

Determination of the Effectiveness of Irrigation Scheduling Strategy using CROPWAT Model
for Maize Crop: Case study in Perkerra Irrigation Scheme, Kenya

Kennedy O. Okuku¹

Japheth O. Onyando²

Abstract: With the increasing climate change that results into unpredicted rainfall pattern that causes either severe drought or flood, there is need to adapt some irrigation scheduling strategies that will effectively and efficiently supply water to crops at the right time and in the right amount. This can be supplemented by harvesting the surplus rainwater when it floods then store it to be used in case the level supply goes down. By employing the correct irrigation scheduling strategy, the stored water or the minimal available water can be used increase productivity from a large portion of land. A CROPWAT model was applied in this research using maize crop as our main crop since maize is widely grown in Perkerra irrigation scheme. Weather elements from the nearby meteorological station were used to feed in the necessary data to obtain reference evapotranspiration. Crop water requirements, irrigation water requirement, and irrigation scheduling were estimated using the CROPWAT model while the soil texture, field capacity and the amount of available moisture before irrigation were done at the soil lab in Egerton University.

Keywords: Irrigation scheduling, CROPWAT, Irrigation efficiency, Irrigation effectiveness, scheduling strategies