



STUDY ON LEVEL OF ATTRIBUTES INVOLVING KNOWLEDGE, ADOPTION AND AWARENESS OF LIVESTOCK FARMERS ENGAGED IN INSTITUTION VILLAGE LINKAGE PROGRAMME

Amitendu De*

A. Goswami*

D.Mazumder**

Abstract: *Principal Component Analysis based upon Correlation Matrix involving Knowledge practices showed that seven components were extracted explaining about 74% of total variance of the study. Component-1 alone explained 31% of total variance where it was clear that all knowledge practices were highly loaded along with all socio-economic, socio-psychological and communication variables except age. Other six components which were extracted also depicted some hidden relation among all variables including knowledge practices. Here loading of knowledge practices and other variables having similar impact if the signs are same and loading are high. Principal Component Analysis based upon Correlation Matrix involving Adoption practices depicted that eight components were extracted explaining about 69% of total variance of the study. Component-1 alone explained 22.22% of total variance where adoption of urea molasses, feeding green fodder, cultivation of green fodder are nothing but due to impact of all socio-economic, socio-psychological and communication variables except age. Principal Component Analysis based upon Correlation Matrix involving Awareness practices stated that five components were extracted explaining about 66% of total variance of the study. Component-1 though explained 28.54% of total variance but failed to show any impact of all socio-economic, socio-psychological and communication variables together on awareness index.*

Key words: *Knowledge, Adoption, Awareness, Livestock*

*Department of Veterinary and Animal Husbandry Extension Education, West Bengal
University of Animal & Fishery Sciences, Kolkata

** Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal



INTRODUCTION:

The Animal Husbandry plays significant role in accelerating the growth of rural economy in the developing countries like India. This sector contributes 6.5% of GDP of the country in spite of the fact that investment in this sector is less than even 1% of the total budget outlet (2003-04). In spite of low productivity of Indian indigenous livestock, this sector contributes 27% of the total agricultural output of the country. 70% of livestock population belongs to rural poor, *i. e.* small, marginal and landless agricultural workers.

Institution Village Linkage Programme (IVLP) in coastal agro-eco system of Paschim Medinipore was launched by W. B. U. A. F. S. with the financial assistance of National Agricultural Technology Project of Indian Council of Agricultural Research, Government of India about five years back. The scientists of different discipline engaged in the project worked with various technical interventions of livestock, agriculture and fishery production system for 765 farmers of Barua village following the guidelines or mandate of the project. Providing inputs, imparting training etc. were the basic considerations for technology assessment and ultimately refinement so that the stakeholders can accept and implement the refined technology in their local situation.

Therefore, the present study was aimed at finding out the level of different attributes like adoption, knowledge and awareness of respondents involved in project only in relation to livestock production system (139 respondents) as an impact of IVLP of the said study area.

MATERIALS AND METHODS:

Barua village of 5 No. Siromoni Grampanchayat under Midnapur Sadar Block. was selected purposively to fulfill the objective of the study. 20% of the IVLP beneficiaries covered under each intervention were taken as respondents for this study and thus 139 of respondents were taken for this study.

Principal component analysis is a data reduction technique where the primary goal is to construct linear combinations of the original variables that account for as much of the (original) total variation as possible. The successive linear combinations are extracted in such a way that they are uncorrelated with each other and account for successively smaller amount of the total variations. In the present investigation, principal component analysis based upon correlation matrix involving all knowledge practices and socio-economic, socio-psychological and communication source variables was followed to identify that very



principal component which accumulate the knowledge practices along with accompanying socio-economic, socio-psychological and communication variables which are having similar impact. Only *Eigen* values more than one are considered here to identify suitable components which explain larger variants of the study altogether. Similar study was repeated for adoption practices and also for awareness index instead of knowledge practices (Dillon and Goldstein 1984).

RESULTS AND DISCUSSION:

Principal Component Analysis based upon Correlation Matrix involving Knowledge practices:

Results of principal component analysis based upon correlation matrix involving knowledge practices like 'deworming', 'feeding green fodder', 'feeding concentrate', 'vaccination', and 'cultivation of green fodder' along with all socio-economic, socio-psychological and communication variables is displayed in table- 1.

7 components were extracted explaining about 74% of total variance of the study. Component-1 alone explained 31% of total variance where it is clear that all knowledge practices were highly loaded along with all socio-economic, socio-psychological and communication variables except age. Other 6 component which were extracted also depicted some hidden relation among all variables including knowledge practices. Here loading of knowledge practices and other variables having similar impact if the signs are same and loading are high. Tudu (2006), Dhargupta (2008), Bhattacharya (2012) and Goswami (2014) have reported more or less same findings in their studies.

Principal Component Analysis based upon Correlation Matrix involving Adoption practices:

Results of principal component analysis based upon correlation matrix involving adoption practices like deworming, feeding green fodder, feeding concentrate, vaccination, and cultivation of green fodder along with all socio-economic, socio-psychological and communication variables is displayed in table-2.

8 components were extracted explaining about 69% of total variance of the study. Component-1 alone explained 22.22% of total variance where adoption of urea molasses, feeding green fodder, cultivation of green fodder were nothing but due to impact of all socio-economic, socio-psychological and communication variables except age. Second



component which further explained 11.06% of total variance showed that all socio-economic variables except family education score, land and innovation proneness had high impact on adoption of deworming of cattle, feeding concentrate and vitamin minerals. However attitude, risk orientation, communication source variables and communication skill had great impact on adoption of duck plague, ranikhet disease and cultivation of green fodder further. Third component explaining 10.94% of total variance further depicted that all socio-economic parameters except age, occupation, house and material possession, risk orientation and personal localite had impact on adoption of deworming of goat and duck plague. Fourth component showed that adoption of deworming of goat, pig, vitamin mineral, urea molasses and cultivation of green fodder were governed by family type, family size, innovation proneness, risk orientation. Mass media, personal localite and communication skill only explaining further 7.48% of total variance. all other hidden combination of variables can be verified comparing highly loaded adoption practices with all other highly loaded socio-economic, socio-psychological and communication variables with high loading and similar signs for impact analysis under each extracted independent principal component. Tudu (2006), Dhargupta (2008), Bhattacharya (2012) and Goswami (2014) were also in the same opinion partially in their studies.

Principal Component Analysis based upon Correlation Matrix involving Awareness practices:

Results of principal component analysis based upon correlation matrix involving awareness index along with all socio-economic, socio-psychological and communication variables are displayed in table -3.

5 components were extracted explaining about 66% of total variance of the study. Component-1 though explained 28.54% of total variance but failed to show any impact of all socio-economic, socio-psychological and communication variables together on awareness index. However this component showed that all such variables except age and awareness index were tied heavily. Second component further explained 15.29% of total variance where only attitude, risk orientation like socio-psychological parameter, communication source variable along with communication skill could show higher impact on awareness index. Third component could establish that family type, family size, number of family members, land, risk orientation and communication source variable sometime had



additional impact on awareness index but explaining 10.04% of total 'accounted for variance'. All other combination of variables involving socio-economic, socio-psychological and communication variables in extracted principal component have failed to explain their impact on awareness index.

REFERENCES:

1. Bhattacharya, S. (2012). Strategy for Empowering Indian women through Swarna Jayanti Gram Swarojgar Yojana: A study among the Self –Help Groups of two districts in West Bengal. Ph.D. thesis, submitted to the University of Kalyani W.B.
2. Dhargupta, A. (2008). Study on health status of selected tribal communities in West Bengal Ph.D. thesis submitted to the University of Calcutta, W.B.
3. Goswami, A. (2014). Studies on Adoption behavior of livestock owners about selected Animal Husbandry practices in different Agro – climatic zones of West Bengal. D.Litt. Thesis submitted to the University of Kalyani, W.B.
4. Tudu, B.(2006). Study on adoption behavior of tribal members in Dairy Co-operatives of Purulia district. Ph.D. Thesis submitted to West Bengal University of Animal And Fishery Sciences.
5. W. R. Dillon & M. Goldstein (1984). Multivariate Analysis. Methods and Applications. xiii + 587 pp. New York, Chichester, Toronto, Brisbane, Singapore: Wiley. Price £38.85. ISBN 0 471 08317 8.

Table-1: Principal Component Analysis results based upon correlation matrix involving knowledge practices along with other independent variables

Variable	Component						
	1	2	3	4	5	6	7
AGE	0.06	0.05	-0.28	-0.21	0.47	0.36	0.54
OCCU	0.59	0.13	0.05	-0.46	-0.04	-0.14	-0.02
EDU	0.63	0.29	-0.08	-0.40	0.19	-0.22	-0.03
F_TYPE	0.20	0.73	0.20	0.36	0.00	0.05	-0.16
F_SIZE	0.26	0.83	0.14	0.31	0.18	-0.03	-0.07
NUMBER	0.29	0.78	0.16	0.15	0.26	-0.13	-0.09
Fedu score	0.71	0.30	0.05	-0.40	0.22	-0.05	-0.08
LAND	0.48	0.34	0.22	-0.15	-0.57	0.01	0.29
HOUSE	0.62	0.09	-0.28	-0.47	0.23	0.12	-0.16
F_POWER	0.42	0.41	-0.21	-0.09	-0.59	0.08	0.30
M_POSS	0.71	0.04	-0.30	-0.19	-0.15	0.24	0.02
inno prone	0.61	0.04	-0.36	0.19	0.02	0.27	-0.12
ATTITUDE	0.32	-0.29	0.06	-0.30	-0.17	-0.29	-0.39



RISK_ORI	0.33	-0.02	0.44	-0.03	-0.10	-0.28	0.18
S_PARTI	0.52	-0.08	0.15	0.05	-0.17	0.48	-0.33
MASS_MED	0.66	-0.38	0.40	0.12	0.17	-0.11	0.18
P_COS	0.59	-0.34	0.52	-0.07	0.06	0.21	0.03
P_LOC	0.57	-0.11	0.64	0.09	0.04	0.19	0.02
com skill	0.71	-0.39	0.23	0.04	0.10	0.05	-0.02
KL_DEW	0.60	-0.21	-0.41	0.14	-0.09	-0.18	-0.13
KL_FGF	0.69	-0.27	-0.36	0.21	-0.02	-0.27	0.03
KL_FC	0.69	-0.20	-0.18	0.47	-0.03	0.15	-0.11
KL_VACC	0.65	0.01	-0.32	0.38	0.04	-0.11	0.07
kl cul gf	0.68	-0.19	-0.05	0.31	0.12	-0.28	0.30
Eigen values	7.40	3.02	2.11	1.78	1.29	1.07	1.01
% of Variance	30.85	12.59	8.80	7.40	5.38	4.45	4.22
Cumulative %	30.85	43.43	52.24	59.63	65.01	69.46	73.68

Note: Eigen values more than 1 are only considered here

Table 2:Principal Component Analysis results based upon correlation matrix involving adoption practices along with other independent variables

Variable	Component							
	1	2	3	4	5	6	7	8
AGE	0.08	0.20	0.13	-0.27	-0.30	0.33	-0.15	0.41
OCCU	0.64	0.13	-0.03	-0.15	0.04	-0.12	-0.19	-0.37
EDU	0.66	0.27	-0.13	-0.26	-0.14	-0.03	-0.17	-0.33
F_TYPE	0.20	0.32	-0.66	0.35	-0.07	0.00	0.24	0.06
F_SIZE	0.27	0.39	-0.72	0.20	-0.19	0.09	0.17	0.21
NUMBER	0.32	0.36	-0.69	0.04	-0.24	0.00	0.20	0.14
Fedu score	0.77	0.08	-0.27	-0.33	-0.09	0.02	-0.08	-0.15
LAND	0.53	0.09	-0.29	0.16	0.44	-0.20	-0.39	0.10
HOUSE	0.65	0.24	0.10	-0.48	-0.07	0.16	0.03	-0.11
F_POWER	0.42	0.45	-0.15	0.11	0.46	-0.19	-0.34	0.21
M_POSS	0.69	0.28	0.17	-0.16	0.25	0.16	-0.05	0.12
inno prone	0.52	0.37	0.17	0.16	0.13	0.32	0.19	-0.19
ATTITUDE	0.34	-0.16	0.24	-0.26	0.10	-0.56	0.32	-0.01
RISK_ORI	0.37	-0.26	-0.14	0.13	-0.01	-0.27	0.05	0.04
S_PARTI	0.49	-0.05	0.04	0.05	0.42	0.17	0.48	-0.01
MASS_MED	0.68	-0.40	0.25	0.31	-0.20	-0.01	0.05	0.07
P_COS	0.65	-0.57	0.05	0.00	0.08	0.07	0.17	0.14
P_LOC	0.62	-0.52	-0.18	0.23	0.05	0.16	0.10	0.00
com skill	0.70	-0.28	0.30	0.17	-0.02	0.12	0.13	-0.11
ad dew catttle	0.10	0.39	0.49	-0.12	-0.04	-0.38	0.33	0.19
DEW_GOAT	-0.23	-0.02	-0.13	0.38	0.45	-0.07	0.03	0.00
DEW_PIG	-0.42	0.00	0.06	0.41	0.14	0.35	0.02	-0.17
AD_FC	-0.09	0.64	0.59	0.01	0.03	0.08	0.15	0.06
ad vit min	-0.06	0.49	0.45	0.21	0.22	0.10	0.00	0.05



ad ur mol	0.46	-0.06	0.38	0.49	-0.20	0.04	-0.18	0.01
AD_FGF	0.48	0.07	0.28	0.05	-0.14	-0.07	-0.11	0.44
ad cul gf	0.47	-0.12	0.34	0.43	-0.27	0.01	-0.26	0.03
AD_RD	0.04	-0.23	-0.01	-0.51	0.29	0.42	-0.03	0.17
AD_DP	-0.09	-0.64	-0.17	-0.31	0.18	0.04	-0.07	0.25
Eigen values	6.45	3.21	3.17	2.17	1.46	1.29	1.16	1.02
% of Variance	22.22	11.06	10.94	7.48	5.03	4.45	4.01	3.50
Cumulative %	22.22	33.29	44.22	51.70	56.73	61.19	65.19	68.69

Note: Eigen values more than 1 are only considered here

Table 3:Principal Component Analysis results based upon correlation matrix involving awareness index along with other independent variables

Variable	Component				
	1	2	3	4	5
AGE	0.07	0.08	-0.36	0.43	0.23
OCCU	0.66	0.03	-0.19	-0.03	-0.37
EDU	0.69	0.22	-0.26	0.18	-0.38
F_TYPE	0.28	0.63	0.49	0.02	0.16
F_SIZE	0.35	0.73	0.45	0.20	0.09
NUMBER	0.40	0.67	0.38	0.28	-0.08
Fedu score	0.80	0.15	-0.14	0.22	-0.24
LAND	0.57	0.18	0.18	-0.58	-0.11
HOUSE	0.66	0.05	-0.49	0.23	-0.01
F_POWER	0.46	0.41	-0.16	-0.62	0.11
M_POSS	0.69	0.03	-0.39	-0.17	0.30
inno prone	0.53	0.09	-0.26	0.02	0.49
ATTITUDE	0.31	-0.34	-0.16	-0.16	-0.30
RISK_ORI	0.37	-0.16	0.33	-0.10	-0.29
S_PARTI	0.53	-0.18	0.07	-0.13	0.38
MASS_MED	0.60	-0.50	0.22	0.15	0.02
P_COS	0.61	-0.57	0.27	0.07	0.11
P_LOC	0.61	-0.37	0.49	0.05	0.11
com skill	0.65	-0.49	0.05	0.10	0.09
AW_INDEX	-0.12	-0.52	0.38	0.04	0.02
Eigen values	5.71	3.06	2.01	1.28	1.13
% of Variance	28.54	15.29	10.04	6.39	5.64
Cumulative %	28.54	43.83	53.87	60.25	65.89

Note: Eigen values more than 1 are only considered here