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Estimate the irrigation water requirements of existing and other high value crops in the Appapuram Channel Command using 'AquaCrop' Model

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■ **ABSTRACT :** This study was carried out to determine the total water requirement needed for 10000 hectares of rice, cotton, maize, chillies, black gram, green gram, sugarcane and other crops are commonly grown in the area, which are being cultivated in appapuram channel command of Krishna Western Delta (KWD) in *Kharif* and *Rabi* seasons, respectively. In KWD, water is supplied continuously until about 10 days before harvesting. Water is required to bring the fields to saturation, and to establish a layer of water in the fields to facilitate land preparation, Saturation of water, effective rainfall, evapotranspiration and seepage percolation will be calculated for determination of crop water requirement during the pre-saturation and normal growth periods. The computer simulation model AquaCrop was applied to estimate crop water requirements and yield of rice, cotton chilli, and maize green gram and block gram crops grown in both the seasons. The decennial meteorological data for years 2000-2015. The study showed that the total of 1010, 656.0, 573.3, 816.2, 672.2 mm and 552.2 mm of irrigation water for paddy maize blackgram chilli, cotton, and green gram crops during *Kharif* and *Rabi* seasons, respectively which clearly show that there is a misutilization of canal water and non-utilization of ground water to the extent recommended hence the area under cultivation is also lower than the actual potential.

■ **KEY WORDS :** AquaCrop Model, CROPWAT, Water requirement, Grain yield

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