

## CREATION OF SUSTAINABLE WATER MANAGEMENT PRACTICE USING ADVANCED HYDROINFORMATICAL TECHNOLOGY

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### **Abstract**

*Frequency of climatic extremities requires stateful overthinking of agricultural practice. In this study we introduce the first steps of a GIS based model, which is based on a GIS-RS-WMM model integration to discover the water regime of an experimental area. CROPWAT is an irrigation model, which uses crop coefficient ( $K_c$ ) as a basic input of the model. Determination of this coefficient is based on leaf area, from which we can calculate the transpiration area, which is different in the simple phenological phases. To eliminate the error of  $K_c$  determinates from CROPWAT model, we calculated NDVI from Landsat TM time series images. This method gives such value that has higher accuracy in the determination of phenological state. Our research was made in a 19 ha sugar beet sample plot, where we inquired the heterogeneity of the area by using principal components analysis that was performed on the time-series of the biomass. The results assist and enable the precision water management planning and, on the other hand, we get closer to the problem solving, origins from climatic extremities.*

**Key words:** water management, hydroinformatical technology.