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عنوان مقاله:

Assessment of the AquaCrop Model for simulating Canola under different irrigation managements in a semiarid area

محل انتشار:

مجله تولید گیاهان, دوره 10, شماره 4 (سال: 1395)

تعداد صفحات اصل مقاله: 21

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خلاصه مقاله:

Field experiments were conducted in 2005-2006 and 2007-2008 and the data were used tocalibrate and validate yield and biomass of AquaCrop Model for canola (Brassica napus l.). Themodel was calibrated with the first year and then was validated with the second year data. Fivewater stress treatments at different growth stages were performed including fully irrigatedduring whole growing period (I1), water stress at vegetative stage in spring (I2), water stress atflowering stage (I3), water stress in grain filling stage (I4) and severe water stress conditionsduring whole growing period with supplemental irrigation in planting and germination stage(I5). AquaCrop model coefficients were calibrated for I1 in 2005-2006 and the calibratedparameters were used for other treatments in both year. In this simulation model was assessedbased on measured values of the water content in root zone, evapotranspiration, canopy coverand final yield and dry matter that the latter are the important trait for the farmers The accuracyof the model in calibration was tested using RMSE, NRMSE and d, which were 0.92 t ha-1,12.37% and 0.98 for yield and 0.92 t ha-1, 12.37% and 0.98 for biomass, respectively. TheRMSE, NRMSE and d values in 2007-2008 (validation year) were obtained as 0.26 t ha-1,10.01% and 0.92 for yield and 0.84 t ha-1, 14.93% and 0.92 for biomass, respectively. The resultof calibration and validation for volumetric water content was acceptable. AquaCrop modelestimated the evapotranspiration acceptable in the first year, while the accuracy of model topredict this parameter decreased for validation. Therefore, the model was calibrated effectivelyfor yield and biomass; however, the results were less satisfactory when it came to .(the simulationof the severe stress (I5

کلمات کلیدی:

AquaCrop, Canola, Grain yield and biomass, Soil water content, Canopy cover, Rainfed and deficit irrigation

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