturdays and Sundays

- 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 - R526 per sample for the first test plus R94 for every additional test. Furthermore, costs of tests for the occurrence of insects and the morphological identification will be R147 and R284 respectively.

For further assistance (including materials for sampling) contact Elaine Basson at the CRI Diagnostic Centre (013-7598031, elaine@cri.co.za), Wayne Mommsen for Northern region queries (083 321 9091, mommsenw@cri.co.za), MC Pretorius for Mpumalanga and KwaZulu-Natal queries (082 338 9853, mc @cri.co.za), Wayne Kirkman (084 458 0349, waynek@cri.co.za) for Eastern Cape queries and Welma Pieterse (021 809 1644, welmap@dalrrd.gov.za) (DALRRD) for Western Cape queries.

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)



Laboratorium toetsing 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 was as
peste 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
pes van sitrus is nie, kom *Phenacoccus solenopsis*,
katoen witluis, ook van tyd tot tyd op sitrus voor.
Alle witluisspesies, behalwe *P. citri*, word as peste
van fitosanitêre belang vir Suid-Korea beskou.

'n Voor-uitvoer diagnose prosedure om *P. citri* te
identifiseer, is weer ingestel om die voorkoms van
onnodige afkeurings te verminder. As die witluis
eksemplaar 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 pes 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 witluis as verskillende monsters
geskei word sodat dit apart getoets kan word.
Mengsel van spesies binne 'n monster is
onwaarskynlik, maar kan wel voorkom. 'n
Kleurkaart vir witluis-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 witluis monsters

Botteltjies/flessies wat 70-100% etanol bevat.
Botteltjies/flessies van of 1.5 ml, 2 ml of 5 ml,
afhangelend van die monster-materiaal.

1. Boord
Een tot vyf witluis 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% etanol geplaas word. Die blaar / takkie of
vrugkelk kan in die botteltjie/ flessie geplaas
word sonder om witluis 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 witluis op 'n vrug waargeneem word, moet
die vrugkelk met witluis van 'n enkele vrug of
witluis van 'n enkele vrug verwyder word en in
'n botteltjie/flessie met 70-100% etanol geplaas
word. **As witluis op meer as een vrug
waargeneem word, moet witluis-monsters
van verskillende vrugte in aparte
botteltjies/flessies geplaas word.**
3. Hawe
As witluis op 'n vrug waargeneem word, moet
die kelk met witluis van 'n enkele vrug of
witluis van 'n enkele vrug verwyder word en in
'n botteltjie/flessie met 70-100% etanol geplaas
word. **As witluis op meer as een vrug
waargeneem word, moet witluis-monsters**



**van verskillende vrugte in aparte botteltjies/
flessies geplaas 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 - Aandag: Elaine Basson, 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 - Aandag: Elaine Basson, Tel. 013-7598031).
4. Alle monsters wat van Maandag tot Donderdag voor 15:30 by die 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 24 uur hê.
6. Monsters van volwasse eksemplare wat by DALRRD vir morfologiese identifikasie ingedien word en voor 10:00, Maandag tot Vrydag ontvang word, sal voor die einde van die dag 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 gefaktoreer volgens die tariewe wat in die Staatskoerant (nr. 43016) vir die PKR-identifikasie gepubliseer is - R526 per monster vir die eerste toets plus R94 vir elke addisionele toets. Verder is die toets vir die voorkoms van insekte en die morfologiese identifikasie onderskeidelik R147 en R284.

Vir verdere ondersteuning (insluitend materiaal vir monsterneming) kontak Elaine Basson by die CRI Diagnostiese Sentrum (013-7598031, elaineb@cri.co.za), Wayne Mommsen vir die Noordelike areas se navrae (083 321 9091, mommsenw@cri.co.za), MC Pretorius vir Mpumalanga en KwaZulu-Natal se navrae (082 338 9853, mc@cri.co.za), Wayne Kirkman (084 458 0349, waynek@cri.co.za) vir Oos-Kaap se navrae en Welma Pieterse (021 809 1644, welmap@dalrrd.gov.za) (DALRRD) vir Wes-Kaap navrae.