

Optimising crop roots for enhanced drought resilience in legume–sorghum intercropping



Key details

Location

Ethiopia

Duration

Start Apr 2025

End Mar 2029

Budget

AUD 659,577

Commissioned organisation

[The University of Queensland](#)

Partners

Ethiopian Institute of Agricultural Research

Project Leadership

Professor Daniel Rodriguez

ACIAR Research Program Manager

Dr Leigh Vial

Program

[Crops](#)

Project code

CROP/2024/154

Research need

This small research activity will quantify root traits that enhance drought tolerance in sorghum in Ethiopia and Australia.

Sorghum is an intrinsically drought-tolerant cereal that serves multiple functions in smallholder and large-scale commercial agriculture. It is a staple crop, a cash crop, a feed crop and a high biomass crop that provides ground cover and soil health benefits. When intercropped with legumes, as is typical of smallholder farming systems, sorghum production can be expected to have a smaller dependence on the use of chemical fertilisers. However, there is limited information on how the sorghum root system is affected when grown intercropped with legumes, or on how to optimise root functioning in intercropped systems to support food production and mitigate the impacts of droughts.

This project will combine recent advances in high-throughput root function phenotyping in Australia and advances in the understanding of root-soil biology from Germany. This will quantify valuable root traits that enhance drought tolerance and provide new information and develop capacity of crop breeders and agronomists in Ethiopia.

