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## Effect of sowing dates and nutrient management on economics of seed production in fenugreek

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**Abstract :** A field experiment entitled, effect of sowing dates and nutrient management on economics of seed production in fenugreek was conducted at the Main Garden, University Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during *Rabi* season of the years 2004-05 and 2005-06. The experiment was laid out in split plot design with four replications and twenty-four treatment combinations. The fenugreek seed sown on 1<sup>st</sup> November (S<sub>1</sub>) and supplied the nutrient as 37.50 kg N + 18.75 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> + FYM @ 10 t ha<sup>-1</sup> (F<sub>3</sub>) recorded significantly the maximum gross monetary return (Rs. 52211/- and Rs. 66104/-, respectively). The maximum net monetary return (Rs. 35984/- and 47914/-, respectively) were recorded with the 1<sup>st</sup> November (S<sub>1</sub>) sown crop fertilized with 50 kg N + 25 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> (F<sub>2</sub>). The mean data regarding cost: benefit ratio revealed that, the treatment combination S<sub>1</sub>F<sub>2</sub> (1<sup>st</sup> November sowing of fenugreek seed fertilized with 50 kg N + 25 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>) have recorded the maximum cost: benefit ratio (5.59).

**Key words :** Fenugreek, Sowing dates, INM, Economics

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Fenugreek (*Trigonella foenum-graecum* L.) is an important seed spice popularly known by its vernacular name *methi* belongs to a leguminous vegetable crops. Fenugreek is considered to be a native of eastern Europe and Ethiopia. It is also found growing wild in north-western India. It is an important condiment crop grown in southern India during the *Kharif* and *Rabi* seasons. The common *methi* is quick growing and produces erect shoot to a height of 40-70 cm. It has a light to dark green leaves with or without pink margin and produces 2-3 small white flowers at the base of each leaf. The pods are slender and of straw colour when ripened, beak shaped and are about 8-10 cm long with 8-15 yellowish brown colour smooth surface seeds. The seed is about 0.3-0.5 cm long. There are two species of the genus *trigonella* viz., *trigonella foenum-graecum* the common *methi* and *trigonella corniculata* the *kasuri methi* (Som and Maity, 1993).

Fenugreek is the third largest seed spice in India after coriander and cumin (Thangaraj and Vijaykumar, 2001). Generally, the seed production of *methi* is taken after 2-3 cuttings, but, the seed yield obtained without

cuttings are better than the seed yield obtained after 2-3 cuttings. It is therefore, recommended to take the seed production of *methi* without any cuttings (Gill and Singh, 1988). In Maharashtra, though *methi* is cultivated as an important leafy vegetable and is also grown as a spice, but less attention is being paid on its commercial seed production. Fenugreek seed production is highly specialized job and it requires intimate knowledge of crop production particularly, the floral biology, mode of pollination, isolation distance, climatic and nutritional requirements, etc.

To increase the productivity of improved varieties of fenugreek by adoption of recommended package of practices for cultivation is very high step today. Among the various cultural practices, proper time of sowing and optimum quantity of manure and fertilizers to a given area are prerequisites to achieve a uniform crop stand which ultimately reflects on the seed yield and quality of crop.

### RESEARCH METHODS

A field experiment entitled, effect of sowing dates and nutrient management on growth, seed yield and quality

of fenugreek was conducted at the Main Garden, University Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during *Rabi* season of the years 2004-05 and 2005-06. The experiment was laid out in split plot design with four replications and twenty-four treatment combinations. The treatment comprised of the three sowing dates *i.e.* 1<sup>st</sup> November, 15<sup>th</sup> November and 1<sup>st</sup> December and eight treatments of nutrient management *viz.* F<sub>1</sub> – control, F<sub>2</sub> – 50 kg N + 25 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, F<sub>3</sub> – 75 per cent F<sub>2</sub> + *Azotobacter* @ 20 g kg<sup>-1</sup> of seed, F<sub>4</sub> – 50 per cent F<sub>2</sub> + *Azotobacter* @ 20 g kg<sup>-1</sup> of seed, F<sub>5</sub> – 75 per cent F<sub>2</sub> + FYM @ 10 t ha<sup>-1</sup>, F<sub>6</sub> – 50 per cent F<sub>2</sub> + FYM @ 10 t ha<sup>-1</sup>, F<sub>7</sub> – 75 per cent F<sub>2</sub> + vermicompost @ 6 t ha<sup>-1</sup> and F<sub>8</sub> – 50 per cent F<sub>2</sub> + vermicompost @ 6 t ha<sup>-1</sup>. By considering the item wise input cost on the basis of the prevailing rates in the local market, the cost of cultivation per hectare of fenugreek crop was worked out. From the total yield of each treatment plot, the gross monetary return was worked out on the basis of selling price of the produce and recorded accordingly in Rs. ha<sup>-1</sup>. From the gross monetary return of each treatment plot, the expenditure incurred on the same treatment was deducted and treatment wise net monetary return was worked out and recorded accordingly in Rs. ha<sup>-1</sup> from the value of net

monetary return of each treatment plot and expenditure incurred on the same treatment, cost benefit ratio was worked out and recorded accordingly.

## RESEARCH FINDINGS AND DISCUSSION

The results obtained from the present investigation are summarized below :

### Gross and net monetary returns:

During both the years of experimentation, effects of sowing dates on gross and net monetary returns were found to be the significant. The pooled data showed that, significantly the maximum gross and net monetary returns were obtained from the treatment of 1<sup>st</sup> November sowing date (S<sub>1</sub>) (Rs. 52211/- and Rs. 35984/- ha<sup>-1</sup>). Whereas, fenugreek seeds sown on 1<sup>st</sup> December (S<sub>3</sub>) gave significantly minimum gross and net monetary returns (Rs. 44398/- and Rs. 28171/- ha<sup>-1</sup>). This might be due to the fact that, an early sown fenugreek seeds produced the maximum yield and finally resulted into more gross and net monetary returns.

An effect due to the nutrient management treatments on gross and net monetary returns were found to be the significant during both the years of experimentation. The pooled mean indicated that, the gross and net monetary

**Table 1 : Effect of sowing dates and nutrient management on gross and net monetary returns of fenugreek seed production**

Treatments	Gross monetary return (Rs. ha <sup>-1</sup> )			Net monetary return (Rs. ha <sup>-1</sup> )		
	2004-05	2005-06	Pooled	2004-05	2005-06	Pooled
<b>Main factor – Sowing date (S)</b>						
S <sub>1</sub> – 1 <sup>st</sup> November	50484	53938	52211	34247	37710	35984
S <sub>2</sub> – 15 <sup>th</sup> November	45359	49016	47188	29132	32789	30960
S <sub>3</sub> – 1 <sup>st</sup> December	42172	46625	44398	25945	30398	28171
`F' test	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
S.E.(m)±	924	1146	953	924	1146	984
C.D. (P=0.05)	3187	3953	3294	3187	3953	3396
<b>Sub factor – Nutrient management (F)</b>						
F <sub>1</sub> – Control	26583	30292	28438	14839	18548	16694
F <sub>2</sub> – 50 kg N+ 25 kg P <sub>2</sub> O <sub>5</sub> ha <sup>-1</sup>	60414	64125	62271	47375	51083	49229
F <sub>3</sub> – 75% F <sub>2</sub> + <i>Azotobacter</i> @ 20 g seed kg <sup>-1</sup>	46959	52000	49479	34194	39236	36715
F <sub>4</sub> – 50% F <sub>2</sub> + <i>Azotobacter</i> @ 20 g seed kg <sup>-1</sup>	34583	38292	36438	22140	25849	23995
F <sub>5</sub> – 75% F <sub>2</sub> + FYM @ 10 t ha <sup>-1</sup>	64667	67542	66104	46477	49352	47914
F <sub>6</sub> – 50% F <sub>2</sub> + FYM @ 10 t ha <sup>-1</sup>	42042	44375	43208	24179	26512	25345
F <sub>7</sub> – 75% F <sub>2</sub> + Vermicompost @ 6 t ha <sup>-1</sup>	54500	59333	56917	32451	37284	34868
F <sub>8</sub> – 50 % F <sub>2</sub> + Vermicompost @ 6 t ha <sup>-1</sup>	38292	42917	40604	16570	21195	18882
`F' test	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
S.E.(m)±	1431	1146	1227	1431	1146	1221
C.D. (P=0.05)	4048	3240	3470	4048	3240	3452
`F' test	NS	NS	NS	NS	NS	NS
S.E.(m)±	2479	1985	2125	2479	1984	2114
C.D. (P=0.05)	-	-	-	-	-	-

NS=Non-significant

**Table 2: Effect of sowing dates and nutrient management on cost: benefit ratio for fenugreek seed production**

Treatment combination	Cost : benefit ratio		
	2004-05	2005-06	Mean
S <sub>1</sub> F <sub>1</sub>	3.44	3.68	3.56
S <sub>1</sub> F <sub>2</sub>	5.49	5.70	5.59
S <sub>1</sub> F <sub>3</sub>	4.58	4.76	4.67
S <sub>1</sub> F <sub>4</sub>	3.66	3.81	3.73
S <sub>1</sub> F <sub>5</sub>	3.51	4.03	3.97
S <sub>1</sub> F <sub>6</sub>	2.70	2.84	2.77
S <sub>1</sub> F <sub>7</sub>	2.61	2.97	2.79
S <sub>1</sub> F <sub>8</sub>	1.87	2.10	1.98
S <sub>2</sub> F <sub>1</sub>	2.95	3.26	3.10
S <sub>2</sub> F <sub>2</sub>	5.08	5.52	5.30
S <sub>2</sub> F <sub>3</sub>	4.20	4.59	4.39
S <sub>2</sub> F <sub>4</sub>	3.31	3.63	3.47
S <sub>2</sub> F <sub>5</sub>	9.60	3.75	3.67
S <sub>2</sub> F <sub>6</sub>	2.43	2.54	2.48
S <sub>2</sub> F <sub>7</sub>	2.35	2.46	2.40
S <sub>2</sub> F <sub>8</sub>	1.65	1.83	1.74
S <sub>3</sub> F <sub>1</sub>	2.49	2.89	2.69
S <sub>3</sub> F <sub>2</sub>	4.91	5.12	5.01
S <sub>3</sub> F <sub>3</sub>	3.95	4.56	4.25
S <sub>3</sub> F <sub>4</sub>	3.17	3.61	3.39
S <sub>3</sub> F <sub>5</sub>	3.44	3.64	3.54
S <sub>3</sub> F <sub>6</sub>	2.28	2.41	2.34
S <sub>3</sub> F <sub>7</sub>	2.16	2.34	2.25
S <sub>3</sub> F <sub>8</sub>	1.52	1.75	1.63

returns were obtained significantly the maximum (Rs. 66104/- and Rs. 47914/- ha<sup>-1</sup>, respectively) with an application of 37.50:18.75:00 kg NPK ha<sup>-1</sup> + FYM @ 10 t ha<sup>-1</sup> (F<sub>3</sub>) and due to application of 50:25:00 kg NPK ha<sup>-1</sup> (F<sub>2</sub>). However, the control treatment (F<sub>1</sub>) obtained significantly minimum gross and net monetary returns (Rs. 28438/- and Rs. 16694/- ha<sup>-1</sup>, respectively). This might be due to the fact that, an application of balanced nutrition through organic and inorganic sources produced the maximum yield of fenugreek seeds and additional production of fenugreek seeds would have raised to gross and net monetary returns.

An interaction effects due to sowing dates and nutrient management treatments on gross and net monetary returns were found to be non-significant.

#### Cost : Benefit ratio:

The cost : benefit ratio indicated that, the treatment combination of early sowing date of 1<sup>st</sup> November (S<sub>1</sub>) along with an application of 50:25:00 kg NPK ha<sup>-1</sup> (F<sub>2</sub>) had recorded the maximum cost : benefit ratio (5.59). However, minimum cost: benefit ratio was obtained from

1<sup>st</sup> December sowing date (S<sub>3</sub>) along with an application of 25:12.50:00 kg NPK ha<sup>-1</sup> + vermicompost @ 6 t ha<sup>-1</sup> (F<sub>8</sub>) (1.63). This might be due to the fact that, the treatment combination S<sub>1</sub>F<sub>2</sub> produced the better seed yield with minimum input cost which could have recorded the maximum cost: benefit ratio.

#### REFERENCES

- Gill, S.S. and Singh, H. (1988). Effect of planting dates and leaf cutting on seed yield of methi. *PAU J. Res.*, **25**(2): 206-209.
- Som, M.G. and Maity, T.K. (1993). Fenugreek. In : *Vegetable crops of India*, Ed. T.K. Bose, M.G. Som and J. Kabir. Calcutta, Naya Prokash, pp. 789-791.
- Thangaraj, T. and Vijaykumaran, M. (2001). Fenugreek. In : *Vegetables, tuber crops and spices*, Ed. S. Thamburaj and N. Singh. New Delhi, Indian Council of Agricultural Research, pp. 364-365.

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