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Slow-release nitrogen fertilizers effects on plant growth and yield of sorghum

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Abstract : The aim of this investigation was to study the efficiency of conventional nitrogen fertilizers compared with slow-release fertilizers as urea, ureaform and sulfur- coated urea (SCU) at different doses on sorghum plants. Field experiment was conducted at Al-Sharkia Governorate, Egypt in a private farm through a project of soil and water use Dept. of the National Research Center. This experiment design with three replicates. Sorghum seeds were sown on the 15th of December, 2015. Plants were fertilized by Seven treatments of nitrogen fertilizer from control (no fertilization), (urea 46%N), (ureaform 38%N) and (SCU 32%N) respectively, with two levels of nitrogen as 100 and 200 Kgfed^{-1}. Results showed that the use of slow-release nitrogen fertilizer gave the highest values of vegetative growth as plant height, number of leaves/plant, number of internodes/plant and dry weight and increase the yield and its components beside increase the concentrations of N, P and K and its uptake at all growth stages. The use of sulfur coated urea more effective than ureaform of the parameters under investigated.

Keywords : urea, slow-release fertilizers, nitrogen efficiency, sorghum.

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