## Estimation of Maize Crop Water Requirement using CROPWAT: The Case of Abobo District, Southwest Ethiopia

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<sup>1</sup>Department of Wand irrigation **at**er regirement of Maiz crop using CROWAT.Today on **a**rldide there is a shortage of **at**er, therefore, it is essential to adopt water saving agriculture as a counter measure as well as efficient use of irrigation water is becoming increasingly important. In growing crop, irrigation scheduling is a critical management input to ensure optimum soil moisture status for proper plant growth and development as well as for optimum yield, water use efficiency and economic benefts. In this study different data like: climate data (sunshine hour, maximum and minimum temperature, humidity and wind speed) and rainfall, soil data, crop data were used. The analyzed data indicated that crop water requirement was estimated using CROPWAT 8.0 model. A maize variety with a growing period of 125 days to maturity would require 683.9 mm depth of water, while 243.3 mm would be required as supplementary irrigation depth.

## Materials and Methods

**Location of the study area:** e study area, Abobo district, is located at 42 km south of Gambella town and about 808 km west of Addis Ababa. It lies between  $07^{\circ}50'47"$  to  $08^{\circ}01'59"$  N and  $34^{\circ}28'59"$ - to  $34^{\circ}34'37"$ E with altitude ranging from 446 to 490 meters above sea level (masl) and slope from at (0.2-0.5%) to gently sloping (2-5%) [5].

**Climate :** e climate of the region is in uenced by the tropical monsoon, which is characterized by high rainfall in the wet period from May to October and little rainfall during the dry period from November to April. e average annual rainfall is 955.5 mm, whereas the mean minimum and mean maximum monthly temperatures range from 16.2 to 21.2 and 32.1 to 38.2 .

**Crops grown :** Agriculture for Abobo district is the main and important economic sector which is mixed agriculture type. e major crops grown by farmers include maize (Zea mays L.), sorghum (Sorghum bicolor), and groundnut (Arachis hypogaea). e study area is potentially favorable agriculture [6].

## **Data types and Sources**

**Meteorological data:** Meteorological data was used as input to the CROPWAT model to compute reference crop evapotranspiration (ETo). Based on these objectives, the meteorological data required for this study were collected from the Ethiopian National Meteorological

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Crop evapotranspiration or crop water use can be assessed by

WP) is 140mm/meter, 40mm/day maximum rain water in ltration