



## Using a System Model for Irrigation Management

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When using Systems Thinking variables involved in any process have a dynamic behavior, according to nonstatic relationships with the environment. In this paper it is presented a system dynamics model developed to be used as an irrigation management tool. The model involves several parameters related to irrigation such as: soil characteristics, climate data and culture's physiological parameters. The water availability for plants in the soil is defined as a stock in the model, and this soil water content will define the right moment to irrigate and the water depth required to be applied. The crop water consumption will reduce soil water content; it is defined by the potential evapotranspiration (ET) that acts as an outflow from the stock (soil water content). ET can be estimated by three methods: a) FAO Penman-Monteith (ETPM), b) Hargreaves-Samani (ETHS) method, based on air temperature data and c) Class A pan (ETTCA) method. To validate the model were used data from the States of Ceará and Minas Gerais, Brazil, and the culture was bean.

Keyword: System Dynamics, soil moisture content, agricultural water balance, irrigation scheduling.