
**A STUDY ON KNOWLEDGE, ADOPTION AND AWARENESS
LEVEL OF LIVESTOCK OWNERS IN PASCHIM MEDINIPORE
DISTRICT, WEST BENGAL**

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ABSTRACT

The present study was aimed at finding out the level of different attributes like adoption, knowledge and awareness of respondents with the independent variables. The Barua village of Paschim Midnapore district was selected purposively for the present study. The sample size comprised of 139 livestock farmers in the Institute Village Linkage Project (IVLP) area at Barua. In the present study livestock owners' adoption, knowledge and awareness behavior about selected animal husbandry practices were the dependent variables. The selected independent variables were - socio-economic, socio-psychological and communication variables. In the present investigation non-parametric two independent samples' mean tests were done following Mann-Whitney U and Kolmogorov Smirnov Z tests. Means for K-independent samples were tested using Kruskal Wallis and Median tests. Mann-Whitney U and Kolmogorov Smirnov Z tests were further used to validate the results of comparative study to test the link between knowledge and awareness with adoption. It was found that nuclear family had significantly higher means of adoption and awareness than those of joint family. No significant difference was found in relation to adoption level between different family type and family size. For mean knowledge index no significant difference was found either due to family type or family size. Though no significant difference was found in case of mean indices of knowledge, adoption, and awareness due to age but mean knowledge index and adoption index was highest in case of age 51 and above. Mean index of awareness was highest for the middle age group (35-50 years). It was found that the adoption of any practice had naturally resulted significantly higher means of knowledge or awareness for some practices at 1% level of significance.

Key words: Knowledge, Adoption, Awareness, Livestock

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INTRODUCTION:

The study of the impact of Institution Village Linkage Programme (IVLP) is concerned with the change of behaviors of the stakeholders involved in the programme. This behavioral change may be due to adoption, knowledge, attitude, awareness, innovation etc. These are the determinants to be used for the study of impact of any programme objectively. Considering this theoretical back up, the impact of IVLP in coastal agro-eco system of Paschim Medinipore, West Bengal conducted by West Bengal University of Animal and Fishery Sciences (W. B. U. A. F. S.) since last five years may be studied on the basis of adoption behaviour, knowledge and awareness level of the selected respondents engaged only in livestock production system.

Implementation of any improved scientific technology in practical field depends on the adoption behaviour of an individual who wants to implement. Wilkening (1953) described the adoption as a process composed of learning, deciding and acting over a period of time. The adoption of a specific practice is not the result of a single decision to act but series of actions and meaningful decisions. There are various factors, which can influence in any stage of adoption process. Knowledge generally understood as an intimate acquaintance of an individual with facts. English and English (1958) had defined knowledge as a body of understood information possessed by an individual or by a culture. Awareness is a stage of adoption when the individual learns the existence of the new idea but lacks detail information about it.

Therefore, the present study was aimed at finding out the level of different attributes like adoption, knowledge and awareness of respondents with the independent variables (socio-economic, socio-psychological and communication characteristics).

MATERIALS AND METHODS:

Barua village of 5 No. Siromoni Grampanchayat under Midnapur Sadar Block was selected purposively to fulfill the objectives of the researcher's study. The present study was confined to only 8 interventions related to livestock. 20% of the IVLP beneficiaries covered under each intervention and thus 139 of respondents were taken as respondents for this study.

In the present study livestock owners' adoption, knowledge and awareness behavior about selected animal husbandry practices were the dependent variables. The selected independent variables were - socio-economic, socio-psychological and communication variables. In the present investigation non-parametric two independent samples' mean tests were done following Mann-Whitney U and Kolmogorov Smirnov Z tests. Means for K-independent samples were

tested using *Kruskal Wallis* and *Median* tests. Actually effect of family type and family size on knowledge, adoption and awareness mean indices were tested following *Mann-Whitney U* (1947, also called the Mann–Whitney–Wilcoxon (MWW) or Wilcoxon rank-sum test)) and *Kolmogorov Smirnov Z* tests. Similarly effect of other independent variables like age, occupation, land, education of the respondent, number of family member, house, social participation, material possession, attitude, urban contact, farm power and family education score on knowledge, adoption and awareness mean indices were tested following *Kruskal Wallis* and *Median* tests.

Mann-Whitney U and *Kolmogorov Smirnov Z* tests were further used to validate the results of comparative study to test the link between knowledge and awareness with adoption. Specifically effect of two-levels of adoption of feeding concentrate, feeding green fodder, cultivating green fodder and deworming cattle were tested for means of knowledge for same one to one practices. Similar study was extended to compare the awareness practices like deworming goat and pigs, awareness regarding Ranikhet disease of poultry and duck plague due to two levels of similar adoption practices.

RESULTS AND DISCUSSION:

Comparison of mean indices of knowledge, adoption and awareness due to different independent factors with level two-

Mann Whitney U and *kolmogorov Smirnov Z* tests were used here to compare independent means of knowledge, adoption and awareness indices due to family type and family size. From results it was found that nuclear family had significantly higher means of adoption and awareness than those of joint family. Tripathi and Garg (1969) and Alao(1971) found that the family size and adoption score of farmers had significant association. Chander (1970), John (1974), Sohal and Tyagi (1978), Ghosh (2004), Dutta(2005), Sarkar(2005) and Lawrence (2010) observed no significant difference was found in relation to adoption level between different family type and family size. Similar test again showed that mean indices due to adoption and awareness for family with number of members less than equal to 5 with significantly higher than those due to family with member more than 5.

However, for mean knowledge index no significant difference was found either due to family type or family size. The results were in line with the findings of Islam (2005). Significance (at 5 percent or at 1 percent level) in the above study means significant either due to *Mann Whitney U*

and kolmogorov Smirnov Z test or due to both of these. Though there was no significant difference but joint family type had more knowledge index than nuclear family type. Similarly family with members more than 5 had higher knowledge index than family with members less than equal to 5. Similar findings were observed by Islam (2005).

Kruskall Wallis and Median tests were used to compare independent means of knowledge, adoption and awareness indices due to age, occupation, land, education of the respondents, number of family members, house, social participation, material possession, attitude, urban contact, farm power and family education score. Significance (at 5 percent or 1 percent level) in this study will mean significance of effect either due to Kruskall Wallis and Median tests or due to both.

In such study varying level of age of the respondents, land, family size, attitude of livestock farmers and their urban contact could not produce any significant mean differences of knowledge, adoption and awareness indices. Islam (2005) also stated that category (Landless, Marginal, Small and Medium-Large) had no significant effect on knowledge level. Kakoty (1975) reported that size of land holding was not significant association with the adoption of improved animal husbandry practices. Sinha and Sinha (1980), Ogunfeditimi (1981) found that land holding was not significantly related to adoption behaviour. Ghosh (2004) also revealed Land had no significant association with the adoption of improved animal husbandry practices. Lawrence (2010) also revealed that landless, small and medium-large farmers were more or less similar in relation to adoption of improved cattle farming practices. Dutta (2005) also observed that no significant difference in mean score of adoption index in case of family size.

Though no significant difference was found in case of mean indices of knowledge, adoption, and awareness due to age but mean knowledge index and adoption index was highest in case of age 51 and above. Islam (2005) also observed that age had no significant effect on knowledge level though mean of knowledge index due to age group 35-50 years was highest. Lawrence (2010) also observed similar findings. Mean index of awareness was highest for the middle age group (35-50 years). Similarly respondents having land holding 1-2 hectare had highest mean indices of knowledge (28.5), adoption (7.25) and awareness (6.25). Mean index of knowledge increases due to increase in the number of family members whereas, in case of nuclear family, mean index of adoption and awareness index was highest. Similarly, though there lies no significant difference but mean index of knowledge was more in case of higher urban contact. Occupation and social

participation could not produce any significant mean difference of adoption and awareness. Upadhyay and Gupta (1987) observed that occupation had no significant impact on the adoption of home making practices. Hussain (1968) found that income of respondent was not significantly associated with the adoption of improved animal husbandry practices. Ghosh (2004) also stated that Occupation had no significant association with the adoption of improved animal husbandry practices. Respondents do service, possessed highest mean index of adoption(5.81)where respondents who were labour possessed highest mean index of awareness(6.06).Similarly respondents with highest social participation had highest mean indices of adoption(8) and awareness (8).

Family education resulted significant effect on knowledge and awareness indices but not adoption index. The study conducted by Islam (2005) also showed that family education status had significant effect on overall knowledge score (Knowledge Index). Type of house had significant effect on knowledge and awareness indices due to its varying level. Material possession and farm power resulted in similar fashion like type of house. Varying level of social participation and occupation had significant effect on knowledge index only. Islam (2005) also stated that occupation had significant effect on overall knowledge score (Knowledge Index) of the dairy farmers. He also concluded that means of indices for social participation had significant effect on Knowledge Index.

Educational score of the family showed significant effect on adoption index. Chander (1970) observed that family education score was significantly influencing the adoption of AI. Singh and Singh (1970), Tripathi and Jati (1971) suggested the significant association of family education with the adoption behaviour of the farmers. Ghosh (2004) also showed family educational status had significant association with the adoption of improved animal husbandry practices. Sarkar (2005) also observed family educational status had significant association with the adoption of improved animal husbandry practices.

Relation between adoption with either knowledge or awareness was tested using Mann Whitney U and kolmogorov Smirnov Z tests for similar practices. It was found that the adoption of any practice has naturally resulted significantly higher means of knowledge or awareness for some practices at 1 percent level of significance. Singh (1964) found positive correlation between knowledge of package of practices and adoption behaviour of farmers. Guljart (1971) also stated that the extent of knowledge, willingness and abilities influence the adoption of practices. While

Rogers and Shoemaker (1971) theorized that it is usually possible to adopt and use an innovation without possession of principal knowledge but the long range competence of individual to judge future innovations is facilitated by principal knowledge. Sivanarayana and Jayarama (1995) reported that lack of knowledge was a major constraint that was found in the adoption of the improved sheep and goat practices by the small and marginal farmers of the diversified farming. Chug (1986) reported interestingly that awareness and knowledge were highly correlated with the extent of adoption of breeding practices.

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Table-1: Comparison of mean indices of knowledge, adoption and awareness due to different Independent factors with level two:

Family type	K Index	Ad index	Aw Index
1. Nuclear	16.49	5.97	6.19
2. Joint	17.98	5.36	5.52
Mann-Whitney U	0.264	0.003	0.015
Kolmogorov-Smirnov Z	0.327	0.019	0.005
Family size			
1. upto 5 members	16.21	5.92	6.21
2. more than 5 members	18.43	5.39	5.46
Mann-Whitney U	0.105	0.006	0.011
Kolmogorov-Smirnov Z	0.211	0.043	0.055

Table-2: Comparison of mean indices between adoption and knowledge following Mann-Whitney U and Kolmogorov-Smirnov Z test:

Adoption of feeding concentrate	Knowledge on feeding concentrate
Adopted	2.13
Non-adopted	4.57
Mann-Whitney U	0.000
Kolmogorov-Smirnov Z	0.001

Adoption of feeding green fodder	Knowledge on feeding green fodder
Adopted	2.91
Non-adopted	5.36
Mann-Whitney U	0.000
Kolmogorov-Smirnov Z	0.000

Adoption of cultivation of green fodder	Knowledge on cultivation of green fodder
Adopted	1.32
Non-adopted	17.67
Mann-Whitney U	0.002
Kolmogorov-Smirnov Z	0.006

Adoption of deworming of cattle	Knowledge on deworming of cattle
Adopted	2.18
Non-adopted	3.81
Mann-Whitney U	0.000
Kolmogorov-Smirnov Z	0.001

Table-3: Comparison of mean indices between adoption and awareness following Mann-Whitney U and Kolmogorov-Smirnov Z test:

Adoption of deworming of goat	Awareness on deworming of goat
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Adopted	1.49
Non-adopted	2.03
Mann-Whitney U	0.000
Kolmogorov-Smirnov Z	0.001

Adoption of deworming of pig	Awareness on deworming of pig
Adopted	0.76
Non-adopted	2.00
Mann-Whitney U	0.000
Kolmogorov-Smirnov Z	0.000

Adoption of RD vaccination	Awareness on RD vaccination
Adopted	0.96
Non-adopted	1.99
Mann-Whitney U	0.000
Kolmogorov-Smirnov Z	0.000

Adoption of DP vaccination	Awareness on DP vaccination
Adopted	1.02
Non-adopted	2.22
Mann-Whitney U	0.000
Kolmogorov-Smirnov Z	0.000

<0.05-5% level of significance

<0.01-1% level of significance

Table-4: Comparison of mean indices of knowledge, adoption and awareness due to age alongwith significance of probability:

Age	Knowledge Index	Adoption index	Awareness Index
Below 35 years	18.06	5.88	5.79

35-50 years	15.69	5.45	6.16
Above 50 years	18.78	5.90	5.51
Kruskal-Wallis Test	0.155	0.094	0.205
Median Test	0.432	0.171	0.296

$P < 0.05$ = significant at 5% and $P < 0.01$ = significant at 1%

Table-5: Comparison of mean indices of knowledge, adoption and awareness due to education of the respondents alongwith significance of probability:

Education	Knowledge Index	Adoption index	Awareness Index
illiterate	13.57	5.87	6.61
Can read only	16.25	6	6.50
Can read and write	12.84	5.96	6.52
Primary	15.10	5.43	5.67
Middle school	19.21	5.55	5.59
High school	26.32	5.59	4.77
Graduate	16.83	6	6.50
Kruskal-Wallis Test	0.000	0.549	0.005
Median Test	0.014	0.288	0.091

Table-6: Comparison of mean indices of knowledge, adoption and awareness due to house type of the respondents alongwith significance of probability:

House type	Knowledge Index	Adoption index	Awareness Index
Kutchha	13.65	5.76	6.09
Hut	15.66	5.55	6.06
Mixed	21.13	5.96	5.46
Pucca	23.47	5.68	5.42

Kruskal-Wallis Test	0.005	0.619	0.202
Median Test	0.211	0.679	0.047

Table-7: Comparison of mean indices of knowledge, adoption and awareness due to material possession of the respondents alongwith significance of probability:

Material possession	Knowledge Index	Adoption index	Awareness Index
Having score 0	10	6.50	7.5
Having score 1	13.08	5.25	5.67
Having score 2	14.36	5.66	6.34
Having score 3	17.05	5.66	6.08
Having score 4	22.95	5.95	4.63
Having score 5	27.67	6.33	5
Having score 6	43	6.67	6.33
Kruskal-Wallis Test	0.000	0.221	0.007
Median Test	0.009	0.851	0.051

Table-8: Comparison of mean indices of knowledge, adoption and awareness due to urban contact of the respondents alongwith significance of probability:

Urban contact	Knowledge Index	Adoption index	Awareness Index
Having score 1	5	7	7
Having score 2	13.91	5.91	6.73
Having score 3	15.51	5.37	5.77
Having score 4	14.88	5.44	5.81
Having score 5	18.40	5.40	5.80
Having score 6	22.11	6.17	5.56
Having score 7	23.50	6	5.5
Having score 8	17.21	5.86	6.21

Having score 8	20	6.17	6.17
Having score 10	27	6	3.5
Kruskal-Wallis Test	0.091	0.188	0.516
Median Test	0.186	0.421	0.461

Table-9: Comparison of mean indices of knowledge, adoption and awareness due to family education score alongwith significance of probability:

family education score	Knowledge Index	Adoption index	Awareness Index
Low	15.12	5.93	5.91
Medium	19.19	5.35	5.79
High	26.33	6.67	7.00
Kruskal-Wallis Test	0.054	0.005	0.541
Median Test	0.146	0.010	0.493

Table-10: Comparison of mean indices of knowledge, adoption and awareness due to land alongwith significance of probability:

land	Knowledge Index	Adoption index	Awareness Index
Landless	15.93	5.74	5.87
Upto 1 ha.	18.50	5.48	5.85
Upto 2 ha.	28.50	7.25	6.25
Kruskal-Wallis Test	0.231	0.711	0.937
Median Test	0.228	0.819	0.998

Table-11: Comparison of mean indices of knowledge, adoption and awareness due to family size alongwith significance of probability:

Family size (According to	Knowledge Index	Adoption index	Awareness Index
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number of members)			
2	13.75	6.25	6.75
3	17.58	6.13	6
4	16.71	5.75	6
5	15.33	5.67	6.39
6	18.74	5.46	5.54
7	17.06	5.33	5.39
8	20.13	5.25	5.25
Kruskal-Wallis Test	0.528	0.076	0.170
Median Test	0.560	0.093	0.284

Table-12: Comparison of mean indices of knowledge, adoption and awareness due to social participation alongwith significance of probability:

social participation	Knowledge Index	Adoption index	Awareness Index
Member of one organization	15.87	5.62	5.9
Member of more than one organization	20.26	5.93	5.78
Office holder	33	5	5
Wide public leader	45	8	8
Kruskal-Wallis Test	0.003	0.125	0.413
Median Test	0.056	0.280	0.410

Table-13: Comparison of mean indices of knowledge, adoption and awareness due to attitude towards dairy farming alongwith significance of probability:

attitude towards dairy farming	Knowledge Index	Adoption index	Awareness Index
Having score 17	10	8	7

Having score 18	10.33	6	7
Having score 19	12.50	5.75	6.38
Having score 20	13.2	5.40	5
Having score 21	17	5.50	5.69
Having score 22	16.86	5.36	5.73
Having score 23	20	5.77	5.51
Having score 24	17.40	5.97	6.63
Kruskal-Wallis Test	0.123	0.305	0.085
Median Test	0.421	0.181	0.149

Table-14: Comparison of mean indices of knowledge, adoption and awareness due to occupation alongwith significance of probability:

occupation	Knowledge Index	Adoption index	Awareness Index
Labour	14.39	5.76	6.06
Caste occupation	15.80	5.50	6.20
Business	22.90	5.70	5.60
Independent	13.50	5.50	6.50
Ciultivation	19.68	5.56	5.74
Service	21.31	5.81	5.31
Kruskal-Wallis Test	0.018	0.933	0.510
Median Test	0.009	0.605	0.493

Table-15: Comparison of mean indices of knowledge, adoption and awareness due to farm power alongwith significance of probability:

Farm power	Knowledge Index	Adoption index	Awareness Index
No Draught animal	15.65	5.62	6.19
1-2 Draught animals	22.07	6	5.03
3-4 draught animals	17.5	5.5	3.50

5-6 draught animals	24	5	4.50
Kruskal-Wallis Test	0.006	0.369	0.001
Median Test	0.003	0.637	0.054

P<0.05=significant at 5% and P<0.01=significant at 1%