INTRODUCTION

India is second largest producer of groundnut and its oil after China. Groundnut is major oilseed in India, it accounts for 25 per cent of total oilseed production in country. In India, groundnut was grown both during rabi (25%) and kharif (75%) seasons. Annual production of groundnut in India was 9,690 thousand tonnes (Anonymous, 2016). As it is grown in rainfed regions of the country, so, its production is highly vulnerable to rainfall deviations and display huge fluctuations during different years. Being an oilseed crop, it is most vulnerable to phosphorus deficiency, which in turn result in nitrogen as well as potassium deficiency; so fertilizer requirement of groundnut includes SSP and gypsum mainly.

The total amount of phosphorus taken by the groundnut plant is relatively small as only 0.4-0.5 kg of available phosphorus is required to produce one quintal of pods. Though the amount of phosphorus required is small but a large quantity of fertilizer had to be applied, as the efficiency of uptake of phosphorus from fertilizer is low. It has been postulated that the response of groundnut is higher to single superphosphate (SSP) application than to diammonium phosphate (DAP) because of presence of Ca, S and trace elements in SSP. The single super phosphate fertilizer contains 12.5 per cent sulphur, 16 per cent P2O5 and 19 per cent calcium and need be used as a basal-dressing only by placement method. It is not suitable for foliar spray as it contains some amount of gypsum and diphosphate which are not easily soluble in water. Mishra et al (1999) also reported positive response of sulphur application on groundnut yield.

Gypsum application, on the other hand, is generally recommended because it contains 18.6 per cent sulphur and 23 per cent calcium; it has impurities that also provide magnesium. Since there is little residual effect of gypsum and therefore, it is necessary to repeat application every season. Groundnut had the unique characteristic of uptake of calcium and sulphur by the developing pegs and pods. As calcium was relatively immobile in plant tissues and is not translocated in sufficient quantities from the roots to developing pods, calcium and sulphur have to be made available in adequate quantities in pod zone. Application of gypsum @
200 kg/ha as basal (at the time of sowing) was recommended to obtain higher yield in groundnut. So, the present study was undertaken to see the effect of different fertilizers application on yield of groundnut.

MATERIALS AND METHODS

The experiment was laid out at Krishi Vigyan Kendra, Kapurthala farm with five treatments in randomized complete block design (RBD) and three replications. The groundnut crop was sown in rows of 30 cm apart with plant to plant distance maintained at 10 cm by dibbling method. The crop was sown on 7th June, 2017 and all the fertilizer treatments were done as basal application, near the root zone with the help of manual plough. Urea was applied to all the treatments @ 33 kg/ha. The treatments include: T1: application of SSP@ 125 kg/ha, T2: application of gypsum@ 125 kg/ha, T3: application of SSP@ 125 kg/ha + gypsum@ 125 kg/ha, T4: application of DAP@ 45 kg/ha + gypsum@ 125 kg/ha and T5: Farmer’s practice (DAP application@ 45 kg/ha). The crop was harvested on 10th October, 2017 and the data on number of pods/plant and pod yield was taken after proper drying of pods and analyzed using OPSTAT (Sheoran et al 1998).

RESULTS AND DISCUSSION

The data presented in table 1 revealed that significantly highest number of pods/plant (29.0) were obtained with application of SSP@ 125 kg/ha and gypsum@ 125 kg/ha (19.81 q/ha) followed by use of SSP@ 125 kg/ha (18.62 q/ha) and DAP@ 45 kg/ha + gypsum@ 125 kg/ha (17.94 q/ha), which were statistically at par with each other. Nabi et al (1999) also reported that the SSP application produced highest seed yield. Greater partitioning of assimilation as well as adequate supply and translocation of metabolites and nutrients towards reproductive structures matching to their demand for growth and development might be the possible reason of improvement in yield of groundnut. The improved growth due to S fertilization coupled with increased photosynthesis on one hand and greater mobilization of photosynthates towards reproductive structures, on the other, might have been responsible for significant increase in yield of groundnut. On contrary to the findings, Yadav et al (2017) reported significantly higher yield with

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Treatment</th>
<th>Number of pods/plant</th>
<th>Pod yield (q/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SSP@ 125 kg/ha</td>
<td>25.4</td>
<td>18.62</td>
</tr>
<tr>
<td>2</td>
<td>Gypsum@ 125 kg/ha</td>
<td>22.3</td>
<td>17.35</td>
</tr>
<tr>
<td>3</td>
<td>SSP@ 125 kg/ha + gypsum@ 125 kg/ha</td>
<td>29.0</td>
<td>19.81</td>
</tr>
<tr>
<td>4</td>
<td>DAP@ 45 kg/ha + gypsum@ 125 kg/ha</td>
<td>24.8</td>
<td>17.94</td>
</tr>
<tr>
<td>5</td>
<td>DAP@ 45 kg/ha</td>
<td>20.8</td>
<td>16.33</td>
</tr>
<tr>
<td>CD (P=0.05)</td>
<td></td>
<td>3.8</td>
<td>1.07</td>
</tr>
</tbody>
</table>

Table 1: Effect of different fertilizers on pods/plant and yield of groundnut
application of gypsum followed by SSP.

CONCLUSION
It can be concluded that farmers need to apply SSP and gypsum simultaneously, without mixing for getting more number of pods/plant and optimum yield of groundnut.

REFERENCES
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