

SMALL RUMINANTS PRODUCTION PRACTICES IN UPLAND RANGES OF BALOCHISTAN

Asad Ullah Hyder, Abdul Salam Lodhi*, Muhammad Yaqoob and K.Z. Gondal

Faculty of Animal Husbandry, University of Agriculture, Faisalabad

**Department of Agriculture, Government of Balochistan, Quetta*

ABSTRACT

A survey was conducted during the year 1999-2000 involving 120 farmers on a pre-tested questionnaire, out of which 32, 70 and 18 farmers were from nomads, transhumant and sedentary classes, respectively. It revealed that mostly selection was done in the male animals based on breeding efficiency, pedigree and individual performance of the animal. Males were selected within flock or taken from other flocks without any costs for some period. Majority of the farmers (57%) had adopted nutritional supplementation practices. For this purpose, they purchased fodder and concentrates rations. Nomads, for feeding their animals, were depending on grazing only, while transhumant and sedentary people were also growing fodder on agricultural land. Out of 120 respondents, 24.17 percent reported that they pay for grazing in the form of animals and their products. In nomads, transhumant and sedentary average losses of the mean flock size were 37.40, 22.58 and 25.37 percent, respectively. Overall average animal losses were 39.48 with the standard deviation of 32.82 animals, which was 26.68 percent of mean flock size.

Key words: Small ruminants production, upland ranges, Balochistan

INTRODUCTION

Rearing of livestock on natural grazing lands is one of the oldest and conventional profession of the man. Livestock production system varies with the geographical variations in Pakistan. Small ruminants are mostly raised on rangelands where natural vegetation provides a significant component of their diet. Out of 79.61 million hectares of Pakistan's land area, about 49.5 million hectares (62 percent) constitute rangelands. Rangelands thus constitute the single largest land use in Pakistan (Quraishi *et al.*, 1993).

Balochistan is the largest (about 43 percent of the country's land mass), but sparsely populated (about 5 percent of the country's population) and least developed province of Pakistan. Out of total 34.7 million hectares area of Balochistan, 27.40 million hectares (79.00%) are covered by rangelands. As far as productivity of these rangelands is concerned, about 28 percent is considered fair to good, about 36 percent poor, 30 percent unproductive, and about 5 percent is under grazed (Anonymous, 1997).

In Balochistan, due to its particular arid and semi-arid climatic pattern and its typical geographic features i.e. mountainous nature, pastoralism is the main use of its rangeland resources. Small ruminants are key animal species of the local flocks of pastoralists in Balochistan, due to their better adaptability to topographic barriers, harsh and seasonal climatic shocks as well as their successful foraging behavior within arid ecosystem.

Natural forces like chilling winter, hot summer, water shortage and lack of forage are the main reasons which enforce the sample respondents to migrate or adopt various strategies to ensure their survival. Their migration between two places or seasonal movements are classical strategies in search of feed, food, water, and for elusion of extreme weather conditions.

The pastoralists mostly migrate inter-district and **nomads** at times also cross provincial and international boundaries. They mostly travel by foot, whereas camel or donkeys are the important components of their flocks which are used for transporting tents, luggage etc. during migration. The nomadic flock owners have no fixed base but instead move constantly throughout the year in search of feed and water points. They mostly live in camps and mainly depend on livestock for their livelihood, except a few who practice rain-fed agriculture. They migrate from uplands to lowlands in winter and vice versa in summer season. Their migration is followed by predetermined routes where they have contact with the local communities who provide them grazing facilities and animal feed and in return the nomads sell them animals and their products and provide them farm labour.

Transhumant flock owners are mostly land owners, very few of them are reported as landless. They practice rainfed and irrigated agriculture. Their source of income are from livestock (70.93 percent) and agriculture (22.36 percent). Each winter they migrate with their flock to low lands and go back to their homes

in summer. The average flock size of transhumant was greater (174.66 animals) than that of other groups.

Sedentary flock owners live in agricultural villages, involve in irrigated agricultural farming and raise few animals either for household consumption or for sale just before religious festivals. This supplementary livestock production accounts for a major portion of household income and helps to improve their farm productivity.

Small ruminants production systems, particularly migratory have been little described and the economic aspects of these migratory and sedentary production systems have not been thoroughly studied. Despite the fact that small ruminants farming is very profitable but even so far it has not been commercialized in the province (Buzdar *et al.*, 1989). The present study is an attempt to analyze the small ruminant production in the prevailing pastoral communities in the selected districts of Balochistan.

MATERIALS AND METHODS

The present study comprised seven districts of Balochistan (Fig. 1) which are the best rangelands and supporting about 76 percent of Balochistan's total livestock (FAO, 1983). It was carried out in Quetta, Chagai, Loralai, Pishin, Mastung, Kalat and Khuzdar districts of highland Balochistan.



Fig 1: Map of Balochistan

Due to the variable ecological conditions, ownership and production system of livestock fall into three categories viz. nomadic, transhumant and sedentary production systems. A number of studies had indicated that about 30, 60 and 10 percent of the total livestock of the province were kept by nomadic, transhumant and sedentary husbandry systems, respectively (FAO, 1983; Anonymous, 1997; Anonymous, 1998). So livestock owners were selected randomly from the above mentioned husbandry systems, keeping in mind the proportion of livestock owned by them.

Out of 120 sample respondents 32, 70 and 18 were from nomadic, transhumant and sedentary husbandry systems, respectively. The data were collected from the sample respondent by holding personal interviews. Questionnaire contained information about the pattern of production of small ruminants. The respondents were interviewed about selection and breeding practices, feeding grazing, treatment and health cover, losses of flocks and major causes of these losses. The data thus collected were subjected to categorical analysis (Montgomery, 1997).

RESULTS AND DISCUSSION

Selection and breeding practices

Selection and breeding practices were found in all the production systems of small ruminants i.e. nomadic, transhumant and sedentary. It was revealed from the survey results that selection practices were mostly done in the male animals, the main criteria for selection were breeding efficiency, pedigree and performance of individual animal. Males were selected within the flock or taken from other flock without any costs for some period. No Government facilities were available for the breeding of small ruminants.

Almost all the farmers were practicing selection for male animals (Table 1). The female selection was very rare and none of the nomads and very few of the sedentary (11.11 percent) and transhumant (2.86 percent) were selecting female animals.

Feeding/grazing

It was found that all respondents raised animals both by grazing at the rangelands and stall feeding. In nomad, transhumant and sedentary production systems 80, 72 and 40 percent of the respondents depended on grazing respectively to feed their animals (Table 2). Due to severe drought conditions during 1999-2000, the nomads were compelled to stall feeding for the survival of their animals, otherwise during normal years they more or less totally depended on grazing for the feeding of their animals.

Rafiq (1995) argued that feeding pattern change with the herd size. In an earlier study Rafiq (1986)

reported that small flock owners practiced stall feeding, grazing and mixed system, while large farmers raised goats both on grazing and stall feeding. Grazing needs

special labour which is uneconomical for small flocks. Information on different sources of fodder of the sample respondents is summarized in Table 3. Almost

Table 1: Percentage of selection practices in the study area

Selection	Nomad	Transhumant	Sedentary
Male			
Yes	100	98.60	100
No	0.00	1.40	0.00
Total	100	100	100
Female			
Yes	0.00	02.86	11.11
No	100	97.14	88.89
Total	100	100	100

Table 2: Dependence of the respondents on grazing and stall feeding

Source of feeding	Nomad (percent)	Transhumant (percent)	Sedentary (percent)
Grazing	80	72	40
Stall feeding	20	28	60
Total	100	100	100

Table 3: Source of fodder of the sample respondents

Source of Fodder	Nomad	Transhumant	Sedentary
a. 1,2,3,4	4(12.5)	2(2.86)	-
b. 1,3,4	16(50.0)	32(45.71)	2(11.11)
c. 3,4,5	-	14(20.0)	13(72.22)
d. 3,4	12(37.5)	22(31.43)	1(5.56)
e. 3,5	-	-	2(11.11)
Total	32(100)	70 (100)	18(100)

Figures in parentheses are percentages. 1. As payment for work period, 2. Collect from different areas, 3. Grazing outside, 4. Purchase, 5. Grown fodder

Table 4: Behavior of the sample respondents regarding health cover

Particulars		Nomad	Transhumant	Sedentary	Overall
Treatment	Veterinarian	2(6.25)	2(2.86)	4(22.22)	8(6.66)
	Self	28(87.57)	62(88.57)	7(38.88)	97(80.83)
	Veterinarian + Self	2(6.25)	6(8.57)	7(38.88)	15(12.50)
Veterinarian's visit to farm	Yes	5(15.63)	9(12.86)	2(11.11)	16(13.33)
	No	27(84.37)	61(87.14)	16(88.89)	104(86.67)

Figures in parentheses are percentage

Table 5: Average losses of small ruminants in the study area

Particulars	Nomad	Transhumant	Sedentary	Overall
Average flock Size	149.22	174.66	42.06	121.98
Average losses of small ruminants (\pm standard deviation)	55.81 \pm 33.67	39.43 \pm 31.48	10.67 \pm 8.46	35.30 \pm 32.82
Percentage of average flock size	37.40	22.58	25.37	28.94
Value (Rs.)	30396	20963	29603	31770

all the farmers in the study area, alongwith the grazing, used stall feeding for their animals. Nomad's source of feeding was grazing or they purchased fodder, concentrate or some time purchased grazing heights from farmers against their animals or their by-products, while transhumant and sedentary, alongwith these practices, used to grow fodder for their animals on their own lands.

Grazing/labour costs

Out of 120 farmers, 24.17 percent reported that they paid for grazing in the form of animals and their products. The value of these were to be included in grazing costs. Nomads grazed their animals themselves while transhumant and sedentary hired the services of shepherd by paying 500-1200 Pakistani rupees per month including daily food and clothing (once in a year). The services of shepherd were also hired by paying 1 10th of lamb/kid crop and Rs. 200/month, which according to respondents helped them to increase the productivity of flock. Shahbaz (1999) has also reported almost same pattern of employing labour by pastoralists of Balochistan.

Treatment/health cover

Table 4 shows the pattern of treatment health cover in the flocks of nomads, sedentary and transhumant. In nomads only 6.25 percent respondents reported that they got their animals treated by veterinary professionals, while in transhumant and sedentary respondents these figures were 2.86 and 22.22 percent, respectively. In overall, 6.66 percent respondents consulted veterinary professionals for the treatments of their animals. The practice of treating animals through Veterinary - Self was reported to be 6.25, 8.57 and 38.88 percent in nomads, transhumant and sedentary respectively. Overall 12.50 percent of the farmers were treating their animals in this way.

The practice of treating animals by farmers themselves was reported to be 87.50, 88.57 and 38.88 percent in nomads, and transhumant and sedentary, respectively. Overall 80.83 percent of the farmers were treating their animals themselves.

The reason for not adopting proper treatment were that, it was either expensive or the veterinary services were not available. Further, illiteracy and lack of knowledge were also major reasons for not adopting proper treatment. Among nomad, transhumant and sedentary respondents, 15.63, 12.86 and 11.11 percent

reported that the Government mobile teams visited their flocks once in a year.

Losses

In nomadic, transhumant and sedentary flocks average losses of the mean flock size were 37.40, 22.58 and 25.37 percent, respectively (Table 5). The losses observed in nomadic flocks were higher as compared to others ($P < 0.05$). Overall average animals losses were 35.30 ± 32.82 animals, which was 28.94 percent of average flock size.

Causes of losses

Mortality losses from disease and parasites were high because standard health cover was not widely available or sufficiently utilized by the farmers. Animals were more susceptible to diseases and parasitic infestation because of poor nutrition and prevailing drought conditions. Results of the study revealed that the causes of death and losses were mainly drought and diseases (Table 6).

In nomadic production system, the respondents reported that 87.5 percent losses were due to drought and diseases while figures for transhumant and

Table 6: Small ruminants causes of death and losses in the study area (percentage)

Causes	Nomad	Transhumant	Sedentary	Overall
Disease	-	10.00	61.11	23.70
Drought	12.5	5.71	5.55	7.92
Diseases and drought	87.5	84.29	33.34	68.38

sedentary were 84.29 and 33.34 percent, respectively. It was revealed from survey data that drought hit severely the nomads and transhumant, as they were the migratory pastoralists and depended more on grazing as a source of feeding for their animals.

It is concluded that small ruminant production in Balochistan could be made more profitable through educating these three communities about modern husbandry practices including range management and proper health cover and treatment facilities.

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