

# Pathogen characterization and detection

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1. Create an inventory of pathogens + identify the most important for further research
2. Create an inventory of cultures help in EU labs
3. Develop standard test conditions to determine the aggression of individual GTD
4. Develop a set of diagnostic protocols for identification/detection of GTD
5. Characterization of their life cycle according to climatic conditions, identification of the sources of inoculum and the way of penetration into plant to optimize the disease management

# Pathogen characterization and detection

1. Create an inventory of pathogens + identify the most important for further research

- *Phaeomoniella chlamydospora*
- *Phaeoacremonium aleophilum*
- *Cadophora* spp.
- *Diplodia* spp.
- *Neofusicoccum* spp.
- *Lasiodiplodia* spp.
- *Eutypa lata*
- *Ilyonectria* spp.
- *Diaporthe* spp.
- *Fomitiporia* spp.

# Pathogen characterization and detection

- Create an inventory of pathogens + identify the most important for further research
  - *Ilyonectria* – circulate tree for comment
  - *Diaporthe* – which species? share isolates/sequences, potential community paper
  - *Fomitiporia* - taxonomy needs to be resolved
  - *Cadophora* – species complex – further work to identify GTD species

# Pathogen characterization and detection

## 2. Create an inventory of cultures help in EU labs

- Develop section on COST action website with details of isolates which labs are willing to share
- Assemble reference collection of 30 GTD isolates representative of key species each backed up with DNA sequences
  - pathogenicity testing
  - validation of diagnostic methods

# Pathogen characterization and detection

3. Develop standard test conditions to determine the aggression of individual GTD
  - Many methods currently available: agar plug, tooth pick, root dip etc
  - Many definitions of pathogenicity
  - Tests for Koch's postulate should include a recognized pathogen and recognized saprophyte for comparison
  - Establish a small working group to review methods currently used, make some recommendations for protocols and scope for potential community paper

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4. Develop a set of diagnostic protocols for detection of GTD
  - Reference isolates used to validate these assays
  - Which method: Real-time PCR approach?
  - Use of less specific primers could be useful?
  - Are we detecting DNA from dead or viable organisms?
  - Consistent sampling/DNA extraction methods
    - Training school with practical demonstration
    - Ring test or at least inter-laboratory comparison
    - Discussion forum on COST action website

# Pathogen characterization and detection

- 5. Characterization of their disease cycle according to climatic conditions, identification of the sources of inoculum and the way of penetration into plant to optimize the disease management
- Very different life cycles
- Philippe Larignon with some input from David Gramaje to draft document for circulation -website