

MEET YOUR COTTON RESEARCHER

Dr Robert Sharwood, VC Fellow & Senior Lecturer
Western Sydney University

PROFILE

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RESEARCH AREA

Carbon Fixation and Plant Productivity

CRDC Research Project
Climate Proof Cotton



WHAT'S YOUR BACKGROUND?

Originally, I am from Bathurst NSW, and we had a sheep and cattle farm at Trunkey Creek, NSW. During my summer holidays during my undergraduate studies, I used to be a shed hand during shearing on the family farm. I have always been inspired by agriculture and passionate about drought proofing farmers enterprises to ensure some income protection during these periods.

TELL US SOME MORE ABOUT THE RESEARCH ...

Identifying new traits that will improve heat and drought tolerance in cotton germplasm. Combating these abiotic stresses is crucial for the industry as variable climates are a big challenge to future cotton production.

WHAT ARE YOUR KEY FINDINGS TO DATE?

Research has found that there is diversity across *Gossypium* species in aspects of resilience to high heat and drought conditions. We have found that some *Gossypium* species have potentially favourable characteristics and modelling suggests that these could lead to improvements in plant response, for example improve radiation use efficiency. We don't yet know if any of these characteristics could be successful transferred to elite lines.



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HOW DID YOU END UP IN COTTON RESEARCH?

Ten years ago, I decided to translate my photosynthesis research program into providing new information on how to improve cotton carbon assimilation that was resilient to future climates. I met Mick Bange and learnt a lot about cotton physiology, agronomy and production. I was awarded a Science and Innovation award in 2012 and through this award I was able to connect to the CSIRO breeding program where I met Warren Conaty and Warwick Stiller.

Through these collaborations I was able to meet and work with Katie Broughton, Paxton Payton (USDA now Goanna AG) and James Mahan (USDA now Goanna AG). All of these researchers have inspired me in different ways and I am so grateful to work with them. Cotton is definitely a tricky plant to understand and the challenge it presents drives my research program to solve new challenges facing the cotton industry in the future.

I have been very fortunate to work with Susan Maas (Senior Innovation Broker CRDC) for a long time and I really appreciate her support and discussions on the specific needs of the industry and melding this with new synthetic biology solutions. Our shared goal is to ensure resilience of the cotton industry to future challenges.

WHAT DO YOU LIKE DO WHEN YOU AREN'T RESEARCHING?

I manage my son's junior league team in Parramatta which is great fun. I enjoy bike riding, gardening and bushwalking. I am passionate about outreach activities and before COVID I used to travel to Timor-Leste to teach science teachers how to effectively transition to inquiry-based learning and design practicals using everyday items present in the classroom or local shops.



For further information:

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