

MEET YOUR COTTON RESEARCHER

Malem McLeod, Research Officer, NSW DPI

PROFILE

APRIL 2024

RESEARCH AREA

Soil hydrology, agricultural water productivity and water sustainability

CRDC Research Project
Water Productivity Benchmarking in the Australian Cotton Industry (2022-2025)



WHAT'S YOUR BACKGROUND?

I was born in Indonesia and worked as a lecturer in Soil Science there between 1987 and 1991, before I came to Australia. I completed a Masters in Natural Resources Management from UQ in 1993, then a PhD in soil hydrology at UNE in 2003. I hold an MBA in International Business and Human resources Management from UNE (2011), and a Certificate IV in Training and Assessment from Tocal College in NSW.

I moved to Tamworth in 1999 to work in the water and salinity research with then NSW Department of Agriculture. With a strong background in soil physics and understanding of physical based processes of water movement within the crop root-zone, my research focus is to improve soil & water productivity and water sustainability of farming systems. I have assessed soil and water productivity of food crops and broadacre crops, pasture, and agroforestry systems in Indonesia and in NSW Australia.

Prior to leading the current cotton benchmarking project, I contributed to and lead ACIAR funded projects to improve the productivity of farming systems in the tsunami affected regions of Aceh, Indonesia; and led water research component of sorghum yield optimisation project co-funded by GRDC and NSW DPI.



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HOW DID YOU END UP IN COTTON RESEARCH?

I was a team member of the cotton benchmarking project led by David Perovic (DAN2002, 2019 — 2022). I really enjoyed my part, which was to develop a metric for water productivity of rainfed cotton via a literature review. When David left DPI in May 2022, I took the challenge to complete the DAN2002 project and lead the current benchmarking project (DAN2303). During this process, my understanding about the industry and their need to demonstrate good water stewardship, grew. I also witnessed how generous, and collaborative are the Australian cotton growers and consultants.

CAN YOU EXPLAIN YOUR RESEARCH?

We use collect farm records on yield and water from cotton growers and use them to quantify the annual water productivity and water productivity across the industry, including for rainfed cotton. In the process we also quantify the farm irrigation efficiency and a range of farm water indices. When we complete results from all participating growers, they will be aggregated for the industry benchmarking.

HOW WILL IT BENEFIT THE INDUSTRY?

This research is helping the industry to quantify its water productivity and water sustainability indicators and track the progress against the industry's target.

The Australian cotton industry is a global leader and driver in water productivity, using less than half the global average amount of water to produce cotton. It is the only Australian agricultural industry that is currently able to show continuous improvement in water productivity, which is determined by this ongoing benchmarking program. This is important to support and maintain our social licence and market access

WHAT ARE THE KEY FINDINGS TO DATE?

Benchmarking of water productivity has shown that growers continue to produce more cotton from less water – improving their status as water efficient producer in the world. The long-term trend of average GPWUI from irrigated cotton farms studied is increasing with a significant seasonal fluctuation.

WHAT EXCITES YOU ABOUT WORKING IN THE COTTON INDUSTRY?

The resilience of people in the industry is inspiring. They are open to embracing new idea and continue improving their water productivity and water sustainability indicators.

WHEN YOU'RE NOTE RESEARCHING, WHAT ARE YOU UP TO?

I read, listen to music, grow edible plants, cooking what I grow, catching ludericks, and occasionally hike. I would like to learn to play a guitar.

For further information visit www.cottoinfo.com.au



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