Farmers' Technical Experience about Production Technologies of Mothbean Cultivation in Western Region of Rajasthan

P. Singh[1], H.L. Jat[2] and S.K. Sharma[3]

1. T.A. National Seed Project, 3. Dy. Director, DEE, S.K. Raj. Agri. University, Bikaner (Raj),
2. Asso. Prof., Deptt. of Ext. Edu., S.K.N. College of Agriculture, Jobner (Raj.
Corresponding author e-mail:phoolsinghbagenia@rediffmail.com

ABSTRACT

The study was conducted in hyper arid partially irrigated western plain zone-Ic of Rajasthan with selection of Bikaner and Churu districts with the sample size of 316 respondents, they were cultivating mothbean for last 5 years. Results indicated that majority of respondents had medium knowledge. Cultivators possessed technology wise high knowledge about irrigation management, sowing time, seed rate and method of sowing and use of improved seed. The farmers possessed very little knowledge about application of culture, seed treatment and recommended spacing in respect to mothbean cultivation technology regarding component wise knowledge. Most of the farmers had good knowledge about recommended production technologies. Out of fifteen independent variable only two variables i.e. credit behaviour and economic motivation were found non-significantly associated with knowledge level of the farmers about recommended production technologies of mothbean cultivation.

Key words : *Hyper arid; Irrigation management; Knowledge; Application of culture;*

Among the kharif pulses mothbean, moongbean, cowbean and cowpea are major crops. Mothbean is the major arid legume and recognized for its twin tolerance to drought and heat. It is therefore, the ultimate choice of marginal and sub-marginal farmers for realization of sustained production under the extreme hostile and harsh agro-climatic situations. Besides conserving soil and water, it is also used in several confectionary items, forming essential components of day to day snacks. Its green fodder is at par to alfalfa and dry fodder is better to cowpea and cluster bean. It can provide 7-8 q/ha of hay. The crop is grown in plain land and on sand dunes and also in different combinations with crops, trees, fruit crops and grasses. Moth bean is grown in about 12.2 lakh hectares of area in Rajasthan of which, however 93 per cent area (12.0 lakh ha) is confined to 12 arid districts of Rajasthan. The crop is known for poor plant type, more biomass and poor conversion. Old varieties used to spread like met on the ground, covering between the rows even if planting was done at 60 cm apart. The same used to flower in 45-50 days and maturing in 90-100 days. Basically, they were the fodder types as showing extreme indeterminate growth habits. Almost all varieties due to long maturity used to suffer from yellow mosaic virus infection. However, the same could stand in the field even up to 30-40 days without irrigation, making it, excellent source of heat and drought tolerance.

In India its cultivation is mainly concentrated in arid and semi-arid regions of Rajasthan, Maharashtra and Gujarat, though it is also cultivated sporadically in the states of Haryana, Jammu and Kashmir, Punjab and Utter Pradesh. Being the most drought hardy and temperature tolerant crop among pulses, it is a most popular crop of arid and semi-arid zones of Rajasthan, which accounts for 86 per cent of the total mothbean area of the country.

The per unit production of mothbean mainly depends upon the technical know-how and extent of its use by the mothbean growers. Therefore, it was thought opportune to probe into the level of knowledge of the mothbean growers about the recommended production technologies of mothbean cultivation. The present research study was conducted with the objectives as :

(1) To study knowledge level of the farmers about recommended production technologies of mothbean.

(2) To ascertain the association between the knowledge level of the farmers about recommended production technologies of mothbean and the selected independent variable.

METHODOLOGY

Rajasthan state comprises ten agro-climatic zones and the Zone-Ic was selected purposely for the study. As this zone is comprised of three district, out of these, Bikaner and Churu districts were selected randomly. From the selected districts 50 per cent panchayat samities were selected randomly (total number of four panchayat samities were selected from eight panchayat samities). Ten per cent gram panchayats were selected from selected panachayat samities and hence, 19 gram panchayats were also randomly selected. One village was randomly selected from each gram panchayat. A list of all the farmers who were growing mothbean crop for last 5 years was prepared from each selected village. From this list 40 per cent respondents were selected randomly. Here by making a total sample size of the 316 respondents. The selected farmer were interviewed with a help of a specially structured schedule. The statistical tests like, mean, standard deviation, correlation, coefficient and multiple regression analysis were used to analyse the data.

RESULTS AND DISCUSSION

Level of mothbean farmer's awareness about recommended production technologies by the mothbean growers were ascertained by asking questions pertaining to individual practices. The questions were framed on different components of field preparation and soil testing, use of improved seed, seed rate and method of sowing, sowing time, spacing, seed treatment, application of culture, nutrient management, weed management, irrigation management, plant protection measures, harvesting and storage measures and crop rotation. The calculated frequencies and per cent ages are shown in Table 1 and discussed accordingly.

The data incorporated in Table 1 show that 69.30 per cent respondents were in medium knowledge level regarding recommended production technologies of mothbean cultivation. Besides that 16.46 per cent and 14.24 per cent respondents were in low and high knowledge level, respectively.

Table 1. Distribution of respondents according to their knowledge level about recommended production technologies of mothbean cultivation (N = 316)

Knowledge level	No.	%
Low (Score below 25.26)	52	16.46
Medium (Score from 25.26 to 41.14)	219	69.30
High (score above 41.14)	45	14.24
Total	316	100.00

$\bar{X}$ = 33.20 score σ = 7.94 score

It may be concluded that majority of the respondents had medium knowledge level regarding recommended production technologies of mothbean cultivation. This might be so because of continued cultivation experience and exposure to mass media.

The findings of the study were in line with the findings of *Bhati (1976), Chauhan (1994), Dhangi and Indotia (1998),* and *Arneja and Khangura (2003).*

It is obvious from Table 2 that farmers possessed high knowledge about irrigation management with MPS 90.27, followed by sowing time with MPS 86.08 and recommended seed rate and method of sowing, use of improved seed and harvesting and storage measures with MPS 79.96, 68.61 and 65.86 respectively.

Table 2 further reveals that the technologies like field preparation and soil testing and plant protection measures were having MPS 60.60 and 59.05 respectively. It was further noticed that the farmers had the least knowledge level about technologies of great concern like, crop rotation, weed management, nutrient management and spacing with MPS 49.79, 45.10, 38.96, and 30.70 per cent. The farmers possessed very little knowledge about seed treatment with MPS 18.10 and application of culture (rhizobium/PSB) with MPS 15.57 per cent and exhibited vast knowledge gap 84.43 per cent.

The data incorporated in Table 3 indicates that 80.70 per cent respondents had awareness regarding common soil born insect-pest and disease, recommended ploughing, (78.63%), however, 69.23 per cent were found to have good knowledge about name of chemical and quantity for killing the soil born insect and disease similarly, 47.70 per cent of the respondents knew about summer ploughing. while, poor level of knowledge was observed in soil testing (26.74%) and exhibited vast knowledge gap 73.26 per cent.

The same table reveals that 89.24 and 85.76 per cent respondents were found to have good knowledge

about highest yield of improved varieties and extra yield obtained from improved as compared local varieties, respectively. While, more than 60 per cent of respondents possessed knowledge about important improved varieties for area followed by use fresh seed every year (57.26%) and optimum yield of improved varieties (50.32%) and exhibited knowledge gap 10.76 to 49.68 per cent respectively.

It is also witnessed from the Table 3 that the respondents possessed good knowledge regarding recommended seed rate (98.52%) and "recommended depth of sowing (78.27%) while 62.85 per cent moth growers had medium level of knowledge about method of sowing and 37.15 per cent knowledge gap was observed. The table further reveals that 96.20 per cent farmers were well acquainted with the appropriate time for normal sowing. While, 85.76 and 76.27 per cent farmers have good knowledge about appropriate time for early sowing and appropriate time for late sowing respectively. Whereas, maximum knowledge gap was observed in appropriate time for late sowing (23.73%). It was also found that 35.44 per cent farmers had knowledge about recommended spacing (row to row) and only 25.95 per cent farmers knew about recommended spacing (plant to plant) and exhibited maximum knowledge gap upto 74.05 per cent. Regarding seed treatment practices the Table 3 indicates that 29.50 per cent respondents had knowledge about seed treatment is necessary whereas, 20.90 per cent farmers had poor knowledge about name of chemicals and its dose followed by name of seed and soil born disease/insect (18.70%). while, very less number of respondents possessed knowledge about sequence of seed treatment (3.48%) and exhibited vast knowledge gap range upto 70.50 to 96.52 per cent respectively. Whenever, very negligible number of respondents (0.63%) knew about recommended procedure of inoculation of seed with culture and exhibited maximum knowledge gap (99.37%). Table 3 further reveals that 25.32 per cent respondents had knowledge about inoculation of seed with culture ensure good yield and name and quantity of rhyzobium and P.S.B. culture exhibited very poor knowledge regarding application of culture.

It is also apparent from the Table 3 shows that there had been eight components under nutrient management. Out of which 55.06 per cent farmers knew about method of fertilizer application", whereas, 53.48 per cent farmers had knowledge about FYM used then how much fertilizers is required and 44.94 per cent farmers had knowledge about stage of application of fertilizer. Similarly necessary to apply chemical fertilizer and recommended dose of fertilizer were known found by 43.04 and 36.39 per cent knowledge respectively. While, 32.59 per cent respondents were having knowledge about name of fertilizer and 27.85 per cent farmers knew about recommended depth of drilling of fertilizer. Further only 18.35 per cent farmers such who knew about name and quantity of micronutrients for removing of the deficiency of micro-elements in mothbean cultivation exhibited vast knowledge gap with 81.65 per cent. It was also found that 91.13 per cent

Table 2. Knowledge level of farmers about recommended production technologies of mothbean cultivation (N = 316)

S. No.	Recommended production technologies	Maximum score	Mean score	Knowledge score (MPS)	Rank	Knowledge gap (MPS)	Rank
1.	Field preparation & soil testing	5	3.03	60.60	VI	39.40	VIII
2.	Use of improved seed	5	3.43	68.61	IV	31.39	X
3.	Seed rate and method of sowing	3	2.40	79.96	III	20.04	XI
4.	Sowing time	3	2.58	86.08	II	13.92	XII
5.	Spacing	2	0.61	30.70	XI	69.30	III
6.	Seed treatment	4	0.72	18.10	XII	81.90	II
7.	Application of culture	4	0.62	15.57	XIII	84.43	I
8.	Nutrient management	8	3.12	38.96	X	61.04	IV
9.	Weed management	6	0.71	45.10	IX	54.90	V
10.	Irrigation management	4	3.61	90.27	I	9.73	XIII
11.	Plant protection measures	5	2.95	59.05	VII	40.95	VII
12.	Harvesting and storage measures	9	5.93	65.86	V	34.14	IX
13.	Crop rotation	3	1.49	49.79	VIII	50.21	VI

Table 3. Knowledge level of cultivators about different components of recommended production technologies of mothbean cultivation (N = 316)

S. No.	Components of recommended production technology	Knowledge score (% of respondents)	Rank	Knowledge gap (% of respondents)	Rank
1.	*Field preparation and soil testing*				
(i)	Soil testing	26.74	V	73.26	I
(ii)	Common soil born insect pest and disease	80.70	I	19.30	V
(iii)	Name of chemical and quantity for killing the soil born insect and disease	69.23	III	30.77	III
(iv)	Summer ploughing	47.70	IV	52.30	II
(v)	Recommended ploughing	78.63	II	21.37	IV
2.	*Use of improved/ seed*				
(i)	Important improved varieties for area	60.44	III	39.56	III
(ii)	Optimum yield of improved varieties	50.32	V	49.68	I
(iii)	Highest yield of improved varieties	89.24	I	10.76	V
(iv)	Use fresh seed every year	57.26	IV	42.74	II
(v)	Extra yield obtained from improved as compared to local varieties	85.76	II	14.24	IV
3.	*Seed rate and method sowing*				
(i)	Method of sowing	62.85	III	37.15	I
(ii)	Recommended seed rate	98.52	I	1.48	III
(iii)	Recommend depth of sowing	78.27	II	21.73	II
4.	*Sowing time*				
(i)	Appropriate time for normal sowing	96.20	I	3.80	III
(ii)	Appropriate time for early sowing	85.76	II	14.24	II
(iii)	Appropriate time for late sowing	76.27	III	23.73	I
5.	*Spacing*				
(i)	Recommended spacing (row to row)	35.44	I	64.56	II
(ii)	Recommended spacing (plant to plant)	25.95	II	74.05	I
6.	*Seed treatment*				
(i)	Name of seed and soil born disease /insect	18.70	III	81.30	II
(ii)	Seed treatment is necessary	29.50	I	70.50	IV
(iii)	Name of chemical and its dose	20.90	II	79.10	III
(iv)	Sequence of seed treatment	3.48	IV	96.52	I
7.	*Application of culture (Rhizobium/PSB)*				
(i)	Inoculation of seed with culture ensure good yield	25.32	I	74.68	IV
(ii)	Name and quantity of culture (Rhizobium)	18.29	II	81.71	III
(iii)	Name and quantity of culture(PSB)	18.04	III	81.96	II
(iv)	Recommended procedure of inoculation of seed with culture	0.63	IV	99.37	I
8.	*Nutrient management*				
(i)	Necessary to apply chemical fertilizer	43.04	IV	56.96	V
(ii)	Recommended dose of fertilizer	36.39	V	63.61	IV
(iii)	Stage of application of fertilizer	44.94	III	55.06	VI
(iv)	Name of fertilizer	32.59	VI	67.41	III
(v)	Method of fertilizer application	55.06	I	44.94	VIII
(vi)	Recommended depth of drilling of fertilizer	27.85	VII	72.15	II
(vii)	FYM used then how much fertilizer is required	53.48	II	46.52	VII

(viii)	Name and quantity of micro-nutrient	18.35	VIII	81.65	I
9.	*Weed management*				
(i)	Name of common weeds	91.13	I	8.87	VI
(ii)	Use of improved interculture implements	66.80	III	33.20	IV
(iii)	Method of weed control	19.62	IV	80.38	III
(iv)	Appropriate time of manual weeding	74.61	II	25.39	V
(v)	Name and quantity of herbicide	11.08	V	88.92	II
(vi)	Time of application stage of herbicide	7.27	VI	92.73	I
10.	*Irrigation management*				
(i)	Optimum number of irrigation	90.51	II	9.49	III
(ii)	Number of irrigation under limited water	93.67	I	6.33	IV
(iii)	Critical stage of irrigation	89.56	III	10.44	II
(iv)	Interval of irrigation	87.34	IV	12.66	I
11.	*Plant protection measures*				
(i)	Know about important insect/ pest	81.65	I	18.35	V
(ii)	Name and quantity of insecticide to control insect- pest	75.63	II	24.37	IV
(iii)	Know about common diseases	70.63	III	29.37	III
(iv)	Name and quantity of fungicide and bacterialcide to control disease	31.26	V	68.74	I
(v)	Name and quantity of chemical to control different disease etc.	36.08	IV	63.92	II
12.	Harvesting and storage measures				
(i)	Symptoms of maturity and duration of crop	100	I	0.00	
(ii)	Optimum moisture content in seed at the time of storage	52.53	VI	47.47	IV
(iii)	Name of most important grain-pest	94.30	II	5.70	VIII
(iv)	Traditional structure used for grain storage	91.77	III	8.23	VII
(v)	Knowledge about scientific storage structure	29.43	IX	70.57	I
(vi)	Use of indigenous material	79.43	IV	20.57	VI
(vii)	Know about recommended fumigant	61.08	V	38.92	V
(viii)	Recommended dose of fumigant	50.32	VII	49.68	III
(ix)	Source of availability of fumigant	33.86	VIII	66.14	II
13.	*Crop rotation*				
(i)	Suitable crop rotation	77.85	I	22.15	I
(ii)	Disease minimized though crop rotation	42.40	II	57.60	II
(iii)	Duration of crop rotation	29.12	III	70.88	I

respondents knew about name of common weeds followed by appropriate time of manual weeding, improved inter culture implements and method of weed control with 74.61, 66.80 and 19.62 per cent farmers respectively whereas, very little number of respondents possessed knowledge about name and quantity of herbicide (11.08%) and time of application stage of herbicide (7.27%) respectively and found to have maximum knowledge gap regarding weeds management technology.

Regarding irrigation management data presented in above table speaks that 93.67 per cent respondents knew about number of irrigation under limited water condition, optimum number of irrigation (90.51%) and critical stage of irrigation (89.56%) while, 87.34 per cent respondents having also good knowledge about interval of irrigation and shows least knowledge gap about entire irrigation management practices.

The Table 3 further depicts that the respondents possessed good knowledge regarding plant protection measures very much number of respondents (81.65, 75.63 and 70.63%) were able to knew about important

insect pest, name and quantity of insecticide to control insect pests and know about common disease respectively. Only 36.08 per cent of the respondents knew about name and quantity of chemical to control powdery mildew/yellow mosaic virus, bacterial blight, red blight, alternaria blight and wilt disease while considerable number of respondents (31.26%) possessed knowledge about name and quantity of fungicide and bacterial cide required to control measures against disease (bacterial blight and wilt). Like wise, cent-percent respondents had knowledge about symptoms of maturity and duration of crop followed by name of most important grain-pest (94.30%), traditional structure used for grain storage (91.77%), use of indigenous material for save gain (79.43%) whereas 61.08 per cent respondents "knew about recommended fumigants, optimum moisture content in seed at the time of storage (52.53%) and recommended dose of fumigants (50.32%) respectively. While, 33.86 per cent respondents knew about, source of availability of fumigants, knew about source of availability of fumigants. Only 29.43 per cent of the respondents having knowledge about scientific storage structure and exhibited knowledge gap upto 70.57 per cent. However, poor level of knowledge was observed in duration of crop rotation (29.12%) and disease minimize through crop rotation (42.40%) among the mothbean growers. Similarly 77.85 per cent of respondents were having awareness about “suitable crop rotation for their locality.

These findings get strength with the past researches of *Deshmukh et al. (1995), Veerahh et al. (1997), Choudhary (1999), Rathore and Punjabi (2001), Shinde (2002), Khan and Chauhan (2005), Singh and Sharma (2005)* and *Geenger (2006).*

The R^2 value (0.8736) in Table 4 indicates that thirteen independent variables (X_1.....X_{15}) jointly contributed towards 87.36 per cent of the variation in the level of knowledge of mothbean cultivators about recommended production technology of mothbean cultivation. Multiple correlation coefficient (r) was significant at 0.01 level of probability.

The data in table reveal that the calculated ‘t’ values for the multiple regression’ coefficient were significant at 0.01 per cent level of probability and the independent variables were age (x_1), education (x_2), size of land holding (x_3), social participation (x_4), farm assets (x_5), achievement motivation (x_7), risk orientation (x_8), training received (x_9), extension participation (x_{10}), progressiveness (x_{12}), source of information utilized (x_{13}), socio economic status (x_{14}), extent of adoption (x_{15}), further, the ‘t’ test of significance indicated that coefficient of regression was non significantly associated for credit behaviour (x_6) and economic motivation (x_{11}),

Table 4. Multiple regression analysis between knowledge level of mothbean cultivation by the farmers and their independent variable (N = 316)

S. No.	Independent variables	Byx	SE byx	‘t’ calculated
1	Age	2.0696	0.5982	3.4596***
2	Education	1.4098	0.2176	6.4785***
3	Size of land holding	1.7460	0.4554	3.8343***
4	Social participation	1.4249	0.2811	5.0700***
5	Farm assets	0.4648	0.0633	7.3402***
6	Credit behaviour	0.8690	0.9232	0.9412 NS
7	Achievement motivation	0.9367	0.3794	2.4686**
8	Risk orientation	0.1121	0.0414	2.7077***
9	Training received	0.7688	0.3998	2.5012**
10	Extension participation	0.2296	0.0526	4.3629***
11	Economic motivation	0.3694	0.9824	0.3760 NS
12	Progressiveness	0.7210	0.2949	2.4449**
13	Source of information utilized	0.4443	0.1040	4.2709***
14	Socio economic status	0.1631	0.0175	9.3115***
15.	Extent of adoption	0.3456	0.039	8.872***

R^2 = 0.8736 F value = 139.1566 a value -48.14
** Significant at 5 per cent level of significance
*** Significant at 1 per cent level of significance
NS = Non-significant

The depth analysis of the relationship between dependent and independent variables portrayed that age, education, size of land holding, social participation, farm assets, achievement motivation, risk orientation, training received, extension participation, progressiveness, source of information utilized, socio economic status and extent of adoption of the farmers were the most important variables analyzed the all fifteen independent variables in the study which were predictors of knowledge of farmers about recommended production technology of mothbean cultivation.

CONCLUSION

The present study clearly shows that respondents were having high knowledge regarding irrigation management (90.27%), sowing time (86.08%), seed rate and method of sowing (79.96%) and use of improved seed (68.61%), investigation further reveals that

respondents were having poor knowledge about application of culture (15.57%), seed treatment (18.10%) and spacing (30.70%) respectively.

Similarly, component wise knowledge of mothbean growers was conceived too much low in case of procedure of inoculation of seed with culture (0.63%) sequence of seed treatment (3.48%), time of application stage of herbicide (7.27%), name and quantity of herbicide, culture and micronutrient (11.08, 18.29 and 18.35%) name of seed and soil born disease and insect pests (18.70%), method of chemical weed control (19.62%), chemical and its dose for seed treatment (20.90%), inoculation of seed with culture ensure good yield (25.32%), spacing (plant to plant) (25.95%), soil testing (26.74%) recommended depth of drilling of fertilizer (27.85%), name and quantity of fungicide and bacterialcide to control disease (31.26%). Knowledge about inter culture operation, irrigation and grain pest control was also assessed very good as symptoms of maturity and duration of crop (100%), seed rate (98.52%), appropriate time of sowing (96.20%), name of grain pest (94.30%), number of irrigation under limited water (93.67%), traditional structure used for grain pest (91.77%) and optimum number of irrigation (90.51%) of mothbean cultivation respectively. Among the individual practices of mothbean cultivation. It was assessed that only 7.91 per cent farmers were knew the actual control measures against yellow mosaic virus, viewing the over all results, it can be concluded that very little amount of farmers (14.24%) possessed high level of knowledge about scientific cultivation of mothbean, whereas 219 (69.30%) and 152 (16.46%) had medium and low level of knowledge respectively.

Paper received on : *April 03, 2010*
Received after revision : *September 11, 2011*
Accepted on : *October 23, 2011*

REFERENCES

1. Arneja, C.S. and Khangura, R.S. (2003). A study of the knowledge of pea growers and its association with their selected socio personal characteristics. *Rural India*, **66** : 166-168.
2. Bhati, J.P. (1976). Small Scale Farming in tribal Areas. *Eastern Economist*, **67** (19) : 893-894.
3. Chauhan, N.S. (1994). A Study on peasant modernization in Dungarpur district of Rajasthan. Ph.D. Thesis (Unpub.), Rajasthan Agricultural University, Bikaner, Campus-Udaipur.
4. Choudhary, M. (1999). A study on knowledge and adoption of improved cultivation practices of mothbean in Bikaner district of Rajasthan. M.Sc. (Ag.) Thesis Rajasthan Agricultural University, Bikaner, Campus-Jobner.
5. Dangi, K.L. and Intodia, S.L. (1998). Adoption behaviour of contact and follower farmers under T & V system in Indira Gandhi Canal project area of Rajasthan. *Raj. J.Ext.Edu*., **2** (1) : 50-55.
6. Deshmukh, S.K., Shinde, P.S. and Bhople, R.S. (1995). Knowledge status of summer groundnut grower in Vidarbha. *Mah. J. Ext. Edu*., **14** : 190-193.
7. Geenger, H.K. (2006). knowledge and adoption of maize production technology by the tribal and non-tribal farmers in Jahazpur panchayat samiti of Bhilwara district (Raj.). M.Sc. (Ag.) Thesis Rajasthan Agricultural University, Campus-Jobner.
8. Khan, P.M. and Chauhan, J. (2005). Adoption pattern of farmers towards new farm technology. *Indian Res. J. Ext. Edu.* **5** (1) : 1-3.
9. Rathore, N.S. and Punjabi, N.K. (2001). A study on adoption of improved cultivation practices of mungbean among the farmers of Nagaur district of Rajasthan. M.Sc. (Ag.) Thesis, MPUAT, Udaipur.
10. Shinde, S.B. (2002). Knowledge of the farmers about improved cultivation practices of groundnut in Sutara district. *Mah. J. Ext. Edu*.. **21** (1) : 90-91.
11. Singh, N. and Sharma, F.L. (2005). Impact of front line demonstration on gain in knowledge about mustard production technology among farmers. *Indian Res. J. Ext. Edu*., **5** (1) : 41-43.
12. Veeraiah, A., Daivadeenam, P. and Pandey, R.N. (1997). Knowledge and adoption level of farmers trained in KVKs about groundnut cultivation. *Indian J. Ext. Edu.*,**13** (2) :1-2.

******

Study on Comparative Knowledge Level about Improved Dairy Farming Practices of SHG & Non-SHG Members in West Bengal

Sukanta Biswas[1], D. P. Sikdar[2] and A. Goswami[3]

1. . Lecturer/SMS (AnimalSc.), DDKVK, UBKV, Majhian, D. Dinajpur, W.B. 2. Asso. Prof., University of Kalyani, Kalyani, Nadia, W.B., 3. Director, Distance Education, University of Kalyani, Nadia, W.B.

Corresponding author e-mail: sbiswasvet@gmail.com

ABSTRACT

India is the land of diversified agrarian resources where livestock is an integral part of it. Majority (70%) of rural population are engaged in livestock based production system, as this is the only equitably distributed economic enterprise to address the issues of unemployment and poverty in rural areas. Considering this importance of livestock economy, government has initiated several rural developmental schemes for the socio-economic up-liftment of rural poor since independence. To achieve better success in this sector government has launched more integrated developmental programme as Swarna jayanti Gram Swarojgar Yojana (SGSY) in April, 1999. The study was conducted in purposively selected Dakshin Dinajpur district of West Bengal. The data was collected through personal interview with the help of tested structured schedule administered on randomly selected 80 SHG members from the 8 blocks of the district. Two villages from each block and from each village, five respondents were selected randomly. In this way, total 80 SHG beneficiaries and similar number of respondents (80) from same blocks as Non SHG beneficiaries rearing livestock were considered to make as control group for comparative study with the SHG beneficiaries. To judge the impact of the study, dependent variables such as- adoption Index and Knowledge level about improved Dairy farming practices were measured by using the available scales. The data thus generated was computed and analysed by various statistical methods for better interpretation of the result. The study depicted that higher Knowledge in IAHP, AI, Deworming, Vaccination, Feeding of Green Fodder and Concentrate feed were positively associated with increase occupational standard, caste, farm power, economic motivation, information sources utilization, urban contact, attitude in dairy farming and income generation for SHG dairy farmers. The study finally suggested that the overall knowledge gain of SHG farmers in IAHP is quite better than that of Non-SHG farmers due to their efficient training orientation, raised literacy level, Market orientation and Farm Power etc.

Key words: *Self Help Group (SHG); Knowledge level; Dairy Farming;*

India India is the land of diversified agrarian resources where livestock is an integral part of it. Majority (70%) of rural population are engaged in livestock based production system, as this is not only a economic enterprise but also linked with many other complex household requirements. This is the only equitably distributed economic enterprise to address the issues of unemployment and poverty in rural areas. Considering this importance of livestock economy, Government has initiated several rural developmental schemes for the socio-economic upliftment of rural poor since independence. To achieve better success in this sector Govt. has launched more integrated developmental programme as Swarna Jayanti Gram Swarojgar Yojana (SGSY) in April, 1999. This programme is aimed at assisting the rural poor realizing their latent entrepreneurial potential to build sustainable self-employment through several micro-enterprises in which dairy farming is essentially a need based agrarian interventions (*Purushotham,2005*). Since, SGSY is a process oriented development programme so, concurrent evaluation studies of the beneficiaries and Non-beneficiaries under the programme is very much needed. This may suggest that whether the development administration provided quality support and come out with innovative strategies of support or not with encouraging results. This may address the future planning to get better success of the programme which may be ultimately helpful to design the effective developmental strategies. Keeping this idea in mind an

attempt has been made to '*study on comparative knowledge level about improved dairy farming practices of SHG & Non-SHG members in West Bengal'*.

METHODOLOGY

The study was conducted in purposively selected Dakshin Dinajpur district of North Bengal region of West Bengal. The data was collected through personal interview with the help of pre-tested structured schedule administered on randomly selected 80 SHG members practicing dairy farming from selected blocks covered under SGSY programme in the district. From the 8 blocks of the district, 2 villages were selected from each block considering the entrepreneurial potentiality of SHG members practicing Dairy farming. From each village five respondents were selected randomly, so ten (10) respondents from each block ($5\times2=10$) were selected for data collection. In this way, total 10X8=80 SHG beneficiaries practicing Dairy farming from the district was considered for the study. Simultaneously, similar numbers of respondents ($10\times8=80$) from same blocks as Non-SHG beneficiaries rearing livestock were selected to make as control group for comparative study with the SHG beneficiaries. To judge the impact of the study, dependent variables such as- Knowledge in improved Dairy farming practices was measured by using the available scale of *Goswami (1987).* Adequate numbers of independent variables were selected for the study under the various categories. The data thus generated was computed and analysed by various statistical method including correlation & Regression analysis for better interpretation of the results.

RESULTS AND DISCUSSION

Correlation coefficient between Knowledge about IAHP (Y1), and selected independent variables of the sample Dairy farmers of SHG and Non-SHG: A cursory view at Table 1 explained that in case of SHG sample dairy farmers there were significant relationship($p<0.05$) between knowledge about IAHP and variables like- occupation and attitude in dairy farming, whereas highly significant relationship ($p<0.01$) with information sources utilization, urban contact and attitude in income generation. Exceptionally age was having negative but significant correlation ($p<0.05$) with knowledge in IAHP of SHG dairy farmers in both analysis. Singh *& Godra (2002), Kanan et. al. (2004)* revealed that age had significant but negative correlation with knowledge in IAHP. Almost similar findings were reported in spearman correlation test in Table 1 except attitude in income generation which was having simply significant relationship ($p<0.05$) with the knowledge in IAHP. *Kanan et. al. (2004), Chinadurai et. al. (2004) and Mande et. al. (2008)* revealed positive significant association of occupation and knowledge level in improved dairy farming practices. The table again revealed the linear relationship between knowledge in IAHP and selected independent variables of Non-SHG livestock keepers. It was evident that there was significant relationship ($p<0.05$) between the Knowledge in IAHP and the variables such as- occupation and family education status and attitude in dairy farming, whereas highly significant relationship ($p<0.01$) with the factors such as - gross income and information sources utilization in pearson correlation. *Gautam et. al. (2007)* suggested that family education status was significantly correlated with the knowledge in dairy husbandry practices. Simultaneously a similar relationship was observed in spearman analysis, except -family education status and attitude in dairy farming where a highly significant relationship ($p<0.01$) were shown between knowledge in IAHP and those variables. In addition to that, farm power and decision making showed a negative significant relationship ($p<0.05$) with knowledge in IAHP and highly significant relationship ($p<0.01$) with urban contact through spearman correlation study.

Correlation between knowledge about A.I. of the SHG & Non-SHG dairy stakeholders and the independent variables: Table -1 indicated that the Knowledge in artificial insemination of the livestock owners was positively and significantly correlated with attitude in dairy farming and income generation at 5% level and information sources utilization and urban contact at 1% level for SHG dairy farmers in pearson correlation study. Similar findings were reported in spearman correlation study except attitude in dairy farming and income generation which were having highly significant relation ($p<0.01$) with knowledge in AI. But in Non-SHG dairy stakeholders, knowledge in AI was positively and significantly correlated ($p<0.05$) with occupation and risk orientation at 5% level and information sources utilization and urban contact at 1% level. *Mande et. al. (2008)* observed significant relations among land holding, annual income, Information sources and knowledge level about improved dairy farming practices. In spearman correlation analysis only information sources utilization was highly significantly correlated ($p<0.01$) and urban contact had significant ($p<0.05$) correlation with knowledge in AI of Non-SHG dairy entrepreneurs.

Table 1. Relationship between selected independent & component of dependent variable (knowledge in IAHP & AI) of SHG & Non-SHG respondents (N=80)

Independent Variables	Knowledge in IAHP (ã)				Knowledge in AI (ã)			
	Pearson Coefficient		Spearman Coefficient		Pearson Coefficient		Spearman Coefficient	
	SHG	Non-SHG	SHG	Non-SHG	SHG	Non-SHG	SHG	Non-SHG
Socio- Economic:								
(x1) Age	-0.236*	0.009	-0.25*	0.014	-0.08	-0.07	-0.06	-0.06
(x2) Occupation	0.249*	0.245*	0.20	0.179*	0.10	0.23*	0.09	0.14
(x3) Caste	-0.170	-0.146	-0.07	-0.108	-0.04	-0.14	0.00	-0.10
(x4) Education	0.132	-0.094	0.09	-0.053	0.04	-0.09	0.04	-0.07
(x5) Family Edu. Stat.	-0.003	0.273*	-0.09	0.223**	-0.02	0.09	-0.05	0.09
(x6) Family type	-0.043	0.036	-0.06	0.024	-0.02	0.07	-0.04	0.07
(x7) Family size	-0.004	0.070	-0.05	-0.075	0.03	0.17	-0.01	0.17
(x8) Land Holding	0.122	0.015	0.12	0.019	-0.02	0.09	-0.05	0.10
(x9) House Type	0.006	0.200	0.01	0.169	-0.03	0.13	-0.03	0.13
(x10) Farm Power	-0.142	-0.255	-0.10	-0.184*	-0.20	-0.04	-0.20	-0.06
(x11) Mat. Poss.	0.149	0.205	0.14	0.170	0.08	0.17	-0.10	0.14
(x12) Gross Income	-0.031	0.308**	-0.06	0.280**	-0.21	0.15	-0.18	0.11
Communication:								
(x13) Inform. Sources	0.542**	0.290**	0.38**	0.244**	0.33**	0.34**	0.26**	0.27**
(x14) Urban Contact	0.477**	0.283**	0.39**	-0.229**	0.40**	0.23**	0.36**	0.17*
(x15) Social Particip.	-0.012	-0.010	-0.01	-0.017	0.08	0.02	0.04	0.05
(x16) Extn. Contact	0.130	0.078	0.14	0.079	0.10	0.09	0.10	0.07
Administrative:								
(x17) Market Orient.	-0.059	-0.031	-0.09	-0.077	0.04	-0.08	0.09	-0.08
(x18) Risk Orient.	-0.176	-0.079	-0.18	-0.065	-0.20	-0.22*	-0.18	-0.15
Socio Psychological:								
(x19) Eco. Motiv.	-0.271	-0.117	-0.19	-0.091	-0.21	-0.16	-0.20	-0.11
(X20) Innov. Pronnes	0.024	-0.019	0.01	-0.045	-0.09	-0.17	-0.11	-0.12
(X21) Dec. Making	0.089	-0.276*	-0.01	-0.273**	-0.05	-0.20	-0.07	-0.18
(X22)Attitude in Dairy	0.279*	0.352*	0.26*	0.283**	0.41*	0.21	0.42**	0.15
(x23) Atitude in Emplo	-0.013	0.147	-0.09	0.084	-0.02	0.08	-0.03	0.04
(X24) Attitude in Income	0.294**	-0.060	0.23*	-0.043	0.39*	-0.01	0.36**	-0.01

Note : * Significant at 0.05 level; ** Significant at 0.01 level

Therefore, Knowledge about AI was positively associated with increase in information sources utilization, urban contact, attitude in dairy farming and income generation for SHG dairy farmers but occupation, risk orientation, urban contact and information sources utilization in Non-SHG dairy farmers. *Kanan et. al. (2004)* found significant association among social participation, extension contact, urban contact and knowledge in IAHP. *Goswami (2010)* found significant relationship between income generation, occupation and Knowledge in A.H. practices.

Correlation between knowledge about deworming of the SHG & Non-SHG dairy stakeholders: The Table-2 expressed that Knowledge about Deworming was positively and significantly correlated with occupation, caste, farm power, economic motivation and attitude in dairy farming at 5% level and information sources utilization, urban contact and attitude in income generation at 1% level for SHG dairy farmers in Pearson correlation. Similar findings were reported in spearman's correlation for SHG dairy owners. In addition to that knowledge about deworming was positively and significantly correlated ($p<0.05$) with market orientation and innovation proneness in spearman's correlation analysis. Exceptionally, Non-SHG dairy farmer's knowledge about deworming was not significantly correlated with any independent variables in both correlation analyses.

Table 2. Relationship between selected independent & component of dependent variables (knowledge in deworming & vaccination) of SHG & Non-SHG respondents (N=80)

Independent Variables	Knowledge in Deworming (ã)				Knowledge in Vaccination (ã)			
	Pearson Coefficient		Spearman Coefficient		Pearson Coefficient		Spearman Coefficient	
	SHG	Non-SHG	SHG	Non-SHG	SHG	Non-SHG	SHG	Non-SHG
Socio- Economic:								
(x1) Age	-0.13	-0.02	-0.11	-0.01	-0.16	-0.12	-0.16	-0.10
(x2) Occupation	0.24*	0.09	0.25*	0.05	0.27*	0.07	0.23*	0.10
(x3) Caste	-0.25*	-0.10	-0.23*	-0.10	-0.19	-0.14	-0.12	-0.05
(x4) Education	0.08	-0.03	0.08	-0.05	0.08	-0.10	0.03	-0.07
(x5) Family Edu. Stat.	0.03	0.07	-0.01	0.07	0.02	0.24*	-0.06	0.18*
(x6) Family type	0.03	-0.03	0.03	-0.06	-0.04	0.02	-0.01	0.03
(x7) Family size	0.17	-0.08	0.16	-0.10	-0.06	0.03	-0.08	0.05
(x8) Land Holding	0.16	-0.01	0.16	-0.02	0.01	0.00	0.01	0.02
(x9) House Type	0.03	0.15	0.08	0.12	0.05	0.01	0.09	0.03
(x10) Farm Power	-0.24*	0.04	-0.24*	-0.01	-0.22*	-0.12	-0.20	-0.12
(x11) Mat. Poss.	0.18	-0.01	0.19	0.00	0.11	0.26*	0.11	0.24**
(x12) Gross Income	-0.05	0.08	-0.05	0.07	0.04	0.20	0.04	0.19*
Communication:								
(x13) Inform. Sources	0.46**	0.06	0.33**	0.05	0.55**	0.25*	0.45**	0.23**
(x14) Urban Contact	0.47**	-0.02	0.42**	-0.02	0.52**	0.12	0.43**	0.07
(x15) Social Particip.	0.03	-0.03	0.01	-0.08	-0.05	-0.09	-0.06	-0.06
(x16) Extn. Contact	0.01	-0.12	0.01	-0.13	0.08	0.14	0.12	0.13
Administrative:								
(x17) Market Orient.	0.18	-0.04	0.26*	-0.05	0.03	-0.05	0.04	-0.10
(x18) Risk Orient.	-0.01	-0.01	-0.02	0.01	-0.03	0.05	-0.03	-0.02
Socio Psychological:								
(x19) Eco. Motiv.	-0.22*	0.06	-0.20	0.05	-0.28*	-0.01	-0.23*	-0.02
(X20) Innov. Pronnes	-0.21	-0.02	-0.24*	-0.03	-0.08	0.15	-0.10	0.11
(X21) Dec. Making	-0.18	-0.26	-0.17	-0.18	-0.12	-0.24*	-0.08	-0.23*
(X22)Attitude in Dairy	0.26*	-0.06	0.25*	-0.04	0.34**	0.31**	0.35**	0.25**
(x23) Atitude in Emplo	-0.13	0.13	-0.17	0.08	0.04	0.17	0.03	0.11
(X24) Attitude in Income	0.41**	-0.09	0.40**	-0.05	0.24*	0.21	0.23*	0.17*

Note: * Significant at 0.05 level; ** Significant at 0.01 level

Correlation between the knowledge about vaccination of the SHG & Non-SHG dairy farmers and the independent variables : The study explored that Knowledge about vaccination against contagious diseases of Livestock of SHG dairy farmers was positively and significantly correlated with the occupation, farm power, economic motivation and attitude in income generation at 5% level and information source utilization, urban contact and attitude in dairy farming at 1% level in Pearson correlation analysis. Similar findings were reported in spearman's analysis for SHG dairy farmers.

The table again indicated that the knowledge about vaccination against contagious diseases of the Non-SHG dairy owners was positively and significantly correlated with family education status, material possession, and information sources utilization at 5% level and with attitude in dairy farming at 1% level in Pearson analysis, but negatively correlated with decision making in both Pearson and spearman correlation analysis of Non-SHG livestock owners. Similar findings were reported in spearman's analysis. But in addition to that, the spearman's analysis also showed significant relationship between knowledge about vaccination and gross income, attitude in income generation. *Singh & Verma (2004)* found a significant association between education level, information sources and knowledge in dairy farming. The table also showed insignificant relationship between knowledge about vaccination against contagious diseases and other independent variables for Non-SHG dairy owners.