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Response of sesamum (*Sesamum indicum* L.) cultivars under varying levels of fertilizers under rainfed conditions

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ABSTRACT

Factorial randomized black design was laid out with twelve treatment combinations, formed due to four levels of fertilizer (0, 12.5 + 6, 25+12.5 and 37.5 + 18.5 N + p_20_5 kg/ha), three varieties (Tapi (JLT-7), Phule Til-1and Hawari) and replicated three times. Amongst the three varieties studied, the mean values for height, spread of plant, number of functional leaves were more in the variety Phule Til-1 at 60 days. The total dry matter accumulation per plant, straw yield, straw to grain ratio were also more in Phule Til-1. The number of capsules, branches per plant, number of seeds per capsule, thousand grain weight, grain to empty capsule ratio and harvest index were significantly more in variety Tapi (JLT-7). Due to expressions of higher order for yield contributing characters, the variety Tapi (JLT-7) produced significantly more grain yield and oil yield. The protein content in the varieties was found to be non-significant. The variety Hawari is early type and required less days for maturity as compared to the rest of the varieties. The growth attributes *viz.*, plant height, spread number of functional leaves and dry matter accumulation per plant were influenced by different fertilizer levels. The values of the yield attributes *viz.*, number of capsules, grain weight per plant and thousand grain weight were increased with every successive increased level of fertilizer and was maximum with 37.5 kg N+18.5 kg P_2O_5 ha. The grain (9.93q/ha), straw (20.97 q/ha) and oil (4.68 q/ha) yields obtained due to the application of 37.5 kg N+18.5kg P_2O_5/ha were the highest and significantly more than the rest of the lower levels

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Key words : Sesamum, Fertilizers levels, Rainfed condition, Nitrogen, Phosphorus

INTRODUCTION

Sesamum indicum L. known as sesamum, til, gingelly etc., is an important and very ancient oil yielding species cultivated extensively in India and ranks second in importance next to groundnut amongst *Kharif* oil seed rops and third in total area of oil seed crops. Evidence indicated that the cultivated sesamum originated in Ethiopia and it is subsequently spread, both West in Europe and East to India, China and Japan.

Cultivation of oilseed crops is gaining momentum to bridge the gap of oilseed production in the country. Sesamum, though cultivated on a small scale, is of immense importance in industry and commerce. Sesamum seed is rich in oil and protein. It is also used as a component for the manufacture of soap and paints. Due to the synergistic effects, it is used in pyrethrun insecticides industry. In Ayurveda, the seeds of sesamum are medicinally useful in diarrhea. The roots and seeds are used in the preparation of tonic for the hair. They enrich blood and are useful in snake bite, bleeding piles etc. Sesamum oil is useful for dry cough, asthama diseases of lungs, burning sensation, diseases of the ear and eyes (Kirtikar and Basu, 1935). Dhindsa and Gupta (1973) carried out chemical analysis of commercial 28 strains and observed that sesamum contains about 46 to 55 per cent oil, 18.05 to 26.25 per cent protein, 2.85 to 3.85 g of methionine per 16 g of nitrogen, 0.150 to 0.258 per cent sulphur, reducing suger 1.12 to 1.51 per cent, total suger 5.60 to 7.20 per cent, iodine value 109 to 113, calcium 0.80 to 1.40 per cent, phosphourus 0.413 to 0.706 per

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