

## Adoption Behaviour of Farmers Towards Housing and General Management Practices for Goat Rearing

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### ABSTRACT

Goats play a major role in the livelihood of vulnerable section of the rural society in India. In the present study a total of 240 goat farmers (having five or more goats) of 24 village of two districts (Firozabad and Mainpuri) of the semi-arid zone of Uttar Pradesh state were interviewed. Respondents were categorized into landless (25.8%), marginal (54.2%) and small & semi-medium (20%) on the basis of landholding. Majority of goat farmers of all categories were partial adopters of housing and general management practices followed by high adopters and low adopters. Average adoption indexes of the practices were 63.6, 60.8, 66.19 and 62.62 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. The education level of goat farmers had positive and significant contribution in adoption of these practices whereas flock size and age of farmers contributes negatively.

**Key words:** Adoption; Goat; Housing; General management;

Goats make significant contribution to Indian economy and also associated with socio-cultural fabric of millions of rural poor (Kumar & Pant, 2003). It is an invaluable source of meat, milk, hide & fiber and manure. Social relevance of goats lie in the fact that most vulnerable section of society, including women & children, are involved in goat farming. There are 135.17 million goats (Livestock Census, 2012) in the country. The goat is found under a wide range of climatic conditions. Goats have special attributes like ability to graze and utilize a wide range of poor quality forages and browse; short generation intervals and high reproductive rates; high turnover rates on investment high energetic efficiency of milk production and flocking instinct which makes herding by younger and older members of the family possible (Lebbie, 2004). Uttar Pradesh has second highest goat population (11.53%) in the country after Rajasthan (16.03%) (Livestock Census, 2012). Average meat yield from a goat in India is 14kg (BAHFS, 2013) against about 20kg in Sri Lanka and 17kg in Pakistan (FAO, 2013) mainly because of

under feeding and faulty management practices. Knowledge and adoption of housing and general management practices determines their success or failure of goat farming. The basic requirement of good animal housing is that it should alter or modify the environment for the benefit of animals and also protect them from predation and theft. Animal housing should buffer the animal from climate extremes to reduce stress allowing optimal animal performance in terms of growth, health and reproduction. The main climatic factors from which protection is needed are high and low ambient temperatures, environmental humidity, solar radiation, wind and rain. Additionally, houses are important in protecting feed and equipment from damage, in saving labor, and in aiding effective management, including breeding. Sheep and goat housing should meet animal requirements and serve a producer's needs at the lowest possible cost (ESGPIP, 2009). To successfully transfer the goat husbandry technologies, it is necessary to take stock of the felt factors restraining in the adoption of scientific goat

farming (Mohan, et al., 2009). For the present study ten important housing and general management practices were taken into consideration.

**METHODOLOGY**

Present study was conducted in two districts of 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 and from each block three villages were selected considering highest goat population. Ten respondents, owning five or more goats, were selected from each village randomly to make the sample size 240 respondents. All the goat farmers were classified into three categories on the basis of land holding as landless (25.8%), marginal farmers (54.2%) and small & semi-medium farmers and (20%). For the study, ten important housing and general 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 administrating semi structured interview schedule developed for the study. Data were analyzed by appropriate statistical methods.

Multiple regression model (linear) for the adoption index was established with important variables. Only three variables (education, flock size and age of goat farmers) were found suitable on the basis of R<sup>2</sup> value of different combinations.

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

Where,

$\hat{y}$  =Farmers' Adoption Index of Housing and general management practices

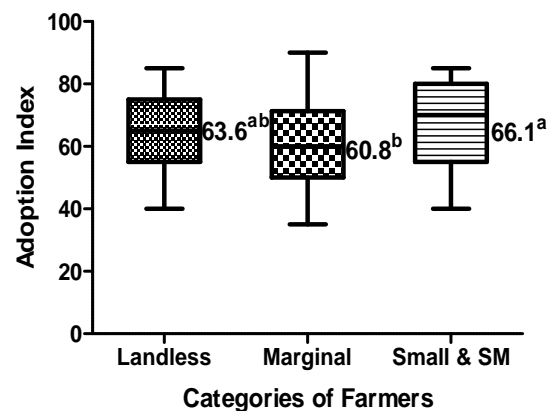
$b_1, b_2$  and  $b_3$  are partial regression coefficients of  $X_1, X_2$  and  $X_3$ , respectively.

$X_1$  =Education,  $X_2$  = Flock size and  $X_3$  = Age of farmers

**RESULTS AND DISCUSSION**

Animal housing should buffer the animal from climate extremes to reduce stress allowing optimal animal performance in terms of growth, health and

reproduction. Hence, it was important to observe various activities carried out in farm and utilize them for further improvement of the flock (Ramachandran et al., 2009). For the study, package of practices under housing and general management were studied as animal shelter different from farmers residence, housing management according to season, provision of proper floor space for animals, provision of proper lighting and ventilation facilities in shelter, types of roof, using proper identification method, provision of feeding arrangement as per need, regular cleaning of padlock, regular hoof trimming of animals, lime dropping and soil replacement on regular basis.



**Fig. 1. Adoption level of Housing and General management practices**

Majority of respondents in all categories of farmers were partial adopters followed by high adopters. There was no any respondent in any category of farmers has low adoption level of general and housing management practices. Average adoption indexes of these management practices were 63.6, 60.8, 66.19 and 62.62 for landless, marginal, small & semi medium and overall categories of farmers, respectively. The small & semi medium farmers had significantly higher level of adoption than that of others (Fig.1). Variation in range was found highest in marginal farmers as indicated in Fig.1. It also depicts that majority of goat farmers in small & semi-medium category had adoption index below the average. Farmers had highest and lowest adoption index were felt under marginal category. There was significant association between level of adoption of these practices and land holding categories as found by Chi square analysis. This finding was found similar to the finding of Rashmi (2010) and contrary to the findings of Lahoti and Chole (2010)

**Table 1. Spearman's correlation coefficient of farmers' Adoption Index of general and housing management practices with selected variables**

| Independent Variables | Landless farmers | Marginal farmers | Small & Semi medium farmers | Overall  |
|-----------------------|------------------|------------------|-----------------------------|----------|
| Age                   | -0.84            | -0.151           | 0.204                       | -0.117   |
| Education             | -0.04            | 0.153            | -0.036                      | 0.095    |
| Caste categories      | -0.069           | 0.066            | -0.421*                     | -0.011   |
| Farming Exp.          | -0.443**         | -0.118           | 0.739**                     | -0.194** |
| Family Type           | -0.168           | 0.104            | 0.242                       | 0.03     |
| Family Size           | 0.176            | -0.194*          | -0.25                       | -0.107   |
| Family Edu. Status    | -0.162           | 0.187*           | 0.373                       | 0.089    |
| Flock size            | 0.377**          | -0.207*          | -0.236                      | -0.063   |
| Annual Income         | 0.604**          | -0.178*          | -0.38                       | 0.099    |

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

**Table 2. Multiple regression of farmers' Adoption Index of general and housing management practices with selected Independent variables**

|                | Unstandardized Coefficients |      | Standardized Coefficients | “t”    | Sig.  |
|----------------|-----------------------------|------|---------------------------|--------|-------|
|                | B                           | SE   | $\beta$                   |        |       |
| (Constant)     | 67.58                       | 3.77 | -                         | 17.92  | 0.00  |
| Education      | 1.42                        | 0.68 | 0.14                      | 2.07*  | 0.039 |
| Flock size     | -0.14                       | 0.07 | -0.14                     | -2.18* | 0.03  |
| Age of farmers | -0.14                       | 0.06 | -0.14                     | -2.13* | 0.034 |

$R^2 = 0.46$ , \* $p < 0.05$

where they reported that majority of the respondents (62%) had low level of adoption, while 25 percent and 13 percent had medium and high level of adoption of improved goat management practices, respectively. *Jana et al., (2014)* reported that majority of goat keepers (45.33%) reared goat by constructing a separate shed for goat and 38.00 per cent respondents housed the goats with other animals like cattle and sheep whereas 16.67 per cent respondents kept the goats in night by sharing their own premises.

Table 1 reveals that age had negative but non-significant correlation with the adoption of these practices in landless, marginal and overall categories of farmers whereas positive correlation in small & semi-medium category of farmers. Similar trend was found for farming experience variable. Farming experience had negative correlation ( $p < 0.01$ ) with housing and general management practices in landless and overall categories whereas positive correlation ( $p < 0.01$ ) in small & semi-medium farmers' categories. Housing is input based practices and required land and money to construct and other practices required money to perform. In

landless farmers' category, flock size and income have positive and significant correlation with general management practices. It might be due that majority of landless farmers had goat farming as main source of income.

Multiple regression of farmers' adoption index of general and housing management practices shows that the age of goat farmers and their flock size contribute negatively whereas education of goat farmers contributes positively (Table 2). It may be concluded that farmers having more age and large flock size do not able to manage properly their goats.

## CONCLUSION

Goat is important source of livelihood for millions of people in India. Productivity of goats mainly depends on adoption of improved technologies and better management. Education and age of farmers play important role in adoption of technologies. So, training organizations and policy makers should take appropriate action to train youth and motivate them to adopt improved technologies.

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