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Verification of WOFOST Model for Soil and Meteorological Conditions of Bulgaria

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Many mathematical models for simulating crop growing processes are currently used in the contemporary science and agricultural practice. In the last few decades, WOFOST dynamic models elaborated by the World Center for Food Study together with the Wageningen Agricultural University gain popularity. They are developed in order to investigate the process of yield accumulation as dependent on the agro-meteorological factors, soil conditions, climate change and variability, sort and hybrid variety, agricultural practices, etc. WOFOST models can prognosticate yields and income from the production. They help assessing soil fertility and warning of unfavorable production conditions. The results obtained can be used on farm and regional levels. The paper presents a verification of WOFOST model for Sofia region, Bulgaria for two grain crops - maize and soybean. Data of field irrigation experiments with the two crops from the period 1987-1998 have been used. Crop growth, development and yield formation have been simulated. Results about the accumulation of the epigeous mass and roots, leaf area development, dynamics of soil moisture and evapotranspiration, and yields are obtained. The correlation between the simulated and experimental data is sufficient.