

## Response of *Rabi* greengram (*Vigna radiata* L.) to land configuration and inorganic fertilizer with and without FYM

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Accepted : March, 2010

### SUMMARY

A field experiment was conducted during *rabi* season of 2007-08 at Instructional Farm, Navsari Agricultural University, Navsari to find out the response of land configuration, inorganic fertilizers and farm yard manure on *rabi* greengram. Sowing on raised bed recorded significantly the highest plant height, number of branches per plant, dry matter accumulation, number of pods per plant, test weight and seed (972.89 kg ha<sup>-1</sup>) yield. These were 20.34 per cent higher over flat bed. Among the levels of inorganic fertilizers, 100 per cent RDF out rightly dominated and established its significant performance in respect to almost all the growth and yield attributes. Application of 100 per cent RDF produced significantly the highest plant height, number of branches per plant, dry matter accumulation, number of pods per plant, test weight and seed (998.79 kg ha<sup>-1</sup>) yield. The increase in seed yield under application of 100 per cent RDF was to the tune of 27.63 per cent over 75 per cent RDF. The results further revealed that seed yield as well as most of the growth and yield attributes were significantly increased by the application of FYM @ 5 t ha<sup>-1</sup>. Significantly the highest seed (964.27 kg ha<sup>-1</sup>) yield was recorded with the application of FYM @ 5 t ha<sup>-1</sup>. This was 18.01 per cent higher seed yield over control.

**Key words :** Greengram, Land configuration, Inorganic fertilizers and farm yard manure

Greengram is an important pulse crop grown throughout the state. It is grown in *Kharif* and summer seasons, but also cultivated in *Rabi* season in Valsad, Navsari, Surat, Bharuch and Vadodara districts as a post rainy season crop. Poor soil management is one of the major factors responsible for low productivity of crops. Therefore land configuration can play an important role for easy and uniform germination as well as growth and development of plant. Generally greengram is usually sown on flat bed by seed drill. Several research workers have indicated that manipulation of sowing method provides better environment for germination, growth, flowering and pod development which eventually increase the yield. Fertilizer is costly but important input in crop productivity. Its proper management not only improves the efficiency of applied nutrients but also reduces the gap between addition and removal of nutrients. The use of farmyard manure (FYM) along with inorganic fertilizer increases the nutrient use efficiency and also improves the physical properties of soil. Taking into consideration these facts, an experiment was conducted to study the

response of land configuration, inorganic fertilizers with and without FYM on *Rabi* greengram under South Gujarat condition.

### MATERIALS AND METHODS

The field experiment was conducted at the Instructional Farm, N.M. College of Agriculture, Navsari Agricultural University, Navsari, during *Rabi* season of 2007-08. The soil of the experimental field was clayey in texture and alkaline in reaction. The soil was low in organic carbon, available nitrogen (212.5 kg ha<sup>-1</sup>), medium in available phosphorus (32.20 kg ha<sup>-1</sup>) and fairly rich in available potassium (344.00 kg ha<sup>-1</sup>) with 7.55 pH. Eight treatment combinations consisting of two levels of land configuration *viz.*, flat bed and raised bed. Two levels of inorganic fertilizers namely 75 per cent recommended dose of fertilizer-RDF and 100 per cent recommended dose of fertilizer-RDF and two levels of farmyard manure *viz.*, control and FYM @ 5 t ha<sup>-1</sup> were evaluated in Factorial Randomized Block Design with four replications. The greengram variety Co-4 was sown on 27 November 2007 keeping 30 cm inter-row spacing and intra-row spacing of 10 cm was maintained by thinning operation. Recommended cultural practices were also adopted as per need of crop.

### RESULTS AND DISCUSSION

The results obtained from the present investigation have been discussed in the following sub heads :

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