# Knowledge of Farmers About Improved Cultivation Practices of Moth Bean in Jodhpur District

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**Abstract:** The study was conducted in Mandore and Bhopalgarh panchayat samities of Jodhpur District of Rajasthan. In each panchayat samiti, one village each within 0 to 3 km, 3 to 6 km and more than 6 km distance from the panchayat samiti was selected randomly. From each village 30 farmers cultivating moth bean were selected by random sampling method. The total number of 180 selected respondents formed the sample size. The study revealed that majority of the farmers possessed fairly good knowledge of moth bean production technology. Age of the farmers was negatively and significantly correlated with knowledge of moth bean production technology while caste, education, social participation, mass media exposure, contact with extension agencies and infrastructure facilities were positively and significantly correlated with knowledge. All the 13 independent variables taken together explained to the extent of 72.9% variation for knowledge of the respondents.

**Key words:** Knowledge, high yielding varieties, moth bean.

In Rajasthan, pulses occupy 38.6 lakh ha area with total production of 22.8 lakh tones. The share of pulse to total food grain is 27.6%. About 90% area of pulse cultivation in Rajasthan is under rainfed agriculture, out of which 65% falls in western Rajasthan. The important pulse crops of western Rajasthan are mung bean and moth bean. Moth bean occupies 14.9 lakh ha area with total production of 7.9 lakh tones. It shared about 38.6% to total pulse area and contribute only 34.6% total pulse production. The average productivity of moth bean is 529 kg ha$^{-1}$ (2003-04), which is low as compared to pulse productivity (591 kg ha$^{-1}$) in the state. Research Institutes and Agricultural Universities have developed technologies, but the farmers, due to several factors arising out of the prevailing conditions, do not fully adopt these technologies. Knowledge of improved moth bean cultivation is one of the important factors for increasing the moth bean yield. Keeping this in view the present investigation was under taken to study the profile of moth bean farmers, knowledge of the farmers on moth bean production technology, and to find out the relationship between socio-economic characteristics of moth bean growers and their knowledge of moth bean production technology.

## Materials and Methods

The study was conducted in panchayat samities namely Mandore and Bhopalgarh in Jodhpur District of Rajasthan. In each panchayat samiti, all the villages were divided into three categories according to the distance from the panchayat samiti. First category of the villages was within 0 to 3 km. Second category included villages at 3 to 6 km and third category included villages at more than 6 km distance from the panchayat samiti. One village from each category was selected randomly. Thus a total of 6 villages formed the sample of the study.

Total number of farm families in each selected village was listed with the help of lekhpal and Village Development Officer of the concerned village. Thirty farmers cultivating moth bean were selected by random sampling method. The total number of 180 selected respondents formed the sample of the study. The data were collected using pre-tested structured schedule by personal interview method.

The knowledge test executed to the respondents consisted 39 statements pertaining to high yielding varieties, seed treatment, seed rate, time of sowing, method of sowing, spacing, application of organic manure, interculture and weeding, application of nitrogenous and phosphatic fertilizers and plant protection measures. The responses were recorded either as "correct" or "incorrect" and a score of "1" and "0" were given, respectively. The maximum score was 39 and minimum was 0. The knowledge index was calculated following (Bhaskarn and Praveen, 1982).

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*Table 1. Distribution of respondents as per socio-economic characteristics*

| Socio-economic characteristics | Category | Number | Percentage |
|---|---|---|---|
| Age | Below 31 years | 13 | 7.2 |
| | 31 to 50 years | 116 | 64.5 |
| | Above 50 years | 51 | 28.3 |
| Caste | Scheduled caste/Scheduled tribe | 30 | 16.7 |
| | Other backward caste | 44 | 24.4 |
| | Higher caste | 106 | 58.9 |
| Education | Illiterate | 87 | 48.3 |
| | Can read only | 9 | 5.0 |
| | Can read and write | 12 | 6.7 |
| | Primary | 32 | 17.8 |
| | Middle | 22 | 12.2 |
| | Secondary and Sr. secondary | 18 | 10.0 |
| Family type | Single | 112 | 62.2 |
| | Joint | 68 | 37.8 |
| Family size | Small family (1 to 4 members) | 19 | 10.6 |
| | Medium family (5 to 7 members) | 116 | 64.4 |
| | Large family (Above 7 members) | 45 | 25.0 |
| Land holding | Up to 1.75 ha | 11 | 6.1 |
| | 1.76 to 3.50 ha | 49 | 27.2 |
| | 3.51 to 5.25 ha | 43 | 23.9 |
| | 5.26 to 7.00 ha | 17 | 9.4 |
| | 7.01 to 8.75 ha | 21 | 11.7 |
| | Above 8.75 ha | 39 | 21.7 |
| Occupation | Labour | 7 | 3.9 |
| | Caste Occupation | 6 | 3.3 |
| | Business | 1 | 0.6 |
| | Independent profession | 2 | 1.1 |
| | Cultivation | 163 | 90.5 |
| | Service | 1 | 0.6 |
| Per capita annual income | Rs. 1000-3000/- | 38 | 21.1 |
| | Rs. 4000-6000/- | 69 | 38.3 |
| | Above Rs. 6000/- | 73 | 40.6 |
| Social participation | No membership of any organization | 136 | 75.5 |
| | Membership of one organization | 41 | 22.8 |
| | Membership of two organizations | 3 | 1.7 |
| Mass media exposure | Low mass media exposure | 97 | 53.9 |
| | Medium mass media exposure | 61 | 33.9 |
| | High mass media exposure | 22 | 12.2 |
| Contact with extension agencies | Low contact with extension agencies | 110 | 61.1 |
| | Medium contact with extension agencies | 55 | 30.6 |
| | High contact with extension agencies | 15 | 8.3 |

## Results and Discussion

Majority of the farmers belonged to the age group of 31 to 50 years, higher caste, illiterate, preferred to live in single-family system having more than 5 members in their family (Table 1). Majority of the farmers had main occupation as

Table 2. *Knowledge of farmers regarding moth bean production technology*

| Technology | Knowledge level | | |
|---|---|---|---|
| | Poor | Fair | Good |
| Seed technology | 7 (3.9) | 123 (68.3) | 50 (27.8) |
| Fertilizer technology | 106 (58.9) | 59 (32.8) | 15 (8.3) |
| Plant protection technology | 140 (77.8) | 32 (17.8) | 8 (4.4) |
| Over all | 52 (28.9) | 108 (60.0) | 20 (11.1) |

Note: Figures in parenthesis indicates percentage.

agriculture. Per capita annual income of the 21.1% farmers was between Rs. 1000-3000, 38.3% of the farmers had Rs. 3001-6000 and 40.6% farmers had above Rs. 6000. Majority of the farmers had no membership in any organization (75.5%), had low contact with extension agencies (57.2%) and low mass media exposure (61.1%).

The whole technology of moth bean cultivation was divided into three aspects i.e., seed technology, fertilizer technology and plant protection technology. In the seed technology, HYV seed, seed rate, seed treatment, time of sowing, method of sowing, spacing, intercultural and weeding were considered. For fertilizer technology, dose, time and methods of nitrogenous and phosphatic fertilizer applications were considered and for plant protection technology, different plant protection measures and use of weedicides were considered. Based on the responses of the respondents, three levels of knowledge, namely poor (below 33.3%), fair (33.34 to 66.66%) and good knowledge (above 66.6%) were made.

The data presented in Table 2 indicated that 68.3% farmers possessed fair knowledge followed by good (27.8%) and poor knowledge (3.9%) regarding seed technology of moth bean. In case of fertilizer technology, majority (58.9%) of the farmers had poor knowledge, while 32.8% had fair and only 8.3% farmers were having good knowledge. It was found that majority (77.8%) of the farmers were having poor knowledge on plant protection technology of moth bean crop. Majority (60.0%) of the farmers were having poor knowledge. However, 28.9% fair and only 11.1% farmers were having good knowledge on moth bean production.

The above findings are in conformity with the findings reported by Chauhan *et al.* (1987), Bavalatti and Sundraswamy (1991), and Singh and Chauhan (2003).

A perusal of Table 3 indicated that age of the farmers was negatively and significantly related with knowledge of the moth bean production technology. It clearly showed that young farmers had more knowledge about moth bean production technology as compared to old farmers. Similar findings were also reported by Singh and Chouhan (2003) and Singh (2004-05). The reason may be their better education.

Caste of the farmers was positively and significantly correlated with knowledge. It reveals the higher caste farmers had more knowledge as compared to lower caste farmers. Singh (1991) also revealed similar results.

Education of the farmers was positively and significantly correlated with knowledge on moth bean production technology. Thus as the level of education increased their knowledge of moth bean production technology also increased. The above finding is in line with the findings of Singh (1981; 1991), Kher and Halyak (1988).

Table 3. *Correlation between socio-economic characteristics of the respondents and knowledge of moth bean production technology*

| Socio-economic characteristics | Correlation co-efficient (r) |
|---|---|
| Age | -.30355** |
| Caste | .32153** |
| Education | 81158** |
| Family type | -.18193NS |
| Family size | -.16558* |
| Size of holding | .02111NS |
| Occupation | .15919NS |
| Per capita annual income | .18553NS |
| Social participation | .49016** |
| Mass media exposure | .770281** |
| Contact with extension agencies | .730718** |
| Infrastructural facilities | .69230** |
| Attitude | .66069** |

NS: Non-significant; *Significant at 5% level; **Significant at 1% level.

*Table 4. Regression coefficient between independent variables and over all knowledge of farmers regarding moth bean production technology*

| Independent variables | Reg. coefficient ('b' value) | Standard error | 't' value |
|---|---|---|---|
| Age | 0,00615 | 0,048545 | 0,126697 |
| Caste | 0,039128 | 0,423591 | 0,092373 |
| Education | 1,467738 | 0,377512 | 3,887919** |
| Family type | -0,29263 | 0,845163 | -0,34625 |
| Family size | 0,367159 | 0,816962 | 0,44942 |
| Size of holding | -0,4077 | 0,277982 | -1,46664 |
| Occupation | 0,107008 | 0,079964 | 1,33821 |
| Per capita annual income | -0,00017 | 0,081537 | -0,00208 |
| Social participation | 1,353068 | 0,825708 | 1,638677 |
| Mass media exposure | 0,639603 | 0,309955 | 2,063535* |
| Contact with extension agencies | 0,149749 | 0,234472 | 0,638664 |
| Infrastructural facilities | 0,553784 | 0,2803 | 1,975686* |
| Attitude | 0,159445 | 0,061766 | 2,581446** |

$R^2 = 0.72913$; $R = 0.853913$; $F = 34.37878**$; ** Significant at 1%; * Significant at 5%.

Social participation, mass media exposure, contact with extension agencies, infrastructure facilities and attitude of the farmers were positively and significantly correlated with knowledge. It is inferred that increasing social participation, mass media exposure, contact with extension agencies and infrastructural facilities helped in increasing the knowledge of the respondents regarding moth bean production technology.

Singh (1981) found positive and significant correlation between contact with extension agencies and knowledge of the respondents. The positive significant relationship between social participation and extension contact with knowledge was reported by Kher and Halyak (1988) and Singh (1991). Sharma and Sharma (1988) also found positive correlation between social participation and knowledge of the respondents.

Pulamate and Rameshbabu (1993) reported that mass media exposure and extension contact had positive and significant relationship with knowledge. Singh (1981) and Reddy and Reddy (1988) found positive and significant relationship between extension contact and knowledge. Significant relationship between infrastructure and knowledge was also reported by Singh (1991).

The variables like family type and size of family, size of holding, occupation and per capita annual income of farmers were having non-significant relationship with knowledge. This clearly shows that family type, family size, size of holding, occupation and per capita annual income do not have impact on the knowledge of moth bean production technology.

Table 4 elicited that all the 13 independent variables taken together explained 72.9% of the variation for knowledge. The 'F' value 34.37878 was significant at 1% level of probability. The results implied that all the thirteen variables had accounts for significant amount of variation for knowledge about moth bean production technology.

The test of significance of individual coefficient of regression ('b' value) was positively significant for education, mass media exposure, infrastructure facilities and attitude. On the contrary, coefficient of regression 'b' value were non-significant for age, caste, family type, family size, size of holding, occupation and per capita annual income, social participation and contact with extension agencies,

The results of the analysis indicated the fact that education, mass media exposure, infrastructural facilities and attitude were most important predictors of the knowledge regarding moth bean production technology.

From the above discussion, it may be concluded that majority of the farmers possessed fair knowledge of moth bean production technology. However, intensive extension efforts should be made to upgrade the more knowledge of the farmers about moth bean production technology.

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