J Agri Sci, 6,7(1-2):17-21 (2015-2016)
PRINT: ISSN 0976-6898 ONLINE: ISSN 2456-6535 DOI: 10.31901/24566535.2015-16/06-07.1-2.03

Adoption of Modern Animal Husbandry Practices by Tribal Livestock Farmers of Attappady Block in Kerala

Bimal P. Bashir, P. J. Rajkamal and George P. Reeja

Department of Veterinary and Animal Husbandry Extension, College of Veterinary and Animal Sciences, Mannuthy, Thrissur 680 651, Kerala, India

KEYWORD Adoption. Tribal. Livestock. Farmers. Modern. Animal Husbandry

ABSTRACT A study on modern animal husbandry practices in 120 tribal livestock farmers (selected at random), 10 each from twelve hamlets of Agali, Sholayoor and Pudur panchayats of Attappady block of Palakkad district was conducted by stratified random sampling method by including twelve independent variables relevant to the study. Multiple regression analysis indicated that ten variables viz., man nature orientation, media exposure, extension agency contact, market support, policy support and organizational support exerted highly significant ($p<0.01$) positive effect, where as the variables, age and years of experience were negatively and significantly correlated with the extent of adoption of selected modern animal husbandry practices. The study revealed that majority (80.83%) of the tribal livestock farmers in the study area had medium level of adoption followed by low (12.5%) and high level (6.67%) of adoption of modern animal husbandry practices.

INTRODUCTION

Adoption is "a decision to make use of new ideas or practices". In this context it refers to the degree of actual use of recommended modern animal husbandry practices by the tribal livestock farmers. It is a known fact that, for most of the world's poorest countries, livestock provides the leading source of employment and contributes large fractions to national income. In many of these countries, however, livestock productivity is extremely low (Cheryl 2006). Animal husbandry plays a very important part in agriculture in the tribal pockets of the study area. Cattle rearing for milk and milk products, leather and flesh are important occupations for most of the people living in the area.

The knowledge of tribal livestock farmers appears to be the key link to higher level of adoption. The scientific research being done at the research stations has to be transferred to field level through extension education processes including on-farm training, distributing extension literature and regular field visits and demonstrations. Once farmers acquire knowledge, they begin to use and apply new techniques and improved practices in their livestock farming. Even among farmers, there is a great variation in their levels of knowledge. Some need more time to grasp and get convinced and hence need longer sustained support from extension agencies including livestock department staff. The variation in rate and extent of adoption of improved practices in modern animal husbandry practice and reasons thereof, need to be thoroughly understood. Hence a research study was planned and conducted. The present study aims at analysing the extent of adoption of modern animal husbandry practices among the tribal livestock farmers in Attappady block for Kerala.

Objectives

Objectives of the study included: 1) Inventorying modern animal husbandry practices; 2) To study the degree of belief in selected modern animal husbandry practices; 3) To study the extent of adoption of selected modern animal husbandry practices; 4) To find out the determinants of adoption.

MATERIAL AND METHODS

Study Area

Attappady tribal block of Palakkad district was selected as the area of study. Attappady is situated in the Western Ghats, between 10°55' 10" and 11°14' 19" north latitude and 76°27' 11" and 76° 48' 8" east longitude (Fig.1). Attappady stretches from Mukkaly to Anakatty in the west-east direction and Thazhemully to Muthikkulam in the north-south direction. It is bordered by Palakkad taluk in the south and Karimba, Pottessery and Munnarkad revenue villages of Mannarkad taluk and Ernad taluk of Malapuram district in the West. Nilgiri and Coimbatore districts of Tamil Nadu are situated on the north and east

respectively. This tribal block is comprised of three panchayats which are Agali, Pudur and Sholayoor. Pudur and Sholayoor panchayats are located on either side of Agali panchayat. Tribes constitute about 41.00 per cent of total population of Attappady, which comprises mainly of three ethnic groups, viz., "Irula", "Kurumba" and "Muduga".

"Irula" is the numerically and socially dominant tribal group of Attappady. They occupy 84 percent of total hamlets in the area. They are of Tamil origin and derived their name "Irula" from their pitch-black complexion. Hunting and gathering, trapping of birds and animals, shifting cultivation, animal husbandry and pastoralism were their traditional occupations. Presently their major source of income is wage labour. Those who possess small plots of land near their hamlets engage in dry land agriculture, mainly indigenous grains and cotton.

"Muduga" is the second largest tribal group. The name "Muduga" is derived from the practice of carrying their children on their 'Muthuku' (back). They live in clusters with twelve or so households in each settlement. They consider themselves superior to "Irulas" and "Kurumbas". Their occupations include agriculture, hunting and fishing

"Kurumbas" were the earliest group of tribes to settle in Attappady. They climbed down the Nilgiri hills and settled in the northern area of Attappady. They live in 19 hamlets spread across the catchment area of Bhavani River. "Kurumbas" were shifting cultivators and food gatherers. It is said that they have vast knowledge of ethno-veterinary practices.

Sampling

Ten respondents were selected at random from each of the twelve hamlets of Agali, Sholayoor and Pudur panchayats of Attappady block of Palakkad district, making a total of 120 respondents. The study was conducted by stratified random sampling procedure.

Operationalisation of Variables

The dependent variable for this study was adoption of selected modern animal husbandry practice by beneficiaries in the area of animal selection, feeding, breeding, housing and management practices. The selected independent variables were age, literacy, occupation, years of experience in animal husbandry, herd size, man-nature orientation, value orientation, scientific orientation, mass media exposure, extension agency contact, marketing support, policy support and organizational support. Adoption in the present study was operationalised, as modern animal husbandry practices were actually put into practice by the tribal livestock farmers. Extent of adoption of modern animal husbandry practices by tribal livestock farmers was measured with the help of a well structured interview schedule made specifically for the study. All together 51 modern animal husbandry practices which includes practices from the domain viz., animal selection, feeding, breeding, housing and management practices were selected for measuring the extent of adoption of modern animal husbandry practices.

Extent of Adoption of selected modern animal husbandry practices was measured in terms of adoption quotient. The respondents was given one score, if he adopts the practice as per the recommendation, otherwise zero was assigned. Adoption quotient was calculated for each individual in order to correlate with the independent variable. Adoption quotient of selected modern animal husbandry practices was calculated as follows:

Adoption quotient = [Total number of selected modern animal husbandry practices adopted (Symbolic + Practice) / Total number of selected modern animal husbandry practices studied X 100].

However, the number of persons adopting symbolically and by actual practice were added for every animal husbandry practices. Three arbitrary categories of respondents were drawn based on adoption quotient (AQ) they are high (AQ>66.6), medium (AQ between 33.3 and 66.6) and low (<33.3).

The statistical methods like mean, standard deviation were used for categorization of data. Coefficient of correlation (r) suggested by Garrett (1967) was used for testing the significance of relationship between dependent and independent variables.

RESULTS AND DISCUSSION

Table 1 shows extent of adoption of modern animal husbandry practices revealed that majority of the respondents (80.83%) belonged to

medium adoption category, whereas percent of high and low adopter categories were 6.67 and 12.5 respectively. Similar findings were reported by Ahire (2007), Khode et al. (2009) and Meena et al. (2014).

Table 1: Extent of adoption of modern animal husbandry practices (n=120)

S. No.	*Categories*	*Number of respondents*	*Percentage*
1.	High adopters (>66.6)	8	6.67
2.	Medium adopters (33.3 to 66.6)	97	80.83
3.	Low adopters (<33.3)	15	12.50
	Total	120	100.00

Table 2 reveals that majority of beneficiaries (55.83 and 35.00 percent) were from the age group 31 to 50 and the age group above 51 years, respectively. Illiteracy rate among the beneficiaries were found to be 36.67 percent. Regarding occupation 58.33 per cent were in non-agricultural sector. It was revealed that 60.00 percent of beneficiaries had medium level of experience in animal husbandry followed by low (21.67%) and high (18.33%). Majority (60.00%) of beneficiaries had a herd size less than 9.

Regarding socio-psychological characteristics, majority of beneficiaries have low man-nature orientation (65.0%), value orientation (67.5%) and scientific orientation (72.5%). This findings agreed with the findings of Rahman (2007) and Chouhan et al. (2013).

Table 2: Distribution of beneficiaries by their characteristics (n=120)

S. No.	*Parameter*	*No. of beneficiaries*	*Percent N=120*	*Level of adoption*		
				N=8	*N=97*	*N=15*
1.	*Age (years)*					
	1. Young (up to 30)	11	09.17	3	06	02
	2. Middle (31-50)	76	55.83	4	53	10
	3. Old (51 and above)	42	35.00	1	38	03
2.	*Literacy*					
	1. Illiterate	76	63.33	1	72	03
	2. Literate	44	36.67	7	25	12
3.	*Occupation*					
	1. Agricultural sectors	50	41.67	6	36	8
	2. Non-agricultural sectors	70	58.33	2	61	7
4.	*Years of Experience in Animal Husbandry*					
	1. High (>38 years)	22	18.33	3	14	5
	2. Medium (13-37 years)	72	60.00	3	65	4
	3. Low (<12 years)	26	21.67	2	18	6
5.	*Herd Size*					
	1. Large (>8.7)	48	40.00	5	37	6
	2. Small (<8.7)	72	60.00	3	60	9
6.	*Man-nature Orientation*					
	1. High (7-8)	42	35.00	1	39	02
	2. Low (4-6)	78	65.00	7	58	13
7.	*Value Orientation*					
	1. High (17-24)	39	32.5	3	32	04
	2. Low (8-16)	81	67.5	5	65	11
8.	*Scientific Orientation*					
	1. High (>11.02)	33	27.5	2	25	6
	2. Low (<11.02)	87	72.5	6	72	9
9.	*Mass Media Exposure*					
	1. High (>8.83)	54	45.0	3	45	6
	2. Low (<8.83)	66	55.0	5	52	9
10.	*Extension Agency Contact*					
	1. High (>12.5)	49	40.83	2	40	7
	2. Low (<12.5)	71	59.17	6	57	8
11.	*Marketing Support*					
	1. High (>9.75)	64	53.33	4	52	8
	2. Low (<9.75)	56	46.67	4	45	7
12.	*Policy Support*					
	1. High (>9.08)	48	40.0	3	42	03
	2. Low (<9.08)	72	60.0	5	50	12
	Organizational Support					
	1. High (8.2)	45	37.5	1	40	04
	2. Low (<8.2)	75	62..5	7	57	11

It was also noticed that mass media exposure and extension agency contact of beneficiaries were low, 55.0 percent and 59.17 percent respectively. This observation agreed with that of Sunil (2001) and Chouhan et al. (2013).

In case of extension support, majority of the beneficiaries (53.33%) had high marketing support, while, sixty percent of beneficiaries had low policy support from the authority. Majority of the beneficiaries (62.50%) had low level of organizational support.

Relationship between Independent Variables and Extent of Adoption in Selected Modern Animal Husbandry Practices

It is observed from Table 3 that out of the twelve independent variable studied, the variables, man-nature orientation, value orientation, scientific orientation, media exposure, extension agency contact, market support, policy support and organizational support were positively and significantly correlated with extent of adoption of selected modern animal husbandry practices. The variables, age and years of experience were negatively and significantly correlated with the extent of adoption of selected modern animal husbandry practices. This observation agreed with that of Sunil (2001). In order to assess the relative contribution of each of the independent variables the data were subjected to multiple regression analysis. It could be observed that the variables, value orientation and extension agency contact were positively significant in explaining extent of adoption of selected modern animal husbandry practices. The multiple regression equation fitted to the data was $Y=25.350 - 0.499 X_1 + 0.121 X_2 - 0.496 X_3 - 0.045 X_4 + 0.569 X_5 + 0.620 X_6 + 0.435 X_7 + 0.586 X_8 + 0.502 X_9 + 0.426 X_{10} + 0.314 X_{11} + 0.337 X_{12}$. The co-efficient of determination was found to be 53.2 percent. This indicated that 53.2 percent of total variability in the extent of adoption in selected modern animal husbandry practices of tribal animal husbandry farmers could be attributed to the independent variables studied.

CONCLUSION

The adoption of modern animal husbandry practices in the study area was found to be medium to low indicating that there is a need to educate the tribal livestock farmers on different aspects of animal husbandry practices in general and value addition, feeding practices and marketing in particular. Since most of the tribal livestock farmers in the study area fall under medium level of adoption category, there is a need to intensify extension efforts in order to increase the level of adoption of modern husbandry practices thereby increasing the production efficiency of their livestock which in turn will increase their income.

RECOMMENDATIONS

Younger generation who has high literacy and has high man-nature, value and scientific orientation with high mass media exposure, extension agency contact, market, policy and or-

Table 3: Multiple regression of independent variables with extent of adoption of selected modern animal husbandry practices

S. No.	*Independent variables*	*Correlation coefficient*	*Regression coefficient*	*Standard error*	*t-value*
1	Age	-0.499**	-0.396	0.952	0.416
2	Education/ Literacy	0.121	-1.524	1.480	1.030
3	Experience in animal husbandry practices	-0.496**	0.283	0.971	0.292
4	Herd size	-0.045	-0.205	0.141	1.451
5	Man nature orientation	0.569**	0.759	1.129	0.673
6	Value orientation	0.620**	1.325**	0.444	2.984
7	Scientific orientation	0.435**	0.000815	0.484	0.002
8	Media exposure	0.586**	0.645	0.581	1.111
9	Extension agency contact	0.502**	0.401**	0.135	2.964
10	Market support	0.426**	0.701	0.638	1.100
11	Policy support	0.314**	-1.245	0.727	1.713
12	Organizational support	0.337**	0.922	0.640	1.440

** denotes significant at 1 percent level. F= 10.127** Intercept = 25.350 R^2=53.2%

ganisational support, has more faith in modern animal husbandry practices. Intensifying extension efforts to improve the belief in modern animal husbandry practices and their adoption must be undertaken in keeping these things in mind. Moreover, an in depth study must be conducted to identify constraints in adoption of modern animal husbandry practices.

REFERENCES

Ahire MC, Birari D, Kamble DK 2007. Adoption of poultry management practices in Solapur, India. *The Asian Journal of Animal Science*, 2(1 and 2): 55-58.

Cheryl RD 2006. Analyzing technology adoption using micro-studies: Limitations, challenges and opportunities for improvement. *Agricultural Economics*, 34: 207-219.

Chouhan S, Singh SRK, Pande AK, Gautam US 2013. Adoption dynamics of improved sugarcane cultivation in Madhya Pradesh. *Indian Research Journal of Extension Education*, 13(2): 26-30.

Garrett HE 1967. *Statistic in Psychology and Education*. Mumbai:Vakils, Feffer and Simons Pvt. Ltd.

Meena BS, Chauhan J, Shanthy TR, Singh BP 2014. Adoption gap and its path analysis in feeding practices of dairy animals. *Indian Research Journal of Extension Education*, 14(2): 87-90.

Rahman S 2007. Adoption of improved technologies by the pig farmers of Aizawl district of Mizoram, India. *Livestock Research for Rural Development*, 19(5): 2-10.

Sunil G 2001. *A Study of the Traditional Belief System in Dairy Husbandry Among Tribals of Attappady*. M.V.Sc. (Vety.). Thrissur: Kerala Agricultural University.

Paper received for publication on December 2012
Paper accepted for publication on May 2014