

CRP on Dryland Systems

Report on output

Database of climate, crop soil and management as required to calibrate and validate the models

Introduction:

One of the activities planned to identify best bet options for sustainable intensification of smallholder systems in East Shewa is to conduct an ex-ante assessment of the identified options for their contribution to productivity, profitability and resource use efficiency of smallholder farming systems. This will be done using crop simulation model APSIM (Agricultural Production System Simulator) and historical climate data. APSIM is a process model that can simulate the growth and performance of large number of crops and their response to various management practices. However, the model need to calibrated and validated to the local conditions and it requires good quality data for this. To meet this requirement, extensive efforts were made to collect the required data. Table below gives a brief account of the data collected. The same will (except climate data) will be made available through dataverse which is an open source data repository.

Data	Description
Climate	Long-term (1981 onwards) historical climate data for 5 locations in East Shewa district
Soil	A GIS soil layer with information about 5 different soil profiles
Crop production	Historical crop production data to analyze the trends and changes in area and production of different crops
Household information	Information for about 301 households in Haleku and Dodicha kebeles
Crop management	Crop management information from Adamtullu and Adama districts
Crop varieties	Growth and performance of 3 varieties of maize and 5 varieties of sorghum for calibrating Crop simulation model APSIM
Land use	GIS data layers on land use
Demographic characteristics	Census data on population and other variables

Links to datasets on dataverse database system:

K.P.C Rao; Alemayehu Eshete; Kedir Wako; Gizachew Legesse; Ermias Alemu, 2015, "Baseline survey data covering 301 households in Haleku Gulenta and Dodicha kebeles in Adamtullu Woreda, Ethiopia", <http://dx.doi.org/10.7910/DVN/WVF9SD>, Harvard Dataverse, V1

K.P.C Rao; Kedir Wako; Gizachew Legesse; Ermias Alemu; Jemal Seid; Robel Tekele Miteku , 2015, "Daily rainfall, maximum and minimum temperatures and solar radiation records from 1982 to 2013 for Adamtullu, Ethiopia", <http://dx.doi.org/10.7910/DVN/IKMU6A>, Harvard Dataverse, V1

K.P.C Rao; Gizachew Legesse; Ermias Alemu, 2015, "Area, production and productivity of major cereal and pulse crops grown in East Shewa zone of Oromiya region, Ethiopia", <http://dx.doi.org/10.7910/DVN/30U2LU>, Harvard Dataverse, V1

Gizachew Legesse; K.P.C. Rao, 2015, "Landuse and land cover data of Haleku Gulenta and Dodicha Kebeles in Adamitullu Woreda, Ethiopia", <http://dx.doi.org/10.7910/DVN/WD7GCN>, Harvard Dataverse, V1

K.P.C Rao; Kedir Wako; Alemayehu Eshete, 2015, "Soil properties of 40 farmer fields in Haleku Gulenta and Dodicha kebeles of Adamitullu woreda, Ethiopia", <http://dx.doi.org/10.7910/DVN/GM2YV0>, Harvard Dataverse, V1