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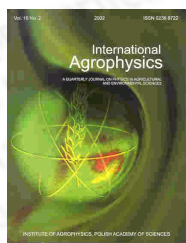
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Simulating the effects of irrigation scheduling on cowpea yield

(get PDF )

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abstract The CRPSM model developed by Hill et al. (1996) was modified, calibrated and tested using cowpea-water use and weather data collected under line source sprinkler system at Ile-Ife, Nigeria. Three sets of data were collected. The first was used to calibrate and modify the model and the other two for testing. Simulated irrigation schedules were then applied using two of the four management options in the model to select the best schedules for the region. The water yield index (WYI) defined as the products of the model predicted relative yield (percent) and the transpiration water ratio (transpiration/water applied) was used to select the best schedule. The results showed that WYI ranged from 52% for irrigation level one in 1999 to 8% for irrigation level five in 1997, when the model was applied to actual field data. However, with simulation runs, a six day interval provided a WYI of 66% for irrigation level one in 1999 and a two day interval provided a WYI of 9% for irrigation level five in 1997 using almost the same amount of water. The model, therefore, proved to be useful in estimation of possible irrigation schemes to maximize yields.

keywords cowpea yields, water use index, irrigation scheduling, modelling

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