

**RESEARCH ARTICLE :**

Farm profits derived by the beneficiaries on account of adoption of moth interventions under NFSM in Bikaner district of Rajasthan

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SUMMARY : The present study was conducted in Bikaner district of Rajasthan. The National Food Security Mission is in operation in all six Panchayat samities of Bikaner district. Out of which fifty per cent Panchayat samities, *i.e.* three Panchayat samities Nokha, Lunkarnshar, Sri Dungargarh were selected purposely. Out of selected Panchayat samities three Gram Panchayats were selected randomly from each Panchayat samities on the basis of random sampling method. Thus, the total 9 villages were selected. To know the impact of National Food Security Mission, a control group of villages were also be required. Therefore, three distant villages where the National Food Security Mission was not in operation were also selected on the basis of random sampling technique from each identified Panchayat samiti. 7 beneficiary and 7 non-beneficiary Gram respondents were selected randomly from each identified village. Thus, a total of 63 beneficiary respondents and 63 non-beneficiary gram respondents. It was found that out of 126 respondents, 23 (18.25%) respondents in high farm profit group *i.e.* above Rs. 47197.05 moth crop per year. Whereas, 87 moth growers (69.05%) could be placed under medium level of farm profit group *viz.*, ranging from Rs. 19422.53 to 47197.05 moth crop per year and 16 respondents (12.70%) were found in the low farm profit group upto Rs. 19422.53 moth crop per year from cultivation of moth crop.

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BACKGROUND AND OBJECTIVES

Moth is an annual legume of dry and warm habitat and characterized as one of the most drought hardy legumes in arid region. Moth is mainly used in the Bikaneri Bhujia, papad and namkeen industry which is an important source of earning the foreign currency and provides the year long employment to the large number of people.

National Food Security Mission is being run at present in all 13, 33 and 12 districts of Rajasthan under the component of wheat, pulses and coarse cereals, respectively. The emphasis in component third on NFSM- pulse reflects that several million people in the country remain largely bypassed by the green revolution and modern agricultural practices. The component NFSM- pulse is being implemented in Bikaner district of Rajasthan

since 2007-08. Bikaner comes under hyper arid and partially irrigated western plains. The mission is in full swing and so far no impact study in the operational area of the mission has been conducted regarding the response of farmers about moth interventions introduced under NFSM. This is the right time to assess the impact of the mission with regards to interventions introduced in moth cultivation. With this background in view, the present study on farm profits derived by the beneficiaries on account of adoption of moth interventions under NFSM in Bikaner district of Rajasthan was undertaken with the following specific objectives:

– To measure the changes in farm profits derived by beneficiaries on account of adoption of moth interventions under NFSM.

– To find out the significant difference between beneficiary and non-beneficiary farmers in farm profits derived from cultivation of moth crop.

RESOURCES AND METHODS

The present study was conducted in Bikaner district of Rajasthan. The National Food Security Mission is in operation in all Panchayat samities of Bikaner district, out of which three Panchayat samities were taken for study. For selection of villages a list of villages was prepared from the selected Panchayat samities for the study purpose where the interventions of moth were taken under NFSM. There were 12 villages in the selected Panchayat samities where NFSM activities have been in operations in the last year 2014-15. Out of the list three villages were selected randomly for the study purpose from each selected Panchayat samiti. This way a total of 9 villages were selected from this identified Panchayat samities. To know the impact of National Food Security Mission, a control group of villages was also required. Therefore, three distant villages where the National Food Security Mission was not in operation were also selected on the basis of random sampling technique. Thus, in total 9 villages were selected from all the identified Panchayat samities and these villages were considered as non-beneficiaries villages. For selection of beneficiary respondents, a comprehensive list of moth growers who were benefitted under National Food Security Mission in 2014-15 was prepared separately. From the lists so prepared, 7 moth respondents were selected randomly from each identified village. Thus, a total of 63 moth beneficiary respondents were selected on the basis of random sampling

method from the identified villages. Likewise, 7 moth respondents were selected on the basis of random sampling technique from the each identified non-beneficiary village. Total 63 moth respondents were selected from all the non-beneficiary villages.

This part of schedule was used for finding the extent of farm profits derived through adoption of recommended pulse interventions under NFSM. To know the extent of farm profits derived through moth crop interventions six questions were prepared with the help of SMSs of Agronomy, Extension Education, Agricultural Economics and moth growers. The questions included in the schedule were pertaining to area occupied under moth crop, expenditures incurred during cultivation of moth and profit from moth crop. A net benefit was calculated by way of subtracting the cost from income (gross returns). The income from the moth interventions was measured on the basis of response received from beneficiaries and non-beneficiaries regarding average cost incurred and average return (in term of rupees) obtained from moth cultivation in the study area.

For calculating of income from moth cultivation, the average cost and net average return was worked out in rupees per annum. The total cost of moth crop comprises the cost of different aspects *viz.*, area occupied under moth crop, expenditures incurred on the items for moth cultivation like field preparation, ploughing with tractor, soil treatment, manures and fertilizers, sowing with plough, preparation of beds, irrigation, intercultural operations, plant protection, harvesting and storage, tax and interest of land, etc. Thus, the farm profit of individual respondent was worked out subtracting the cost of moth cultivation from the yield (in terms of Rupees).

To see the income benefits through moth crop, the respondents were categorized into three groups on the basis of their income *i.e.* low income group, medium income group and high income group on the basis of mean and standard deviation.

- Low level of farm profits [$\bar{X} - S.D.$]
- Medium level of farm profits [$\bar{X} - S.D.$ to $\bar{X} + S.D.$]
- High level of farm profits [$\bar{X} + S.D.$]

To find out the significance of difference in farm profits between beneficiary and non-beneficiary respondents, 'Z' test was applied.

This test was used to observe significant difference between two sample mean for large sample (*i.e.* $n > 30$). Formula for 'Z' test is as under:

$$z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

where,

\bar{X}_1 = Mean of the group of beneficiary respondents

\bar{X}_2 = Mean of the group of non-beneficiary respondents

S_1 = Standard deviation of first sample

S_2 = Standard deviation of second sample

n_1 = Size of the first sample

n_2 = Size of the second sample

OBSERVATIONS AND ANALYSIS

The National Food Security Mission (NFSM) is initiated for enhancing the food grain production of wheat, rice and pulse crops through area expansion and productivity enhancement, restoring soil fertility and productivity, creating employment opportunity and enhancing farm level economy to restore confidence of farmers of targeted district. In this connection, the present investigation was carried out with one of its objectives as “to measure the changes in farm profits derived by beneficiaries on account of adoption of pulse interventions introduced under NFSM. The farm profits of non-beneficiary farmers due to cultivation of moth crop were also worked out for comparison with farm profits of beneficiary farmers. The results have been presented in subsequent tables.

Distribution of the respondents according to their farm profits on the basis of moth cultivation:

The net profit (net income) of farm on the basis of cultivation of moth was calculated of beneficiary and non-beneficiary respondents. On the basis of income received from cultivation of moth crop, the respondents were categorized into three groups. On the basis of mean and standard deviation of the income obtained from the cultivation of moth crop by the respondents.

Table 1 reveals that out of 126 respondents, 87

(69.05 %) respondents were in medium level of farm profit group. Whereas, 23 moth respondents (18.25 %) could be placed under high level of farm profit group and 16 respondents (12.70 %) were found in the low farm profit group.

A comparative view of farm profit derived from moth crop highlights that 29.98 per cent beneficiary respondents and only 9.52 per cent non-beneficiary respondents were observed in the group of high farm profit level. It was further noted that only 7.94 per cent beneficiary respondents and 17.46 per cent non-beneficiary respondents possessed their low level farm profits. Whereas, 65.08 per cent beneficiary respondents and 73.02 per cent non-beneficiary respondents were found to be in the group of medium farm profits.

From the above discussion it could be concluded that more than 90 per cent beneficiary respondents were either in high or medium farm profit group. This was due to the fact that beneficiary respondents adopted the moth production technology introduced under National Food Security Mission which resulted in higher return. Hence, there was a good impact on beneficiary respondents under NFSM.

The present finding are in line with the findings of Singh *et al.* (2009) who revealed that increase in crop yield been recorded in NATP adopted districts as compared to non-NATP districts. Samota (2011) also reported that 50.66 per cent of the total respondents were relatively in medium B:C ratio group, whereas, 46.71 and 2.63 per cent of the total respondents were found in the high and low B:C ratio group, respectively.

Comparison between beneficiary and non-beneficiary respondents about farm profits derived from recommended production technology of moth crop :

To find out the variation or similarity in the farm profits derived by the respondents through adoption of recommended moth production technology between beneficiary and non-beneficiary respondents, ‘Z’ test was

Sr. No.	Level of farm profit	Beneficiary respondents		Non-beneficiary respondents		Total	
		F	%	F	%	F	%
1.	Low (< 19422.53 Rs. moth crop)	5	7.94	11	17.46	16	12.70
2.	Medium (19422.53 to 47197.05 Rs. moth crop)	41	65.08	46	73.02	87	69.05
3.	High (Above 47197.05 Rs. moth crop)	17	29.98	6	9.52	23	18.25
	Total	63	100	63	100	126	100

Mean 33309.79 S.D. 13887.26

Table 2 : Comparison between beneficiary and non-beneficiary respondents about farm profits derived from adoption of recommended moth production technology (n=126)

Sr. No.	Category of respondents	Mean	S.D.	'Z' value
1.	Beneficiary respondents	36885.90	13882.83	3.75*
2.	Non-beneficiary respondents	29733.68	13042.24	

* indicates significance of value at P=0.05 level

applied. The results are presented in Table 2.

Table 2 shows that mean score of beneficiary respondents was more than non-beneficiary respondents, which clearly indicates that beneficiary respondents had more farm profits due to adoption of recommended production technology of moth crop introduced under the National Food Security Mission. From the above results it can be concluded that National Food Security Mission is most effective in terms of farm profits derived due to moth production technology introduced in Bikaner district. The similar findings were reported by Reddy and Patil (1998) who revealed that the improved technology tested on farmer's fields under the project of front line demonstrations on oilseed crops showed the beneficial impact of improved technologies over farmer's practices. The incremental benefit cost ratio clearly showed that the technologies were cost effective (Khatik *et al.*, 2017 and Tuteja, 2000). Samota and Dangi (2014) also studied on the impact of NAIP with special reference to high yielding variety. Similar finding related to the present investigation was also conducted by Kumar *et al.* (2012); Sandhu (2014) and Sharma and Choudhary (2014).

Conclusion :

It was found that out of 126 respondents, 23 (18.25%) respondents in high farm profit group *i.e.* above Rs. 47197.05 moth crop per year. Whereas, 87 moth growers (69.05%) could be placed under medium level of farm profit group *viz.*, ranging from Rs. 19422.53 to 47197.05 moth crop per year and 16 respondents (12.70%) were found in the low farm profit group upto Rs. 19422.53 moth crop per year from cultivation of moth crop.

There was a significant difference in level of farm profits between beneficiary and non-beneficiary farmers from moth cultivation. The beneficiary farmers had more farm profits than non-beneficiary farmers moth cultivation. Thus, the NFSM played a significant role in more farm profits among beneficiary farmers of moth crop.

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