

Evaluation of AquaCrop Model in the Simulation of Sunflower Varieties Growth Under Drought Stress

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Iran is located in arid and semi-arid areas, and due to Water shortages, efficient use of water for planting, growing, maintenance and eventually harvesting a good product is essential. Since the sunflower is considered as an oilseed plant in the world, this study is dedicated to the sunflower plant. For this study, there are experimental and mechanistic methods. In this study, simulation method with the Aqua crop model is used. Aqua crop simulation Model, in order to evaluate the effect of irrigation management on yield and dry matter of sunflower cultivars were evaluated in Karaj, Alborz province, the results are presented in detail in various sections of this study, along with explanations, tables, charts. But in summary we can say that the results of the statistical evaluation of the model showed that the relative root mean squared error for estimating seed yield and dry matter is in the range of 10_20% and coefficient of determination is greater than 87%. Also according to the results, there was no significant difference between the amounts of dry matter and yield simulated by the T-test and values observed of yield and dry matter by the Aqua crop statistically. The results of the study showed that the Aqua crop model despite the need for few parameters has simulated yield and dry matter of sunflower cultivars in Karaj area well. Aqua crop model is simple with few parameters, but these issues have not reduced its accuracy and capability. Thus, this model can be introduced to estimate the yield of sunflower, and it is used to optimize the effect of water management on performance, and management methods can be used to increase water productivity.

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