

Effect of nitrogen levels and varieties on quality parameters of fenugreek seed

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ABSTRACT

The weight of 1000 seeds and graded seed yield determining the seed quality have recorded the higher values with an application of 90 kg nitrogen per ha and all these characters were found superior in the variety Pusa Early Bunching (V₄). The maximum values for these parameters were recorded in the treatment combination of 90 kg nitrogen per ha with the variety Pusa Early Bunching (N₃V₄).

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Key words : Fenugreek, Seed, Yield, Pusa early bunching

INTRODUCTION

India is the major producer and exporter of Fenugreek seed spice. It is the crop of commercial significance largely grown in Rajasthan, Madhya Pradesh, Uttar Pradesh and Gujarat. The seeds are carminative, tonic and aphrodisiac. Indian women use the seeds of fenugreek for its power to promote lactation. The seeds are good for the elimination of the bad breath and body odour. In order to get higher production of seed spice, it is required to produce quality seed. The importance of cultural practices for increasing the seed yield is well known. The cultural practices *viz.*, different doses of fertilizers and variety play an important role in the quality of seed. Maintenance of nitrogen level in the soil is necessary for improving the seed yield and seed quality. Keeping in view, the importance of nitrogen and varieties in production of quality seed, a field experiment was conducted to study the effect of nitrogen levels and varieties on quality parameters of fenugreek seed.

MATERIALS AND METHODS

The present investigation on effect of nitrogen levels and varieties on quality parameters of fenugreek seed, was carried out at the Main Garden, University Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (M.S.) during *Rabi* season of the year 2005-2006. The experiment was laid out in the Split Plot Design with three replications and sixteen treatments combinations comprising of four levels of

nitrogen (0, 30, 60, and 90 kg per ha) and varieties Rmt-1, Rmt-143, Rmt-303, Pusa Early Bunching. The selected varieties were planted at a spacing of row to row 30cm.

Main factor 'A' (Nitrogen levels)

N₀ - 0 kg N per ha.

N₁ - 30 kg N per ha.

N₂ - 60 kg N per ha.

N₃ - 90 kg N per ha.

Sub factor 'B' (Varieties)

V₁ - Rmt-1

V₂ - Rmt-143

V₃ - Rmt-303

V₄ - Pusa Early Bunching

All the recommended agronomic packages of practices were followed to raise healthy crop. Data were recorded on ten competitive plants selected randomly in each replication on various quantitative characters. The data were analyzed statistically as per the method prescribed and suggested by Panse and Sukhatme (1967)

RESULTS AND DISCUSSION

The results from Table 1 indicate that the effect of nitrogen levels on weight of 1000 seed of fenugreek were found significant. Significantly maximum weight of 1000 seeds was recorded under the treatment 90 kg nitrogen per ha. (16.46 g) whereas, significantly minimum weight of 1000 seeds was noted in the control treatment (13.32 g). It was observed that an increasing level of nitrogen per ha produced an increase in weight of 1000 seeds of fenugreek. This might be due to the fact that, more

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Table 1 : Weight of 1000 seeds as influenced by nitrogen levels and varieties

| Weight of 1000 seeds(g) | | | | | |
|---|---------------|-----------------|-----------------|-----------------------------|-------|
| Treatment | Varieties | | | | Mean |
| Nitrogen levels | V1 (Rmt-1) | V2 (Rmt-143) | V3 (Rmt-303) | V4 (Pusa Early Bunching) | |
| N ₀ (0 kg ha ⁻¹) | 13.05 | 13.06 | 13.36 | 13.08 | 13.32 |
| N ₁ (30 kg ha ⁻¹) | 14.10 | 14.43 | 14.43 | 14.73 | 14.42 |
| N ₂ (60 kg ha ⁻¹) | 15.70 | 16.03 | 16.26 | 16.40 | 16.10 |
| N ₃ (90 kg ha ⁻¹) | 16.03 | 16.20 | 16.56 | 17.06 | 16.46 |
| Mean | 14.72 | 14.93 | 15.15 | 15.50 | |
| Interaction effects(Nitrogen levels x varieties) | | | | | |
| | | N | V | N x V | |
| F test | | Sig | Sig | NS | |
| S.E. ± | | 0.35 | 0.06 | 0.12 | |
| C.D. (P=0.05) | | 1.22 | 0.21 | -- | |

Table 2 : Graded seed yield of fenugreek as influenced by nitrogen levels and varieties

| Graded seed yield of fenugreek (%) | | | | | |
|---|---------------|-----------------|-----------------|-----------------------------|-------|
| Treatments | Varieties | | | | Mean |
| Nitrogen levels | V1 (Rmt-1) | V2 (Rmt-143) | V3 (Rmt-303) | V4 (Pusa Early Bunching) | |
| N ₀ (0 kg ha ⁻¹) | 91.48 | 92.80 | 94.48 | 94.53 | 93.32 |
| N ₁ (30 kg ha ⁻¹) | 94.92 | 95.31 | 94.89 | 95.49 | 95.16 |
| N ₂ (60 kg ha ⁻¹) | 95.69 | 95.81 | 95.04 | 96.04 | 95.87 |
| N ₃ (90 kg ha ⁻¹) | 96.13 | 96.23 | 96.55 | 96.72 | 96.40 |
| Mean | 94.56 | 95.03 | 95.46 | 95.69 | |
| Interaction effects(Nitrogen levels x varieties) | | | | | |
| | | N | V | N X V | |
| F test | | Sig | Sig | Sig | |
| S.E. (m)± | | 0.01 | 0.07 | 0.01 | |
| C.D. (P=0.05) | | 0.04 | 0.02 | 0.04 | |

availability of nitrogen have resulted in to heavier seeds of fenugreek. Similar results were observed by Pareek and Gupta (1981), Mandal and Maiti (1992), Kaswan *et al.*(1994) and Choudhary (1999) in fenugreek. The fenugreek varieties influenced significantly the weight of 1000 seeds of fenugreek and it was found maximum with the variety Pusa Early Bunching (15.50g) followed by the variety Rmt-303 (15.15g). Whereas, minimum weight of 1000 seeds (14.72g) was noted in the variety Rmt-1 (V₁). This might be due to individual characters of the variety. The results obtained in this investigation are in close agreement with the result obtained by Rao *et al.* (1983) in fenugreek. In respect of graded seed yield of fenugreek, significantly maximum (93.32 %) was obtained with the treatment 90kg nitrogen per ha. Whereas, significantly minimum graded seed yield was recorded under the control treatment 93.32% are shown in Table

2. It may be due to the application of more nitrogen which have produced the heavier and bolded seeds of fenugreek. The varietal differences have showed significant influence on graded seed yield of fenugreek. Significantly maximum graded seed yield was obtained with the variety Pusa early Bunching (95.69%) followed by the variety Rmt-303 (95.46%). Whereas minimum graded seed yield was recorded from the variety Rmt-1 (94.56%). The interaction effect due to nitrogen levels and varieties on graded seed yield of fenugreek was found to be the significant. The treatment combinations N₃V₄ recorded significantly the maximum graded seed yield (96.72%) and it was minimum with the treatment combination N₀V₁ (91.48%)

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