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RESEARCH PAPER

Response of sesame (*Sesamum indicum* L.) varieties to sulphur and potassium application under rainfed condition

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Abstract : A field study was conducted during *Kharif*, 2008 and 2009 at K.V.K. Farm Thariaon, Fatehpur (U.P.) to study the response of two improved sesame varieties ('Shekhar' and 'Pragati') to sulphur (zero and 20 kg S/ha) and potassium (0,15, 30 and 45 kg K_2O/ha) levels under rainfed condition. Variety 'Pragati' recorded more number of branches, capsules, dry matter / plant, 1000 seed weight and higher seed yield than the variety 'Shekhar'. Application of 20 kg S/ha produced significantly higher seed yield alongwith the higher values of plant height, branches / plant, dry matter / plant, capsules / plant and 1000 seed weight compared to no sulphur application. Increasing K_2O levels upto 30 kg K_2O/ ha resulted in significantly higher seed yield, yield attributes and growth parameters except 1000 seed weight which was not significantly affected by potassium application.

Key Words : Sesame, Varieties, Sulphur, Potassium, Yield

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INTRODUCTION

Sesame (*Sesamum indicum* L.) in an important edible oil seed crop grown in India. It's seeds are rich in oil (46-52 per cent) and protein (18-20 per cent). Nearly 73 per cent of oil is used for edible purposes. The oil is very stable and does not turn rancid. It has anti-bacterial, anti-viral, anti-fungal and anti- oxidant properties. India ranks first, both in area and production of sesame in the world. Here, it is grown on 17.39 lakh ha area producing 6.0 lakh tonnes seed annually with average productivity of 345 kg/ha (Duhoon, 2001). Uttar Pradesh is one of the major sesame growing stages in India. Uttar Pradesh grows sesame on 1.67 lakh ha area and produces 0.25 lakh tonnes with productivity of only 149 kg/ha. It shows that productivity of sesame in Uttar Pradesh is less than half of national productivity. The reason behind it, is that here sesame is grown mostly during *Kharif* season under rainfed condition on marginal and sub-marginal land without the use of proper fertilizers. Only some amount of nitrogen and phosphorus are applied in few cases. Research evidences showed that sesame crop responds well to potassium and sulphur application also (Lal *et al*., 1995). Such information is not available for alluvial soil of central Uttar Pradesh where sesame is grown on considerable area. Therefore, the present investigation was taken up with different levels of potassium and sulphur in rainfed crop of sesame.

MATERIALS AND METHODS

A field experiment was carried out during *Kharif*, 2008 and 2009 at Krishi Vigyan Kendra Farm, Thariaon, Fatehpur with sesame under rainfed condition. The treatments comprised 16 treatment combinations of 2 varieties (Shekhar and Pragati), 2 sulphur levels (zero and 20 kg S/ha) and 4 levels of potassium (0, 15, 30 and 45 kg K_2O/ha). The combinations of varieties and sulphur were tested in main

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