Adoption Level of Feeding Management Practices Among Goat Farmers in Semi- Arid Zone of Uttar Pradesh

Vijay Kumar[1]and B.P. Singh[2]

1. Scientist, Central Institute for Research on Goats, Makhdoom, Mathura, UP., 2. Pr. Scientist, Division of Extension Education, Indian Veterinary Research Institute, Izatnagar-243 122

Corresponding author e-mail: *drvijaykumar.ext@gmail.com*

ABSTRACT

Goat is the important livelihood source for landless and marginal farmers in many parts of the country. Uttar Pradesh has third highest goat population (10.52%) after Rajasthan and West Bengal. Goat contributes 24.54 percent of total livestock population of the Uttar Pradesh. Two districts (Firozabad and Mainpuri) on the basis of highest goat population were selected for the study. Four blocks of each district and from each block three villages were selected, purposively, on the basis of highest goat population. Further, ten respondents, having five or more goats, were selected randomly from each village to make a sample size of 240 respondents. Majority of goat farmers were partial adopters of feeding management practices followed by high adopters and low adopters. Average adoption indexes were 65.7, 57.1, 65 and 60.91 for landless, marginal, small & semi medium and overall categories of farmers, respectively. The marginal farmers had significantly lower level of adoption than that of others. Level of adoption and land holding categories of goat farmers were found significantly associated and the direction and strength of association was positive and weak. The education level of goat farmers had positive and significant correlation with adoption index of feeding management practices. Flock size and age of farmers contributes negatively to the adoption whereas land holding contributes positively.

Key words: Adoption, Goat, Feeding management

Livestock sector constitutes an important component of agricultural economy of developing countries, a contribution that goes beyond direct food production and includes multipurpose products and uses, such as skin, feather, fiber, manure for fertilizer and fuel, power and transportation, as well as means of capital accumulation and a barter product in societies where there is no circulation of currency (*Satyanarayan and Jagadeeswary, 2010*). Uttar Pradesh has third highest goat population (10.47%) in the country after Rajasthan (15.3%) and West Bengal (10.72%).Goat contributes 24.54 percent of total livestock population of Uttar Pradesh (*Livestock Census, 2007*). Productivity of Indian goats is comparatively lower than many other developing countries. Average meat yield from a goat in India is only 10kg against about 20kg in Sri Lanka and 17kg in Pakistan (*FAO, 2013*). Knowledge of livestock farmer about various husbandry practices such as breeding, feeding and managements of animals, determines largely the success or failure of a livestock enterprise. At the same time, adoption behavior of livestock farmers depends on knowledge, economic motivation, family education status, extension agency contact, social participation and income (*Kumar et al., 2014*). Feed quality and quantity depend on age, sex, body size and physiological conditions like pregnancy, lactation etc. Water quality and quantity also play important role in feeding management.

METHODOLOGY

For the present study two districts of the Semi-Arid Zone of Uttar Pradesh i.e., Firozabad and Mainpuri were selected on the basis of highest goat population. Further, four blocks of each district were selected on the basis of highest goat population and from each block three villages were selected considering highest goat population. Further, ten respondents, owning five or more goats, were selected from each village randomly to make the sample size of 240 respondents i.e. 120 respondents from each district.

All the goat farmers were classified into three categories on the basis of land holding as landless, marginal farmers (owning <1 hectare of land) and small & semi-medium farmers (owning 1-4 hectare of land) who were 25.8 percent, 54.2 percent and 20 percent, respectively. For the study, ten important practices related to scientific feeding management practices were selected and their score were allotted 2 for regular adopter, 1 for partial adopter and 0 for non-adopter. The adoption index was calculated by following method:

$$\text{Adoption Index} = \frac{\text{Respondents' total score}}{\text{Total possible score}} \times 100$$

Depending upon the extent of adoption of improved technologies, the respondents were categorized into Low adopters (0-33.3%), Partial adopters (33.3-66.6%) and High adopters (66.6-100%). The Data were collected personally by semi structured interview schedule. Data were analyzed by appropriate statistical methods.

Multiple regression model for the adoption index was established with important variables. All the independent variables were taken into consideration but only three variables (flock size, age and land holding) were found suitable on the basis of R^2 value of different combinations.

$$\hat{Y} = b_0 + b_1(X_1) + b_2(X_2) + b_3(X_3)$$

$\hat{Y}$ = Farmers' Adoption Index of Feeding management practices

b_1, b_2 and b_3 are partial regression coefficients of X_1, X_2 and X_3 respectively.

X_1 = Flock size, X_2=Age of farmers and

X_3 =Land holding

RESULTS AND DISCUSSION

For the present study of adoption of feeding management, ten important practices viz. provision of dry matter (3-5% of animal) according to body weight, provision of green fodder round the year, provision of concentrate round the year, provision of green/dry fodder unchopped but hanged, provision of salt to ration, provision of mineral mixture to ration, provision of clean and fresh drinking water ad lib, provision of more concentrate during pregnancy and lactation, allowing animals for grazing at least 5-6 hours daily and allowing animals to graze in optimum climatic condition.

Table 1 shows that majority of respondents in all classes belonged to partial adopter category followed by high adopter and low adopter, respectively. Similar finding was reported by *Thombare et al. (2010)*. Further, *Lahoti & Chole (2010)* reported that majority of goat farmers do not provide extra ration to pregnant does as per required and they had low level of adoption of improved feeding practices. Average adoption indexes of feeding management practices were 65.7, 57.1, 65 and 60.9 for landless, marginal, small & semi medium and overall categories of farmers, respectively. The marginal farmers had significantly lower level of adoption than that of others. Mean adoption index of landless and small farmers do not differ significantly. It may be due to that landless farmers devote more time on grazing and other managemental practices whereas small farmers have more resources to feed animals. Chi square analysis between level of adoption and land holding categories show that they are associated. The Gamma value of the association shows that they are positively and weak associated. It means those goat farmers who had no land or less land were adopting comparatively less level of desired practices and vice versa.

Table 2 reveals that farming experience, family size and income from goats have negative and significant correlation with feeding management practices whereas, education has positive and significant correlation in overall category. Flock size has negative and significant correlation in marginal and small farmers where as positive correlation in landless farmers' categories. Feeding management is important factor for production.

Table 1. Distribution of respondents according to extent of adoption of feedingmanagement practices

Level of adoption	Landless (n=62)	Marginal (n=130)	Small & Semi medium (n=48)	Overall (N=240)	χ^2
Low adopter (<33.3)	-	5 (3.8)	-	5 (2.1)	22.64**
Partial Adopter (33.3-66.6)	36 (58.1)	100 (76.9)	24 (50)	160 (66.7)	G=0.032
High adopter (>66.6)	26 (41.9)	30 (19.2)	24 (50)	75 (31.2)	
Mean adoption Index	65.7a	57.1b	65a	60.91	

Figures in parentheses indicate percentage,   **p<0.01
Figures bear different superscript differ significantly at 5% level of significance

Table 2. Spearman's correlation coefficient of farmers' Adoption Index of Feeding management practices with selected variables

Independent Variables	Landless	Marginal	Small & Semi medium	Overall
Age	-0.084	-0.11	0.1	-0.113
Education	-0.303*	0.315**	0.17	0.128*
Caste	0.034	-0.006	-0.41*	-0.016
Farming Experience	-0.321*	-0.209**	0.369*	0.242**
Family Type	-0.168	0.29**	-0.068	0.106
Family Size	0.176	-0.372**	0.01	-0.187**
Family Edu. Status (FES)	-0.162	0.115	0.384	0.034
Flock size	0.153	-0.22**	-0.52**	-0.112
Annual Income	0.397**	-0.109	-0.34	0.122
Income from goats	0.072	-0.239**	-0.24	-0.14*

*$p<0.05$, **$p<0.01$

In marginal farmers' category education and family type have positive and significant correlation with feeding management practices whereas flock size and family size have negative and significant correlation. Farming experience has negative correlation in all categories of farmers except small & semi-medium. Experience is directly related with age and age has negative correlation in all categories of farmers except small & semi-medium. There is inconsistent evidence about the relationship of age and innovativeness of the farmers. About half of the many diffusion studies find no relationship, few found that earlier adopters are younger and some indicate that they are older (*Rogers, 2003*). *Satyanarayan and Jagadeeswary (2010)* found that

Table 3. Multiple regression of farmers' Adoption Index of Feeding management practices with selected Independent variables

Variables	Unstd. R^2		Std. R^2	t	Sig.
	β	Std. Error	β		
(Constant)	73.18	3.29	-	22.28	0.00
Flock size	-0.30	0.07	-0.261	-4.25**	0.00
Age	-0.22	0.07	-0.198	-3.24**	0.001
Land	0.27	0.14	0.123	1.99*	0.047

$R^2 = 0.53$, *$p<0.05$, **$p<0.01$

adoption of improved sheep and goat management practices are positively and significantly correlated with family type, social participation and flock size.

Table 3 shows that age of goat farmers and their flock size contribute negatively to the feeding management whereas land holding contributes positively. It may be concluded that farmers having more age and large flock size do not able to feed properly to their goats.

CONCLUSION

Majority of respondents belonged to partial adopter category followed by low and high adopter categories, respectively. The small & semi medium farmers had significantly higher level of adoption than that of others. It can be recommended that besides the awareness among the farmers, they should also be provided proper training in scientific goat husbandry. Further, NGOs should come forward along with public sector to popularize the scientific goat management so as to increase the adoption of recommended goat husbandry technologies.

REFERENCES

F.A.O. (2013). FAOSTAT. Food and Agriculture Organization of the United Nations.

Kumar, R., Singh, B.P., Kumar, V., Kumar, S and Maousami. (2014). Adoption of health technologies among goat farmers in different agro-climatic zones of Bihar. *J. of Applied Animal Res.*, DOI: 10.1080/09712119.2014.888002.

Lahoti, S.R. and Chole, R.R. (2010). Adoption of feeding practices by goat keepers. *Indian J. Animal Res.* **44** (1): 52-54.

Livestock Census (2007). Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture. Govt. of India.

Rogers, Everett M. (2003). Diffusion of Innovations. Fifth edition, Free press, New York, pp 288.

Satyanarayan, K. and Jagadeeswar, V. (2010). A study on knowledge and adoption behavior of livestock farmers. *Indian J. Animal Res.,* **44** (2): 100-106.

Thombre, B.M, Suradkar, D.D. and Mande, J.V. (2010). Adoption of improved goat rearing practices in Osmanabad district. *Indian J. Animal Res.,* **44** (4): 260-264.

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