عنوان مقاله:

ارزیابی عملکرد نیشکر تحت تاثیر سطوح آبیاری و کود با استفاده از مدل Aquacrop

محل انتشار:

دوفصلنامه تحقیقات علوم زراعی در مناطق خشک, دوره 2, شماره 1 (سال: 1399)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Increasing water use efficiency in order to more produce in the agriculture section has special importance. Therefore, simulation of plant growth stages and, consequently, prediction of product yield lead to better planning and more efficient management in the production process. The present study was conducted with the aim of predicting yield and sugarcane biomass at ratoon stage in the third year of planting, with AquaCrop model in Amir Kabir Agro-industry Co. with three levels of full irrigation or 100% water requirement (I1), 75% (I2) and 55% water requirement (I3) and three levels of 100% manure requirement of sugarcane plant to nitrogen fertilizer (F1), 80% (F2) and 60% (F3) with four replications in 2010-2011. For calibration of the model, the calibration values with the prediction of statistical error of R2 for yield and biomass for all levels of fertilization and irrigation were 0.97 and 0.96 respectively. In the validation stage, the yield of the product was simulated in different conditions of irrigation management, and it was compared with actual yield, and the correlation coefficients for the yield of the product and the biomass was estimated to be 0.91 and 0.81, respectively. The results showed that F2I1 has higher yield and biomass than other treatments and with the 20% reduction in fertilizer application, the desired yield could be achieved. This will reduce agricultural costs and, in the long run, will also eliminate the negative effects of excessive fertilizer use and, while increasing production, will be a strategic plan for achieving sustainable agricultural objectives.

کلمات کلیدی:

آنالیز حساسیت, زیست توده, صحت‌سنجی, واسنجی

لینک ثابت مقاله در پایگاه سیویلیکا: