

Current postharvest disease management research topics

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Postharvest Workshop 2026

Citriculture

Pre-harvest
production & quality

Rind condition &
cold chain

Integrated Pest Management

False codling moth

Fruit fly

Other pests

Disease Management

Diagnostic centre

Pre-harvest diseases

Graft transmissible
diseases

Postharvest diseases

HLB research
programme

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PREHARVEST

1575: Dust Abatement in Citrus Production & Disease Management
W. du Plooy, L. Mamba (CRI)

1566: Interaction of Pre- & Postharvest Products for sour rot & brown rot control M. van Dyk, J. van Niekerk, H. Kellerman (CRI, SU)

123: Industry Service: Evaluation of Packhouse Treatments & Fungicide Resistance W. du Plooy, M. van Dyk (CRI)

Sanitation

1409: UV-C & Defence Activators for *Phytophthora* Brown Rot
J. van Niekerk, L. Rose (CRI, SU)

1492: Alternative Sanitisers for Wet Dumps & Packline Impact M. van Dyk (CRI)

'Fungicide' treatment

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1592: Chitosan as a Postharvest Remedy & Residue-Reduction Tool
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Wax/coating

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1573: Low-Cost Treatment Technologies for Packhouse Wastewater A. Bosman (SU)

Export conditions

1326: Saprophytic Stem-End Growth: Causes & Species
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1488: Late Mandarin Decay in Cold Sterilisation Export Markets J. van Niekerk (CRI, SU)

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1575: Dust Abatement in Citrus Production & Postharvest Disease Management

- Develop methods to **measure dust levels**
- Determine the **fungal & microbial diversity** carried in dust
- Determine its effect on **fruit defects & rind disorders**
- Assess its influence on **fungicide performance**

1566: Interaction of Pre- & Postharvest Products for sour rot & brown rot control

- **Pre-harvest:**
 - Preharvest **sanitation sprays** for sour rot control
 - **Brown rot control spray programme**
- **Postharvest:**
 - **Potassium sorbate & clove oil** application in conventional pre-packhouse drenches
- **Overall:** study disease control & response of rinds

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Sanitation

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- ✓ UV-C shows potential as a postharvest treatment for brown rot
- ✓ Lemons respond better than oranges (curative control up to 24 h)

1492: Alternative Sanitisers for Wet Dumps & Packline Impact M. van Dyk (CRI)

Ongoing: *alternative sanitisers screened for use in wet dump systems. Downstream impacts and overall fruit quality will be evaluated*

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#1421 is a follow-up of #1352

Postharvest Workshop 2026:
Sour Rot & Brown Rot Management
(H. Kellerman)

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Postharvest Workshop 2026: Low-chem, No-chem, & Organic Pack-lines (M. van Dyk)

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New: Use antagonistic yeasts as biocontrol agents against postharvest fungal pathogens of citrus

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New: Efficacy of chitosan in packhouse sanitation systems – suppression of stem-end mould – synergy with fungicides under lower MRL constraints – its role in **chem-free or organic** export programs

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Ongoing: current recommendation:

- ✓ Thoroughly dry fruit before waxing & packing
- ✓ Strict cold-chain maintenance
- ✓ Optimal fungicide application & coverage

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- ✓ Sooty spot-like symptoms on mandarins shipped to the USA appear associated with: ***Alternaria***, ***Colletotrichum***, and surface ***Cladosporium***
- ✓ Cold-stress shipping conditions likely play a role

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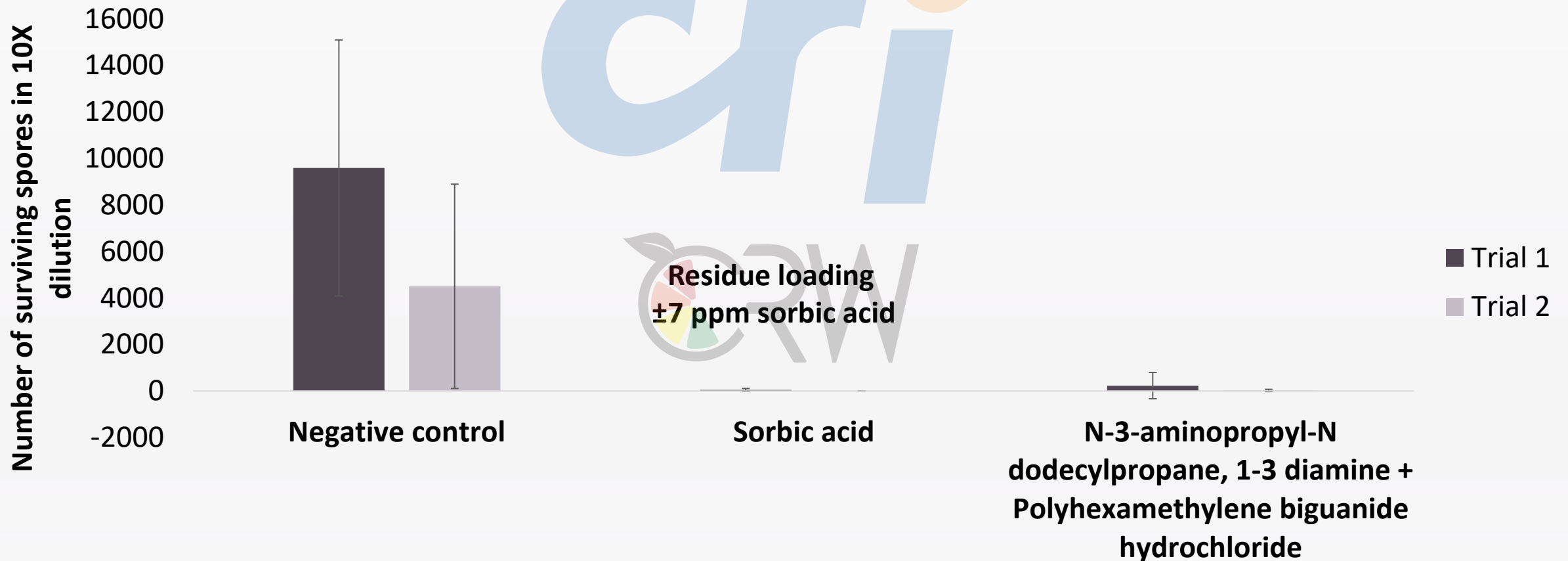
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INDUSTRY SERVICE: Evaluation of Packhouse Treatments & Fungicide Resistance (#123) – W. du Plooy, M. van Dyk

TREATMENT	AVERAGE NUMBER OF <i>PENICILLIUM DIGITATUM</i> SPORES SURVIVING SURFACE SANITATION
Ethanol (70%)	0.83 ± 2.04 a
Hydrogen peroxide (0.08%) + Acetic acid (0.04%)	2.50 ± 2.74 a
Hydrogen peroxide (0.23%) + Peracetic acid (0.14%)	3.33 ± 4.08 a
Hypochlorous acid (0.003-0.005%)	12.50 ± 26.03 a
Organic product (0.3%)	67.50 ± 85.66 a (will be repeated at 1.0%)
Silver-hydrogen peroxide (1.5%)	0.00 ± 0.00 a
Sodium percarbonate (0.9%)	0.00 ± 0.00 a
Untreated	8225.00 ± 2747.86 b

INDUSTRY SERVICE: Evaluation of Packhouse Treatments & Fungicide Resistance (#123) – W. du Plooy, M. van Dyk

PENICILLIUM DIGITATUM: spore survival after smoke & fog treatment



Key Take-Home Message

- CRI's postharvest disease management research is aligned with future export requirements, particularly in EU & UK markets
- Research outcomes aim to provide practical, packhouse-ready guidance that can be implemented across diverse production systems