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Effect of selected management interventions on growth and production performance of goats in tribal areas of Rajasthan

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Abstract

The aim of present study was to assess the feed intake and feeding management practices of tribal farmers in Rajasthan. A total of 120 tribal goat farmers were selected from 12 villages from 6 blocks in 3 tribal dominated districts viz., Banswara, Dungarpur and Udaipur. Ten farmers from each village were selected purposively based on the number of goats. The selected goat farmers were grouped into three categories based on flock size as small (<25 goats, N= 60), medium (26-50 goats, N = 36) and large (>50 goats, N = 24). The data on feed intake and feeding management practices were recorded on-field. A half of goat farmers (51.57%) were adopting partial grazing followed by complete grazing (48.33%) and none of the selected farmers was practicing complete stall feeding. About two-thirds of farmer (75%) sent their goats for grazing for more than 5 hours daily and the remaining 25 percent farmer sent their animals for grazing for less than 5 hours. The proportion of goat farmers who sent their animals for more than 5 hours was 76.67, 66.67 and 83.33 percent among small, medium and large farmers respectively. Most of goat farmers (77.5%) were feeding colostrum after the birth of the kids whereas some of the farmers (22.5%) were not feeding colostrums at all to kids at all due to the myth of spread of diseases. About a half of the farmers (49.17%) offered grasses, fodders (berseem, lucerne, bajra, jowar and oats) followed by 34.16 percent goat farmers feeding tree leaves (ber, neem, babool, khejri) and 16.67 percent farmers were feeding weeds and grass (stylo, cenchrus spp., crop weeds) and about the same number of farmers (16.66%) in small, medium and large flock size practiced feeding weeds and grass (stylo, cenchrus spp., crop weeds). It was observed that overall average amount of green fodder offered to milking goats, dry goats, goatlings, kids and breeding buck was 1.33 ± 0.07 , 0.85 ± 0.07 , 0.45 ± 0.03 , 0.37 ± 0.02 and 1.71 ± 0.10 kg/day respectively. The average amount of green fodder offered daily was significantly ($p<0.05$) higher in case of small farmers as compared to medium and large goat farmers in case of milking as well as dry goats and significantly higher in case of breeding bucks in case of large farmers as compared to other categories of farmers. The overall available dry fodders fed to milking goats, dry goats, goatlings, kids and breeding buck was 0.95 ± 0.67 , 0.93 ± 0.07 , 0.87 ± 0.06 , 0.37 ± 0.02 and 1.72 ± 0.11 kg/day respectively. Being significantly ($p<0.05$) higher in small farmers followed by medium and large goat farmers. Overall average amount of concentrate mixture offered to milking/pregnant goats, dry goats, goatlings, kids and breeding buck was 210.09 ± 14.26 , 85.37 ± 6.84 , 86.76 ± 5.83 , 85.65 ± 5.86 and 246.11 ± 16.89 g/day respectively. Being significantly ($p<0.05$) higher in small farmers followed by medium and large farmers among milking goats and breeding bucks. A sizable majority of farmers (56%) were offering fattening ration to their male kids for their higher body weight gain so that they attain early market weight and on an overall average 255.79 ± 7923.12 g of concentrate mixture per buck/day was fed as fattening ration. The overall total DM intake through stall feeding in case of milking goats, dry, goatlings, kids and breeding bucks was 1.16, 0.90, 1.01, 0.52 and 1.38 kg respectively. The total DM intake in different categories of goats was similar among the three flock size categories. It was concluded that feeding management practices were mostly traditional without much regard to scientific recommendations. However, these management practices in general were better in case of small farmers as compared to medium and large farmers.

Keywords: Management, growth, production, tribal farmers and goat farming

Introduction

Goats are the world's oldest and among the first ruminants to be domesticated by human beings in South-Western Asia (Iran and Iraq) between 10000 and 6000 years BC. Around 80 percent of global goat population is in the developing countries. Among them, India ranks second in the world population of goat. With the present population of 135.2 million, goats account for more than 25 percent of the total livestock in the country and contribute Rs 106335 million annually to the national economy (19th Livestock Census, 2012) [6].

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They provide food and nutritional security to the millions of marginal and small farmers and agricultural labourers by providing animal protein through meat and milk. There are about 34 well defined and recognized breeds of goats in India (NBAGR, 2018). Goats are among the main meat-producing animals in India, whose meat (chevon) is one of the choicest meat having huge domestic demand. Besides meat, goats, a multi functional/purpose animal which provide other products like milk, skin, fibre and manure. Goat contributed 5.05 million tonnes of milk (3.67% of total milk production of 137.685 million tons) and 0.97 million tonnes of meat (15.56% of total production) during the year 2013-2014 (BAHS, 2015).

In India, Rajasthan is ranked first in goat population with a population of 21.66 millions, (37.53%) of total livestock population in the state. Sirohi goat is the most preferred goat breed over other breeds in Rajasthan (Marwari and Jhakhrana). Goats are the backbone of rural economy particularly, in the arid, semi-arid and mountainous regions of Rajasthan. Goat farming is a suitable option for revenue generation for the small scale farmers and tribal people as it require a very low investment and can efficiently survive and sustain sparse vegetation and extreme climatic conditions. Best known as the “poor man’s cow” or “mini cow” these magnificent animals are the best alternative source of additional income and milk contributing immensely to the poor man’s economy. In pastoral and agricultural subsistence societies in India, goats are kept as a source of an insurance against disaster. Goats are generally managed under extensive production system and semi intensive system, where only at night shelter is provided. A major part of their fodder requirement is met out through grazing at waste and other common community lands.

India is a conventional home for about 645 tribal communities (population census, 2011)^[4]. They are dispersed in almost all the states and union territories. The areas populated by tribals are mostly underdeveloped. They mostly reside in secluded villages or hamlets. The population of tribal in the country is 104 millions, which is 8.2 percent of the total population of the country whereas; the Scheduled Tribe (ST) population of Rajasthan State is 7,097,706 constituting 8.4 percent of the total ST population of India (Census, 2011)^[4]. The Scheduled Tribes of the State constitute 12.6 percent of the total population (68548437) of the state. According to the 19th Livestock census, 2012^[6] goats population in the districts of Banswara, Dungarpur and Udaipur which have been categorized as tribal districts in Rajasthan state (study area) is 38.52% of the total livestock population in Rajasthan.

Results and Discussion

Effect of selected management interventions on growth and production performance of goats in tribal areas of Rajasthan

A trial was conducted in Dungarpur district to assess the effect of management interventions like deworming, vaccination and mineral mixture supplementation on growth and production performance of goats. Table-1 revealed that the production and reproduction parameters of goats in the farmers field (control group) in terms of average age at first kidding (month), birth weight of male and female kids (kg), milk yield per day (ml), lactation yield (lit.) and lactation length (months) were 17.89, 2.21 and 1.97, 591, 67.91 and 115.00, respectively. In treatment group, age at first kidding

(month), birth weight of male and female kids (kg.), milk yield per day (ml), lactation yield (lit.) and lactation length (months) were found to be 17.63±0.11, 2.45±0.18 and 2.18±0.05, 710.25±7.02, 93.72±20.19 and 132.00±0.1517, respectively. Milk yield per day (ml), lactation yield (lit.) and lactation length (months) was significantly higher in treatment group as compared to control group (table no 4.16). Similar results were also reported by Patodiya *et al.* (2005)^[10], Patel and Pandey (2013)^[8] and Kharkar *et al.*, (2014)^[5].

Table 1: Effect of vaccination, deworming and feeding mineral mixture on growth and production performance of goats

Sr. No.	Traits		Total respondents (N=40)	
			Control	Treatment
1.	Age at first kidding (month)		17.89±0.11	17.63±0.11
2.	Birth weight of kids (kg)	Males	2.21±0.03	2.45±0.18
		Females	1.97±0.07	2.18±0.05
3.	Milk yield per day (ml)		591 ^{a±} 5.94	710.25 ^{b±} 7.02
4.	Lactation yield (lit)		67.91 ^{a±} 0.77	93.72 ^{b±} 20.19
5.	Lactation length (days)		115.00 ^{a±} 0.15	132.00 ^{b±} 0.15

Means bearing different superscripts in a row differ significantly

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