



Leaves Yield of Fenugreek and Indian Dill during Mid Rainy Season under Changing Climate for Better Marketing

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Abstract

The field study was undertaken during mid rainy season of 2005-2006 and 2006-2007 at selected vegetable village Pal, Mainpuri under NATP, programme for making K.V.K. model. The study was conducted in the catchments area of river Isan. The main objective was to harvest the early crop of menthi and Indian dill for obtaining the net income by two fold or more than two fold. The pilot area was light loam with low fertility status. The green leaves and tender stems of menthi was recorded by 76.00 q/ha under early sowing, which was higher over conventional/farmers practice (71.00 q/ha). Likewise, early planting of Indian dill gave higher yield of green leaves and tender stems by 41.00 q/ha as compared to conventional practice (34.00 q/a). The early planting of menthi gave higher net return (Rs. 6,83,350/ha) and BCR (1:9.92) in comparison to farmers practice, where net return and BCR were found Rs. 3,49,350/ha and 1:5.55, respectively. The notable higher net return Rs. 3,63,670/ha and BCR 1:8.85 were recorded under early planting period of Indian dill while lowest was noted under conventional practice. The early planting of menthi and Indian dill gave higher income to the farmers by two fold and more than two fold, respectively.

Keywords: Better market rate, Conventional planting, Early planting, Indian dill, Menthi

Introduction

Fenugreek (*Trigonella foenum-graecum* L.) or menthi called in hindi is a native of Eastern Europe and Ethiopia. It is grown throughout the country for its green leaves. But it does well in north India. Menthi seeds are used as condiment and medicines. It is an herbaceous annual, which produces green leaves for good vegetable preparation. Its cooked vegetable is found very well because it contains 81.8% moisture, 4.9% protein, 0.9% fat, 1.6% mineral matter, 1.0% fibre, 9.8% carbohydrate, 0.47%, calcium, 3900 IU, Vitamin A per 100 g fresh leaves. Since it is a cool/winter season crop and mostly farmers sown in middle of November for leaves. For good market price and changing climate, the menthi was sown in second fortnight of September in present experiment.

Similarly, Indian dill is the famous leafy vegetable crop because most of the

consumers are used cooked vegetable in combination of potato etc., specially with menthi leaves. It is native of India. It is also grown throughout India but north tract of India is farmers for its cultivation. The fresh leaves of Indian dill used for making "SOOP" and "SALAD" preparation. Indian dill is also used for Ayurvedic medicines preparation, where it called "Satpuspa". Leaves of Indian dill contains protein 13.00%, fat 17.9%, carbohydrate 36.0%, fibre 21.0%, calcium 1.60 gram, phosphorus 210 mg, sodium 10 mg, potassium 1100 mg, vitamin A 5 IU etc. Due to these ingredients its cooked vegetable mixed with menthi leaves has good quality. Generally, it has been seen that farmers sown dill in first week of November, but obtaining good market price, it was sown in mid September in adaptive trial.

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Therefore, mid rainy season sowing of experimental crops under changing climate is the subject matter of this paper.

Materials and Methods

The present study was under taken during mid rainy season of 2005-06 and 2006-07 at vegetable village Pal, Mainpuri under NATP programme for making KVK model. The pilot project situated in alluvial tract of South-Western-Semi Arid Zone-IV of Uttar Pradesh in catchments area of Isan River. The main objective of study was to harvest the early crops of menthi and Indian dill for obtaining better market price. The pilot area was light loam soil, having pH 8.0, organic carbon 0.23% total nitrogen 0.02%, available P₂O₅ 8.9 kg/ha and available K₂O 778 kg/ha, therefore, the fertility status of experimental site was low. The pH was determined by Electrometric glass electrode method (Piper, 1950), while organic carbon was determined by Colorimetric method (Datta *et al.*, 1962). Total nitrogen was analyzed by Kjeldahl's method as discussed by Piper (1950). The available P₂O₅ and K₂O were determined by Olsen's method (Olsen *et al.*, 1954) and Flame photometric method (Singh 1971), respectively. The farming situation of area was irrigated. The main problem of the area was late sowing of menthi and Indian dill, which provided low income to farmers. Four treatments i.e. menthi alone and Indian dill alone were tested with local practices between cropping system of early mazie and normal planted potato. Menthi and Indian dill were sown mid September near to rains termination. After harvesting of leaves and tender stems of menthi and dill, main crop of potato was sown. The seeds of menthi and Indian dill were broadcasted uniformly.

The surface is raked, thereafter, to cover the seeds well. The germination of both crops was fast and completed within 6-10 day, due to good moisture in soil. The seed rate of menthi was used by 50 kg/ha, while Indian dill was seeded @ 10 kg/ha. For achieving better height, menthi crop was fertilized with 100 kg N + 50 kg P₂O₅ + 30 kg K₂O/ha. For obtaining good yield of leaves and tender stems of Indian dill, crop was

fertilized with 60 kg N and 50 kg P₂O₅/ha. The local varieties of both crops were used in the experiment. The first light irrigation was given to both crops just after seeding, followed by irrigations as and when required. Other recommended agronomical practices were followed. The young plants of both experimental crops were nipped at ground level after 20 days of sowing. After another 20 days the plants were often uprooted, bunched and marketed. After harvesting of both crops, the vacant field was used for normal planting of potato as per suggestion of Chauhan (1972), Nath *et al.* (2008) and Singh *et al.* (2011).

Results and Discussion

The data were recorded and reported in Table -1 and discussed here under appropriate heads:

Productivity of Green Leaves of Enterprises:

The green leaves of menthi were weight 76.00q/ha under early sowing, which was higher by 5.00q/ha over the farmers/conventional system. Similarly, Indian dill produced green leaves by 41.00 q/ha under early sowing, which was higher by a margin of 7.00 q/ha as compared to conventional sowing of dill. The early planting of both crops gave higher green leaves yield was due to availability good soil moisture and thermal condition, which were responsible for good germination percentage and quick and more growth of leaves and tender stems.

Economic study: The cost of cultivations computed by Rs. 76,650/ha under cultivation of menthi in both planting period. The highest gross return Rs. 7,60,000/ha, net return Rs. 6,83,350/ha and BCR 1:9.92 were computed under early sowing of menthi crop over conventional sowing menthi, where gross return, net return and BCR noted Rs. 4,26,000/ha, 3,39,350/ha and 1:5.55, respectively. The considerable improvement in the yield of leaves and tender stems and higher marketing rate of menthi were responsible for higher and low net income and BCR.

The early planting of menthi increased the farmer's net income by about two fold.

In case of Indian dill the similar cost of cultivation by Rs. 46330.00/ha was noted under early and conventional planting period. The notable higher gross return Rs. 4,10,000.00/ha, net profit Rs. 3,63,670/ha and BCR 1:8.85 were found under early planting period of dill over conventional planting period where gross return, net return and BCR were found by Rs. 2,04,000/ha, Rs. 157670/ha and 1:4.40, respectively. The considerable improvement in the production of green leaf and tender stems were responsible for higher and low net income and BCR.

The early planting of Indian dill increased the farmer's net income by 2.30 fold.

Conclusion

The early planting of menthi and Indian dill for production of green leaves and tender stems gave higher productivity over conventional planting/farmers practice on light loam soil of Uttar Pradesh. Net income of farmers increased by two fold or more than two fold due to better market rate.

Application of Research - Therefore, farm families of vegetable growing tract may be advocated for adoption of early planting of menthi and Indian dill between the cropping systems of maize - potato for harvesting the fruits of newly generated technology under climate change.

Table-1: Leaves yield of experimental crops and their economic comparison with farmer's practices.

Sl. No.	Treatment	Leaves yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs./ha)	Net return (R./ha)	BCR	Income increase in fold
1.	Early sowing of menthi	76.00	76,650	7,60,000	6,83,350	1:9.92	2.00
2.	Conventional sowing of menthi	71.00	76,650	4,26,000	3,49,350	1:5.55	-
3.	Early sowing of dill	41.00	45,330	4,10,000	3,63,670	1:8.85	2.30
4.	Conventional sowing of dill	34.0	45,330	2,04,000	1,57,670	1:4.40	-

Market Rate

Early sowing of menthi and dill- Rs. 100/kg
Conventional sowing of menthi and dill- Rs 60/kg

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