

Research
Paper

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

M.T. KATWATE, S.B. THORVE AND J.D. JADHAV

See end of the article for authors' affiliations

Correspondence to :

J.D. JADHAV

Zonal Agricultural Research
Station, SOLAPUR (M.S.)
INDIA

Email: agmetsolapur@rediffmail.com

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 thrice. The total dry matter accumulation per plant, straw yield, straw to grain ratio was 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 was 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 was the highest and significantly more than the rest of the lower levels. It was observed that with every successive increased level of fertilizer, was maximum with 37.5 kg N+18.5 kg P_2O_5 ha. The values of the yield attributes viz., number of capsules, grain weight per plant and thousand grain weight were increased.

Katwate, M.T., Thorve, S.B. and Jadhav, J.D. (2010). Grain yield as influenced by varieties and fertilizer levels in sesamum (*Sesamum indicum* L.), *Adv. Res. J. Crop Improv.*, 1 (2) : 120-125.

Key words : Sesamum, Grain yield, Varieties, Fertilizer levels

INTRODUCTION

The production statistics of sesamum crop is most discouraging at both national and state levels. The yield of this crop was 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 was 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 Randomized 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 observation plants, ten capsules were selected randomly from each plant and was used for counting the number of seeds per capsule. The seed yield of five observational plants was recorded and averaged to obtain plant seed weight. 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 by using hectare factor. 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 weight of five observational plants. Harvest index of all the varieties and fertilizer levels was calculated by the