



# Estimation of Crop Water Requirement of Sunflower Crop using FAO CROPWAT 8.0 Model for North Coastal Andhra Pradesh

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## ABSTRACT

Among the major crops grown in north coastal districts of Andhra Pradesh, India sunflower is one of them where proper management practices will leads to increase in yield. Effective utilization of water can be done by suitable irrigation scheduling which depends on the weather. A study was performed determine the crop water requirement and irrigation schedules for sunflower crop using CROPWAT 8.0 model for which 10 years meteorological data (2009-2019) was collected from Naira. The Penman - Monteith method was used for evapotranspiration calculation in the model. This study revealed that  $ET_0$  varied from 1.9 to 3.9 mm/day and the effective rainfall varied from 0.6 to 141.4 mm. The irrigation requirements were 143.0 mm/dec for sunflower. The total gross irrigation and the total net irrigation requirement were 233.6 mm and 163.5 mm. This study proved that the CROPWAT 8.0 model is useful for calculating the crop irrigation needs for the proper management of water resources. This paper might be useful to prevent over or under irrigation and planning water management strategies for sunflower crop.

**Keywords:** Crop water requirement, sunflower, Irrigation Schedules, Effective, rainfall and CROPWAT 8.0

Agriculture is the largest (81%) consumer of water in India and hence more efficient use of water in agriculture needs to be top most priority (Surendran *et al.* 2015). Severe water shortages will be occur in future in India and water for agriculture is becoming scarce with in light of growing water demands from different sectors Water is the most demanding and critical input for agriculture. In view of changing climate efficient use of irrigation water for crops is intensifying. The dependence on water for food production has become a critical constraint to enhance food productivity. A better understanding of the intricate interactions between climate, water and crop growth needs to be a priority area in India. Water is an essential input for crop production. The productivity of most of the crops in the District

remains almost static or lower when compared with the national average. The uneven rainfall distribution pattern and low water holding capacity of soils, soil moisture stress occurs during crop growing season and it is considered as one of the major limiting factors for higher productivity in the District. For better management of available resources and agricultural productions, it is necessary to understand irrigation water requirement and present level of water supplies.

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