



# **Traceability for the kiwifruit industry**

## **Matt Dyck**

### **2 August 2018**

# *Incursions are not detected on day 1*



The New York Times

EUROPE

## *Fear of Ruin as Disease Takes Hold of Italy's Olive Trees*

By JIM YARDLEY MAY 11, 2015



# Spread of Brazilian Wilt

## Genetic variability suggests that three populations of *Ceratocystis fimbriata* are responsible for the Ceratocystis wilt epidemic on kiwifruit in Brazil

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Brazil. The kiwifruit epidemic in Rio Grande do Sul is the southern-most report of *C. fimbriata* in Brazil, and the primary pathogen population on kiwifruit appears to be indigenous and originated from a single farm that distributed the pathogen in grafting material. In addition, commercial nursery stock was also implicated as sources of *C. fimbriata* genotypes. The disease is a major limiting factor for kiwifruit production in southern Brazil, and

Unfortunately, many of the local farmers had obtained planting stock from this farm before Ceratocystis wilt was recognized. Typical of epidemics of Ceratocystis wilt on other crops

Greater care needs to be taken in dispersing *C. fimbriata* in symptomless propagation material (Ferreira et al. 2011; Harrington 2013, 2014; Oliveira et al. 2015).

Clade of the *C. fimbriata* complex are soilborne pathogens but can be readily introduced to new areas on contaminated tools and infected propagative material (Baker et al. 2003; CAB





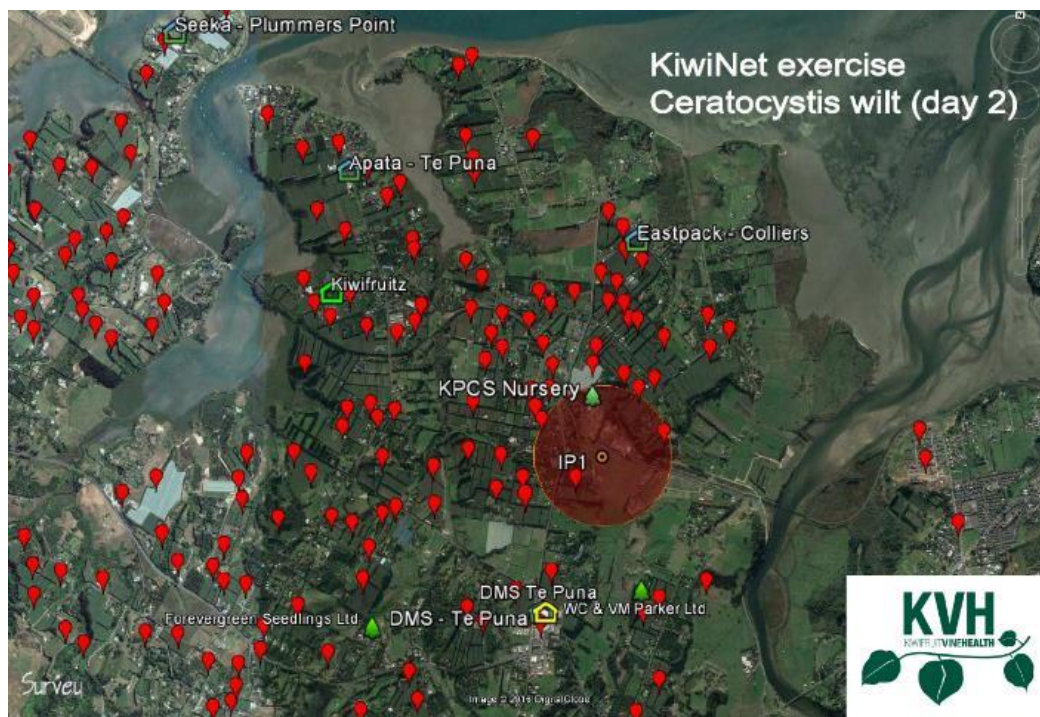


## KiwiNet Dec 2016 Brazilian Wilt Scenario – Day 2

- Day 2 of a response
- 3 collapsing vines on 4 ha HW orchard
- Nursery adjacent to infected property
- Tracing and surveillance activities underway

### By Day 10

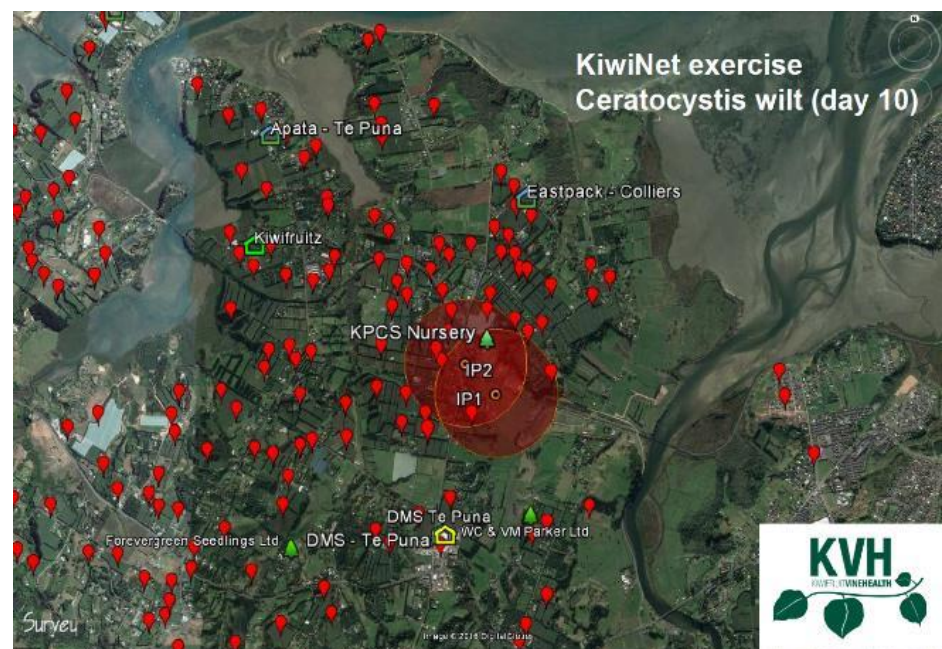
- 2nd IP reported
- 22 other properties non-detected
- Tracing suggests Brazilian backpackers may have introduced it during summer pruning



# Key messages



- Symptoms not detected on day 1 (lag time could be years)
- On-orchard biosecurity critical as routine practice, must address soil movements not just Psa
- **If pathogen is relatively contained at time of detection then eradication may be possible – requires being able to trace plant movements!**



**Internal Pathways** – that may spread pests and pathogens and should be addressed through on-orchard biosecurity practices

**Red** = high risk pathway for internal spread

**Orange** = moderate risk

**Yellow** = low risk

Internal Pathways	Wind-borne pathogens (i.e. <i>Psa</i> , <i>Pectobacterium</i> , <i>Verticillium</i> )	Soil-borne pathogens (i.e. <i>C. fimbriata</i> , <i>Phytophthora</i> )	Viruses (PZSV, CLRV)	Invertebrates – low mobility (i.e. nematodes, WPS)	Invertebrates – high mobility (i.e. fruit flies, SWD, BMSB)
Rootstock	Red	Red	Red	Red	Orange
Budwood	Red	Red	Red	Orange	Orange
Pollen	Red	Red	Red	Yellow	Yellow
Tools	Red	Red	Red	Orange	Yellow
Air/ wind	Red	Orange	Orange	Yellow	Red
Compost/ organic fertiliser	Orange	Red	Orange	Orange	Yellow
Contractors	Orange	Red	Orange	Orange	Orange
Orchard visitors	Orange	Red	Orange	Orange	Orange
Machinery	Orange	Red	Orange	Orange	Orange
Vehicles	Yellow	Red	Yellow	Yellow	Orange
Bees & hives	Orange	Orange	Orange	Yellow	Yellow
Insect vectors	Orange	Orange	Orange	Yellow	Yellow
Water	Orange	Orange	Yellow	Yellow	Yellow
Bins	Orange	Orange	Yellow	Yellow	Yellow
Fruit	Orange	Orange	Yellow	Yellow	Yellow

# What should traceability look like?

## YOUR LIVELIHOOD IS AT CONSTANT RISK

### KIWIFRUIT BIOSECURITY THREATS COULD AFFECT:

- ORCHARD GATE RETURN
- JOBS
- COMMUNITY

THE NEXT  
BIG THREAT  
COULD BE HERE,  
UNDETECTED AND  
SPREADING.

IT MIGHT ALREADY  
BE ON **YOUR**  
DOORSTEP.

YOU HAVE  
THE POWER TO  
**PROTECT YOUR  
LIVELIHOOD.**

### PROTECT YOUR INVESTMENT



#### UNDERSTAND YOUR RISKS

- What pests and diseases could arrive from offshore?
- What is happening in my local area?
- How might these enter my orchard? (Who and what enters my orchard that might bring these in?)



#### AGREE WHAT MUST HAPPEN ON SITE

- Share knowledge with staff and contractors.
- Agree requirements and ensure that they are met.



#### SOURCE CLEAN PLANT MATERIAL

- Rootstock, budwood, pollen, shelter and compost.
- Kiwifruit Plant Certification Scheme (KPCS) certification is mandatory for sourcing rootstock.



#### CHECK AND CLEAN

- Consider the risk from: tools, vehicles and machinery, harvest bins, people, clothing.
- Ensure everything coming across your boundary is free from soil and plant material.
- Sanitise highest-risk items.
- Clean tools at least between rows.

### REPORT THE UNUSUAL



CATCH IT



SNAP IT



REPORT IT

CALL KVH 0800 665 825



