

Effect of phosphorus and sulphur on growth and yield of moongbean

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ABSTRACT

The experiment was conducted during *Kharif* season of 2007 at the experimental farm of Department of Agronomy, Marathwada Agricultural University, Parbhani (Maharashtra) to study the effect of phosphorus and sulphur on growth and yield of mungbean. The experiment was laid in Factorial Randomized Block Design with 16 treatment combinations comprising of four phosphorus levels (0, 25, 50 and 75 kg/ha) and four levels of sulphur (0, 20, 40 and 60 kg/ha) replicated thrice. Based on the present investigation it can be concluded that application of phosphorus 50 kg/ha was optimum to harvest maximum yield of green gram and sulphur application @ 40 kg/ha was beneficial to increase growth and yield of green gram while there was no positive effect of phosphorus and sulphur interaction on growth and yield of greengram.

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INTRODUCTION

Green gram locally called as moong or mung (*Vigna radiata* L.) belongs to the family leguminosae, which fixes atmospheric nitrogen and improves soil fertility by adding 20-25 kg N/ha. Being a short duration and having wide adaptability, it can be grown in *Kharif* as well as in summer seasons. Green gram is nutritious, containing 23-26 per cent proteins, 57-58 per cent carbohydrate, 1.1 per cent fat, 9.7 per cent water, 3.3 – 3.8 per cent fibre and 4 to 4.8 per cent ash. As a vegetable protein it is rich in vitamin B (Purselove, 1968).

There are various reasons for low yield of green gram and proper use of fertilizer is one of them. For any crop, fertilizer is the most critical input for utilizing the yield potential of improved high yielding crop varieties. The values of growing legume in sustaining and improving soil fertility has been known since long. However, in recent days *i.e.* post green revolution era, due to indiscriminate nutrient mining, soil fertility is depleting at an alarming rate. And to provide food for nearly 105 crores, there is need to add fertilizers to augment the sustainable crop production.

Phosphorus is the complex element for availability to plant growth. It's availability is influenced by many factors of which p^H is important. Majority soils of Marathwada are black cotton soils, in which phosphorus get fixed into calcium and magnesium phosphate and

becomes unavailable to crop. Phosphorus use efficiency in black cotton soils ranges from 18 to 20 per cent. Therefore, to increase the phosphorus use efficiency, it is required to find out the optimum level of phosphorus for green gram. Thus the study of phosphorus to legumes is more important than that of nitrogen as later is being fixed by symbiosis with *Rhizobium* bacteria.

Like phosphorus, sulphur is also important for crop development. Now a day, sulphur is considered as 4th major essential plant nutrient after nitrogen, phosphorus and potassium. Sulphur is essential for protein synthesis. The quality of grain increases with increase in protein and oil percentage. Sulphur also promotes nodulation in legumes by fixing atmospheric nitrogen. It plays vital role in chlorophyll formation. It acts as biological agent in the chain of fatty acids. Keeping these views in front, the present investigation was undertaken.

MATERIALS AND METHODS

The experiment was conducted during *Kharif* season of 2007 at the experimental farm of Department of Agronomy, Marathwada Agricultural University, Parbhani (M.S.) to study the effect of phosphorus and sulphur on growth and yield of mungbean. The experiment was laid in Factorial Randomised Block Design with 16 treatment combinations comprising of four phosphorus levels (0, 25, 50 and 75 kg/ha) and four levels of sulphur (0, 20, 40 and

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