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RESEARCH ARTICLE :

Constraints in adoption of moth production technology in arid zone 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 were selected. The study revealed that lack of skill about application of chemicals, inadequate knowledge about soil treatment, unavailability of bio-fertilizers at village level, timely unavailability of seed minikits at local level, lack of skill about plant protection measures, lack of technology guidance at proper time, unavailability of plant protection equipments, improper knowledge of micro-nutrient application, nepotism and favoritism in distribution of minikits under NFSM and high cost of improved seeds, micro-nutrients, fungicides were important constraints.

KEY WORDS :
NFSM, Beneficiary, Non-beneficiary

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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 course 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 (Khatik and Shrama, 2017). 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 find out the extent of constraints perceived by the beneficiary and non-beneficiary respondents in adoption of recommended moth production technology introduced under National Food Security Mission.

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 were 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 samity. 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.

OBSERVATIONS AND ANALYSIS

In the present study, the term constraint means the barriers or obstacles which are perceived by the beneficiary respondents in the adoption of recommended pulse production technology. Adoption of technology depends on various factors, which may either accelerate or retard its adoption. It is important on the part of extension functionaries to identify such factors so as to make the dissemination of technologies in line with the respondents' perception and need. It is needless to mention that pace of adoption can be augmented by overcoming the perceived constraints. So it was felt necessary to overcome the perceived constraints which prevented the respondents from adopting recommended gram production technology. In the present context, the constraints perceived by the respondents in the adoption of gram and moth production technology were identified and the results are presented in subsequent tables.

Constraints perceived by beneficiary and non-beneficiary respondents regarding adoption of recommended moth production technology :

An effort was made to find out the priority of constraints perceived by the beneficiary and non-beneficiary respondents in adoption of recommended moth production technology introduced under National Food Security Mission. For this mean per cent score for each constraint was calculated and ranked accordingly. The results of the same have been presented in Table 1.

The data presented in Table 1 reveal that non-beneficiary respondents were facing more problems related to "nepotism and favoritism in distribution of minikits under NFSM", "lack of skill about application of chemicals", "unavailability of timely seed minikits of moth crop at local level", "unavailability of bio-fertilizer at village level", "inadequate knowledge of soil treatment", "lack of knowledge about seed treatment", "lack of skill about plant protection measures", "lack of technological guidance at proper time", "high cost of farm implements/ machinery" and "high cost of improved seeds, micronutrients, fungicides and insecticides" with 92.06 MPS, 90.48 MPS, 87.30 MPS, 85.71 MPS, 84.13 MPS, 82.54 MPS, 80.95 MPS, 76.19 MPS, 74.60 MPS and

69.84 MPS. While beneficiary respondents facing more problem related to "lack of skill about application of chemicals", "unavailability of bio-fertilizer at village level", "inadequate knowledge of soil treatment", "lack of skill about plant protection measures", "unavailability of timely seed minikits of moth crop at local level", "lack of knowledge about seed treatment", "lack of technological guidance at proper time", "high cost of farm implements/ machinery" and "high cost of improved seeds, micronutrients, fungicides and insecticides" with 85.71 MPS, 84.13 MPS, 80.95 MPS, 79.36 MPS, 76.19 MPS, 74.60 MPS,71.43 MPS, 66.67 MPS and 65.08 MPS, respectively.

Further, moderate constraints professed by non-beneficiary respondents were regarding "unavailability of plant protection equipments", "lack of knowledge about application of gypsum" and "Improper knowledge of micronutrient application" with 66.67 MPS, 65.08 MPS and 63.49 MPS, respectively. The least constraint acknowledged by them was regarding "lack of competence of AAOs/ agriculture supervisor in conducting demonstrations" and "fragment and undulated land for cultivation of moth" with 61.90 MPS and 47.62 MPS, respectively.

In case of beneficiary respondents, moderate constraints perceived by them were regarding "Improper knowledge of micronutrient application", "lack of competence of AAOs/ agriculture Supervisor in conducting demonstrations", "lack of knowledge about application of gypsum" and "nepotism and favoritism in distribution of minikits under NFSM" with 61.90 MPS, 57.14 MPS and 55.56 MPS, respectively. Least constraints faced by beneficiary respondents were regarding "unavailability of plant protection equipments" and "fragment and undulated land for cultivation of moth" with 52.38 MPS and 50.79 MPS, respectively.

A critical examination of Table 1 further reveals that overall respondents were facing major problem of "lack of skill about application of chemicals" (88.09 MPS), "unavailability of bio-fertilizer at village level" (84.92 MPS), "inadequate knowledge of soil treatment" (82.54 MPS), "unavailability of timely seed minikits of gram crop at local level" (81.74 MSP), "lack of skill about plant protection measures" (80.15 MPS) "lack of knowledge about seed treatment" (78.57 MPS), "lack of technological guidance at proper time" (74.60 MPS) and "nepotism and favoritism in distribution of minikits under NFSM" (73.02 MPS), in the adoption of improved gram intervention. The moderate problem of adoption in improved gram intervention *i.e.* "high cost of farm

Table 1 : Constraints as perceived by the respondents regarding adoption of recommended moth production technology

Sr. No.	Constraints	Beneficiary respondents (n=63)		Non-beneficiary respondents (n=63)		Pooled (n=126)	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Unavailability of timely seed minikits of moth crop at local level	76.19	V	87.3	III	81.74	IV
2.	Inadequate knowledge of soil treatment	80.95	III	84.13	V	82.54	III
3.	Lack of knowledge about seed treatment	74.6	VI	82.54	VI	78.57	VI
4.	Improper knowledge of micronutrient application	61.9	X	63.49	XIII	62.69	XII
5.	Nepotism and favoritism in distribution of minikits under NFSM	53.97	XIII	92.06	I	73.02	VIII
6.	Lack of technological guidance at proper time	71.43	VII	76.19	VIII	73.81	VII
7.	Lack of knowledge about application of gypsum	55.56	XII	65.08	XII	60.32	XIII
8.	High cost of farm implements/machinery	65.08	IX	74.6	IX	69.84	IX
9.	High cost of improved seeds, micronutrients, fungicides and insecticides	66.67	VIII	69.84	X	68.25	X
10.	Lack of skill about plant protection measures	79.36	IV	80.95	VII	80.15	V
11.	Unavailability of plant protection equipments	52.38	XIV	66.67	XI	59.52	XIV
12.	Lack of skill about application of chemicals	85.71	I	90.48	II	88.09	I
13.	Lack of competence of AAOs/ Agril. Supervisors in conducting the demonstrations	57.14	XI	69.84	XIV	63.49	XI
14.	Fragment and undulated land used for moth cultivation	50.79	XV	52.38	XV	51.58	XV
15.	Unavailability of bio-fertilizers at village level	84.13	II	85.71	IV	84.92	II

r_s = Rank correlation

** indicates significance of value at P=0.01

R	0.6464	t0.05	2.13
T	3.054**	t0.01	2.94

implements/machinery", "high cost of improved seeds, micronutrients, fungicides and insecticides", "lack of competence of AAOs/ agriculture supervisor in conducting demonstrations" and "improper knowledge of micronutrient application" with 69.84 MPS, 68.25 MPS, 63.49 MPS and 62.69 MPS, respectively. Least problems faced by them were regarding "lack of knowledge about application of gypsum", "unavailability of plant protection equipments" and "fragment and undulated land for cultivation of moth" with 60.32 MPS 59.52 MPS and 51.58 MPS.

The value of rank correlation r_s was 0.64. The calculated value of 't' (3.054) was higher than its tabulated value at 1 per cent level of significance. This directed to the conclusion that there was a similarity between the assignment of ranks by beneficiary and non-beneficiary moth respondents in different aspects of constraints in spite of difference in the magnitude of mean per cent score.

From the above discussion it could be concluded that lack of skill about application of chemicals, unavailability of bio-fertilizer at village level, lack of knowledge about soil treatment, timely non- availability of seed minikits of moth at local level, lack of technological guidance at proper time and non- availability of plant protection equipments were major constraints expressed by the moth respondents in complete adoption of recommended moth interventions. The similar findings are supported by the findings of Burman *et al*. (2006); Kumar *et al*. (2012); Bhatia (1991) and Rajan *et al*. (2014).

Conclusion :

The study revealed that lack of skill about application of chemicals, inadequate knowledge about soil treatment, unavailability of bio-fertilizers at village level, timely unavailability of seed minikits at local level, lack of skill about plant protection measures, lack of technology guidance at proper time, unavailability of plant protection equipments, improper knowledge of micro-nutrient application, nepotism and favoritism in distribution of minikits under NFSM and high cost of improved seeds, micro-nutrients, fungicides were important constraints. While least perceived constraints were fragment and undulated land used for gram and moth cultivation, unavailability of plant protection equipments and lack of knowledge about application of gypsum expressed by the beneficiary farmers in the adoption of recommended gram and moth interventions in the study area.

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