Simulation of Chickpea Crop Maturity, Drymatter Accumulation and Seed Yield as Influenced by Different Dates of Sowing and Irrigation Levels

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ABSTRACT

A field experiment was conducted to study the effect of dates of sowing and irrigation levels on growth and yield of chickpea in Maddipadu Village, Prakasam district during the *rabi* seasons of 2015-16 and 2016-17. The field experiment comprised three dates of sowing and nine irrigation levels replicated three times in strip plot design. The drymatter accumulation of 2015-16 and 2016-17 revealed that, the RMSE of model was 637.2 kg ha^{-1} and the mean deviation was -11.4 per cent. Among different dates of sowings, the lowest deviation observed in 1st fortnight of November sowing. The RMSE of model was 608.8 kg ha^{-1} with -11.4 per cent of deviation among irrigation levels. Out of the nine irrigation levels, the treatment I_5 recorded lowest deviation of -14.4 per cent followed by I_4 treatment with -14.1 per cent. The observed and simulated days to reach crop maturity revealed that, the RMSE of model was 0.4 days with mean deviation of 0.2 per cent among different dates of sowing. Out of the three dates of sowing, the 2nd fortnight of November sowing was over estimated by one day by model. Among different irrigation levels, the RMSE of model was 0.2 days and mean deviation was 0.2 per cent. The observed and simulated seed yield revealed that, the RMSE of model was 34.1 kg ha^{-1} with mean deviation of 1.4 per cent with different dates of sowing. Out of three dates of sowing, the 2nd fortnight of November sowing was estimated without any deviation by the model. Among different irrigation levels, the RMSE of model was 134.7 kg ha^{-1} and mean deviation was 1.6 per cent. The model over estimated seed yields with highest deviation in I_5 treatment which was -9.2 per cent.

Key words: *Chickpea, Simulation, Dates of sowing, irrigation levels, DSSAT, drymatter accumulation, Seed yield.*