

A wide-angle photograph of a sorghum field at maturity. The plants are densely packed, with their long, narrow green leaves and tall, golden-brown panicles clearly visible. The field stretches to a flat horizon under a bright, overcast sky with soft, white clouds. The lighting is even, highlighting the texture of the grain heads.



To address severe water deficits and yield uncertainty, an open-access digital platform enables technicians and farmers to identify sorghum hybrids with superior stability or specific adaptation for each target location and sowing date. By combining machine learning predictive models with multidimensional environmental databases, the platform supports agronomic decision-making, mitigates climate risk, and promotes the adoption of crops with high water-use efficiency and carbon sequestration capacity.



The project will establish a baseline and characterize environments through climate, soil, and agronomic analyses. Cultivars will be evaluated in representative environments, and outstanding genotypes will be identified. An online platform will be created to enable producers to select the most suitable cultivars.



As expected results, the initiative aims to establish a regional evaluation network that will benchmark the technological baseline across participating countries and delineate target production mega-environments. Through experimental field trials and demonstration farms, the project will quantify genotypic, environmental, and genotype-by-environment interaction effects on grain yield, biomass, and soil organic carbon stocks. Additionally, a validated machine learning predictive model will be hosted in an open-source repository and integrated into a digital platform to provide site-specific cultivar recommendations and yield forecasts.



80 %

Regionally consumed staple foods produced by local farmers



58 %

Area classified as a high/severe drought risk zone



2500

Small and medium-scale farmers directly benefited



200

Trained students,
technicians, and
professionals



6

Learning plots for field experiments



20 %

Expected increase in grain production



1

Online platform with cultivar selection recommendation



2

Workshops with producers, students, technicians and professionals

Department of Education
 Government of Karnataka
 Bangalore

INTA