SCIENTIFIC EVALUATION OF THE PUTATIVE TRAITS FOR OPTIMIZATION OF POTASH APPLICATION TO GROUNDNUT UNDER WATER STRESS CONDITION IN ODISHA

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ABSTRACT

A field experiment entitled “Physiological and biochemical basis of growth, yield and drought tolerance in groundnut by application of potash” was conducted at central farm OUAT, Bhubaneswar under AICRP on groundnut, Department of Agronomy during Rabi-Summer 2014-2015. The physiological studies were carried out in the department of Plant Physiology, College of Agriculture, Bhubaneswar. Groundnut variety Devi was taken for study and the experiment was laid out in a Randomized Block Design with 8 treatments and replicated thrice. The treatments were comprised of T1: control (no NPK) T2: farmers practice (N: P: K:: 18:46:30 kg/ha) T3: RD of NPK @ 20:40:40 kg/ha T4: NPK @ 20:40:60 kg/ha T5: NPK @ 20:40:80 kg/ha all at sowing T6: NPK @20:40:20 kg/ha at sowing and 20 kg/ha at flowering (30 DAS) T8: NPK @ 20:40:40 kg/ha at sowing and 40kg/ha at flowering (30 DAS).

The result revealed that plant height, number of branches, number of leaves, number of nodules, TDM were improved by the level and timing of K application. Among the treatments application of 60 and 80 kg/ha in split registered a significant increase of the above growth character in the groundnut crop which reflected a higher value of LAI, LAD, CGR and RGR. The physiological traits for stress tolerance of a crop significantly influenced by the level of K and timing of its application. A significant increase of these traits was noticed when the level of K was increased up to 80 kg/ha and applied to groundnut crop in splits except RWD which decreased significantly with an increase in the level of K application. The highest value of these biochemical characteristics of groundnut crop was recorded at 80 kg/ha when applied in splits at sowing and flowering. The seed yield in groundnut increased significantly with an increase in the level of K application due to increase in number of pods per plant, shelling percentage and kernel weight and the highest yield registered among the treatments at 80 kg/ha when applied in a split. In view of the positive and beneficial effect of K application in groundnut crop, it may be concluded that improvement in the productivity of groundnut crop under a residual soil moisture condition can be possible through split application of K up to 80 kg/ha.

KEYWORDS: Physiological and Biochemical, TDM were Improved, & Groundnut Crop