Journal of Agrometeorology 20 (3) : 206-210 (September 2018)

Evaluation of APSIM – Maize model under different sowing dates at Samaru, Nigeria

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ABSTRACT

APSIM – maize model was validated with the experimental data on three maize cultivars (Sammaz 33, Sammaz 37 and Sammaz 27) sown on three different dates during 2015 wet season at the Institute for Agricultural Research Samaru Zaria Nigeria (Lat. 7R" 38'N, Long. 11R" 11'E Lat. 686m). For the testing efficiency of the model performance, R^2, RMSE and RMSEn was computed. RMSEn between observed and simulated values by APSIM for grain yield was lowest (5.4%) for Sammaz 33 cultivar as compared to Sammaz 37 (10.5%) and Sammaz 26 (27.6%). Similar results were obtained for the other parameters, with Sammaz 33 out yielding the other two cultivars. The observed values under second sowing date showed better performance of days to flowering, physiological maturity and leaf area index for all the varieties. The grain yield performance were higher under first sowing date. The results led to the conclusion that APSIM model is efficient in simulating maize growth and development in arid environment of Samaru.

Keywords: Agricultural productivity, APSIM, crop simulation, maize, rainfall.