

DIAROD COST Meeting May 24 2013: Working Group 3 - The host: resistance and susceptibility

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General comments

19 participants in this WG – next meeting planned for September in Wageningen 2013

Slow progress so far - Susceptibility of different species being collated (mainly from Watt 2009) and three students are working on this subject.

Task 4 host defence resistance studies

Target 1 – review information on mechanisms contributing to host resistance

Little information available on mechanisms of resistance

How to decide when the host is resistant?

Difficulties with artificial inoculations

Three PhD students currently working in this field – one supervised by Alex Woods (name unknown; Canada), Stuart Fraser (UK) and Annika Telford (UK) working on resistance/ provenance variation in Scots pine.

Some useful information may also be present in Karadic thesis (Serbia)

How do we decide if a host is resistant? Levels of susceptibility more realistic.

Maybe differences due to use of different artificial inoculation techniques or maybe the host react differently because of the artificial inoculation

New Zealand pathogenicity trial being set up. 2 pilots so far with SP populations (not exactly provenances) from Scotland, plus other European areas (including refugia). Currently assessing infection within a 60 plant pilot and a 250 plant pilot. Intend to follow up with a 500 plant trial using 7 different pine species.

Techniques to use:

Infect plants using spores produced on PMMG media, sprayed at different concentrations, keep the needles wet.

System 1 – NZ misting system

System 2 – overhead misting system.

Should provide a baseline system for further work

Target 2 – review data on influence of stand management on DNB intensity

Information available from UK (recent), New Zealand (older) and Hungary (recent)

Task 5 – Susceptibility of alternative hosts/ apparent changes in susceptibility

Target 1 – new host records, changes in behaviour

Some conflicts between what is now observed, and what was originally reported in the literature.

e.g. Scots pine initially thought to be of low susceptibility – has this changed in past 20 years?

Problems exist with ranking susceptibility - differences of definition between the literature sources, no stated methods used. Also, environment has a major impact.

Iben Thomsen – have we looked at specific countries where susceptibility has changed?
UK-yes. Finland unsure

Provenance information might explain/clarify some of the conflicts but it's not always available

Anna Brown – In UK experience sometimes provenance data is wrong, so we can't trace back the origin. It's almost more interesting where we don't see susceptibility where we'd expect it

Consider the interacting factors: genetic diversity in *Dothistroma* populations, and provenance versus environment in the field (tie-ins to WG1 and 2)

Target 2 – review disease intensity, within between host spp./ provenances.

Not yet done

Target 3 – updated host susceptibility list based on results of above

Not yet done

Future work?

More use of STSM's

We need volunteers to host work on :

Mechanisms of infection

Host response to infection

Short term project (3-5 weeks) which could fit into STSM (remember age limits have changed – welcome to all now)

Anna Brown – arboretum/pinetum STSM – disease assessments at e.g. Bedgebury, UK?
Other arboreta in Europe? Could Steve Woodward send out arboretum questionnaire and link in to STSM pages?

TK – use a DELPHI test – collect opinions of people with respect to susceptibility from field experience.