

MEET YOUR COTTON RESEARCHER

Garima Dubey, PhD Student, Western Sydney University

PROFILE

FEBRUARY 2024

RESEARCH AREA

**Plant physiology,
Molecular biology,
climate change and
abiotic stress**

Garima began her CRDC funded PhD in June 2022 with Western Sydney University after completing her Masters project investigating heat tolerance in Australian wild relatives of cotton.

Her PhD is titled: *Drought-resilient cotton: Combining synthetic biology solutions to improve cotton productivity under future water-limited and heatwave conditions.*



WHAT'S THE RESEARCH ABOUT?

I am working on understanding drought and heat tolerance in the wild relative of cotton. Focusing on understanding physiological, morphological and molecular responses to drought and heatwave events in cotton and its wild relatives. I am interested in photosynthetic enzymes, plant-water relationship and the role of proteins (aquaporins) in CO₂ and water transport in cotton species.

The outcome of this study will provide insight into identifying and utilising drought and thermotolerance traits of wild species as targets for developing more productive and resilient cotton cultivars in future challenging climatic conditions.



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HOW DID YOU END UP IN COTTON RESEARCH?

I did my Bachelor's (2002) and Master of Science in Botany with plant physiology as a major (2004) from India, then worked as a high school teacher. I took a break from my career, travelled to different countries with my husband and had two beautiful kids.

In 2018, I decided to pursue my PhD. So, joined the Master of Research at Macquarie University, NSW, to build the knowledge gap. After completing my MRes degree, I joined PhD at HIE, Western Sydney University, funded by CRDC.

HOW WILL YOUR RESEARCH BENEFIT THE GROWER?

The knowledge generated from this research project can provide growers with a better understanding of the drought and heat tolerance mechanism in wild species of cotton and how the traits responsible for tolerance can be incorporated in commercial cotton to develop a more resilient, high-yielding cotton cultivar for future conditions.

HOW WILL IT BENEFIT THE INDUSTRY?

The knowledge and understanding of the water and CO₂ transport during water and heat stress gained during this project will provide new insight to the cotton industry for mitigating extreme climatic conditions in future that significantly affect farming income and, hence profitability of the industry.

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

I like gardening and listening to music when I am not researching. I also like to spend time with my family and two beautiful kids.



For further information:

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