[P2.096]

Assessment of crop yield simulations for citrus plantations using Cropsyst model for Lower Seyhan Plain in Turkey

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Crop models are helpful instruments to simulate the plant growth, production, as well as to estimate the density of nitrogen (N) in a variety of production systems. In this manner, these models can assist in crop production decisions to keep up high production, while minimizing N losses that may have negative environmental impacts. CropSyst, selected for this study, is a multi-year, multi-crop, daily time step cropping systems simulation model developed to serve as an analytical tool to study the effect of climate, soils, and management on cropping systems productivity and the environment. Turkey benefits of suitable climatic and ecological conditions which enhance the potential for the production of citrus fruit cultivation, representing 3,74 % of total world citrus production. 84,2 % of Turkey's citrus fruit is produced on the Mediterranean Region. Orange productions are mainly *Washington, Navelina, Cara cara*. However, in the Mediterranean region, climate change is expected to impact on natural and agricultural ecosystems by warming, reduced rainfall. The objective of this study is to demonstrate the ability of a process based (**Cropsyst**) crop modelling to assess the citrus crop productivity. The results of this study will be a set of criteria and functions needed to predict the changes in phenological stages, fruit growth, fruit maturation, and fruit coloration for citrus.

Keywords: Crop modelling, Citrus plantations, Cropsyst, crop yield