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Effect of NPK rates and irrigation intervals on potato (*Solanum tuberosum L*) yield in the Sudan Savanna of Nigeria

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Field trials were conducted during the 2010/11 and 2011/12 dry seasons at the Teaching and Research Farm of the Kebbi State University of Science and Technology Aliero, located at Jega (lat. 12° 11'N; long. 4° 16E and 300 m above sea level) in the Sudan savanna ecological zone of Nigeria. The aim was to study the effect of irrigation interval and NPK fertilizer rates on yield of potato (*Solanum tuberosum L.*) in the study area. Treatments consisted of three irrigation intervals (3, 6 and 9 days), four rates of NPK (20:10:10) compound fertilizer (0, 300, 600 and 900 kg NPK ha-1) and three varieties of potato (Bertita, Diamant and Nicola). Factorial combination of irrigation interval and fertilizer rates was allocated to the main-plots while varieties were assigned to the sub-plots in a split plot design, replicated three times. The size of each sub-plot was 4.5 x 3m (13.5m). Result revealed that mean tuber diameter was highest at 3 days irrigation interval. Mean tuber weight, tuber number per stand, tuber weight per stand and fresh tuber yield were highest when irrigated at 3 or 6 days irrigation interval. Mean tuber diameter, mean tuber weight, number and weight of tubers per stand and yield per hectare peaked at 600 kg NPK ha-1, with no further significant response at fertilizer rates beyond this level. Result of irrigation and fertilizer interactions indicated that yield was generally optimized under either 3 days irrigation interval at 600 kg NPK ha-1 or 6 days irrigation interval at 900 kg NPK ha-1. From the result of this study, the use of 600 kg NPK ha-1 under 6 days irrigation scheduling proved best for high tuber yield in the study area. Also, any of the three varieties could be adopted for good yield performance.

Biography

Adamu Muhammad obtained his B Agriculture and MSc Crop Science in Usmanu Danfodiyo University, Sokoto, Nigeria. He completed his PhD in Agronomy at the Ahmadu Bello University, Zaria, Nigeria. He is currently the Head of Department of Crop Science, Deputy Dean of the Post-graduate School and Director of Examinations and Registration of the Kebbi State University of Science and Technology, Aliero, Nigeria. He has published more than 30 papers in reputed journals nationally and internationally.

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