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GOAT REARING PRACTICES IN SOUTHERN KARNATAKA

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Abstract: Goat is one of the important small ruminants which have been domesticated by man since time immemorial and has been a traditional occupation of marginal farmers and landless labourers. A study was undertaken in 215 randomly selected goat flocks of selected villages from the four agro-climatic zones viz., Eastern dry zone (EDZ), Central dry zone (CDZ), Southern dry zone (SDZ) and Southern transition zone (STZ) of Southern Karnataka in order to document the goat husbandry practices and socio-economic status of goat keepers. The flock size ranged from 27 to 40 which were not of any distinct breed. The average number of does, bucks and kids was 17.48 ± 12.77, 5.62±4.63 and 8.75±5.26, respectively, with the Does: Buck: Kids ratio being approximately 3: 1: 2. The landholdings of 1-2 acres and more than 2 acres were with 46.05 per cent and 37.21 per cent of the goat rearers respectively, while the remaining (16.74 per cent) goat rearers were landless labourers. The goats were sheltered only during night in houses that were of kutcha type sheds constructed of locally available material (65%) with mud flooring or in pucca type sheds (35%) with half wall to the level of 2-3 ft on the sides with cement/concrete/ stone paved for flooring. Dry fodder (Paddy/Ragi/Maize straw) was fed by only 18.26 per cent of the rearers while majority (81.74%) of them were dependent on naturally available trees fodders to meet the roughage demand of the goats. All the farmers were aware of the essentiality of vaccination and deworming for which they depended on Goverenment Veterinary dispensaries. This study conducted for the first time in the study area gives an idea of the status of goat rearers which would help the policy makers and researchers to plan future goat improvement programmes.

Keywords: Goat rearing- Karnataka- status- housing- feeding- management.

Introduction

Small ruminant rearing significantly contributes to the livelihood security of the poor farmers, even under such challenging environmental conditions as inadequate rainfall, very high temperatures and poor soil fertility, wherein crop cultivation is often difficult (Devendra, 1988). In India goats are reared mainly by the small and marginal farmers, including landless agricultural labourers (Rekib, 1998).

Karnataka shares 5.83 per cent (1, 91,791sq.km) of the total geographic area of India, and is situated in the Deccan Plateau region, within 11^{o}30’ North and 18^{o}30’ North latitudes and 74^{o} East and 78^{o}30’ East longitude. The state has shown an increasing trend in goat

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population from 1972 (37.3 lakhs) onwards till 1997(48.75 lakhs). Then there was a slight decline in goat population till 2003 (44.84 lakhs), but there after there was a drastic increase to 61.53 lakhs goats by the year 2007. The agro industrial by-product, perennial trees and shrubs serve as fodder resource for the goats reared.

Materials and Methods

The study was undertaken in the local goats for the first time in the southern districts of Karnataka. Villages were randomly selected from the four agro-climatic zones viz., Eastern dry zone (EDZ), Central dry zone (CDZ), Southern dry zone (SDZ) and Southern transition zone (STZ) of Southern Karnataka (Plate 1). In each zone, 2-3 revenue districts were selected randomly (totally 11 districts), in each district, 2 - 8 villages were randomly selected (totally 66 villages) and in each village, 1-6 farmers' flocks were randomly selected for recording information regarding goat husbandry practices and socio-economic status of goat keepers. The data for the present study were obtained through survey of 215 randomly selected goat flocks from the four agroclimatic zones viz., EDZ (20 villages-61 flocks), CDZ (13 villages-53 flocks), SDZ (18 villages-54 flocks) and STZ (15 villages-47 flocks). General information about the goat rearers and husbandry practices (flock size, housing management, feed and fodder resources, provision of water, vaccination and veterinary care provided to the animals) adopted for goats reared in the four agro-climatic zones of Southern Karnataka was collected in pretested schedules.

The details of the information collected were scored and analysed for the various management practices adopted in rearing of local goats, in the selected four agroclimatic zones of Southern Karnataka.

Results and Discussion

Agro-climatic conditions prevailing in the zones selected

The goat population in the area selected for the study constitute 35 per cent of the total goat population of the state [EDZ 13.73 per cent (8.1 lakhs), CDZ 7.88 per cent (4.6 lakhs), SDZ 9.98 per cent (5.9 lakhs) and STZ 3.97 per cent (2.3 lakhs)] of which very few descript breed of goats like Jamnapari, Beetal, Sirohi and Malabari and their crosses were found. They lie in the arid and semi arid zones and receive 50 to 60 per cent of rains during kharif seasons. The local goats seem to thrive well under this climatic condition as is observed with the existence of major goat breeds in arid and semi arid zones of North western (Sirohi, Marwari, Beetal, Jakhrana, Barbari, Jamnapri, Mehsana, Gohilwadi, Zalawadi, Kutchi, Sirohi and Surti) and

Southern peninsular India (Sangamneri, Osmanabadi, Malabari and Kanni Adu) (FAO, 1982).

Majority of the taluks in all four zones lie at an elevation of about 800 to 900 metres above sea level; however there are few taluks of EDZ and STZ which lie in the elevation range of 900 to 1500 mts above sea level. The nature of soil in these regions is red sandy loam with few patches of black soil in CDZ and SDZ, lateritic soil in EDZ and red loamy soil in STZ which is in agreement with the two major goat rearing regions of the country, viz., the North western region which has alluvial soils or a mixture of red and black soil and the Southern region which has a mixed red and black, laterite and red loamy soils (http://dacnet.nic.in/). This suggests that these areas are suitable for goat rearing.

The average annual rainfall received was 67.9cm, 45.55 cm, 88.8 cm and 105.39cm in EDZ, CDZ, SDZ and STZ, respectively. This is comparable with average annual rainfall received in major goat rearing regions of the country viz. North western (29 to 100 cm) and Southern peninsular regions (70 to 100cm) (http://dacnet.nic.in/).

The major food crops cultivated in southern region in all the four agro-climatic zones are millets, sorghum, maize, groundnuts, wheat, cotton, pulses, varieties of beans and paddy. In addition to the major crops, in STZ commercial crops like areca, sugarcane and tobacco are also cultivated, while tobacco is cultivated in SDZ. Perennial grasses and common tree varieties like *Acacia sp., Albizia sp.,Cassia auriculata, Dalbergia latifolia, Madhuca indica, Salvadora oleoides, Hardwickia binata, Tectona grandis, Terminalia tomentosa, Zizyphus. sp. etc.,* are commonly seen in all the four zones. These serve as a natural fodder resource for the goats reared in these regions. This is in agreement with the similar varieties of trees found in other goat rearing regions in the country (FAO, 1982) which serve as a perennial fodder resource.

Flock distribution pattern in the four zones

The distribution of flocks and the landholdings of the goat keepers in the study area are given in table 1. The average distribution of flock size in all the zones was almost uniform with the flock size ranging from 27 to 40. The average number of does, bucks and kids was 17.48 ± 12.77, 5.62±4.63 and 8.75±5.26, respectively, with the Does: Buck: Kids ratio being approximately 3: 1: 2. Flock sizes of less than 30 were found in SDZ and STZ, whereas larger flocks of more than 30 were reported in EDZ and STZ. Lower flock size of 21 were reported in Bidri (Shettar, 2011) and Nandidurga goats (20 per flock) (Azharuddin, 2011) of

Karnataka. Similar reports were found with Sangamneri (Misra and Koratkar, 1994) and Salem black (Thiruvenkadan and Karunanithi, 2006) goats.

The landholdings of 1-2 acres and more than 2 acres were with 46.05 per cent and 37.21 per cent of the goat rearers respectively, while the remaining (16.74per cent) goat rearers were landless labourers. The goat rearers in EDZ had 1-2 acres of land whereas larger land holdings were found in CDZ and SDZ (Table 1). Similar observation of land holdings to the extent of 1-2 acres was reported with Bidri (Shettar, 2011) and Nandidurga (Azharuddin, 2011) goat rearers of Karnataka and other indigenous goat rearers of the country. The marginal farmers maintained their goats under browsing and stubble grazing in Sangamneri flocks (Misra and Koratkar, 1994). It is obvious that goat rearing is the livelihood of farmers having land holdings of around 2 acres.

Various managemental practices

Housing management

The goats were housed only during nights in all the four zones. None of the zones had separate provision for accommodating different age groups of goats. The sick ones and very young kids alone were retained in the shed during day time. Goats were housed in kutcha (65%) or pucca sheds (35%). They were sheltered only during night in the sheds. The sheds were of open (80%) and closed (20%) types constructed of locally available material. The side walls of the sheds were of half wall (rose to the level of 2-3 feet) (85%) and full wall types (15%) made of kutcha materials and bamboo thatties. The flooring was of either kutcha type with mud (87%) or pucca type (13%) with cement/concrete/ stone paved (Table 2). All of the houses were well ventilated. This is in comparison with the housing of various other indigenous breeds across the country (FAOSTAT, 2008) that were kept in open pens in the fields or kutcha houses constructed adjacent to human dwelling. The present observation is comparable to the reports of Verma *et al.* (2007) in Jhakhrana breed, where the animals were kept in open housing system during day and closed housing at nights.

Slatted flooring (12%) made with bamboo or waste wood at a height of three to four feet above the ground was found in STZ alone. This was done to avoid water logging in the sheds during heavy monsoon rains experienced in this part of Karanataka. Similar types of housing were reported in Attapady (Aggarwal *et al.,* 2007) and Malabari (Verma *et al.,* 2008) breeds of Kerala and in Konkan Kanyal (Verma *et al.,* 2011) breed of Maharashtra. There was provision for drainage in 77per cent of the sheds and the remaining 23 per cent (seen in EDZ)

did not have good drain facility, which is in agreement with the housing patterns of other indigenous breeds of India.

Feeding management

The farmers were depending on natural vegetation for feeding their goats in all the four zones. The goat rearers used to browse their goats in the nearby vicinity and the travelling area was a maximum of 3-6 km. The animals were grazed for a maximum of 6 to 8 hrs during day time. However, in hot summer months, grazing of goats was avoided from 12 noon to 4 PM in all of the zones; they were being grazed during cool hours of the day. The goat flocks of small strengths of less than 15 were pooled together to a maximum strength of 50 to 70 numbers for grazing in the nearby vicinity of the villages. Normally one or two labourers used to accompany the flocks for grazing. Flocks owned by different farmers were taken together by hired grazers in the village.

Out of the 215 flocks studied only 18.26 per cent of them were fed with dry fodder (Paddy/Ragi/Maize straw) while the majority (81.74%) were not fed with any type of dry fodder.

Few of the farmers in EDZ and STZ were feeding chaffed fodder while chaffing of fodder was not a common practice in CDZ and SDZ. Concentrate feeding was not regularly practiced except for the pregnant and lactating does and breeding bucks during the breeding periods (Table 3).

The agro industrial by-product, perennial trees and shrubs serve as fodder resource for the goats reared. Ninety per cent of the farmers relied on natural fodders and except a few of the farmers in EDZ and STZ were feeding un-chaffed cultivated fodder**.**

Varieties of tree leaves, like banyan (*Ficus bengalensis*), cassava (*Manihot esculenta Crantz*), jack fruit (*Artocarpus heterophyllus*), gliricidia (*Gliricidia maculata*), leucaena (*Leucaena leucocephala)*, pigeon pea (*Cajanus cajan*) and agasse (*Sesbania grandiflora*) serve as valuable source of dietary proteins, minerals and vitamins (Devendra 1986). The feeding practice adopted in the study area was comparable to the ones already reported for other breeds of goats in India. Similar types of perennial trees were a source of fodder for Kanni Adu (Thiruvenkadan *et al*., 2011), Sirohi (Verma *et al*., 2006), Konkan Kanyal (Verma *et al*., 2011) and Ganjam (Dash *et al.,* 2006) breeds of goats. None of the farmers were feeding concentrates or any other special feeds in the daily ration but all of them were feeding a local mixture of rice gruel and vegetable washings generated as kitchen waste. Additionally, 100 to 200g of maize and groundnut cake was given to pregnant goats by few of the rearers. This

type of feeding practice is comparable to that observed in many other indigenous goats of India (FAO 1982).

Drinking water was provided in separate vessels to the goats in all the zones, besides they also received the share of sufficient water while grazing in the day time. During very hot days the goats were grazed in the cool hours of morning and evening for about 2 to 3 hours.

Other managemental practices

Milking was not practiced in all the four zones. Similar practices are also observed with goat breeds of Southern India (Osmanabadi, Mahabubnagar, KanniAdu, Kodi Adu etc.,) that were kept mainly for meat purpose, however, goat breeds of North western region (Sirohi, Beetal, Jamnapari etc.,) are mainly used for milch purpose.

All the goat rearers were aware of vaccinating their animals and had knowledge of deworming. Goat farmers were depending on Government Veterinary dispensaries for de-worming or routine vaccination and for treatment of any type of ailment. All the farmers were using both allopathic and herbal medicines for their goats whereas in STZ alone 12.4 per cent of them were using only allopathic treatments. Similar observations were seen with other indigenous goat rearers of the country.

Similar observations were seen with other indigenous goat rearers of the country.

Table 1: Flock size, distribution pattern and landholdings of goat rearers

Kind of goat	EDZ	CDZ	SDZ	STZ	Pooled %
Flock size (%)					
<10	3.28	1.89	14.81	14.89	8.37
10-30	50.82	49.06	46.3	23.4	42.33
>30	100	49.06	38.89	61.7	49.3
Flock distribution (%)					
Does	15.05	17.79	15.80	22.23	54.99
Bucks	4.49	5.79	5.44	7.13	17.74
Kids	8.43	9.58	8.00	9.13	27.27
Average flock size	27.97	33.17	29.24	38.49	32.21
Land holdings (%)					
Landless	0	26.42	18.52	25.53	16.74

1-2 Acres	85.25	24.53	31.48	36.17	46.05
>2 Acres	14.75	49.06	50	38.3	37.21

Table 2: Housing pattern

ZONE	Shed (%)		Type of house (%)		Wall (%)		Floor (%)	
	Open	**Closed**	**Separate**	**Part of house**	**Full**	**Half**	**Mud**	**Slatted floor**
EDZ	76.67	23.33	52.08	47.92	13.75	86.25	100	0
CDZ	100	0	83.27	16.73	100	0	100	0
SDZ	100	0	79.44	20.56	8.47	91.53	100	0
STZ	46.51	53.49	48.45	51.55	39.15	60.85	46.9	53.1

Table 3: Feeding patterns in the different agro-climatic zones

Method of feeding	EDZ %	CDZ %	SDZ %	STZ %	TOTAL %
Cultivated unchaffed	12.92	0	0	23.26	9.18
Natural	87.08	100	100	76.74	90.82
Dry fodder	12.92	17.14	18.55	24.03	18.26
No dry fodder	87.08	82.86	81.45	75.97	81.74

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