

Evaluating alternative hosts of *Phytophthora erythroseptica* and implications for disease persistence

Ronika Thapa * | Warwick Gill | Robert S. Tegg | Audrey E. Leo | Calum R. Wilson

WHAT

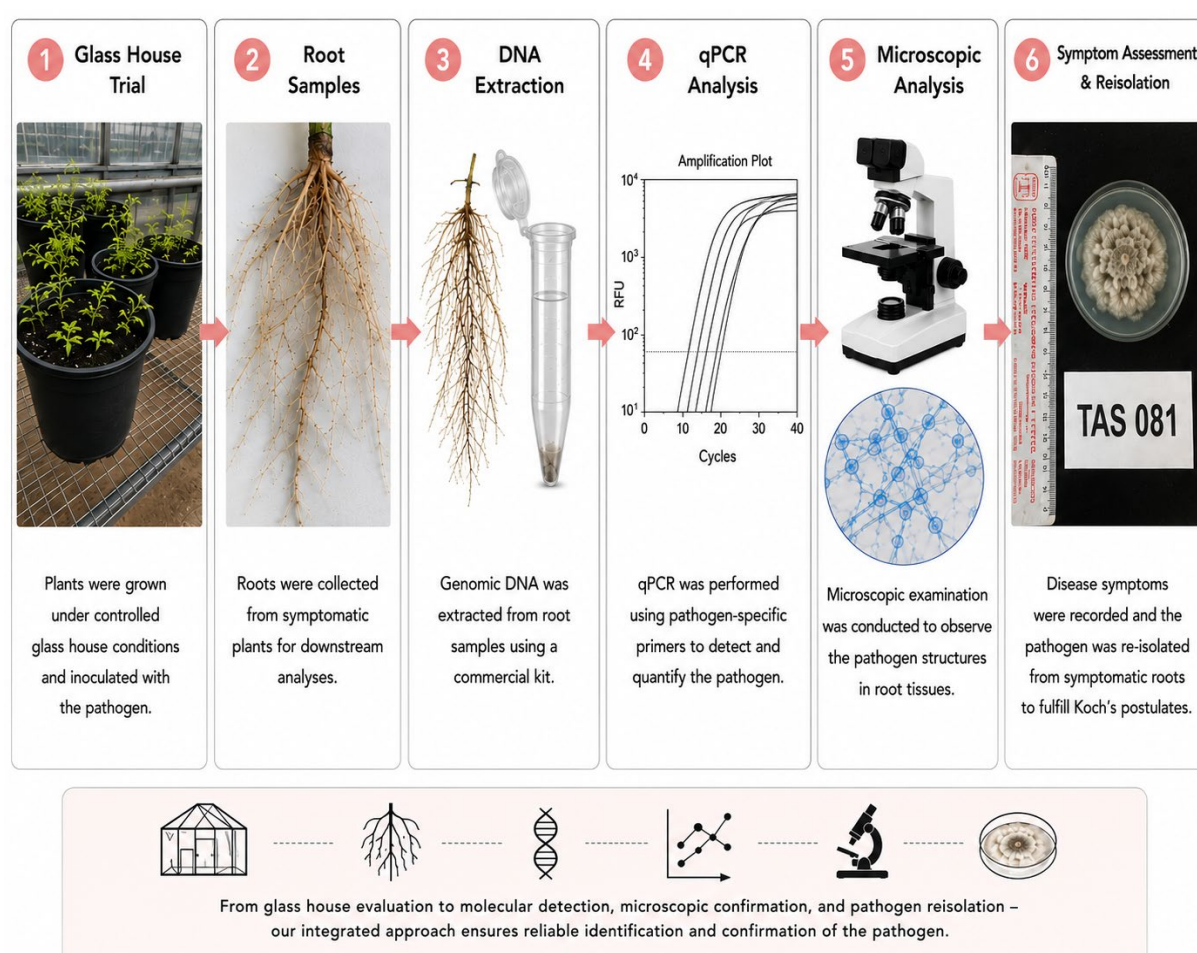
Phytophthora erythroseptica, the causal agent of pink rot in Potato, is a soil-borne pathogen capable of long-term survival through oospore formation. Crop rotation is widely used for disease management, pathogen persistence is observed in absence of potatoes. Alternative hosts, such as other crop, pasture and weed species (commonly found in Tasmania) could be supporting pathogen survival although evidence is limited or unreliable and it remains unclear which species supports true infection and long-term pathogen survival.



WHY

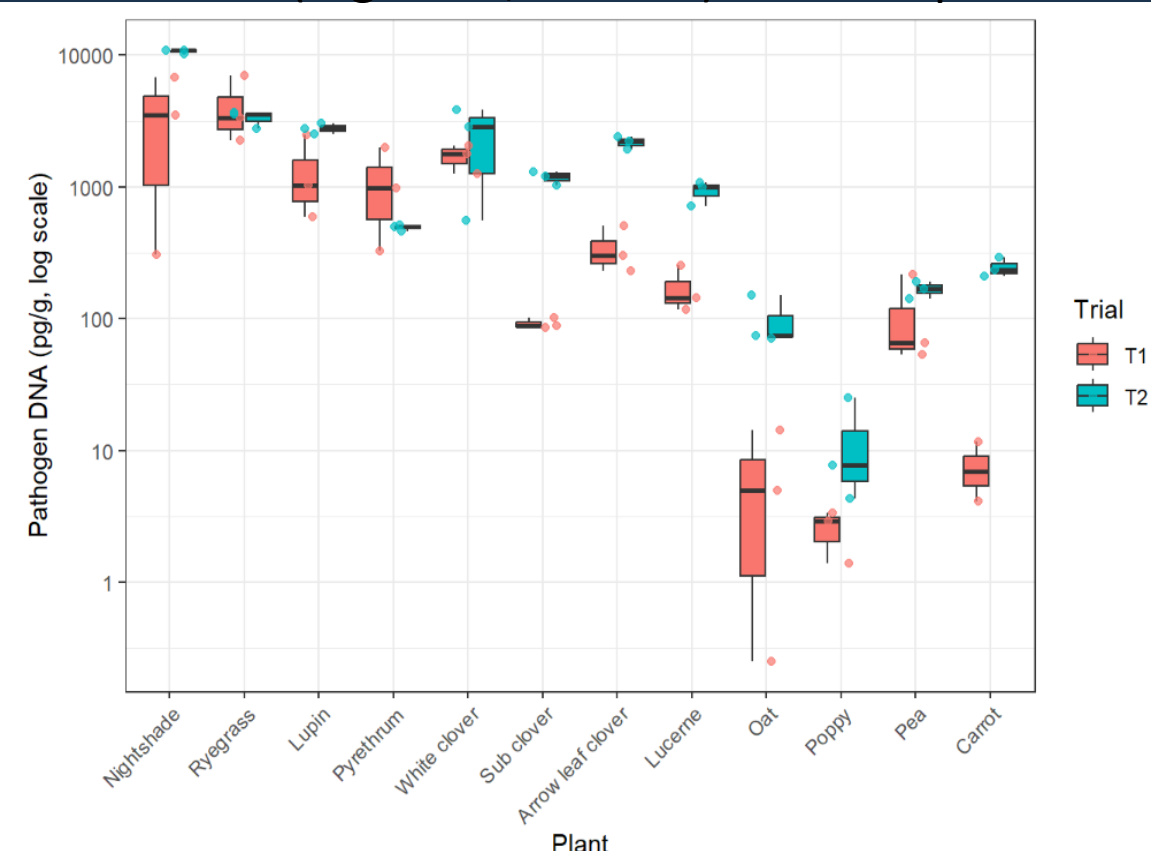
To evaluate the host status of non-potato plant species and determine their role in survival and persistence of *P. erythroseptica*.

HOW



RESULTS

Nightshade, ryegrass and lupins were found to support higher levels of *P. erythroseptica* inoculum (See below) with oospores (long-term resting structures) observed. This contrasted with other species tested that produced lower inoculum levels (e.g. oats, carrots) with oospores absent.



Phytophthora erythroseptica DNA concentration (pg/g root tissue) across plant species in trial 1 and 2.

SUMMARY

Oomycete *P. erythroseptica* can interact with a wide range of plant species, although only some function as true hosts that support active infection and pathogen reproduction and survival. Other species may still contribute to pathogen survival through partial or asymptomatic associations, even when clear infection is not observed. These findings highlight the importance of using multiple diagnostic approaches (visual, microscopic and molecular) to accurately determine host status.

KEY POINTS

- ❖ Some rotation crops may maintain or increase inoculum
- ❖ Those that produce oospores are more effective hosts that may support long term survival of the pathogen, making the rotation ineffective.
- ❖ Asymptomatic plants can contribute to hidden pathogen survival
- ❖ Further research to identify long term impacts in the field is still required



For more information please contact: Ronika.Thapa@utas.edu.au | 0459519496

DISCLAIMER: While the Tasmanian Institute of Agriculture (TIA) takes reasonable steps to ensure that the information on its fact sheets is correct, it provides no warranty or guarantee that information is accurate, complete or up-to-date. TIA will not be liable for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on the information contained in this publication. No person should act on the basis of the contents of this publication without first obtaining specific, independent, professional advice. TIA and contributors to this Fact Sheet may identify products by proprietary or trade names to help readers identify particular types of products. We do not endorse or recommend the products of any manufacturer referred to. Other products may perform as well or better than the products of the manufacturer referred to.