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RESEARCH AREA

Impact of irrigation and nutrition management on *Verticillium* and *Fusarium* wilt diseases of cotton

Tell us a bit about yourself?

I grew up on a mixed grains/cattle property in northern NSW. I completed a Bachelor of Science at the University of New England and a Master of Science in Agriculture from the University of Sydney.

What research have you previously been involved with?

I have previously been involved in research looking at management strategies for *Fusarium* wilt of cotton when it was a significant industry problem initially. A component of the early projects involved assessing breeding lines for *Fusarium*, and it is encouraging to see the progress made in terms of the more resistant varieties that are now available to growers. I have investigated rotation options for both *Fusarium* and *Verticillium* wilt and conducted pathogenicity tests on rotation crop species to determine host susceptibility.

When reniform nematode was first detected in Theodore, in central Queensland, I was heavily involved in sampling to determine the extent and distribution of the nematode, and then in further research including crop rotation studies for this soil pest. Over many years our pathology team conducted disease surveillance surveys monitoring disease occurrence and distribution



that extended across all cotton growing regions of Queensland and into northern NSW, meeting and interacting with many growers and consultants.

What excites you about working in the Australian cotton industry?

It's a diverse and innovative industry allowing for interaction and collaboration with growers, consultants, and other researchers. The welcoming nature of growers and their enthusiasm and willingness to share their information and experiences so we can all learn is inspiring and rewarding.

What do you like to do when you're not researching?

When I am not researching, I enjoy spending time with family, hiking, reading, cooking.

PROJECT OVERVIEW

ACDC Project A1.2: Irrigation and nutrition management to reduce cotton wilt disease incidence

Explain your current research project

The current Australian Cotton Disease Collaboration (ACDC) project I am involved in is a collaborative project with the University of Southern Queensland (UniSQ) investigating the impact of irrigation and nutrition management on Verticillium and Fusarium wilt diseases of cotton. The project will quantify the impact that different irrigation systems and nutrition management practices have on disease, and under different environmental conditions.

What does your research project aim to do?

The aims of this project are to identify best management practices that reduce disease incidence and severity, increase yield and profit through increased water use efficiency, and better understand the interaction fertiliser application has on disease, by finding a balance, especially of nitrogen, potassium and phosphorus, that minimises disease impact.

A separate project will investigate how infected cotton residues impact inoculum carry over of the three pathogens causing Verticillium,

Fusarium and Reoccurring wilt, by understanding pathogen persistence and recommending best post-harvest management strategies.

Where is this work being undertaken?

The research for these projects is being conducted on grower properties in northern NSW under furrow and overhead pivot irrigation systems, and in the future on the Darling Downs. Research will also involve controlled glasshouse pot experiments.

How will this work benefit Australian cotton growers and industry?

This work aims to provide Australian cotton growers with more informed choices around managing wilt diseases through irrigation, nutrition and stubble management practices that decrease disease and increase yield.



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