



THE ROLE OF NURSERIES IN PRESERVING CITRUS BIOSECURITY IN SOUTHERN AFRICA

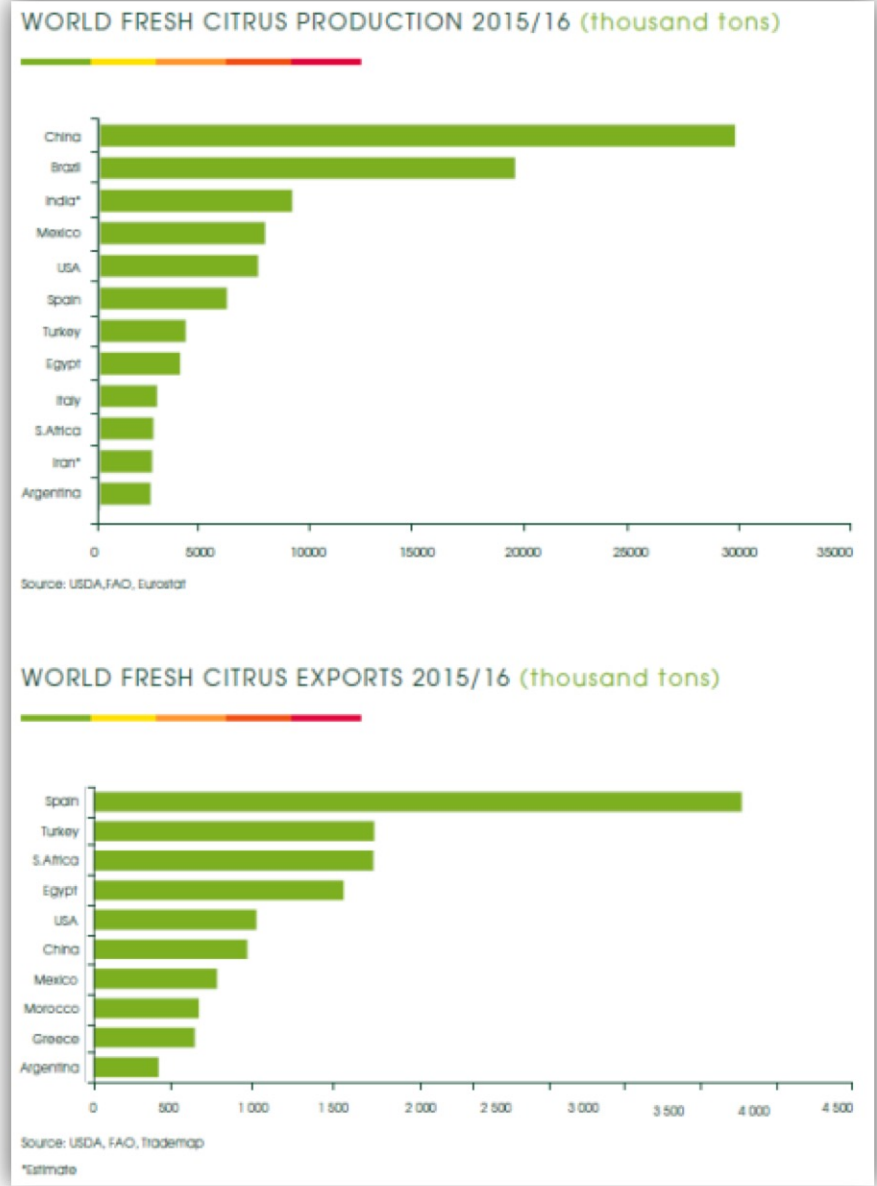
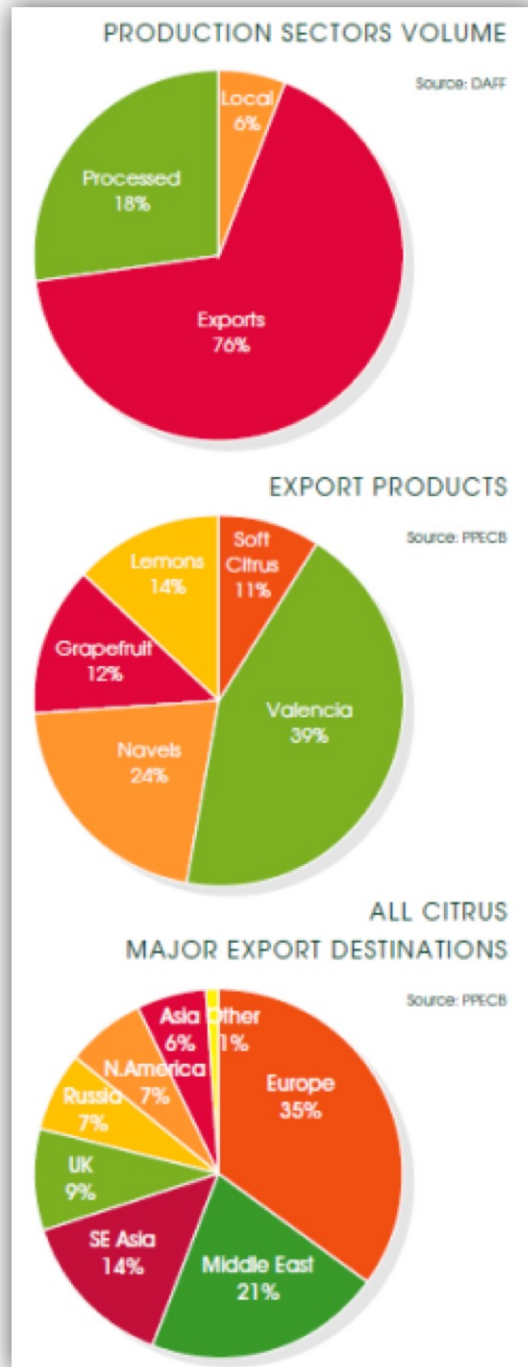
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SA Citrus Industry Statistics



SA Citrus Market Distribution



What does the future hold?

🍊 Biggest biosecurity threat = Huanglongbing

🍊 Most destructive disease of citrus!

- Present in China, Brazil, Argentina, USA, ..., Ethiopia, Mauritius and Reunion
- Not in sub-Saharan Africa

🍊 ***“Where HLB moves in, Citrus moves out”***



Huanglongbing

- 🍊 *Liberibacter asiaticus*
- 🍊 *Liberibacter americanus*
- 🍊 Vector: *Diaphorina citri*
- 🍊 Citrus and related species
 - E.g. Murraya/Curry plant
- 🍊 Much much MUCH more aggressive than African Greening
 - Tolerate higher temperatures
- 🍊 No curative control measure
- 🍊 Only preventative control options
 1. *Spreads with infected planting material*
 - Plant certified disease-free trees!!!
 2. Vector must be controlled all year round – extremely difficult
 3. Destroy infected trees



HLB, the “Yellow Dragon”









HLB infection in new orchards



HLB infection in new orchards



Neglected orchards



HLB impact on USA Florida (2006-2015)

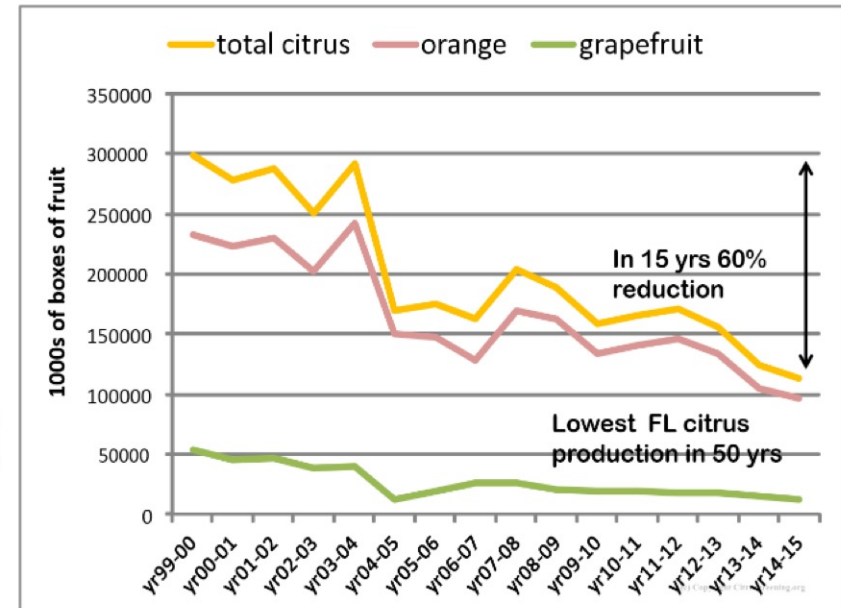
- 15 million trees lost
- > 8 800 jobs lost
- 100% of orchards infected
- 120 000 ha orchards neglected

- 15 out of 20 juice plants closed (comparable to South Africa closing 240 packhouses!)

- U\$4,6 billion lost from 2006-2013

- Production decreased from 225 million 40-lb boxes to <90 million

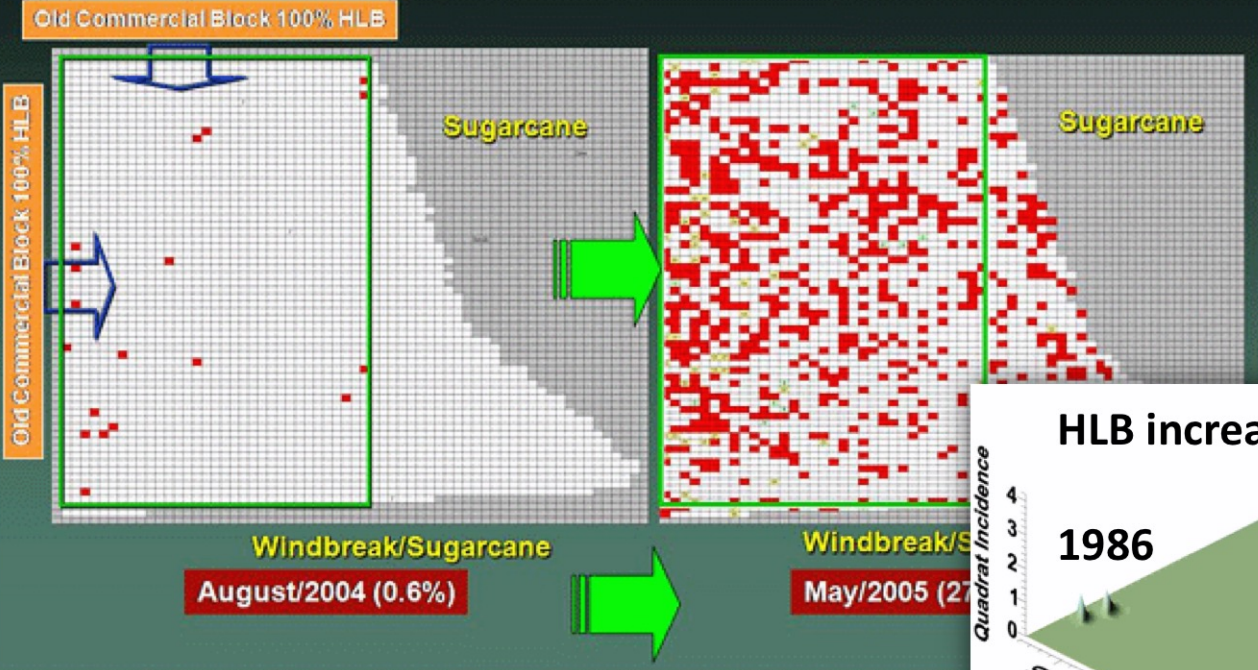
- Millions of dollars spent on research, *but no cure yet...*



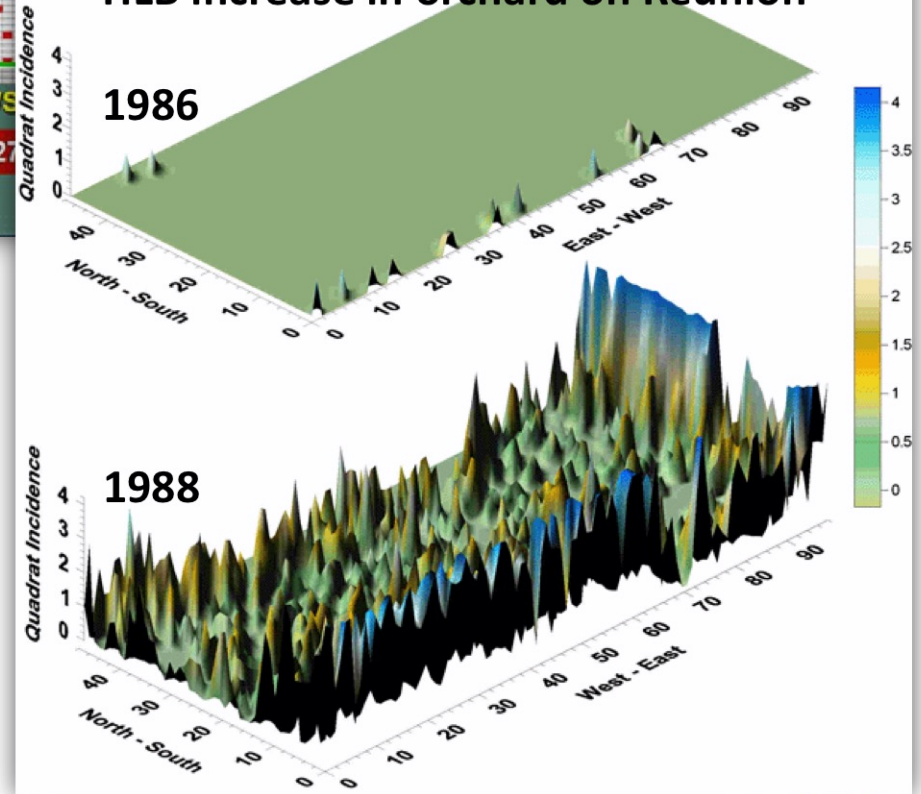
<https://citrusgreening.org/disease/impact>

HLB Rapid Dissemination (9 to 10 months)

Hamlin/Rangpur Lime (planted in 2002)



HLB increase in orchard on Reunion



Gottwald et al. 2007

www.plantmanagementnetwork.org/pub/php/review/2007/ Huanglongbing

HLB - Alternative hosts

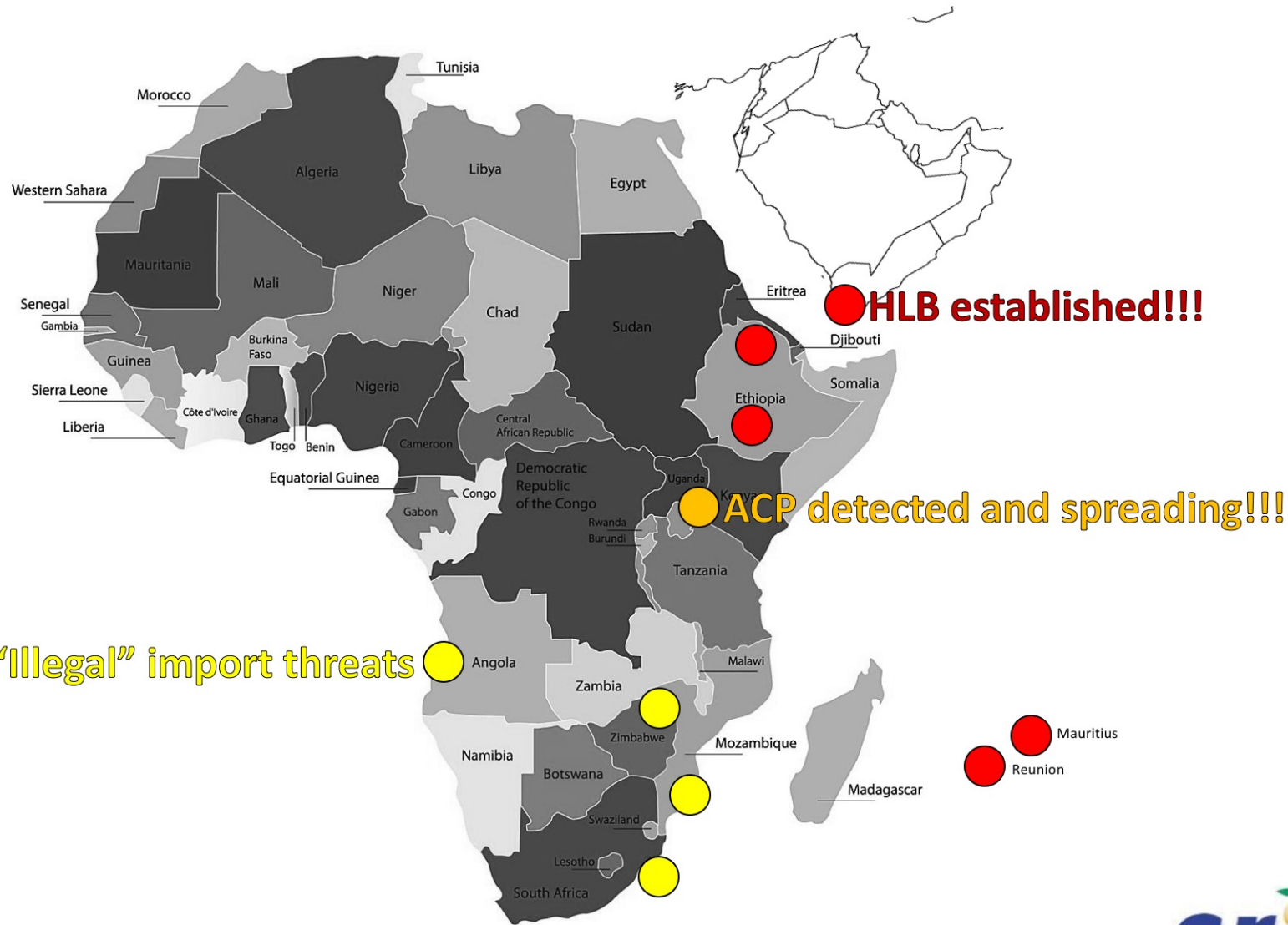
Liberibacter spp.

- *Citrus* and related species
- *Berbera koenigii*
- *Murraya* spp.

Diaphorina citri

- Rutaceae
- Preferred hosts
 - *Citrus* and related species
 - *Berbera koenigii*
 - *Murraya* spp.

HLB threats to southern Africa



African Greening vector, *Trioza erytreae*

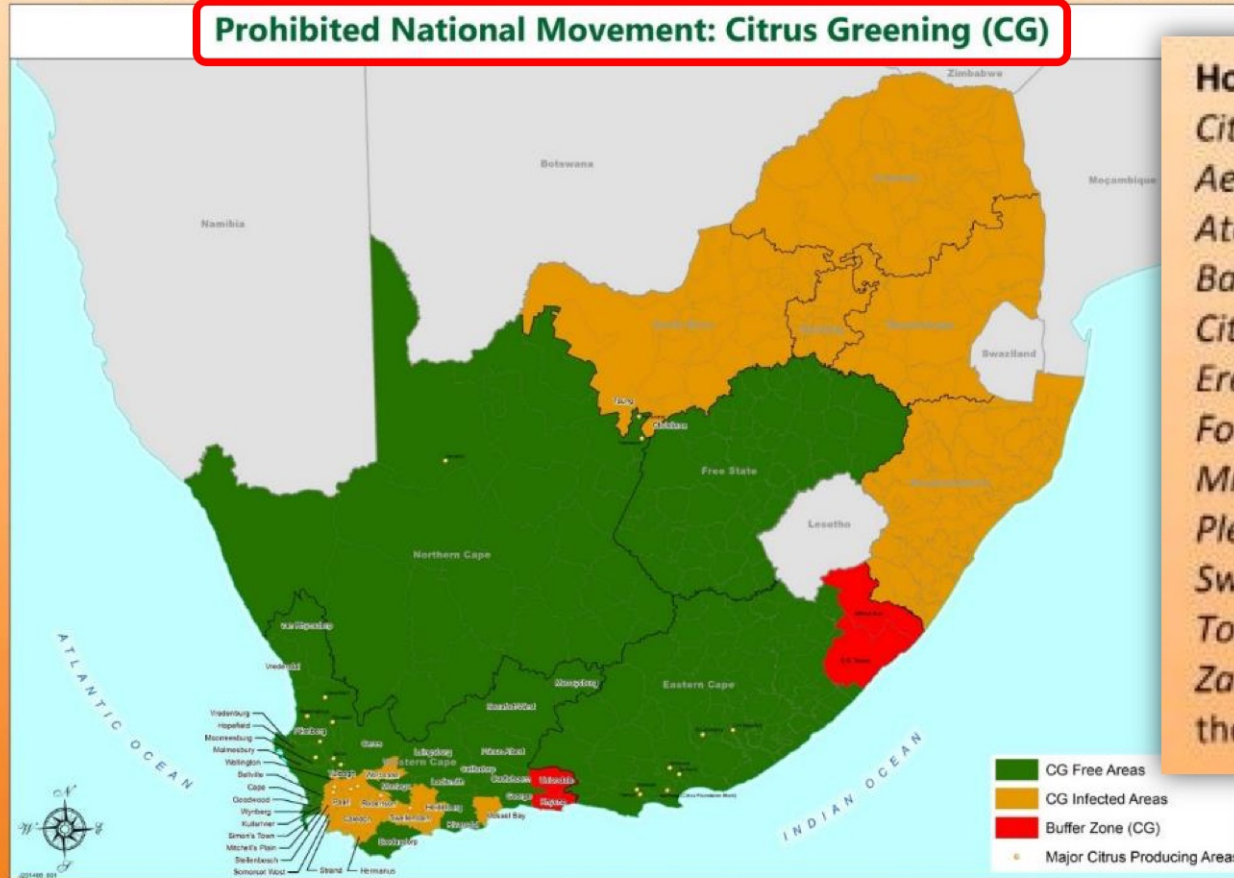


Regulated movement of Citrus

ARE YOU MOVING CITRUS AND/OR RELATED PLANTS?

In terms of Agricultural Pests Act, 1983 (Act No. 36 of 1983), movement of citrus and/or related plant propagation material is prohibited from one area to another within the Republic of South Africa, unless the movement is authorised by the means of a permit, or the material is certified as pest free.

Prohibited National Movement: Citrus Greening (CG)



Host plants for Citrus Greening

Host plants for Citrus Greening
Citrus and species of the genera *Aegle*, *Aeglopsis*, *Afraegle*, *Atalantia*, (*Severinia* synonymous), *Balsamocitrus*, *Calodendrum*, *Citropsis*, *Clausena*, *Cuscuta*, *Eremocitrus*, *Fagaropsis*, *Feronia*, *Fortunella*, *Hesperethusa*, *Limonia*, *Microcitrus*, *Murraya*, *Orcia*, *Pleiospermium*, *Poncirus*, *Swinglea*, *Teclea*, *Toddalia*, *Toddaliopsus*, *Triphasia*, *Vepris*, *Zanthoxyzylum* and any cross thereof.

- CG Free Areas
- CG Infected Areas
- Buffer Zone (CG)
- Major Citrus Producing Areas

For further information please contact:

Directorate Plant Health, Private Bag X14, Gezina 0031 • Tel: +27 12 319 6164/6116



Other feared exotic diseases

Citrus Leprosis virus



Other feared exotic diseases

Citrus Canker



Other feared exotic diseases

Citrus Variegated Chlorosis



Other feared exotic diseases

Citrus Sudden Death





“Prevention is better than cure”

 **Plant certified disease-free trees**

Thank you

Paul Fourie - Email: phf@cri.co.za

