Dothistroma Workshop in Canada

- Held after WIFDWC meeting
- 2 - 7 October 2006
- Smithers, British Columbia

Lindsay Bulman
Ensis
Rotorua

Rosie Bradshaw
Massey University
Palmerston North

Dothistroma at WIFDWC

Presentations

Alex Woods (Canada)
Angie Dale (Canada)
Anna Brown (UK)
Lindsay Bulman (NZ)
Rosie Bradshaw (NZ)

Posters

Niroslava Bednarova (Czech.)
Cedar Welsh (Canada)
Crystal Braun (Canada)

Field trips

Dothistroma meeting

Purpose: To provide an opportunity for researchers from around the world to discuss issues around Dothistroma from a scientific perspective, to determine the greatest research needs, and to provide an opportunity for collaborative research.

- Disease trends
- Understanding the host
- Understanding the pathogen
- Disease management
- Practical issues (field ID, path testing)
- Research directions & future meetings

Disease trends

Epidemic now in UK as well as Canada

Climate change a major focus

...from Anna Brown: Dothistroma in the UK

2003-06 survey, 3 age classes, 120 sites/10 plots 12 trees
Corsican pine (*P.nigra* var *laricio*) in East Anglia

Year	**2003**	**2005**
% infected	60	75
Ha infected	8,900	10,100
% crown infection	27	33
% stands with mortality	2	20

Now > 50% stands infected throughout England

Research priorities:

- Define global incidence
- Assess climate effects in other countries

Understanding the host

Different disease development & host responses in different regions?

What is the nature of resistance?

Research priorities:

- Disease/symptom development
- Host susceptibility in different locations
- Effects of nutrition
- Resistance mechanisms (e.g. age, anatomy)

Disease management

Tolerance important as well as resistance

Spraying not an option in UK & Canada

Species replacement currently the favoured option in BC

In the UK, a thinning trial showed reduced disease severity (from 50% to 10%) in 1.5 years.

Research priorities:

- Host susceptibility study
- Tolerance of trees and recovery
- Metabolite profiling & resistance
- Endophytes & resistance

Metabolite Profiling

Visit made to Shawn Mansfield (Vancouver)

Metabolite profiling a “chemical fingerprint”

Profiles can be made from single needles

Correlate profiles with traits eg. doth resistance

Develop markers for breeding

Further analysis could reveal basis for trait

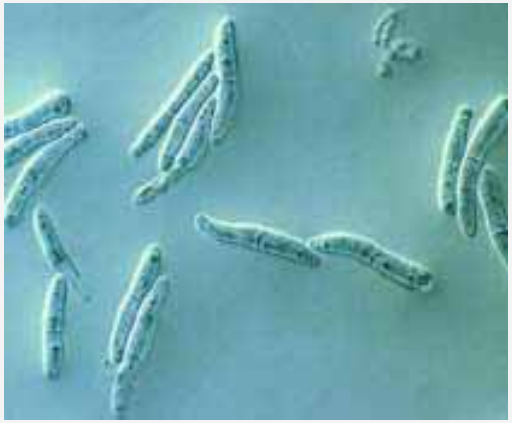
Kiwi PhD student studied MP with Shawn

Understanding the pathogen

Disease presentation is variable with respect to red banding on needles.

Canadian Dothi population is very variable, has genetic change contributed to the epidemic?

Is the fungus dispersed by sexual spores in Canada?



Understanding the pathogen

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Research priorities:

Determine the role of dothistromin toxin

Correlation of toxin, fungus & red band

Is Dothistroma present in asymptomatic needles?

Compare herbarium & epidemic strains

Spore production & dispersal

Practical issues (field ID, path. testing)

Method needed to identify Dothi in needles:

- Screen nursery stock
- ID variable symptoms
- Research tool

Pathogenicity testing in containment is very difficult.
May be due to strain attenuation.

Research priorities:

DNA-based testing from needles

Development of ELISA assay?

Establish a reliable pathogenicity test

Strain attenuation study

Bio-Protection

Massey University

IMBS
Institute of Molecular BioSciences

Research directions & future meetings

Research priorities identified

Requirement for funding at international & national levels

Regular email communication

Other members joined IDRA also known as IDIOTS

Little enthusiasm for a 2007 meeting in Adelaide

A meeting in 2008 would be more appropriate

(eg affiliated to Int. Plant Path. Congress in Italy)