

Research
Paper

Grain yield as influenced by varieties and fertilizer levels in sesamum (*Sesamum indicum* L.)

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ABSTRACT

The factorial randomized block design was laid out with twelve treatment combinations, formed due to three varieties (Tapi (JLT-7), Phule Til-1 and Hawari) and four levels of fertilizer (0, 12.5 + 6, 25+12.5 and 37.5 + 18.5 N + P_2O_5 kg/ha) replicated three times. The total dry matter accumulation per plant, straw yield, straw to grain ratio were more in Phule Til-1. The number of capsules and 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. The grain (9.93q/ha), straw (20.97 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. It is observed that with every successive increased level of fertilizer maximum with 37.5 kg N+18.5 kg P_2O_5 ha, the values of the yield attributes viz., number of seeds per capsule, grain weight per plant and thousand grain weight were increased.

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Key words : Varieties, Fertilizer level, *Sesamum indicum* L., Yield attributes

INTRODUCTION

The production statistics of Sesamum crop is most discouraging at both national and state levels. The yield of this crop is low mainly due to its cultivation on marginal and sub-marginal soils with very little or no application of manure and fertilizers. The other causes of low yield are the use of low yielding varieties and non-adoption of proper and improved agronomic practices. Gaur and Trehan (1974), Deora *et al.* (1975), Maiti *et al.* (1981) and maiti and Jana (1985) reported that the application of nitrogen and phosphorus increased the yield of sesamum seeds significantly. Sesamum is produced in Southern latitudes in developing countries as a crop of small holders. Sixty five countries in the world grow sesamum out of which 24 are in Asia, 21 in Africa, 15 in Central and South America and 5 in Europe. With this view in mind, it was felt necessary to take up an experiment at the Mahatma Phule Agricultural University, Rahuri, during *Kharif* under rainfed conditions.

MATERIALS AND METHODS

The experiment was laid out in Factorial Randomised Block Design with three replications. There were twelve treatment combinations due to 3 varieties and 4 levels of fertilizer (N+ P_2O_5). The gross plot size was 3.60 x 4.50 m² and the net plot size was 2.40 x 3.30 m². Urea (46 % N) was used as a source of nitrogen, while phosphate was applied in the form of single super phosphate containing 16 per cent P_2O_5 . After the harvest of observational of plants, ten capsules were selected at random from each plant and used for counting the number of seeds per capsule. The seed yield of five observational plants was recorded and averaged to obtain seed weight per plant. Each variety was harvested at its physiological maturity and seed yield was recorded from each net plot separately and then it was converted in quintals per hectare. The ratio was calculated by dividing the weight of stalk by the weight of seeds per plot as per treatments. The ratio of seed to empty capsule, weight of all three cultivars was calculated by dividing seed weight with empty capsule