Food and Agriculture Organization of the United Nations

International Plant Protection Convention

CPM 18

Fusarium TR4 – Australia's emergency response and management experience

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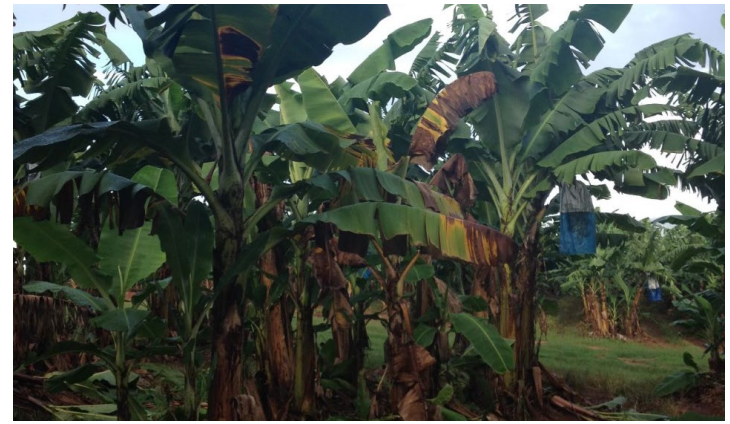
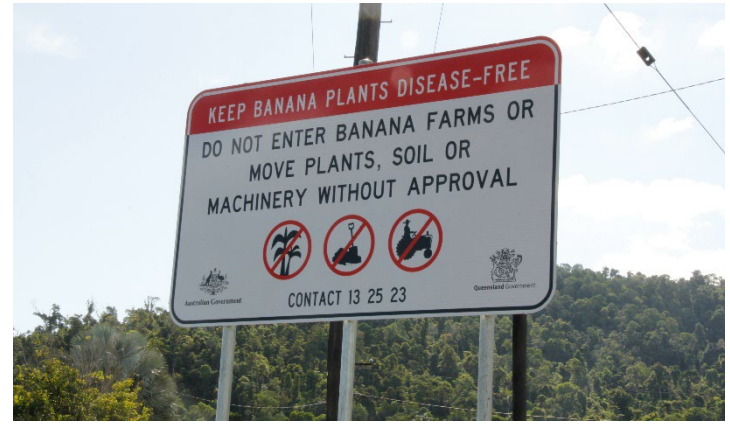
Fusarium tropical race 4 (TR4) detections

- 1997 - First detected in Australia – Northern Territory
- 2015 - Detected in major banana growing region (Tully, Queensland) (95% of bananas are grown here)
- Well established biosecurity systems and legislation facilitated early reporting, detection and containment measures
- Allowed immediate action by government and industry.

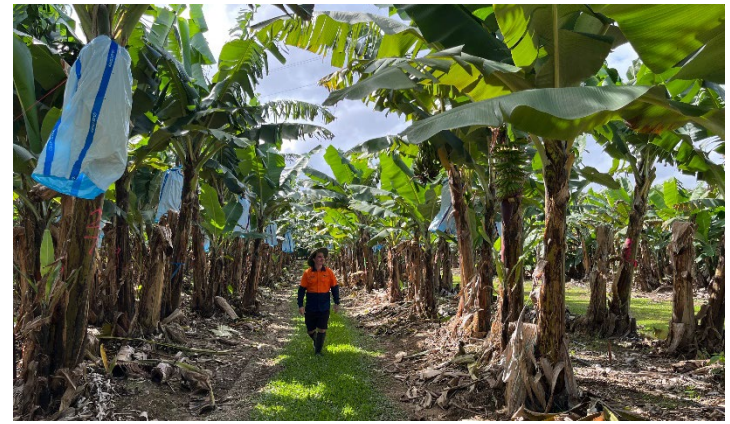




TR4 legal requirements and phased approach

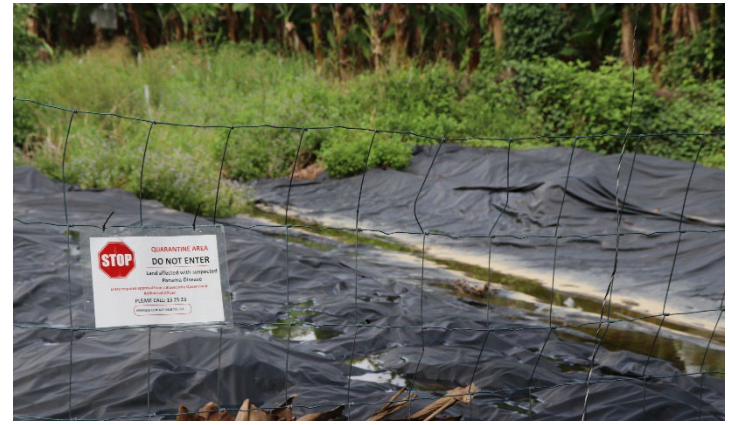
TR4 is Category 1 Restricted Matter - Qld *Biosecurity Act 2014*

- suspect plants must be reported
- movement of plants and carriers is restricted



Phased approach to control and containment

1. Emergency response (March 2015) – strict containment
2. Government-led response (September 2015 to 2020)
3. Transition to industry management (2020 to 2023)
4. Industry-led management (1 July 2023)



Emergency Response to Managed Response

Immediate focus on quarantine and risk minimisation on the first property to control and contain

Strict measures to restrict movement of risk materials from infested properties - plants, soil, machinery, equipment

Legislated biosecurity program allows for:

- Detection through surveillance
- Monitoring compliance on infested properties
- Infested property owners must comply with risk minimisation requirements (e.g. early destruction and zoning).

Surveillance field officers walk every 4th row (or 85% of property) to find symptomatic plants. Frequency is determined by risk i.e. tracing and proximity to infested properties

TR4 – Inoculum management

Timing – rapid action to remove and contain infected banana plants

Exclusion – segregation of infected area on farm (zoning)

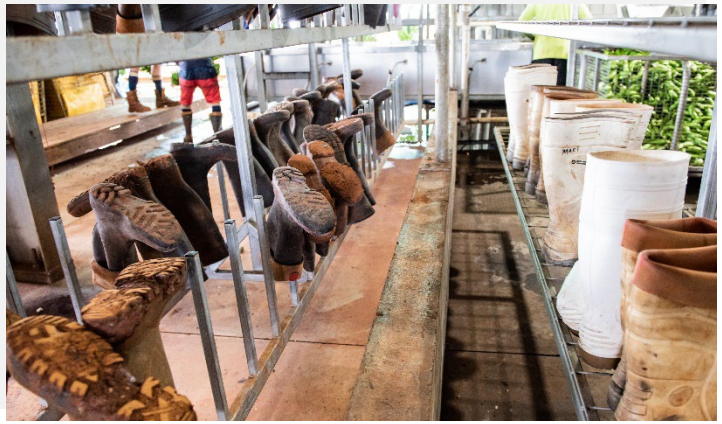
Isolation – prevent infected pseudostem from soil contact (and release of chlamydospores); urea to enhance pseudostem decomposition

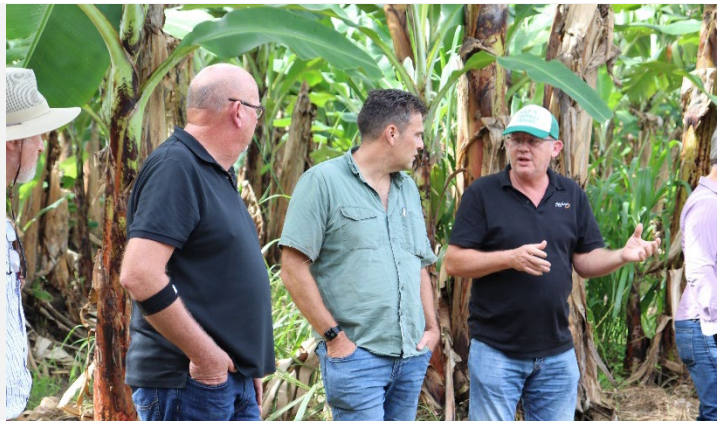
Stability – ensure there is minimal soil disturbance with no soil movement from infected area

Competition – enhance microbial biomass and diversity to compete with TR4 in soil.

Transition to Management Phase

- Independent review - transition of disease management from government to industry
- 2020 government and industry deed and MoU
- Principles of shared responsibility
- Focus on containing and managing TR4 – only 9 properties infested, 211 plants infected 9 years later
- A new focus to support those farming and living with TR4.



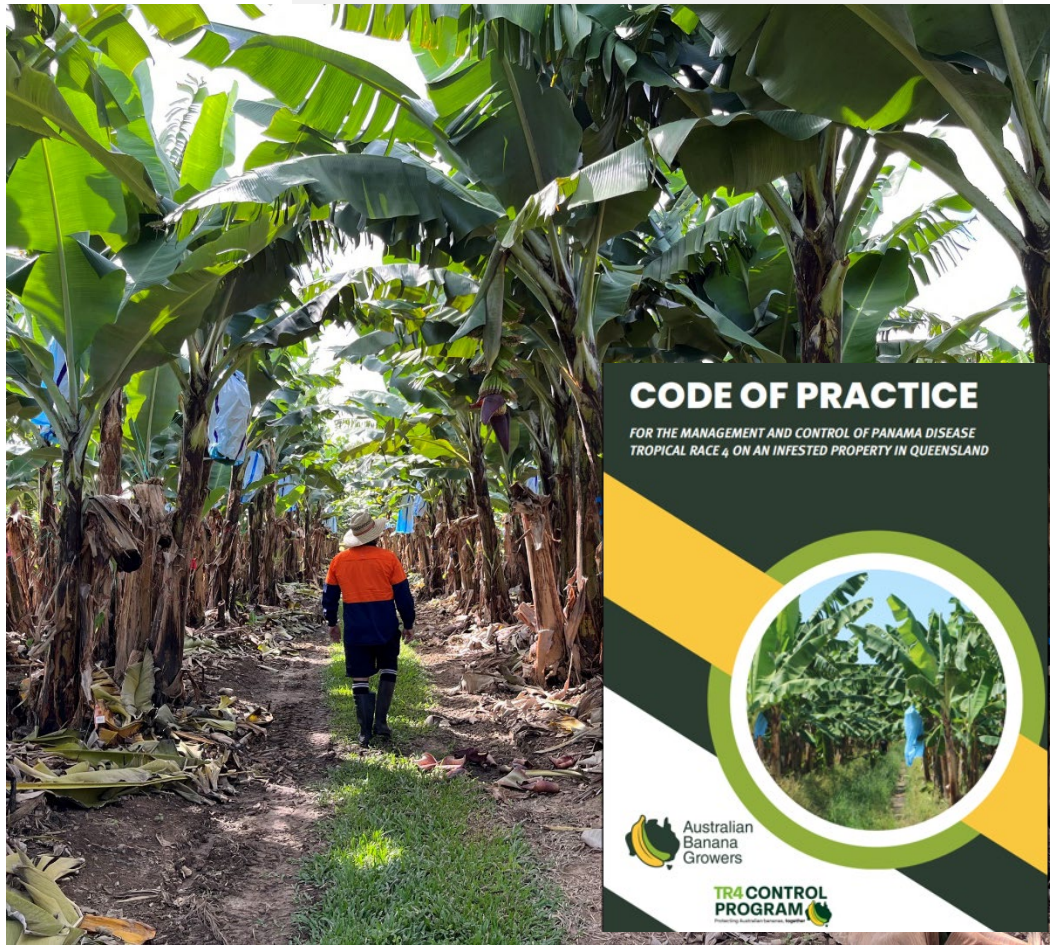


Management Phase

TR4 disease management is delivered by industry body, the Australian Banana Growers' Council

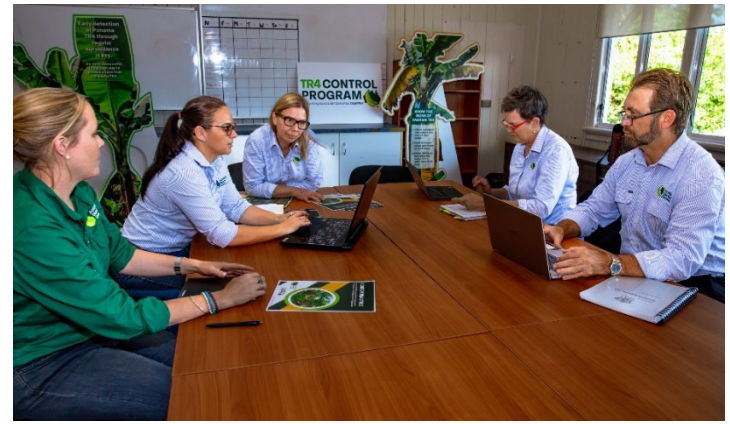
Objectives:

- Surveillance
- 0n-farm biosecurity
- Building capacity of infested property owners to self-manage risks of disease
- Regulatory environment to suit the extent of disease spread
- Buy time before TR4 resistant banana varieties become available.



Challenges for transition

- Balancing conflicting priorities (infested vs non-infested properties)
- Scale of transformation needed for industry led program
- Shift from disease containment to resilient farming

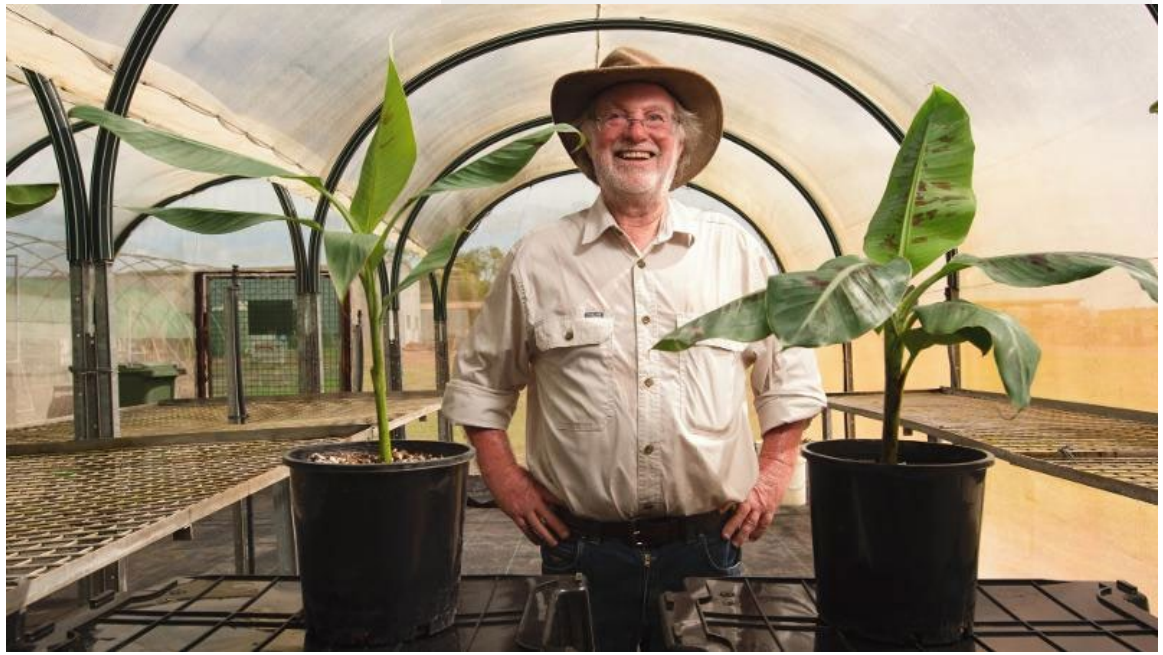


Transition to management wins

- Funded by TR4 grower levy
- Experienced staff transitioned from government to industry
- Panama TR4 Protect for information on program

Next steps in research and management

- Genetically modified Cavendish banana resistant to TR4 developed
- QCAV-4 integrates a single resistance gene RGA2, from wild south-east Asian banana
- Field trials demonstrated high resistance
- February 2024, Food Standards Australia New Zealand approved QCAV-4 for consumption
- No current plans to grow or sell in Australia.



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Thank you

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