

The effect of stress on dieback disease expression

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10 – 11 September 2024

SAMAC

proudly presents

Mac Day'24

Together we move forward - fuelled by momentum



SAMAC
Macadamias South Africa NPC

Botryosphaeriaceae species

Diverse group of fungi with a global distribution

Regarded as latent pathogens (endophytes)

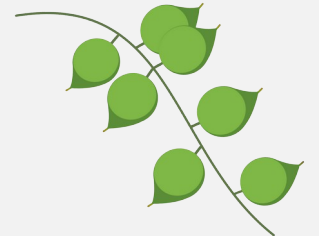
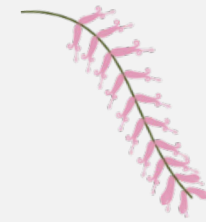
Causal agents of branch dieback

Associated with other diseases in the canopy

Sampling strategy



Symptomatic and Asymptomatic

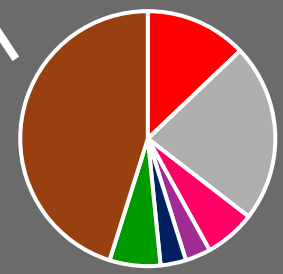
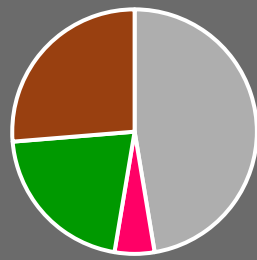
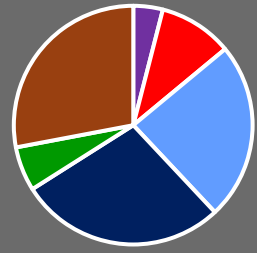


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Diversity on branches

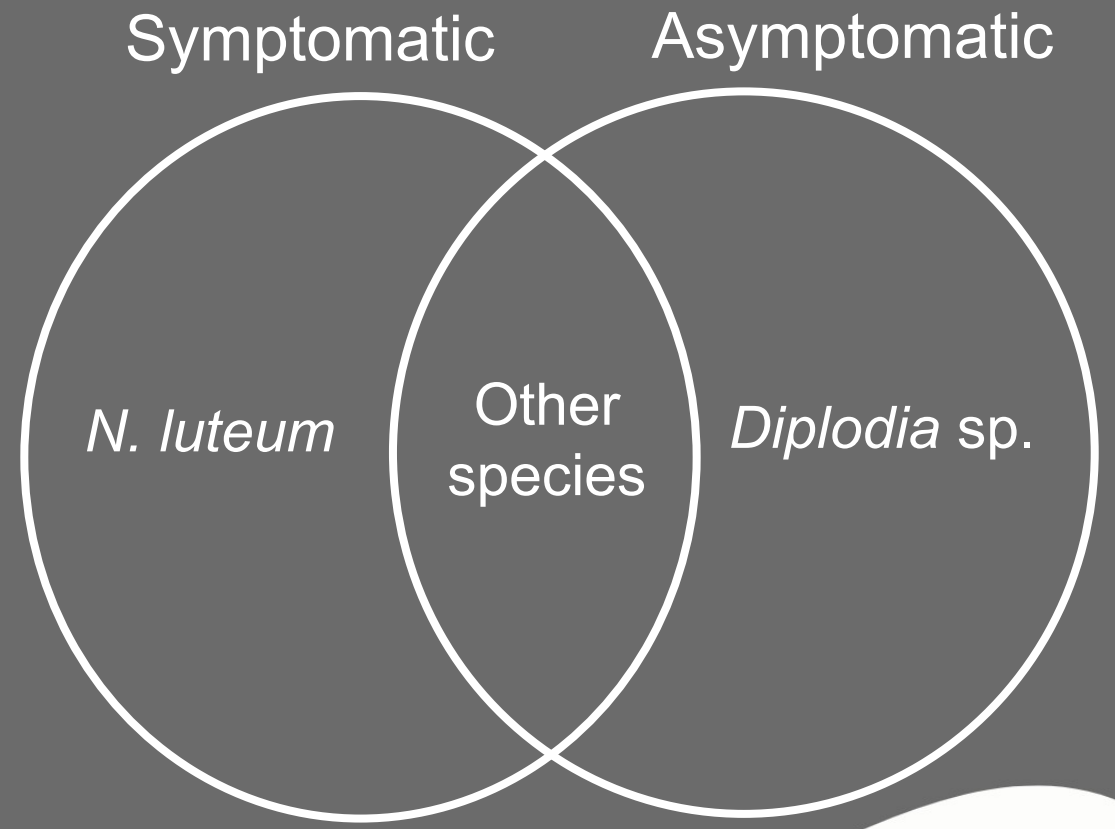


- Diplodia* sp.
- L. gilanensis*
- L. theobromae*
- N. luteum*
- N. parvum*
- N. kwambonambiense*
- L. pseudotheobromae*
- Lasiodiplodia* sp.



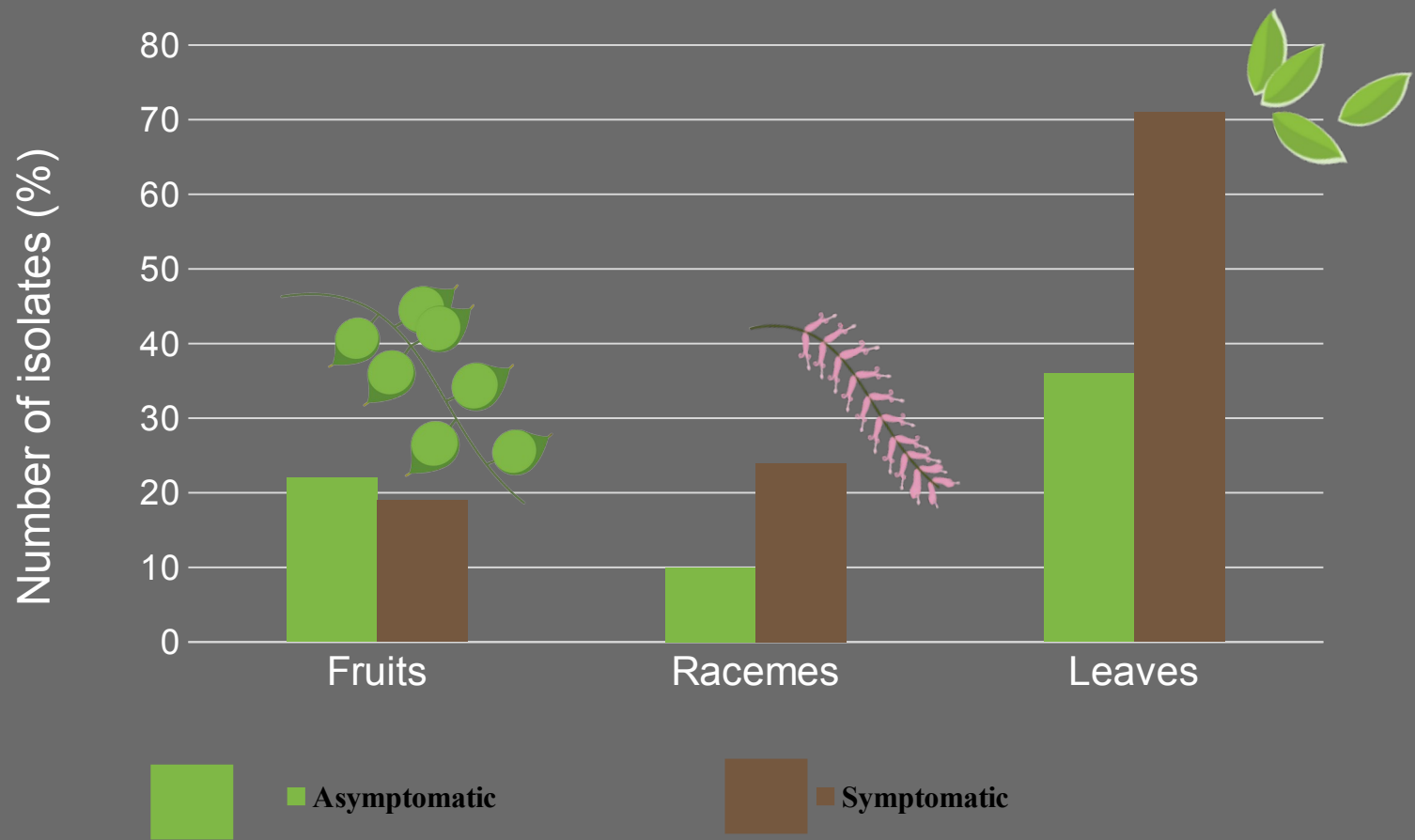


Pathogenicity on branches





Diversity on other tissue types

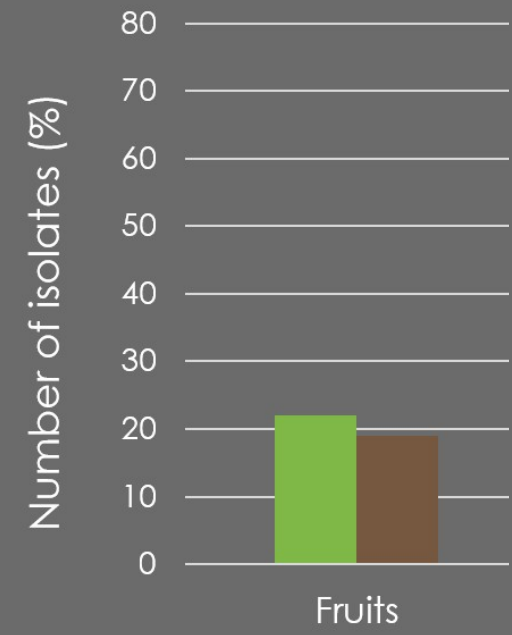
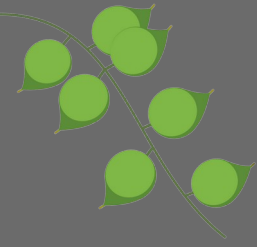


HAES 695
HAES 788
HAES 816
Nelmak 2
A4





Pathogenicity on fruits

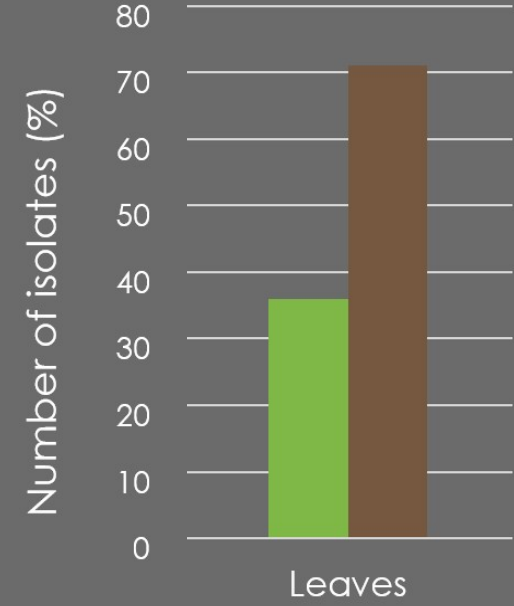


Other Husk rot pathogens = Higher isolation frequencies





Pathogenicity on leaves



Primary causal agent
=
Brown leaf blight





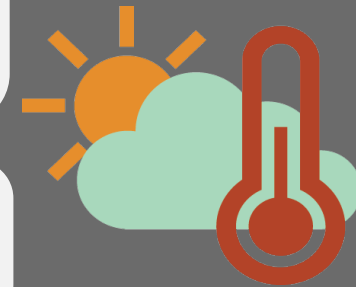
Pathogenicity on branches



Symptoms only developed 3 weeks after watering was reduced

Understand the influence of water stress (drought & flood) on disease expression

HAES 695, HAES 816, Nelmak 2



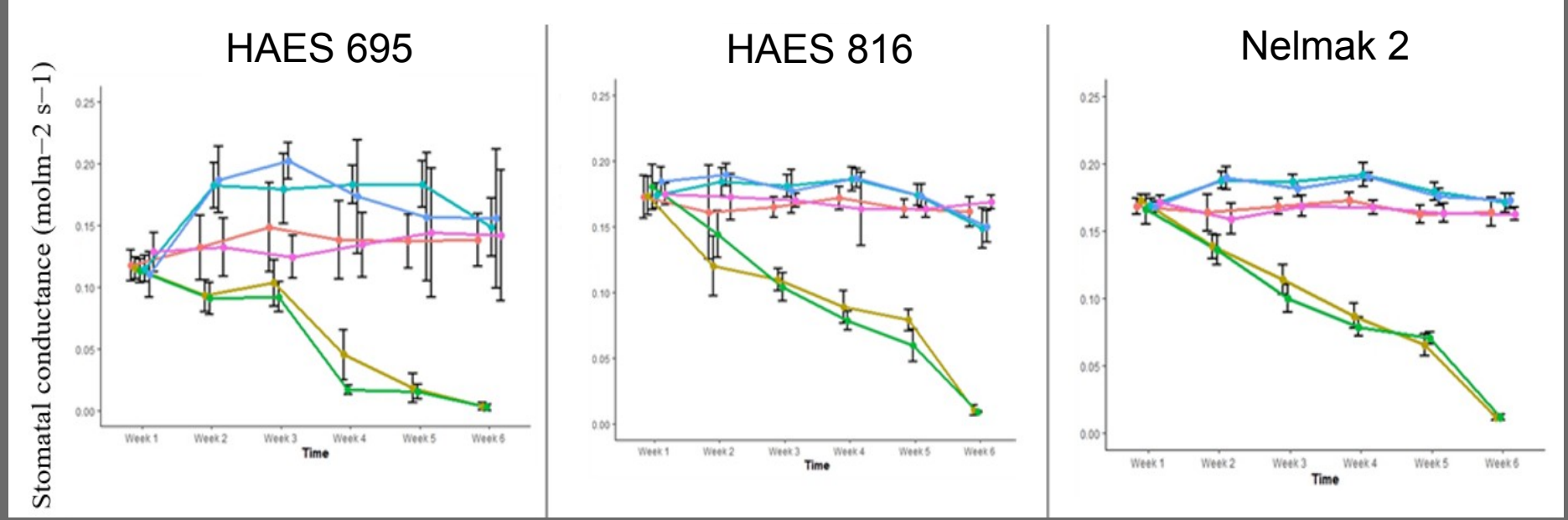
Experimental design



- ✓ Monitor the physiological response to water stress
- ✓ Measure disease severity under drought, flooding and field capacity



Physiological response



- Control
- Inoculated control
- Drought
- Inoculated under drought
- Flood
- Inoculated under flood

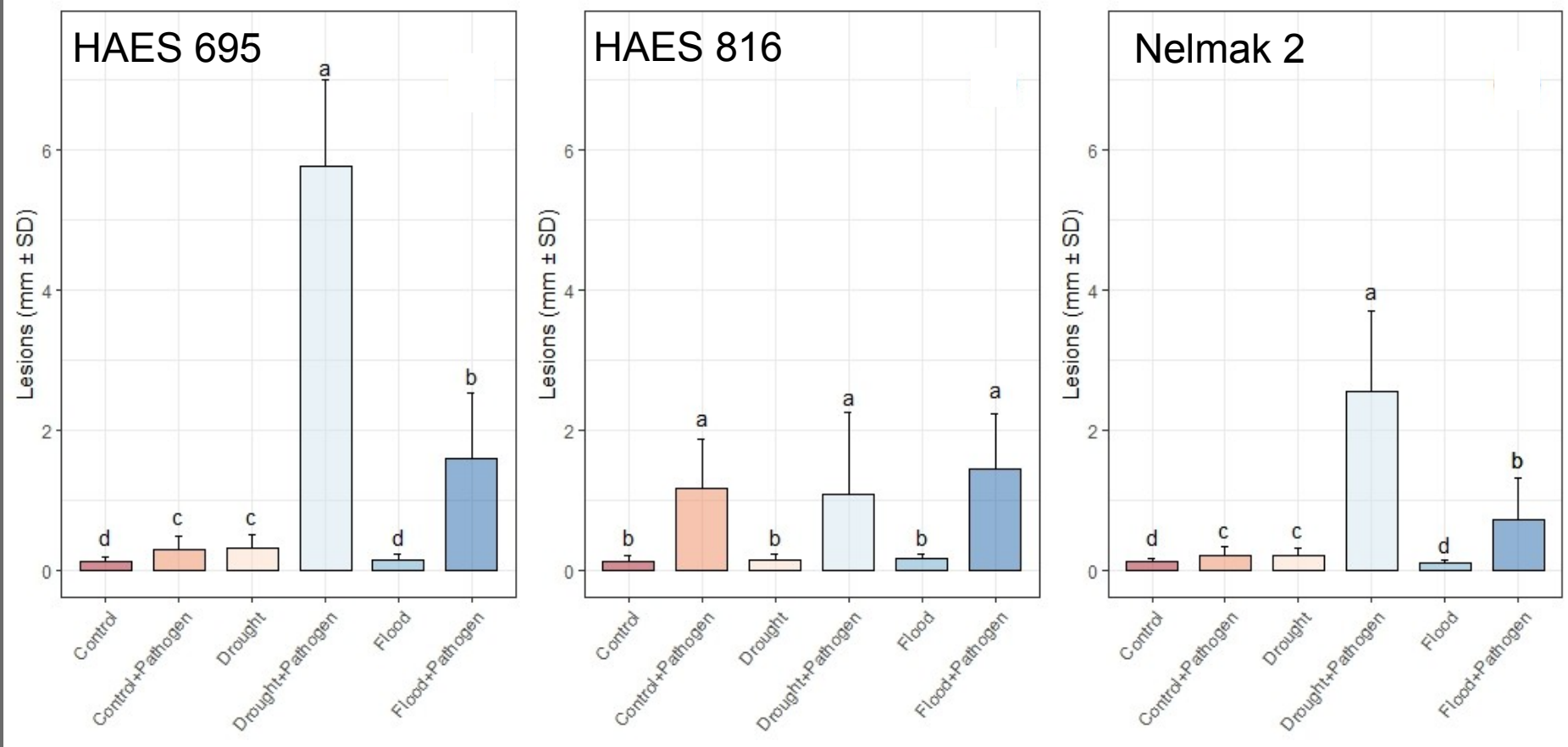


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Disease severity



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Take home message

Widespread occurrence on various tissue types

Causal agents of branch dieback and brown leaf blight, and is associated with Husk rot

Drought stress induce disease expression



Acknowledgements

Angel Maduke



Dr Nicky Taylor



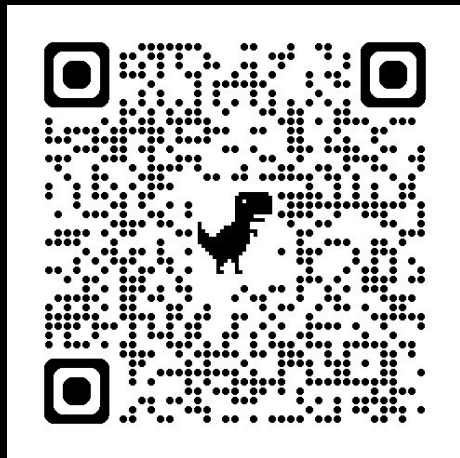
Participating growers:

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Thank you

