Abstract

Now a day, precision agriculture has become more and more important role in Thai agriculture development, especially, for yield control and farm management enhancement. This research has presented development of software for watering process system using irrigation system modeling. Artificial intelligence techniques has been deployed to precisely model weather-related parameter of cassava rai automatically. The software design also considered various characteristics of cassava rai environment including pattern of drip irrigation system, cassava characteristics and soil characteristics. The goal of the watering system is to achieve a quantity of water which is optimal for considered environment parameters. Too much of water can cause waste of water in which cassava cannot obtain maximum usage of water, while too little of water can cause water insufficiency for cassava growth. Parameters used in this watering process calculation were mainly potential evapotranspiration (ETp) and crop coefficient (Kc) while the system also considered other related parameter such as pattern of drip irrigation system, water holding capacity of soil and cassava root depth. These parameters all together were considered complicated and the proposed software in this research was aim to perform complex calculation and then simplify the watering process system. The main technique was using artificial neural network to precisely and automatically model time-based and position-based values of ETp which was normally not available for every area of farming.