

Simple and Farmers' Friendly Decision Support System for Enhancing Water Productivity in Agriculture

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Abstract

Calendar based irrigation scheduling is one of the key reason for over irrigation and poor water use efficiency in developing countries. Lack of simple decision making tool to decide timing and quantity of water to be applied is a major bottle neck. ICRISAT has developed Microsoft Excel based tool 'Water Impact Calculator (WIC)' for better management of available water resources. The tool is developed using strategic research data collected at ICRISAT and validated at three pilot sites those are situated into three Indian states (Rajasthan, Gujarat and Andhra Pradesh). Field experiments were conducted under two land-form conditions (broad bed and furrow and flat fields); and irrigation was applied by two different methods (drip and flood). Experimental data collected in micro-watershed at ICRISAT and different pilot sites showed that WIC could be used in a wide range of soil and climatic condition. WIC simulated soil moisture is found comparable with observed moisture data which is the basis of irrigation scheduling. Water balance made by WIC in these experimental sites showed that number of irrigations and amount could be reduced to 30-40 per cent by WIC based irrigation scheduling without compensating in crop yields. WIC could be a potential tool for water resources planning and management at field and watershed scale in semi-arid tropics.

Keywords: Water impact calculator, water use efficiency, irrigation scheduling, consumptive use, water balance

