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Perceived constraints and suggestions in adoption of goat husbandry technologies: A study in semi-arid zone of Uttar Pradesh

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ABSTRACT

Present study was conducted in semi-arid zone of Uttar Pradesh under Mainpuri and Firozabad districts among 240 goat farmers and 30 experts to study the constraints restrict the adoption of improved technologies leading to productivity losses of animals. Availability of input was considered as one of the most important constraints. Poor veterinary infrastructure and services, availability of quality buck, poor extension activity were the most serious input constraint. High cost of veterinary service, shrinkage of grazing land and lack of credit facility were the most important economical constraints. Poor knowledge about improved technology, lower literacy rate and ignorance among farmers were most important socio-personal constraints. All the experts suggested to increase the number of veterinary hospital and number of veterinary staff to provide better health service. Majority of experts suggested the provision of quality buck at village level, increasing extension staff in line department, use of mobile phone SMS service, timely availability of vaccine in veterinary hospitals, increasing number of training by the institution, protecting the common property of village for grazing and sensitizing bank staff to provide loan to poor goat farmers.

Key words: Constraints, Goat husbandry technologies, Goat rearing

India with 154 million goats is one of the largest goats owing country in the world and playing a significant role in livelihood and nutritional security as well providing supplementary income to nearly five lakhs remote villages (CIRG 2013). The goat is found under a wide range of climatic conditions (Devendra and McLeroy 1982). Uttar Pradesh has third highest goat population (10.47%) in the country after Rajasthan (15.3%) and West Bengal (10.72%). Goat are 24.54% of total livestock population of the states (Livestock Census 2007). Productivity of Indian goats is comparatively lower than many other developing countries. Average meat yield of a goat in India is only 10 kg against about 20 kg in Sri Lanka and 17 kg in Pakistan (FAO 2013) mainly because of under feeding and faulty management practices (Singhal 1999). 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). Constraints in present study referred to all those factors which may be social- personal, institutional & input and economical that singly or in conjugation with each other hinders or restricts the adoption of improved goat technologies by the respondents. Arid and Semi arid northern region of country is characterized by tropical and sub tropical climate with low to moderate rainfall with recurring drought. Goats are mostly reared by small and marginal farmers belonging to schedule caste, tribe and backward communities. Education level of goat keepers is low and mostly illiterate. Most of goat keepers live in nuclear family, reared goats on range grazing and women also involved in various husbandry practices (Singh and Rai 2006).

MATERIALS AND METHODS

For the present study Firozabad and Mainpuri districts of the zone were selected on the basis of highest goat population. Further, 4 blocks of each district and from each block 3 villages were selected considering highest goat population. Further, 10 respondents, owning 5 or more goats, were selected from each village randomly to make the sample size 240 respondents i.e. 120 respondents from each districts. On the basis of available literature, survey of the localities and discussion with different groups of officials, an exhaustive list of constraints in adoption of improved goat technologies were prepared. The semi-structured interview schedule containing possible statements of constraints were administered to the respondents. The identified constraints were administered on a 3 point continuum as most serious constraint, less serious constraint and not a constraint with a score of 2, 1 and 0, respectively. The scores for each constraint were

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added and mean was calculated. The constraints were ranked on the basis of mean score.Suggestions to overcome these constraints were given by chief veterinary officer, veterinary officers, bank officers, NABARD officers, KVK staffs and project coordinator, scientists from Central Institute of Research on Goats (CIRG) etc (sample size 30). The Data were collected personally by administrating semi structured interview schedule developed for the study. Data were analyzed by appropriate statistical methods.

RESULTS AND DISCUSSION

All the constraints perceived by the farmers were grouped under three heads: Institutional and Input (Product, Technology and Service), Economical and Social-personal constraints.

Institutional and input constraints

Availability of input was considered as one of the important factors to influence the rate of adoption of technology. Data (Table 1) revealed that poor veterinary infrastructure and services was most serious institutional constraint followed by poor availability of quality buck as perceived by goat farmers. Similar findings were reported by Gujar and Pathodiya (2008) and Kumar and Singh (2006). Due to non availability of quality buck, farmers were forced to conceive their goats by local non- descript bucks available in the villages. Poor extension activity was reported third most serious input constraint. Unavailability of vaccine and poor market facilities were fourth and fifth institutional and input constraints, respectively as perceived by goat farmers. Kumar (2007) revealed in study conducted in Rajasthan that 58% of farmers' perceived lack of transparency in trading in weekly markets as major constraint. Input availability was the most important influencing factor responsible for the use of improved technologies (Chilot*et al*. 1996) and it had positive and significant influence on adoption decisions of farmers (Berhanu 2002). Sagar and Ojha (1998) reported that higher adoption of goat production technology was dependent upon the time of organization of health camps for treatment of sick goats, vaccination against contagious diseases and availability of veterinary doctor in time, supply of saplings of fodder trees, training in goat rearing, health and other aspects, provision of remunerative price for goats, easy availability of credit and arrangement of breeding at lower price are in line with the findings of the present study. Mohan *et al*. (2009) reported that non-availability of vaccination facility against contagious diseases (13.74%), lack of money (31.33%) and lack of veterinary services in the adopted villages (49.62%), non-availability of improved breeding bucks (41.98%) were important restraints felt by the goat farmers in the adoption of scientific goat farming in Mathura district of same zone.

Economical constraints

Data reveal that Shrinkage of grazing land was the most important economic constraints in the study area. High cost of veterinary service was the second important constraint faced by farmers in the study area. Gujar and Pathodiya (2008) reported that lack of grazing area was one of the major constraints perceived by the goat rearers and the severity of the constraints can be judged from the fact that most of the pastures and other barren land had been put under afforestation restricting the grazing of animals. Various developmental programmes in the villages have lead to ignore the importance of free grazing areamost serious constraint in West Bengal. Lack of credit facility was third constraint faced by the goat farmers. Kumar (2012) reported that economic constraints such as high cost of medicine, high charge levied by veterinary staff, lack of quality breed, lack of awareness about economic losses associated with diseases, small flock size were the constraints ranked as first, second, third, fourth, fifth and sixth, respectively by goat farmers in Bihar.

Socio -personal constraints

Poor knowledge about improved technology was the most important constraint (Table 1). Similar finding was reported by Mohan *et al.* (2009) in Mathura district of same zone. Lower literacy rate and ignorance among farmers were found second and third important social and personal constraint, respectively. Social taboos prevalent in the

Table 1. Constraints perceived by goat farmers in adoption of improved technologies

Sub-head	Constraints	Mean score	Rank under sub-head	Overall rank
Institutional and input	Poor veterinary infrastructure and services	1.33	1	1
	Poor extension service	1.05	3	6
	Poor availability of quality buck	1.20	2	4
	Unavailability of vaccine	0.95	4	7
	Poor market facilities	0.75	5	11
Socio -personal	Poor knowledge about improved technology	1.28	1	2
	Ignorance	0.83	3	9
	Low literacy rate	1.10	2	5
	Social taboos	0.73	4	7
Economical	High cost of veterinary service	1.20	2	4
	High cost of medicine	0.80	4	10
	Shrinkage of grazing land	1.23	1	3
	Lack of credit and insurance facility	0.93	3	8

society were found fourth constraints. Suresh *et al.* (2008) reported that low literacy rate of farmers, impaired access to extension facility and low prestige associated with sheep rearing were the important social constraints in semi-arid region of Rajasthan.

Suggestions

These suggestions given by experts to overcome the constraints are presented under following heads as suggestions for: Institutional and input constraints, Socio-personal constraints and Economical constraints.

Suggestions for institutional and input constraints: Poor veterinary infrastructure and service was the most important constraint faced by farmers. There were 6 different suggestions given by experts. All the respondents suggested to increase the number of veterinary hospital and increase number of veterinary staff to provide better service. Sixty percent respondents suggested to increase the number of paravet in the field. Kumar (2012) reported that cent percent of the farmers wanted the door step availability of health care facility and regular vaccination camp. Around half of the total respondents suggested to equipped hospital with latest tools and technologies. Fourty percent respondents suggested to sensitize veterinary staff to treat small ruminants. Barua *et al*. (2006) suggested that there should be establishment of veterinary call centers, information technology in villages at strategic locations throughout the country to provide online decision support to the livestock owners by providing a sample interactive tool for quick identification and management of livestock diseases. They also suggested for a strong network of veterinary services much more integrated, dedicated and holistic approach for the overall development of the rural economy. Chander and Rathod (2013) suggested that state animal husbandry department should pay adequate attention and streamline their livestock extension education role by ensuring programmes, sufficient funds, infrastructure, and human resources development initiatives to train the manpower and deliver extension services to the farmers effectively. Availability of quality buck was found second most important constraint. Eighty percent of respondents suggested the provision of quality buck at village level by village panchyat so that farmers could get easy service and 60% respondents suggested that farmers should encourage to keep quality buck so that they would not be dependent on others. Some of respondents also suggested to initiate artificial insemation in goats to upgrade the non-descript goat.Majority of respondent suggested to increase extension staff in line department (73.3%) followed by use of mobile phone SMS service (63.3%) and to increase staff in KVK by 56.6% . Some of respondents also suggested to promote non-governmental originations (NGOs) and formulation of Self Help Groups (SHGs) for promoting scientific goat practices. Chilot*et al*. (1996) concluded that the effectiveness of extension services and other communication media were the most important influencing

Table 2. Distribution of respondents according to their suggestions for improving institutional and input constraints

Institutional and input constraints	Suggestions	Response (N=30)	%
Poor veterinary infrastructure and services	Increase number of veterinary hospital	30	100
	Increase number of veterinary staff	30	100
	Increase number of paravet	18	60
	Equipped hospital properly	16	53.3
	Sensitise veterinary staff to treat small ruminants	12	40
	Establish separate wing in Animal Husbandry Department for small ruminants	5	16.6
Poor availability of quality buck	Provision of quality buck at village level by village panchyat	24	80
	Artificial insemination should be initiated	10	33.3
	Farmers should encourage to keep quality buck	18	60
Poor extension service	Increase extension staff in line department	22	73.3
	Increase staff in KVK	17	56.6
	NGO should be encouraged to promote goat husbandry	11	36.6
	Formulation of SHGs towards promoting scientific goat husbandry	5	16.6
	Using Mobile phone Based extension service	19	63.3
Unavailability of vaccine	Timely availability of vaccine in hospital	30	100
	Encourage veterinary dispensary to keep vaccine	12	40
	Aware farmers about importance of vaccine	24	80
Poor market facilities	Strengthening existing animal market	23	76.6
	Developing new marketing channel	21	70
	Discourage middle man in market	22	73.3
	Regularise goat markets under the APMC Act	2	6.6

Table 3. Distribution of respondents according to their suggestions for improving socio-personal constraints

Socio –personal constraints	Suggestions	Response (N=30)	%
Poor knowledge about improved technology	Effective extension approaches for efficient dissemination of technology	19	63.3
	Number of training should be increased by institution	21	70
	Train educated unemployed youth	17	56.6
	Effective use of mass media	15	50
	Exhibition of technology	12	40
Low literacy rate	Facility of adult education	7	12.3
	Encouragement adult education	9	30
	Improvement in quantity and quality in school education	21	70
Ignorance	Aware farmers about losses due to ignorance	24	80
	Link farmers to SHGs	5	16.6
	Development of special programme on scientific/ improved goat farming	4	13.3
Social taboos	Create awareness	23	76.6
	Commercialization of goat farming	4	13.3

Table 4. Distribution of respondents according to their suggestions for removing economical constraints

Economical constraints	Suggestions	Response (N=30)	%
High cost of veterinary service	Increase number of veterinary hospital	22	73.3
	Increase number of veterinary staff	21	70
	Increase number of paravet	12	40
	Sensitised veterinary staff to treat small ruminants	15	50
Shrinkage of grazing land	Efficient utilization of pastures and grazing lands	14	46.6
	Protect the common property of village	26	86.6
	Using unconventional feed	8	26.6
Lack of credit and insurance facility	Financial literacy campaign	17	56.6
	Sensitized bank staff	19	63.3
	Target must be achieved by bank	12	40
	Promote SHGs	11	36.6
High cost of veterinary medicine	Use of generic medicine	5	16.6
	Use of ITK on herbal drugs	8	26.6
	Increase the efficiency of veterinary drugs marketing channels	17	56.6

factors in the use of improved technologies. Unavailability of vaccine was found to be fourth constraint under the head. There were three suggestions received from respondents. All the experts suggested for timely availability of vaccine in veterinary hospital followed by suggestion of creating awareness about importance of vaccine among farmers. Forty percent respondents suggested to encourage veterinary dispensary to keep vaccine. A poor market facility was found fifth and last important constraint under the head. There were four suggestions obtained in this regard. Majority of respondents suggested for strengthening existing animal market (76.6%) followed by suggestion of discouraging middlemen in market (73.3%) and developing new marketing channel (70%). Sawal and Yadav (2006) reported that the middlemen engaged in animal market earn to the tune of 20% from sale of animals in the city. Some of respondents (6.6%) also suggested to regularize goat markets under the Agriculture Product Market Committee (APMC) Act.

Suggestions given for Socio-personal constraints: High cost of veterinary service was found most important constraint under the head. Four suggestions came up to overcome the constraint. More than 70% of respondents suggested to increase the number of veterinary hospital and number of veterinary staff to give better service. Forty% of respondents suggested to increase the number of paravet in the field. Fifty% of respondents suggested to sensitize veterinary staff to treat small ruminants. Shrinkage of grazing land was found second important constraint under the head. About 86% of respondents suggested to protect the common property of village for grazing and 46.6% respondents also suggested for efficient utilization of

pastures and grazing lands to overcome the constraint. Kumar and Upadhyay (2006) suggested that farmers with small flock should be organized at least in grazing and marketing of goats, so as to minimize labour cost and earn remunerative price. Using unconventional feed for goats was suggested by 26.6 per cent experts. Meena and Mann (2006) suggested that the improvement in nutritional status of livestock especially sheep and goats was possible through improvement of common grassland, establishment of pasture and silvi-pasture system and introduction of fodder trees to farmers field through agro-forestry and horti-pasture system. Lack of credit and insurance facility was found next important constraint in the study area. Four suggestions were received from respondents to overcome the constraint. Majority of respondents (63.3%) suggested to sensitize bank staff to provide loan to poor goat farmers. About 56% of respondents suggested for conducting financial literacy campaign and 40% of respondents suggested for target set by bank must be achieved. High cost of veterinary medicine found in the market was the least constraint. Majority of respondents (56.6) suggested to increase the efficiency of veterinary drugs marketing channels so that cost of drugs can be reduced. More than 26% of respondents suggested to use and promote validated ITK for disease treatment and about 16% of respondent suggested to use generic medicine in the treatment of animals. Kumar (2012) reported that 79.19% of farmers suggested that for improving the veterinary service the combination of traditional medication along with modern medication technology, strengthening of extension services and establishment of mobile health centre in the study area.

Suggestions given for socio-personal constraints

Poor knowledge about improved technology was found about most important constraint under the head. Five suggestions were drawn for this constraint. Majority of respondents suggested to increase number of training by the institution (70%) so that maximum farmers would be benefited. About 63 per cent of respondents suggested for effective extension approaches for efficient dissemination of technology and 40% of respondent suggested to arrange exhibition of technologies in villages. About half of total respondents suggested for trained educated unemployed youth (56.6%) and effective use of mass media (50%). There were 44.6% farmers who were illiterate in the study area and low literacy rate was found second important constraint. There were three suggestions to overcome this problem as suggested by the respondents. Majority of the respondents (70%) suggested for improving quantity and quality in school education. Some respondents (30%) suggested to encourage adult education so that adult people may have chance to learn. Ignorance was found third important constraint and three suggestions were obtained to overcome this constraint. Majority of respondents (80%) suggested to aware farmers about losses due to ignorance about goat husbandry. Some of respondent also suggested to link farmers to Self Help Groups (16.6%) and development of special programme on scientific/improved goat farming (13.3%). Social taboos were also found a constraint in the study area. Two suggestions were received to get rid of it. About 76 per cent respondents suggested to create awareness among farmers and 13.3% suggested for commercialization of goat farming.

Immediate improvement in veterinary and health delivery system is needed to benefit the goat farmers. Provision of quality buck at village level is needed to maintain the breed purity and better progeny. Marketing channel for goat trading should be improved. Effective use of mass media to create awareness and provision of training to increase knowledge and skill among farmers should be taken up. To start a new farm credit facility should be made easy and timely.

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