Abstract:

This study was conducted for two successive seasons (1997/98 and 1998/99) under commercial field conditions at Kenana Sugar Estate to predict the water required for sugarcane crop grown at Kenana Scheme in montmorillonitic clay soil, with 65% -70% clay and pH 7.5 to 8.5. The reference evapotranspiration (ETo) for Kenana Estate was computed using Penman-Monteith approach and the CROPWAT software. The water required for irrigating sugarcane was calculated according to its phenological stages. Irrigation water required and the actual releases (actually pumped) were compared with that intended for irrigation. It was found that the water required by sugarcane increases gradually with plant development, and the quantities required in the crop root zone amounted to 17 221 and 20 572 m³ ha-1 season-1 for ratoons and plant cane, respectively. The water required during the two crop seasons (1997/98 and 1998/99) amounted to 696 and 667 million m³, respectively. The actual releases, however, were 746 and 762 million m³ for the two seasons, respectively. If the actual releases were matched with the water requirement, about 50 and 95 million m³ of irrigation water could have been saved in 1997/98 and 1998/99 seasons, respectively.