

RESEARCH ARTICLE :

Association between selected independent variables and adoption of moth interventions by the respondents

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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 was 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. It was found that personal characteristics *viz.*, age and economic motivation were not significantly associated with adoption of recommended interventions of moth. Education, size of land holding, income level, cosmopolitaness and extension contact were significantly associated with adoption of recommended interventions of moth. It means that there was significant effect of these personal variables on adoption of recommended interventions of moth.

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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 association between selected independent variables and adoption of moth interventions by the respondents was undertaken with the following specific objectives:

– Association between adoption level of respondents and the selected independent variable of recommended moth production technology.

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 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.

OBSERVATIONS AND ANALYSIS

The association between the selected independent variable *i.e.* age, education, size of land holding, income level, economic motivation, cosmopolitaness and extension contacts with the extent of adoption about gram intervention was measured by computing 'Multiple regression technique' to know the effect of these variables separately as combindly and the results have been presented in Table 1.

Total respondents :

The data in Table 1 depict that all the seven selected independent variables (R^2 value 0.851) were jointly contributed towards 85.10 per cent of variation in the extent of adoption of moth crop by the respondents. The result implied that all the seven independent variable would account for a significant amount of variation in the adoption of moth technology by the respondents. It was observed that the 't' test of significance indicated that co-efficient of regression (b-value) were found to be significant for the variables education, size of land holding, cosmopolitaness and extension contacts at 1 per cent level of significance and income level at 5 per cent level of significance. This means that these variables were the important for predicting the adoption level about moth production technology by the respondents. The regression co-efficient was found non-significant for remaining variable namely: age, and economic motivation. This leads to the conclusion that these variables were not important with regard to adoption of moth technology by the respondents.

Hence the Null hypotheses $H_{0.1.1}$, $H_{0.1.5}$ were accepted and the Null hypothesis $H_{0.1.2}$, $H_{0.1.3}$, $H_{0.1.4}$, $H_{0.1.6}$, $H_{0.1.7}$ were rejected.

Beneficiary respondents :

It was revealed from the same table the seven independent variables taken together explained to the extent of 85 per cent in the adoption of moth technology by the beneficiaries. The result implied that all seven independent variables would account for a significant amount of variation in the adoption level of the

Table 1 : Association between personal attributes of moth growers with their extent of adoption of moth production technology

| Sr. No. | Personal attributes | Beneficiary farmers (n=63) | | | Non-beneficiary farmers (n=63) | | | Pooled (n=126) | | |
|---------|----------------------|----------------------------|------------|---------------------|--------------------------------|------------|---------------------|-------------------|------------|---------------------|
| | | b value (R.Coef.) | S. E. of b | t value of b | b value (R.Coef.) | S. E. of b | t value of b | b value (R.Coef.) | S. E. of b | t value of b |
| 1. | Age | 0.148 | 0.101 | 1.458 ^{NS} | 0.086 | 0.080 | 1.070 ^{NS} | 0.076 | 0.063 | 1.211 ^{NS} |
| 2. | Education | 1.640 | 0.462 | 3.545** | 1.553 | 0.619 | 2.510* | 1.233 | 0.346 | 3.559** |
| 3. | Size of land holding | 5.841 | 1.662 | 3.514** | 3.978 | 1.467 | 2.712* | 4.171 | 1.056 | 3.948** |
| 4. | Income level | 1.693 | 0.972 | 1.741 ^{NS} | 1.680 | 0.877 | 1.917 ^{NS} | 1.512 | 0.638 | 2.368* |
| 5. | Economic motivation | 0.258 | 0.349 | 0.740 ^{NS} | 0.075 | 0.321 | 0.235 ^{NS} | 0.271 | 0.201 | 1.347 ^{NS} |
| 6. | Cosmopolitaness | 2.105 | 0.554 | 3.800** | 1.500 | 0.599 | 2.505* | 1.918 | 0.368 | 5.215** |
| 7. | Extension contacts | 3.203 | 0.667 | 4.802** | 3.351 | 1.111 | 3.018** | 4.264 | 0.473 | 9.020** |

* and ** indicates significance of values at P=0.05 and 0.01 level of probability

NS=Non-significant

Beneficiary

Non-Beneficiary

Pooled

Co-efficient of determination (R²) = 0.850

Co-efficient of determination (R²) = 0.816

Co-efficient of determination (R²) = 0.851

Multiple correlation R =0.922

Multiple correlation R =0.904

Multiple correlation R =0.923

F- Calculated =44.619 d.f. 62

F- Calculated =34.922 d.f. 62

F- Calculated =96.567 d.f. 62

beneficiaries.

Further, 't' test of significance indicated that co-efficient of regression (b-value) were found to be significant for the variables: education, size of land holding, cosmopolitaness and extension contacts. This means that these variables were the important for predicting the adoption of moth technology by the respondents. The regression co-efficient was found non-significant for remaining variable namely: age, income level and economic motivation.

Hence the Null hypotheses $H_{0.2.1}$, $H_{0.2.4}$, $H_{0.2.5}$ were accepted and the Null hypothesis $H_{0.2.2}$, $H_{0.2.3}$, $H_{0.2.6}$, $H_{0.2.7}$ were rejected.

Non beneficiary respondents :

It was also revealed from same table that the seven independent variables taken together explained to 81.60 per cent of the variation in the adoption level of the non-beneficiaries. The result implied that all seven independent variables would account for a significant amount of variation in the adoption of the non-beneficiaries.

The 't' test of significance indicated that co-efficient of regression (b-value) were significant for the variables extension contacts at significant 1 per cent level of significance and education, size of land holding, cosmopolitaness and extension contacts at 5 per cent level of significance. This means that these four variables were the most important for predicting the adoption of moth technology by the non-beneficiaries as compared to rest of the variables under the study. The regression co-efficient was found non-significant for remaining variable namely age, income level, economic motivation.

Hence, the Null hypotheses $H_{0.3.1}$, $H_{0.3.4}$, $H_{0.3.5}$, were

accepted and the Null hypothesis $H_{0.3.2}$, $H_{0.3.3}$, $H_{0.3.6}$, $H_{0.3.7}$ were rejected.

From the above discussion it could be concluded that education, size of land holding, income level, cosmopolitaness and extension contacts were the important variables which determined the adoption of gram technology by the respondents. The findings of the study are in conformity with the findings of Singh *et al.* (2012) and Singh *et al.* (2015).

Arneja and Khangura (2003); Chaudhary and Yadav (2017) and Singh *et al.* (2016) also worked on the related topic and the results found were more or less similar to the present investigation.

Conclusion :

In case of total moth farmers was found that personal characteristics *viz.*, age and economic motivation were not significantly associated with adoption of recommended interventions of moth. Education, size of land holding, income level, cosmopolitaness and extension contact were significantly associated with adoption of recommended interventions of moth. It means that there was significant effect of these personal variables on adoption of recommended interventions of moth.

In case of moth beneficiaries it was found that personal characteristics *viz.*, age, income level and economic motivation and in case of non-beneficiaries age, income level and economic motivation were not significantly associated with adoption of recommended interventions of moth. Education, size of land holding, cosmopolitaness and extension contact of beneficiary and education, size of land holding, cosmopolitaness and

extension contact of non-beneficiary respondents were significantly associated with adoption of recommended interventions of gram. It means that there was significant effect of these personal variables on adoption of recommended interventions of moth.

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