A study to find the Relation between Knowledge Index, Adoption Index and Awareness Index of Selected Animal Husbandry Practices with the Exogenous Variables

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Abstract

Barua village of Midnapur Sadar Block in Paschim Midnapore district of west Bengal was purposively selected to fulfill the objectives of the researcher's 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. Path analysis adopting the multivariate path model as suggested by Land was used to isolate the direct as well as indirect effects of exogenous variables on endogenous variable. The result of path analysis for the respondents represent the direct and indirect effects for 21 selected exogenous variables on overall knowledge score (knowledge index) about selected animal husbandry practices. It was revealed that the communication skill had the largest direct effect (0.398) on knowledge of improved animal husbandry practices. The residual effect had been found to be 0.3456 or, in a way34.56percent of the total variability have been left unexplained. The family size had the largest direct effect on adoption of improved animal husbandry practices. Communication skills, mass media, education of the respondent and material possession were the key elements which directly and indirectly promote adoption of improved animal husbandry practices. Land had the largest direct effect on awareness level about improved animal husbandry practices.

Keywords: Knowledge, adoption, awareness, exogenous.

Introduction

The Animal Husbandry plays significant role in accelerating the growth of rural economy in the developing countries like India. 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. The present study was concerned with the change of behaviour of the stake holders involved in the programme. This behavioral change may be due to adoption, knowledge, and awareness. These were the determinants to be used for the study of impact of any programme objectively. Therefore, the present study was aimed at finding out the level of different attributes like adoption, knowledge and awareness of respondents involved in relation to livestock production system in the study area.

Material 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 Institute Village Linkage Programme beneficiaries covered under

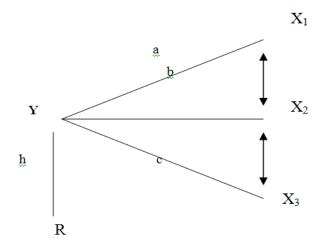
each intervention and thus 139 of respondents were taken as respondents for this study.

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 path analysis, on the basis of relationship between overall knowledge score (knowledge index), overall adoption score (adoption index) and overall awareness score (awareness index) of selected animal husbandry practices respectively with the exogenous variables was used. Path analysis adopting the multivariate Path Model as suggested by Land was used to isolate the direct as well as indirect effects of exogenous variables on endogenous variable¹. Obviously, the general principles of path analysis are more attuned to construction of unidimensional causal theories, but there are ample evidences where it has proved its efficiency in handling reciprocal relationship as well. From the epistemological and scientific logic perspective, we concur that path analysis is a better tool of analysis than simple correlation and regression models.

The techniques of path coefficient analysis involves a method of partitionising the total correlation between the dependent variable and the independent variable into direct effect of independent variable and its indirect effect via third variable on dependent variable.

Path coefficient can be defined as the ratio of the standard deviation of the effect, i.e., if Y is the effect and X_1 is the cause, the path coefficient for the path from cause X_1 to affect Y is σ_{x1} / $\sigma_{y.}$

If the cause and effect relationship is well defined, it is possible to represent the whole system of variable in the form of a diagram, known as path diagram. Let us consider that the yield 'Y' is the function (effect) of various components (causal factors) like number of years etc.



From this figure it is obvious that yield is the result of X_1 , X_2 and X_3 and some other undefined factors designated by 'R'. Further X_1 , X_2 and X_3 in turn are correlated. In the figure a, b, c and h are the path co-efficient due to respective variables.

The advantages of path diagram, is that a set of simultaneous equations can be written directly from a diagram and a solution of these questions provides information on the direct and indirect contributions of these causal factors to the effect.

Results and Discussions

Path analysis on the basis of relationship between overall knowledge score (knowledge index) of selected animal husbandry practices and the exogenous variables:

The result of path analysis as depicted in table1 for the respondents represented the direct and indirect effects for 21 selected exogenous variables on overall knowledge score (knowledge index) about selected animal husbandry practices.

From the perusal of table 1, it was revealed that the communication skill has the largest direct effect (0.398)on knowledge of improved animal husbandry practices followed in descending order by utilization of innovation proneness (0.331), mass media (0.319), material possession (0.268), education of the respondent (0.188), family size (0.175), farm power (0.0970), attitude(0.083), risk orientation (0.007), economic motivation (-0.013), age (-0.016), social participation (-0.019), family type (-0.031), urban contact (-0.047), number of family members (-0.057), land (-0.066), house (-0.079), personal localite (-0.093), occupation (-0.123), personal cosmopolite (-0.124) and family education score (-0.125).

It was evident from table-1 that the residual effect had been found to be 0.3456 or, in a way 34.56 percent of the total variability had been left unexplained.

Further processing of the data revealed that out of 21 exogenous variables,15 had their larger indirect effect through communication skill which were occupation, education of the respondent, family education score, land, house, material possession, urban contact, economic motivation, innovation proneness, attitude, risk orientation, social participation, mass media, personal localite and personal cosmopolite. On the other hand,15 namely, age, occupation, education of the respondent, family type, family size, number of family members, house, farm power, material possession, urban contact, economic motivation, risk orientation, communication skill, social participation, mass media and communication skill had their larger indirect effects through innovation proneness. Similarly 12 had their higher indirect effects through material possession.

Table-1
Path co-efficient showing the direct and indirect effects of selected independent variables on overall knowledge score (knowledge index) of animal husbandry practices

Independent Variables	Direct Effect	Indirect Effect through other independent variables
		X_{11} 0.035
(X_1) Age	-0016	X_{14} 0.030
		X_3 0.017
		X_{21} 0.177
(X ₂) Occupation	-0.123	X_{18} 0.092
		X_{14} 0.091
		X_{21} 0.119
(X_3) Education of the respondent	0.188	X_{14} 0.104
_		X_{18} 0.082

		X_5 0.132
(X ₄) Family Type	-0.031	X_{14} 0.053
		X_3 0.031
		X_{14} 0.059
(X ₅) Family Size	0.175	$egin{array}{cccc} X_3 & 0.047 \\ X_{10} & 0.025 \\ X_5 & 0.149 \\ \hline \end{array}$
		X_{10} 0.025
(X ₆) Number of Family members		X_5 0.149
(246) I tumber of Family members	-0.057	X_3 0.063
		$egin{array}{cccc} X_3 & 0.063 \\ X_{14} & 0.046 \\ X_{21} & 0.152 \\ \hline \end{array}$
		X_{21} 0.152
(X ₇) Family Education Score	-0.125	X_3 0.144
		X_{18} 0.166
		X_{11} 0.095
(X_8) Land	-0.066	X_{21} 0.089
		$egin{array}{cccc} X_{21} & 0.089 \\ X_{18} & 0.071 \\ X_{11} & 0.173 \\ \end{array}$
(X ₉) House		X_{11} 0.173
	-0.079	X_{14} 0.145
		X_{21} 0.140
		$egin{array}{cccc} X_{14} & & & 0.145 \\ X_{21} & & 0.140 \\ X_{11} & & 0.129 \\ \hline \end{array}$
(X_{10}) Farm Power	0.097	X_{14} 0.099
		X_3 0.053
		X_{14} 0.175
(X_{11}) Material possession	0.268	X_{21} 0.132
1		$X_{18} = 0.086 \ X_{14} = 0.124$
		X ₁₄ 0.124
(X ₁₂)Urban Contact	-0.047	X_{21} 0.108
(12)	0.017	X_{11} 0.102
	-0.013	$X_{11} 0.102 $
(X ₁₃)Economic Motivation		X_{21} 0.115
(13)		X_{11} 0.069
		X_{11} 0.069 X_{11} 0.142
(X ₁₄)Innovation Proneness	0.331	X_{21} 0.122
(14)		X_{18} 0.070
		X_{21} 0.090
(X ₁₅)Attitude	0.083	X_{18} 0.086
(11/3)/11000000	0.000	X_{11} 0.058
		$egin{array}{cccc} X_{11} & 0.058 \\ X_{21} & 0.098 \\ \end{array}$
(X ₁₆)Risk Orientation	0.007	X_3 0.036
(110)111311 3114111411	0.007	X_{14} 0.025
		X_{21} 0.189
(X ₁₇)Social Participation	-0.019	X_{14} 0.098
(11//Social Latterpation	-0.013	X ₁₁ 0.097
		X_{21} 0.284
(X ₁₈)Mass Media	0.319	X_{21} 0.204 X_{11} 0.073
(21 ₁₈)111a55 111cula	0.519	X_{11} 0.073 X_{14} 0.072
(X ₁₉)Personal Cosmopolite	-0.124	$egin{array}{cccc} X_{14} & 0.072 \\ X_{21} & 0.234 \\ \end{array}$
		X_{21} 0.234 X_{18} 0.219
		X_{18} 0.219 X_{11} 0.087
(X ₂₀)Personal Localite	-0.093	X_{11} 0.007 X_{21} 0.217
		X_{21} 0.217 X_{18} 0.196
(2120)1 Cisonal Localite	0.073	X_{18} 0.150 X_{11} 0.077
		X_{11} 0.077 X_{18} 0.228
(X ₂₁)Communication Skill	0.398	X_{18} 0.228 X_{14} 0.102
(A ₂₁)Communication Skill	0.398	
		X_{11} 0.089

These were land, house, farm power, urban contact, economic motivation, innovation proneness, attitude, social participation, mass media, personal cosmopolite, personal localite and communication skill. Mass media influences indirectly through occupation, education of the respondent, family education score, land, material possession, innovation proneness, attitude, personal cosmopolite, personal localite and communication skill on knowledge index. On the other hand 7 namely age, family type, family size, number of family members, family education score, house, farm power and risk orientation had their larger indirect effects through education of the respondent.

So communication skill, innovation proneness, material possession, mass media and education of the respondent, were the key elements which directly and indirectly promoted knowledge of improved animal husbandry practices. Islam also stated that mass media was one of the key elements directly and indirectly promote knowledge of selected animal husbandry practices².

path analysis on the basis of relationship between overall adoption score (adoption index) of selected animal husbandry practices and the exogenous variables:

The result of path analysis as in table2 for the respondents represented the direct and indirect effects for 21 selected exogenous variables on overall adoption score (adoption index) about selected animal husbandry practices.

From the table 2, it was manifested that the family size had the largest direct effect (0.229) on adoption of improved animal husbandry practices followed in descending order by mass media (0.0.216), material possession (0.178), communication skill (0.165), education of the respondent (0.160),urban contact (0.151), farm power (0.125), social participation (0.095), land (0.071), innovation proneness (0.064), house (-0.008), attitude (-0.014), age (-0.027), personal cosmopolite (-0.031), economic motivation (-0.083), personal localite (-0.089), risk orientation (-0.105), occupation (-0.123), number of family members (-0.171), family type (-0.267) and family education score (-0.474).

The critical perusal of table- 2 shows that the residual effect had been found to be 0.7006 or, in a way 70.06 percent of the total variability had been left unexplained.

Further processing of the data depicted that out of 21 exogenous variables, 16 had their larger indirect effect through material possession which were age, occupation, education of the respondent, family education score, land, house, farm power, urban contact, economic motivation, innovation proneness, attitude, social participation, mass media, personal localite, personal cosmopolite, communication skill. On the other hand,12 namely, occupation, family type, family size, number of family members, family education score, house, material possession, urban contact, economic motivation, risk orientation, mass media and communication skill had their larger indirect effects through education of the respondents. Similarly 10 had their higher indirect effects through mass media. These were education, education score, material possession, economic motivation, attitude, risk orientation, social participation, personal cosmopolite, personal localite and communication skill. 8 exogenous variables had their higher indirect effects through communication skill which were occupation, urban contact, economic motivation, innovation proneness, risk orientation, social participation, personal cosmopolite, and personal localite. So communication skill, mass media, education of the respondent and material possession were the key elements which directly and indirectly promote adoption of improved animal husbandry practices. These findings were in line with the Ghosh who reported that communication source has come out to be the key element which directly and indirectly promoted the adoption of improved animal husbandry practices in case of dairy farmer of Member Co-operative Society³. Similar kind of findings were found by Sarkar and Dutta for path analysis on the basis of relationship between overall adoption score (Adoption Index) of selected animal husbandry practices and the exogenous variables⁴,

Path analysis on the basis of relationship between overall awareness score (awareness index) of selected animal husbandry practices and the exogenous variables:

The result of path analysis as depicted in table-3 for the respondents represented the direct and indirect effects for 21 selected exogenous variables on overall awareness score (awareness index) about selected animal husbandry practices.

Table-2
Path co-efficient showing the direct and indirect effects of selected independent variables on overall adoption score (adoption index)

Independent Variables	Direct Effect	Indirect Effect through other independent variables
		X_4 0.028
(X_1) Age	-0.027	X_{11} 0.023
		X_{12} 0.019
		X_3 0.094
(X ₂) Occupation	-0.123	X_{21} 0.074
		X_{11} 0.068
		X_{11} 0.072
(X ₃) Education of the respondent	0.160	X_5 0.057
		X_{18} 0.056

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	0.065	X_5	0.173
(X ₄) Family Type	-0.267	X_{10}	0.033
		X ₃	0.027
	0.220	X_3	0.040
(X ₅) Family Size	0.229	X_{10}	0.033
		$rac{X_8}{X_5}$	0.020
			0.195
(X ₆)Number of Family Members	-0.171	X_3	0.054
		X_{10}	0.029
		X_3	0.123
(X ₇)Family Education Score	-0.474	X_{11}	0.090
		X_{18}	0.079
		X_{10}	0.079
(X ₈) Land	0.071	X_{11}	0.063
		X_5	0.063
		X ₁₁	0.115
(X ₉) House	-0.008	X_3	0.089
		X_{12}	0.078
		X ₁₁	0.085
(X_{10}) Farm Power	0.125	X_5	0.060
		$X_{3,8}$	0.045
		X_3	0.065
(X ₁₁) Material Possession	0.178	X_{10}	0.060
		X_{18}	0.059
		X ₁₁	0.068
(X ₁₂) Urban Contact	0.151	X_{21}	0.045
(12)		$X_{3,4}^{21}$	0.040
		X_{21}	0.048
(X ₁₃) Economic Motivation	-0.083	$X_{11,3}$	0.046
(13)		X_{18}	0.045
		X ₁₁	0.094
(X ₁₄) Innovation Proneness	0.064	X_{12}	0.057
(14)		X_{21}	0.051
		X ₁₈	0.058
(X ₁₅) Attitude	-0.014	X_{12}	0.041
(113) 1101000	0.011	X ₁₁	0.038
		$egin{array}{c} X_{11} \ X_{18} \end{array}$	0.068
(X ₁₆) Risk Orientation	-0.105	X_{21}	0.041
(11 ₁₆₎ INSK OTICILATION	0.103	X_3	0.030
		X ₂₁	0.079
(X ₁₇) Social Participation	0.095	X_{21} X_{11}	0.064
		X_{11} X_{18}	0.063
		$\frac{X_{18}}{X_{11}}$	0.048
(X ₁₈) Mass Media	0.216		0.048
(A ₁₈) Mass Media	0.216	\mathbf{X}_3	0.041
		X_{17}	
(V) Parsanal Casmanalita	0.021	\mathbf{X}_{18}	0.148
(X ₁₉) Personal Cosmopolite	-0.031	X_{21}	0.097
		X_{11}	0.058
(V) Damanal I and the	0.000	X_{18}	0.133
(X_{20}) Personal Localite	-0.089	X_{21}	0.090
		X ₁₁	0.051
	0.157	X_{18}	0.155
(X ₂₁) Communication Skill	0.165	X_{11}	0.059
		X_3	0.048

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Table-3
Path co-efficient showing the direct and indirect effects of selected independent variables on overall awareness score (awareness index) of animal husbandry practices

Independent Variables	(awareness index) of animal husbandry practices		
Company	Independent Variables	Direct Effect	Indirect Effect through other independent variables
X ₁₂ 0.009 X ₄ 0.161 X ₂₀ 0.083 X ₇ 0.075 X ₈ 0.121 X ₈ 0.043 X ₉ 0.043 X ₉ 0.043 X ₁₀ 0.043 X ₁₀ 0.043 X ₁₀ 0.043 X ₁₀ 0.045 X ₁₀ 0.057 X ₁₀ 0.043 X ₁₀ 0.043 X ₁₀ 0.043 X ₁₀ 0.043 X ₁₀ 0.044 X ₁₀ 0.044 X ₁₀ 0.049 X ₁₀ 0.049 X ₁₀ 0.049 X ₁₀ 0.049 X ₁₀ 0.045 X ₁₀ 0.045 X ₁₀ 0.049 X ₁₀ 0.045 X ₁₀ 0.045 X ₁₀ 0.049 X ₁₀ 0.055 X ₁₀ 0.049 X ₁₀ 0.055 X ₁₀ 0.049 X ₁₀ 0.055 X ₁₀ 0.049 X ₁₀ 0.058 X ₁₀ 0.055 X ₁₀ 0.055 X ₁₀ 0.063 X ₁₀ 0.065 X ₁₀ 0.06		0.044	
X ₂ 0.161 X ₃₀ 0.083 X ₇ 0.075 X ₈ 0.121 X ₁₀ 0.043 X ₁₀ 0.045 X ₁₀ 0.045 X ₁₀ 0.045 X ₁₀ 0.047 X ₁₀ 0.048 X ₁₀ 0.049 X ₁₀ 0.049 X ₁₀ 0.049 X ₁₀ 0.049 X ₁₀ 0.045 X ₁₀ 0.055 X ₁₀ 0.045 X ₁₀ 0.055 X ₁₀ 0.058 X ₁₀ 0.055 X ₁₀ 0.066 X ₁₀ 0.067 X ₁₀ 0.068 X ₁₀ 0.067 X ₁₀ 0.068 X ₁₀ 0.065 X ₁₀ 0.067	(X_1) Age	0.041	
Comparison -0.104 X ₅₀ 0.083 X ₇ 0.0075 X ₈ 0.121 X ₇ 0.108 X ₇ 0.108 X ₈ 0.121 X ₇ 0.108 X ₈ 0.099 X ₈ 0.099 X ₈ 0.099 X ₈ 0.095 X ₈ 0.026 X ₈ 0.026 X ₈ 0.026 X ₈ 0.026 X ₈ 0.0047 X ₈₀ 0.047 X ₈₀ 0.047 X ₈₀ 0.047 X ₈₀ 0.049 X ₈ 0.094 X ₈ 0.099 X ₈ 0.094 X ₈ 0.0129 X ₈ 0.0115 X ₈₀ 0.0115 X ₈₀ 0.0115 X ₈₀ 0.0104 X ₈ 0.055 X ₈ 0.035 X ₈ 0.035 X ₈ 0.035 X ₈ 0.035 X ₈ 0.036 X ₁₀ 0.058 X ₁₀ 0.046 X ₁₀			X_{12} 0.009
X ₂ 0.075 X ₄ 0.121 X ₂ 0.108 X ₁₀ 0.043 X ₁₀ 0.043 X ₂₀ 0.057 X ₂ 0.009 X ₂₀ 0.057 X ₂ 0.009 X ₂₀ 0.057 X ₂ 0.026 X ₃ 0.004 X ₂ 0.006 X ₂ 0.043 X ₃ 0.004 X ₃ 0.005 X ₃ 0.009 X ₃ 0.005 X ₃ 0.004 X ₃ 0.005 X ₃ 0.005 X ₃ 0.005 X ₃ 0.005 X ₃ 0.004 X ₃ 0.005			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X ₂) Occupation	-0.104	
(X₃) Education of the respondent -0.297 X₁ 00043 (X₁) Family Type -0.100 X₂ 00057 (X₂) Family Size -0.060 X₂ 00043 (X₃) Family Size -0.060 X₂ 00043 (X₃) Family Size -0.060 X₂ 00043 (X₃) Number of Family members -0.064 X₃ 0.094 (X₃) Number of Family members -0.064 X₃ 0.094 (X₁) Family Education Score 0.141 X₂ 0.0049 (X₁) Family Education Score 0.141 X₂ 0.0115 (X₁) Each X₂ 0.0104 X₂ 0.0104 (X₃) Land 0.367 X₁ 19 0.055 (X₃) House 0.004 X₃ 0.064 X₁ 19 0.055 (X₃) House 0.004 X₃ 0.064 X₁ 10091 X₁ 10091 <t< td=""><td>. 2/</td><td></td><td></td></t<>	. 2/		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			X_8 0.121
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X_3) Education of the respondent	-0.297	X_7 0.108
X ₈ 0.099 X ₂₀ 0.057 X ₇ 0.026 X ₈ 0.102 X ₈ 0.102 X ₇ 0.047 X ₂₀ 0.047 X ₂₀ 0.047 X ₂₀ 0.043 X ₈ 0.043 X ₈ 0.094 X ₇ 0.066 X ₇ 0.066 X ₂₀ 0.043 X ₈ 0.094 X ₈ 0.099 X ₈ 0.129 X ₁₀ 0.085 X ₁₀ 0.055 X ₁₀ 0.091 X ₁₀ 0.055 X ₁₁ 0.091 X ₁₁ 0.091 X ₁₁ 0.091 X ₁₁ 0.091 X ₁₂ 0.091 X ₁₂ 0.091 X ₁₃ 0.091 X ₁₄ 0.091 X ₁₅ 0.091 X ₁₆ 0.094 X ₁₇ 0.091 X ₁₈ 0.0231 X ₁₉ 0.086 X ₁₉ 0.046 X ₁₁ 0.046 X ₁₁ 0.046 X ₁₁ 0.046 X ₁₂ 0.046 X ₁₂ 0.046 X ₁₃ 0.015 X ₁₄ 0.015 X ₁₅ 0.063 X ₁₆ 0.015 X ₁₇ 0.0086 X ₁₉ 0.063 X ₁₉ 0.063 X ₁₉ 0.065 X ₁₉ 0.067 X ₁₉ 0.078 X ₁₀ 0.078 X ₁₀ 0.078 X ₁₀ 0.078 X ₁₀ 0.0			$X_{19} = 0.043$
(X₄) Family Type -0.100 X₂₀ 0.057 (X₃) Family Size -0.060 Xγ 0.047 (X₃) Family Size -0.064 Xγ 0.043 (X₆) Number of Family members -0.064 Xγ 0.094 (X₆) Number of Family members -0.064 Xγ 0.061 (X₆) Number of Family members -0.064 Xγ 0.049 (X₆) Number of Family members -0.064 Xγ 0.049 (X₆) Duby X₂₀ 0.049 (X₆) Land 0.367 X₂₀ 0.110 (X₆) Land 0.367 X₁₀ 0.055 (X₆) House 0.004 X₃ 0.065 (X₆) House 0.004 X₃ 0.064 (X₆) House 0.004 X₃ 0.064 (X₆) Farm Power -0.394 Xγ 0.048 (X₁₀) Farm Power -0.394 Xγ 0.048 (X₁₁) Material possession -0.119 X₂₀ 0.013 (X₁₁) Urban Contact 0.070 Xγ 0.038 (X₁₃) Economic Motivation 0.014 X₂₀ 0.055 <t< td=""><td></td><td></td><td>X₈ 0.099</td></t<>			X ₈ 0.099
X ₂ 0.026 X ₈ 0.102 X ₇ 0.047 X ₂₀ 0.043 X ₈ 0.102 X ₇ 0.047 X ₂₀ 0.043 X ₈ 0.094 X ₇ 0.061 X ₇ 0.061 X ₇ 0.061 X ₇ 0.061 X ₂₀ 0.049 X ₈ 0.129 0.085 X ₁₀ 0.085 X ₂₀ 0.115 X ₂₀ 0.115 X ₂₀ 0.115 X ₂₀ 0.104 X ₂₀ 0.104 X ₂₀ 0.104 X ₂₀ 0.085 X ₂₀ 0.049 X ₂₀ 0.055 X ₂₁ 0.049 X ₂₂ 0.049 X ₂₃ 0.049 X ₂₄ 0.049 X ₂₄ 0.049 X ₂₅ 0.049 X ₂₆ 0.058 X ₂₆ 0.064 X ₂₆ 0.058 X ₂₇ 0.048 X ₂₉ 0.058 X ₂₉ 0.014 X ₂₀ 0.014 X ₂₁ 0.086 X ₂₁ 0.086 X ₂₁ 0.086 X ₂₁ 0.086 X ₂₂ 0.015 X ₂₁ 0.086 X ₂₂ 0.015 X ₂₃ 0.055 X ₂₄ 0.015 X ₂₅ 0.055 X ₂₆ 0.055 X ₂₇ 0.038 X ₂₆ 0.015 X ₂₉ 0.063 X ₂₉ 0.065	(X ₄) Family Type	-0.100	
Company Comp			$X_7 = 0.026$
Company Comp			X _o 0.102
X20	(X ₅) Family Size	-0.060	X_{7} 0.047
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(113) I aming Size	0.000	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X _c) Number of Family members	-0.064	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(A ₆) Number of Lamity members	-0.004	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			V 0.120
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(V) Family Education Score	0.141	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(A ₇) Family Education Score	0.141	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			X ₁₉ 0.085
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.267	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X_8) Land	0.367	77
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.004	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X ₉) House		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X_{10}) Farm Power	-0.394	X_7 0.048
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			X_{20} 0.014
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			$X_8 = 0.175$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X_{11}) Material possession	-0.119	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X ₁₂) Urban Contact	0.070	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(=12)		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			X ₁₀ 0.063
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X ₁₂) Economic Motivation	0.014	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(XI ₁₃) Deolionile Motivation	0.014	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(Y.) Innovation Propaga	0.018	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(A ₁₄) innovation Fioneness	-0.016	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(W) A ((*) 1.	0.022	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(X ₁₅) Attitude	0.022	20
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$X_{19} = 0.078$ $X_{20} = 0.109$ (X_{17}) Social Participation $-0.040 = X_8 = 0.089$	(T) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
(X_{17}) Social Participation -0.040 X_{20} 0.109 X_{8} 0.089	(X ₁₆) Risk Orientation	0.014	ů .
(X_{17}) Social Participation -0.040 X_8 0.089			
			=*
X_{19} 0.088	(X ₁₇) Social Participation	-0.040	The state of the s
			X_{19} 0.088

(X ₁₈) Mass Media	-0.230	$egin{array}{ccc} X_{20} & 0.188 \ X_{19} & 0.151 \ X_{8} & 0.089 \ \end{array}$
(X ₁₉) Personal Cosmopolite	0.219	$egin{array}{ccc} X_{20} & 0.221 \\ X_8 & 0.093 \\ X_7 & 0.054 \\ \end{array}$
(X ₂₀) Personal Localite	0.306	$egin{array}{ccc} X_{19} & 0.158 \\ X_8 & 0.125 \\ X_7 & 0.053 \\ \end{array}$

The data revealed that land had the largest direct effect (0.0.367) on awareness level about improved animal husbandry practices followed in descending order by personal localite (0.306), personal cosmopolite (0.219), family education score (0.141), urban contact (0.070), age (0.041), attitude (0.022), economic motivation (0.014), risk orientation (0.014), house (0.004), innovation proneness (-0.018), communication skill (-0.021), social participation (-0.040) family size (-0.060), number of family members (-0.064), family type (-0.100), occupation (-0.104), material possession (-0.119), mass media (-0.230), education of the respondent (-0.297), and farm power (-0.394).

The residual effect had been found to be 0.7006 or, in a way 70.06 percent of the total variability had been left unexplained.

Further processing of the data revealed that out of 21 exogenous variables, 18 had their larger indirect effect through land, which were occupation, education of the respondent, family type, family size, number of family members, family education score, house, farm power, material possession, economic motivation, innovation proneness, attitude, risk orientation, participation, mass media, personal cosmopolite, personal localite and communication skill. On the other hand,16 namely occupation, family type, family size, , number of family members, family education score, land, farm power, material possession, economic motivation, innovation proneness, attitude, risk orientation, social participation, mass media, personal cosmopolite, personal localite and communication skill had their higher indirect effects through personal localite. Similarly 14 had their higher indirect effects through personal cosmopolite. These are education of the respondent, family education score, land, house, material possession, urban contact, economic motivation, innovation proneness, attitude, risk orientation, participation, mass media, personal localite and communication skill.13 exogenous variables had their higher indirect effect through family education score which were age, occupation, education of the respondent, family type, family size, number of family members, land, house, farm power, material possession, urban contact, , personal cosmopolite, personal localite.

So personal cosmopolite, personal localite, land, and family education score of the livestock farmers were the key elements

which directly and indirectly promoted awareness of improved animal husbandry practices.

Conclusion

The study concludes that selected socio-economic, socio-psychological and communication variables had exerted direct and indirect effect on overall knowledge score (knowledge index), overall adoption score (adoption index) and overall awareness score (awareness index) of selected animal husbandry practices respectively. Communication skill, innovation proneness, material possession, mass media and education of the respondent, were the main determinants which directly and indirectly promoted knowledge of improved animal husbandry practices whereas communication skill, mass media, education of the respondent and material possession played pivotal role for adoption of improved animal husbandry practices. For awareness personal cosmopolite, personal localite, land, and family education score of the respondents were the most vital factors.

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