

## Influence of organic fertilizers and sulphur levels on yield, quality and economics of Clusterbean (*Cyamopsis tetragonoloba* L. Taub.)

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### ABSTRACT

A field experiment was conducted during summer season of 2008 at College farm, Navsari Agricultural University, Navsari to study the influence of organic fertilizers and sulphur levels on yield, quality and economics of clusterbean. Result of the experiment revealed that an application of Biocompost @ 5 t ha<sup>-1</sup> recorded significantly higher green pod (5325 kg ha<sup>-1</sup>), straw (3137 kg ha<sup>-1</sup>) yields, protein content (20.30 %), protein yield (188.68 kg ha<sup>-1</sup>) with the highest net return of Rs. 19394 ha<sup>-1</sup> and BCR value of 3.57 over control. Similarly sulphur level also recorded significant effect in increasing all these yield and quality parameters. The highest green pod (6071 kg ha<sup>-1</sup>), straw (3344 kg ha<sup>-1</sup>) yields, protein content and protein yield (208.51 kg ha<sup>-1</sup>) with net return of Rs. 24418 ha<sup>-1</sup> and BCR value of 4.89 was obtained under the application @ 50 kg ha<sup>-1</sup> followed by application of sulphur @ 25 kg ha<sup>-1</sup>.

**Key words :** Clusterbean, Biocompost, Sulphur, Protein content, Protein yield, Economics

### INTRODUCTION

Clusterbean or guar is an important self pollinated, multipurpose, relatively drought resistant and restorative leguminous vegetable crop. In India green and tender pods of clusterbean are used as a popular vegetable in many parts of the country. It is grown for feed, fodder, vegetable, green manure as well as for gum production. India leads the list of major guar producing countries of the world contributing to about 75 to 80 % in the world total production of around 7.5 lakh to 10 lakh tonnes. In India, the main states cultivating clusterbean are Rajasthan, Gujarat, Haryana, Punjab and Uttar Pradesh.

Yield in clusterbean is an integration of the effect of numerous factors on many physiological components. Looking to the soil health and to sustain the productivity, use of judicious combination of organic and inorganic fertilizer is essential. The organic manures *i.e.* FYM, castor cake, Biocompost, vermicompost, poultry manure, neem cake are well recognized, which supply necessary macro and micro plant nutrients for maintaining soil fertility. Application of sulphur not only increase the crop yield but also improves the crop quality *i.e.* it increase the oil and protein content, improves nutritional quality of fodder and improves starch content in tubers. For exploiting the potential yield of clusterbean use of organic fertilizers and sulphur application is necessary. Keeping in view the above facts the present investigation was therefore initiated to workout the response of organic and sulphur fertilizers on yield and yield attributes of clusterbean.

### MATERIALS AND METHODS

A field experiment was conducted during summer season of 2008 at College Farm, Navsari Agricultural University, Navsari to study the influence of organic fertilizers and sulphur levels on yield, quality and economics of clusterbean. The soil of the experiment field was clayey in texture, low in available nitrogen (176 kg ha<sup>-1</sup>), medium in available phosphorus (32 kg ha<sup>-1</sup>), available sulphur (21.01 kg ha<sup>-1</sup>) and fairly rich in available potassium (350 kg ha<sup>-1</sup>) with 7.8 pH. Nine treatment combinations comprising three levels of organic fertilizers *viz.*, Control (F<sub>0</sub>), FYM @ 5 t ha<sup>-1</sup> (F<sub>1</sub>) and Biocompost @ 5 t ha<sup>-1</sup> (F<sub>2</sub>) and three levels of sulphur *i.e.* Control (S<sub>0</sub>), 25 kg S ha<sup>-1</sup> (S<sub>1</sub>) and 50 kg S ha<sup>-1</sup> (S<sub>2</sub>) were tried in factorial randomized block design with four replications. The Clusterbean variety Pusa Navbahar was sown on 29 February 2008 keeping 45 cm inter-row spacing and intra-row spacing of 15 cm was maintained by thinning operation. Recommended dose *i.e.* 20:40:00 kg NPK ha<sup>-1</sup> and other cultural practices were also adopted as per need of crop.

### RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below :

#### Effect on pod and straw yields:

The organic fertilizers were found significant effect on pod and straw yields. The Biocompost exerted remarkable effect on green pod and straw yields. Significantly the highest green pod (5325 kg ha<sup>-1</sup>) and

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