Reporting the unusual: What does this mean?

Linda Peacock and Erin Lane- KVH

Why report the “unusual”?

- Unusual is anything without an obvious explanation, or even a change in what was previously considered “normal”
- General surveillance is important to facilitate early detection. This is one of the biggest predictors of eradication success.
- Reporting of unusual symptoms gives industry the best chance of identifying things that are “new” or emerging
    - possibly organisms new to NZ science
    - new associations of organisms with kiwifruit
    - organisms already present but risk profile appears to be changing

The process

1. KVH receives the unusual symptom report

2. KVH investigates

KVH follows up with grower to gather information on unusual symptoms where/what/when

3. Determine next steps

4. Arrange sample collection and submit samples

5. KVH receives diagnostic report

Is it a New to NZ or a new kiwifruit association?

No

5a. KVH will circle back to the grower

Yes

6. MPI investigates

7a. MPI/KVH may decide to respond under GIA

7b. Investigation completed and KVH circles back to the grower




Summary of 2020 reports

37 reports through to KVH

- 17 pathogen related
- 10 pest/insect
- 2 nutritional
- 5 "other"- i.e. associated to frost damage, girdling damage
- Jury is still out on a few recent reports…

On what?

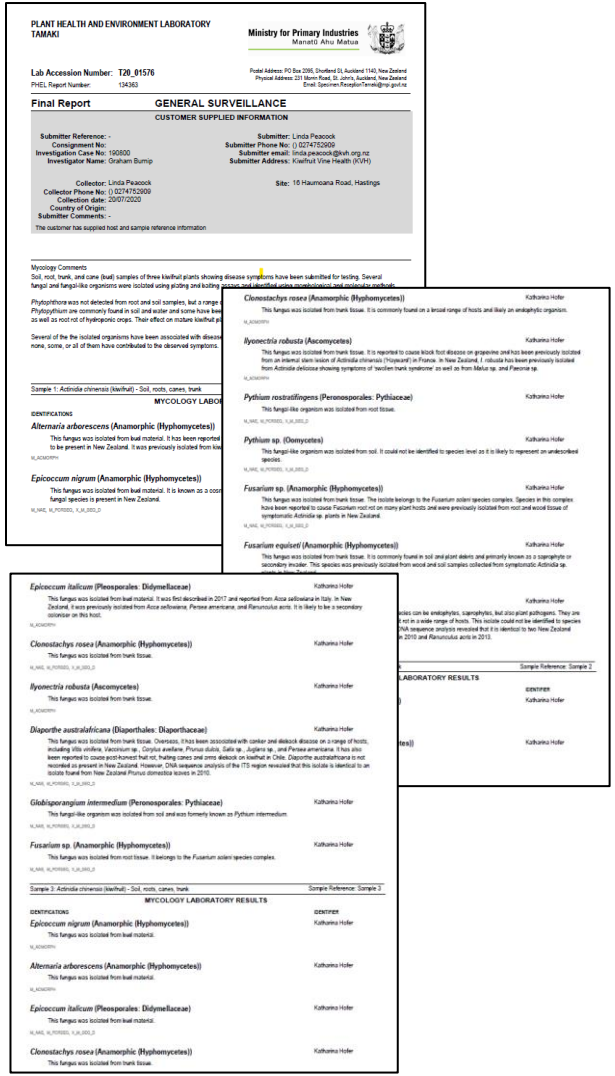
HW, G3, Bounty, Bruno, Cryptomaria

Where?

Kerikeri, Whangarei, Waiuku, Tauranga, Te Puke, Opotiki, Hawke's Bay, South Island

Case Study 1:
G3 – Hawke's Bay

- Areas with poor bud-break seen in Spring 2019
- Production drop at 2020 harvest
- Mushy buds reported – autumn 2020
- Various canker symptoms also seen - some associated with grafts
- Samples went to MPI


PLANT HEALTH AND ENVIRONMENT LABORATORY
TAMAKI

Ministry for Primary Industries
Manatū Ahu Matua

Lab Accession Number: T20_01576
PHEL Report Number: 134363

Final Report — GENERAL SURVEILLANCE

CUSTOMER SUPPLIED INFORMATION

Submitter Reference: -
Consignment No:
Investigation Case No: 190800
Investigator Name: Graham Burnip

Submitter: Linda Peacock
Submitter Phone No: () 0274752909
Submitter email: linda.peacock@kvh.org.nz
Submitter Address: Kiwifruit Vine Health (KVH)

Collector: Linda Peacock
Collector Phone No: () 0274752909
Collection date: 20/07/2020
Country of Origin:
Submitter Comments: -

Site: 16 Haumoana Road, Hastings

The customer has supplied host and sample reference information

Mycology Comments

MYCOLOGY LABO

IDENTIFICATIONS

Alternaria arborescens (Anamorphic (Hyphomycetes))

Epicoccum nigrum (Anamorphic (Hyphomycetes))

Clonostachys rosea (Anamorphic (Hyphomycetes))

Ilyonectria robusta (Ascomycetes)

Pythium rostratifingens (Peronosporales: Pythiaceae)

Pythium sp. (Oomycetes)

Fusarium sp. (Anamorphic (Hyphomycetes))

Fusarium equiseti (Anamorphic (Hyphomycetes))

Epicoccum italicum (Pleosporales: Didymellaceae)

Diaporthe australafricana (Diaporthales: Diaporthaceae)

Globisporangium intermedium (Peronosporales: Pythiaceae)

Fusarium sp. (Anamorphic (Hyphomycetes))

MYCOLOGY LABORATORY RESULTS

Diagnostic report

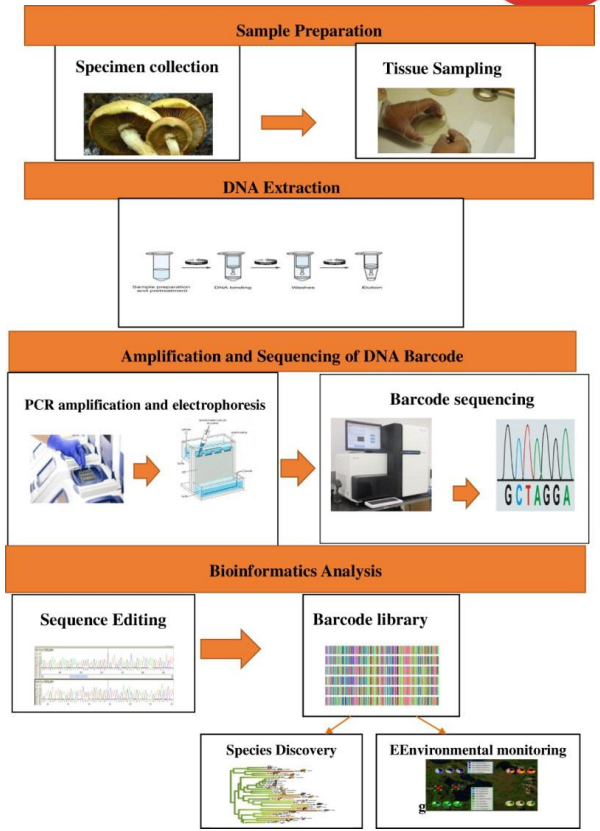
Buds	*Alternaria aborescens* – Secondary coloniser
	Epicoccum nigram – Secondary coloniser
	Epicoccum italium – Secondary coloniser
Trunk	*Ilyonectria robusta*- known to cause kiwifruit disease offshore- causes black foot in grapes
	Clonostachys rosea- Likely endophytic organism
	Fusarium solani sp- Known to cause root rot in many hosts and often isolated from kiwifruit
	Fusarium equiseti - Primarily known as a saprophyte or secondary invader
	Diaporthe australafricana- Reported as new to NZ
Root	*Pythium rostratifingens*
	Fusarium solani sp- Known to cause root rot in many hosts and often isolated from kiwifruit
	Mortierella sp- likely saprophytic
Soil	*Pythium sp.*- likely to represent an unidentified species
	Phytopythium vexans
	Globisporangium intermedium (previously *Pythium intermedium)*

Case study 2: Shelter species

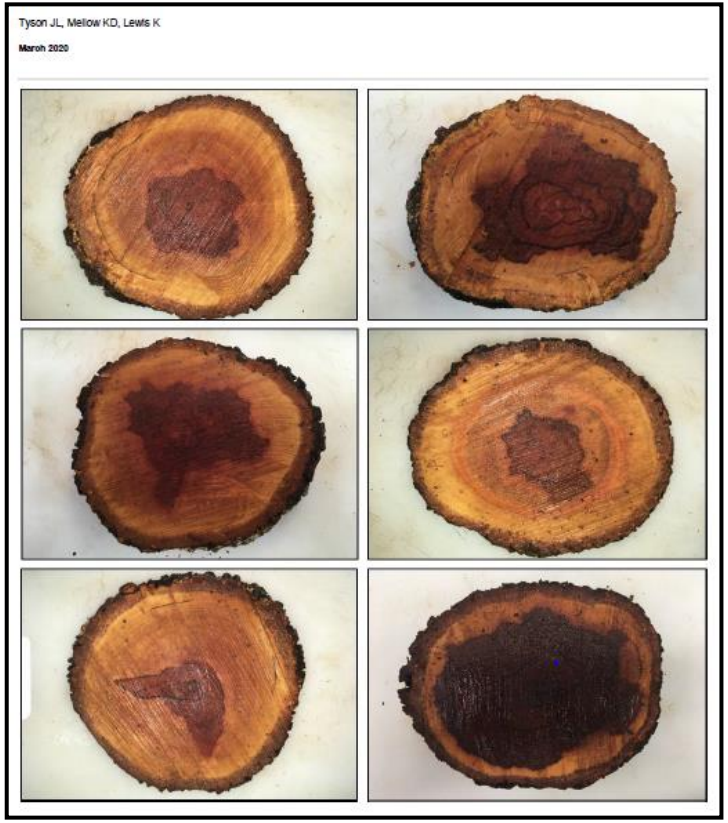
- 2019: 5-6 (2m) trees with symptoms
- 2020: more symptoms, including on two more sites (>5km away)
- Counted 50-80 affected trees (0.5-1.8m). Problem trees were often in groups (5-15 trees)
- No change in planting, fertilizer, or irrigation processes
- Root samples showed ***Phytophthora cryptogea and P. cinnamomi****, Cylindrocarpon sp, Pythium sp.*
- In stems: *Pestalotiopsis sp* (associated with dieback and cankers in conifers)

Improvements in Diagnostics

- Previously cultured based, morphological methods were relied upon
- Disease can be caused by a complex of organisms, making diagnostic difficult
- New molecular methods (i.e. sequencing) spit out more "new to NZ" but are they really?
  - Renamed- not really "new" but a new name
  - Complexes are separated into species
  - Previously "unidentified"



What do we do with these reports?



- Research extension
- Creating good management practice advice
- Understanding changes in risk profiles
- Sharing the knowledge

Questions?