



Response of sesame to nitrogen and phosphorus fertilization in Northern Sudan

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Abstract

Objective: Crop rotation in Northern Sudan is unpaired and farmers put more emphasis on the winter crops with limited agricultural activities during the summer season. Sesame (*Sesamum indicum* L.) was introduced recently as an irrigated summer crop that could fill this gap. The objective of this investigation was to study the response of sesame variety Shuak to nitrogen and phosphorus fertilizer application.

Methodology and results: Field experiments were conducted during 2004/05 seasons in the Experimental Farm of the Faculty of Agriculture, Nile Valley University, at Darmali, Northern Sudan. The experiment was laid out in split plot design with four replications. The treatments consisted of three levels of phosphorus (0, 22 and 44 Kg P₂O₅ha⁻¹) and were assigned on the main-plots and five levels of nitrogen (0, 22, 44, 66 and 88 Kg N ha⁻¹) assigned to the subplots. Parameters recorded included: Number of plants m⁻², plant height, height above ground to first capsule, number of leaves per plant, number of branches per plant, number of capsules per plant, 1000-seed weight and seed yield per unit area. The results showed that nitrogen had a significant effect on the number of

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plant per square meter, number of branches, number of capsules per plant and seed yield per unit area. The highest and least seed yields were produced in plot treated with 44 and 0 kg N ha⁻¹, respectively. The application of phosphorus fertilizer had no significant influence on the studied traits. However the interaction between P and N fertilizers influenced some of the studied attributes.

Conclusion and application of findings: Application of 44 kg N ha⁻¹ resulted in a marked increase in seed yield and yield components of sesame variety Shuak under condition of Northern Sudan. These finding demonstrate that sesame can be included into the rotation cycle during the summer season in Northern Sudan and that the productivity of the crop can be significantly increased by application of fertilizers.

Key words: *Sesamum indicum* L., nitrogen, phosphorus, seed yield.