

Original Research Article

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Feeding and Healthcare Management Practices Adopted by Sheep Farmers in Karauli District of Eastern Rajasthan, India

Bacchu Singh^{1*}, G.S. Meena², K.C. Meena³ and Navab Singh⁴

¹Krishi Vigyan Kendra, Hindaun, Rajasthan, India

²Krishi Vigyan Kendra, Bundi, Rajasthan, India

³Krishi Vigyan Kendra, Swaimadhampur, Rajasthan, India

⁴Krishi Vigyan Kendra, Jhalawar, India

*Corresponding author

ABSTRACT

Sheep is an important source of livelihood for resource poor farmers in rural areas of semi-arid region of Rajasthan. Adoption of improved sheep management practices bears pivotal role to improve the livelihood in such marginalised environments. This study was carried out to assess the adoption of feeding and healthcare management practices by sheep farmers. A questionnaire survey was undertaken with 200 sheep farmers in 20 villages in Hindon and Nadoti blocks of District Karauli Rajasthan to obtain the first hand information on feeding and healthcare management practices followed by sheep farmers. The study revealed that animals were mostly grazing on community land/public range land for about 4-8 h in a day. The concentrate was offered to lactating ewes' only@150-200g/head/day. They were not supplemented with concentrate mixture during critical stages of growth and advance pregnancy. Results further indicated that the adoption of overall scientific feeding and vaccination programme were satisfactory but practices like to control ecto and endo-parasite, naval cord disinfection, feeding mineral mixture, green fodder and treatment of sick animals by veterinary officer were poor and needs to improve a lot.

Keywords

Feeding practices,
Healthcare
Practices, Sheep

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Introduction

The role of livestock is increasing in Indian economy. It contributed to nearly 16 per cent of total income from agriculture in 1970-71, which increased to over 25 per cent in 2002-03 (Meena and Singh 2013). This will continue to be so in the coming period due to various economic factors like increase in the population, urbanization and per capita income growth. The Animal Husbandry and

livestock sectors are critical for the rural economy, especially the small and marginal farmers. They not only contribute to their income but also their best insurance against any natural calamity. The role of livestock is much pronounced in the arid and semi-arid regions like Rajasthan, which is prone to drought and resultant crop failure. At the time of crop failure, livestock sector acts as a cushion on which the farmers can fall upon. As per Livestock Census 2012, Rajasthan had

13.3 million cattle, 12.9 million buffalo, 9.08 million sheep and 21.67 million goats. The indigenous breeds of cows reared in the district include Gir, Nagori and some local non-descript animals. Among buffaloes, Murrah, Murrah type, Bhadhavary and non-descript types are commonly found in the district.

The sheep is one of the major livestock contributing to the livelihood security of farmers in Rajasthan. They can thrive well in adverse climatic conditions using sparse vegetation. In sheep population, India had 3rd position in world followed by China and Australia and Rajasthan also had 3rd position in India followed by Andhra Pradesh and Karnataka. The major sheep breeds in Rajasthan are Chokla, Nali, Marwari, Magra, Jaisalmeri, Malpura, Sonadi and Pugal. The sheep population of the District is near about 60,000 and the breeds mainly found in the District are Malpura, Marwari, Chokla and non-descript. Sheep production is still in hands of socially and economically backward people of the society for whom they act as a store of wealth of high liquidity, a resource for meeting the household nutritional security and a source of regular income. Various improved sheep management technologies were developed at the Central Sheep and Wool Research Institute, Avikanagar, Rajasthan and state Veterinary Universities to cater the needs of sheep farmers.

They pertained to the broad areas of breed management, nutrition, healthcare, reproduction and product management. Adoption of improved management practices is expected to increase the income of farmers. Adoption is the mental process through which an individual passes from hearing about an innovation to final adoption (Rogers 1983). The District Karauli is famous for its geographical specialties and having full of natural beauty and covered by Vindhyan

and Aravali mountains. The information on feeding and healthcare management practices in respect of sheep District had not been documented. In this backdrop a systemic survey was undertaken to study the existing feeding and healthcare management practices followed by farmers for rearing of sheep under field conditions to document information and the resulting information will be useful for future policies for improvement of production potential of sheep.

Materials and Methods

The study was conducted in randomly selected 20 villages of Hindon and Nadoti blocks of Karauli District of eastern Rajasthan because it is the potential district for sheep production, availability of grazing area and vegetation for sheep production and having dense population of sheep. The study uses primary data collected from 200 sheep farmers belonging to 20 villages of above selected blocks. The respondents, village were selected purposively as they were selected on the basis of maximum number of Tribal, Special backward cast, scheduled cast and sheep population to be covered under the transfer of technology programme of Krishi Vigyan Kendra, Karauli. The information was received from respondents through questionnaires. The farmers were interviewed personally, group discussion and key informants survey were done to collect information on current status of feeding and healthcare management practices of sheep (Picture 1). Adoption of sheep production technologies by farmers was studied in the district. Information on grazing, feeding green fodder, concentrate, mineral mixture, watering and healthcare practices were collected through formal interviews using a structured questionnaire personally. On grazing practices information was collected on grazing land resources, type of grazing and grazing hours. The data were tabulated and percentage was calculated.

Results and Discussion

Information pertaining to feeding and healthcare management practices being followed by sheep-owners in Hindon and Nadoti blocks of Karauli District of Rajasthan has been discussed in following sub heads.

Feeding management practices

Different types of technologies were generated for sheep nutrition. Sheep are mainly grazers. They never eat grown up trees. During rainy season different types of grasses are available for the grazing. In winters flocks are grazed on stubbles of post harvested feeds and from March to June they are fed on different types of shrubs. Fodder trees are also important source during summer season when the crop lands or the common pastures are devoid of vegetation (Jat *et al.*, 2006). In the study area, sheep are reared on zero input system. Table 1 shows that 81% farmers adopted the extensive grazing system. These findings were in agreement with report of Kailash and Naruka (2015). Mostly community land resources were used for grazing (95%) and only 5% sheep breeders used their own lands. Similar finding were also observed by Tailor *et al.*, (2006) and Kailash and Naruka (2015). The sheep were sent for grazing early in the morning in summer and late in winters. In rainy season grazing out time was depended on weather conditions. The mostly farmers 79 % graze their animals 4 to 8 hrs and only 21 % farmers spent time for grazing less than 4 hrs. These findings were in accordance with (Yadav and Tailor, 2010; Rao *et al.*, 2013). In general grazing hours in winters was less than in summer probably due to the availability of good pasture in the nearby area after harvesting of crops as well as shorter day length (Behura *et al.*, 2009). Furthermore, the adoption of the feeding green fodder was only 27 %. Majority of sheep farmers did not fed green fodder to their animals (Table 1).

Supplementary feeding was not a general practice, only pregnant females and male lambs were fed with some dry fodder. Farmers reported that feeding concentrate to pregnant sheep 49 %. Rao *et al.*, (2013) observed that no respondents were providing pregnancy allowance and very few (4.55%) are following the practice of lamb feeding. Over 71% of sheep farmers prepared home grown concentrate for feeding to sheep which comprised of Barley, Maize and wheat as such or in the form of gruel plus some salt. Mineral mixture was not provided to sheep by 88% sheep farmers. Rao *et al.*, (2013) observed that no respondents were feeding mineral mixture to their animals. The reason for low adoption of mineral mixture feeding was lack of knowledge about its use. In this study the adoption of colostrum feeding practice was high (92%). It is in conformation with Meena and Singh (2013). Major watering sources for small ruminants in District were village ponds, river, bore wells, public tanks, others house hold water tanks. Access to drinking water for animals is however one of the major problem shepherds face during summer months (Misra *et al.*, 2007). According to Suresh *et al.*, (2008) hygienic drinking water sources were limited and the farmers depended on open sources or traveled long distance in search of water.

This is an alarming situation as the respondents are not aware of the important management practices. The Animal Husbandry Department, Extension agencies should strive hard to change the attitude of the farmers and make them to adopt the best management and nutrition practices. These practices directly reflect on the profits of the enterprise. Better adoption of management practices makes the farming viable and sustainable. It is recommended that sheep raising farmers, extension workers, researchers, non-government organizations and other stakeholders need to support to

disseminate the package of sheep production technologies to reach at the farmer's field. The demand of sheep meat is high in the urban areas with the increasing price therefore; sheep farming entrepreneurs need to be support by the stakeholders to transfer the available technologies up to the farmers' field level to boost up the farmers economy by raising sheep.

Healthcare Practices

Different types of healthcare management technologies were generated for the sheep production purpose. Diseases are the major source of economic loss to the sheep production. In intensive animal production system, diseases cause loss through mortality (Mathur and Dubey, 1994). About 15 to 20% of sheep die due to various diseases in India. Grazing on wet areas, overfeeding, sudden change in climate and unhygienic condition of houses are the main reasons for diseases. Since sheep always live in flock immediate attention is required to check the spread of contagious diseases. In the study area, most common diseases were enterotoxaemia, sheep pox, foot and mouth disease (FMD), pneumonia and parasitic diseases. Simple

health care measures viz. de-ticking and de-worming will dramatically improve the flock performance Rao *et al.*, (2013). The survey revealed that only 58% of farmers adopted the practice of vaccination. It was observed that the practice of vaccination was generally adopted at the time of migration of flock or if there was an outbreak in the nearby areas. In general, majority of farmers did not vaccinate the animals, although State Government Animal Health Department vaccinate free of cost/nominal cost, but breeders were generally not aware of it or showed no interest.

These observation agrees well with the finding of Pali Districts (Geerlings, 2001), whereas in Tonk District of Rajasthan, practice of vaccination was much higher than the present findings (Suresh *et al.*, 2008). Naruka and Kailash (2015) observed that only 36.11% of farmers adopted the practice of vaccination. Rao *et al.*, (2013) observed that 90% of the farmers' flocks are covered under vaccination programme. Higher adoption rate for vaccination could be the impact of extension programme undertaken by CSWRI, Avikanagar. This is suggestive of fairly high level of awareness in Farmers regarding protecting their animals by vaccination.

Picture.1 Healthcare management practices (De-worming in a Flock)



Table.1 Feeding management practices adopted by sheep farmers in Karauli District of eastern Rajasthan

(N =200)

S. No.	Particulars	Frequently	Percentage
1.	Grazing System		
	Extensive	162	81
	Semi Extensive	38	19
2.	Grazing Site		
	Own land	10	5
	Community land	190	95
3.	Grazing Duration		
	0-4 hours	42	21
	4-8 hours	158	79
4.	Green Fodder Feeding		
	Yes	54	27
	No	146	73
5.	Concentrate Feeding		
	A. For Kid		
	Yes	82	41
	No	118	59
	B. Special Feeding for lactating does		
	Yes	56	28
	No	144	72
	C. Special Feeding during Pregnancy		
	Yes	98	49
No	102	51	
6.	Type of Concentrate		
	Home Made	142	71
	Purchased	58	29
7.	Feeding of Mineral Mixture		
	Yes	24	12
	No	176	88
8.	Colostrum Feeding		
	Yes	184	92
	No	16	8

Table.2 Healthcare management practices adopted by sheep farmers in Karauli District of eastern Rajasthan

(N=200)

S. No.	Particulars	Frequently	Percentage
1.	Vaccination of animals		
	Yes	116	58
	No	84	42
2.	De-worming of animals		
	Regular	50	25
	Occasional	140	70
	Not Practiced	10	5
3.	Navel disinfection of Kid after birth followed		
	Yes	0	0
	No	200	200
4.	Practice to control ecto – parasites		
	Followed	80	40
	Not followed	120	60
5.	Sanitary condition of shelter/Standing place		
	Clean (Dry)	108	54
	Dirty (Wet)	92	46
6.	Treatment of sick animals		
	Use of local empirical knowledge	110	55
	Calling a quack	10	5
	Para veterinarian	50	25
	Veterinary doctor	30	15
7.	Use of Medicine		
	Home made	28	14
	By Doctor's Prescription	172	86

The most serious health problem of sheep was internal parasites. Helminthes are important endo-parasites of sheep. Several species of flat worms, tape worms and round worms are present in the digestive tract of sheep. It was observed that very few respondents 25% practiced de-worming to their animals at regular intervals. Whereas, 70 % farmers followed de-worming occasionally to control endo-parasites. Naruka and Kailash (2015) observed that 90.55% of farmers adopted the practice of de-worming. Rao *et al.*, (2013) observed that only 43.2 and 54.6% farmers are following de-ticking and de-worming. 100% de-worming was reported in Rajasthan

and Telangana region of Andhra Pradesh by Swarnkar and Singh (2010), Mehta *et al.*, (1995), Devendran *et al.*, (2010) and Rajanna *et al.*, (2013) respectively. Although regular de-worming is a good practice but overuse of drug can cause resistance. The low adoption for de-worming measures in study area may be due to lack of awareness. Ticks and lice are important ecto-parasites of small ruminants. Table 2 showed majority of sheep farmers (60%) did not follow any practice to control ecto- parasite however, some farmers adopted traditional practices- like smoke of neem leaves to prevent mosquitoes. This practice needs attention to create awareness in

sheep farmers covered under present study. Naruka and Kailash (2015) observed that 34.44% of farmers adopted the practice of control of ecto parasites. Rajanna *et al.*, (2013) and Mehta *et al.*, (1995) observed higher adoption (91.84%). Ticks do not cause skin disease but are responsible for transmission of a few protozoans, bacterial and viral infection (Miranpuri and Singh, 1978). It was observed that none of the respondents followed practice of ligation and navel disinfection of kid after birth. It was left to fall off itself naturally. The similar findings were reported by Meena and Singh (2013). The survey revealed that only 40% of farmers adopted the clean dry shelter for sanitary practice of sheep housing.

It was also observed that majority of farmers (55%) used local empirical knowledge in treatment their sick animals in their flocks. The 25% of sheep keepers preferred para-veterinarians for treatment of sick animals as they are locally available. Only 20% of the respondents acquired the services of a qualified veterinarian for treatment. Whereas, 5% respondents acquired the services of quacks. This may be due to the non-availability of a qualified veterinarian. Rao *et al.*, (2013) observed that 85% farmers approach veterinary doctor or a para-veterinarians only occasionally. Most of the sheep farmers of the study area used local therapy for the treatment to their sheep.

These findings were in accordance with earlier reports of Swarnkar and Singh (2010). It was also observed that 14% breeders used homemade medicines for the treatment of their animals. Similar findings were observed by Naruka and Kailash (2015). Practice of some indigenous traditional knowledge for treatment of sheep was also reported by Behura *et al.*, (2009). Sometimes these medicines cause serious problems due to higher dose and adverse effects.

Our study indicated that adoption of overall scientific practices was quite satisfactory. Adoption of regular vaccination against Bluetongue and FMD was good but very poor in other healthcare management practices like regular de-worming. Hence, these practices need to be improved to a great extent in this area. Lack of awareness and accessibility of veterinary service providers are the primary reasons. There is a dire need to strengthen the Animal Husbandry service sector through providing gross root level workers as most of the farmers are poor and cannot hire services of veterinarians. However, slow and concerted efforts must be made to stimulate affordable farmers to make use of paid veterinary clinics for efficient and timely service.

It is concluded that the extent of adoption of feeding and health care management practices followed by sheep farmers quite satisfactory. Adoption of overall scientific feeding practices and vaccination programme was good but practices like measures to control ecto and endo-parasite, navel cord disinfections, mineral mixture feeding and concentrate mixture feeding to kids and pregnant does was poor and needs to improve a lot. Hence, these practices need to be improved to a greater extent in this tribal area. Further, the results indicate need of extension activities for spreading improved management practices, institutional intervention for conservation of the common grazing land and improving the veterinary services to enhance the productivity of goats.

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