SOCIO-ECONOMIC CHARACTERISTICS OF LIVESTOCK FARMERS AND THEIR IMPACT ON LIVESTOCK PRODUCTIVITY IN DIFFERENT ECOLOGICAL ZONE OF BALOCHISTAN

Livestock

Parkash Lal Sadhana,[*] Dr.Abida Taherani,[†]
Shahida Habib Alizai[‡] & Majid Rafique[§]

ABSTRACT

A base line study was conducted to evaluate socio-economic characteristics and its impact on livestock productivity and its growth was carried out during July to September 2011. Families (n=200) randomly selected from ten villages of five districts of Balochistan and included in the study. A feedback form was designed to collect information on parameters i.e. ethnicity, family size, age of farmer, marital status, education, family income, trades/professions, time the farmers associated with the occupation, livestock available, breeds information, housing type feeding marketing and constrain faced by the farmers were included. The results indicated that small ruminants are the major livestock of the house hold. Significant difference (P<0.05) in sheep, cattle and buffalo and camel was noted among districts. The tribes are very distinctly prevailing in the districts and significant association (P<0.05) in family size, age, education was revealed among districts. Range land grazing is the dominant source of feeding for livestock. The major constrain reported by the house hold are diseases, feed availability, private and public sector investment and traditional manage-mental and marketing system. Public and private sector in Balochistan should consider the structural development, range management evaluation and consequent advisory service for the farmers. Feed supplementation along with range

[*] Veterinary Officer Livestock and Diary Dev Department Govt. of Balochistan.
[†] Dean Faculty of Social Sciences, University of Sindh Jamshoro.
[‡] Lecturer Gender Development Studies Department , University of Balochistan, Quetta.
[§] Assistant Professor CASWAB, University of Balochistan, Quetta.

feeding must be planned and techniques should be adopted to improve and conserve range land and its subsequent utility.

Key words: Balochistan, socio-economic characteristics, Farmers, livestock

INTRODUCTION

Small scale farming is an important avenue for income generation for mainly subsistence farmers in world. It is an essential element of socio-economic structure of the rural areas and plays a very encouraging role in mitigating the effects of poverty by providing important items of daily use (Hashem *et al.*, 1999). Livestock production is a tool to socio-economic transform to enhanced income and quality of life (Atinmo and Akinyele 1983). Since independence livestock sector has come forward as a principal sub-sector of the agriculture in Pakistan. It contributes 52.0% of agriculture 14.50% of Gross Domestic Product (GDP) during 2010-2011, more than the combined contribution of main crop sector (6.5%) in 2009-2010. Livestock production is one of the most important activities as about 30-35 million people of rural areas are involved directly and indirectly in raising livestock and derive 40 percent of their income (GOP, 2011).

The rapid population growth, slow pace of progress in certain sectors, different production systems, diverse environment and farmer preference, requires feasible applications to achieve the overall development in livestock sector (Rege *et al.*, 2001). As livestock sector provides inevitable nutrients (meat and milk) are vital for people's nourishment all over the world. Livestock provides the protein to the human body for physical and mental growth as well as for developing resistance against disease therefore it is considered as a basic part of human food (Eyduran *et al.*, 2009; Tariq *et al.*, 2011).

In Balochistan, there is a dearth of data regarding socio economic factors which may affect the success of a livestock development program. Livestock production systems in most of the developing countries are still derived both by socio economic and environmental factors (West, 1990). This necessitates to study these factors and to consider them while formulating a livestock developmental plan. Characteristics of small house hold involve in the livestock sector carried out almost thirty years back and over the time there might be a shift in the production system from one to another (Khan and Usmani, 2005). Therefore present study was thus designed to study the socio economic characteristics and constraints affecting livestock productivity of responding small house hold farmers of

selected areas. Suggest policy measures towards addressing the issues hamper livestock performance in Balochistan province.

In this regard, present study examines factors affecting livestock production, marketing, its development and socio-economic characteristics of livestock farmers in five districts of Balochistan province.

MATERIALS AND METHODS

For the present study, two hundred farmers were randomly selected from five districts (20 households from 2 villages in each district) of Balochistan province representing different ecological zone i.e. Quetta, Pishin, Killa Saifullah, Mastung and Noshki were included in a base line study to learn socio economic characteristics of farmers and their impact on livestock productivity and its growth. A well planned questionnaire was developed to collect the information during July to September 2011. The parameters included were ethnicity, family size, age of farmer, marital status, education, family income, trades/professions, time the farmers associated with the occupation, livestock available, breeds of sheep and goats, livestock housing type. Respondents were also tested for their knowledge regarding feeding pattern and problems faced to farmers in rearing and marketing of livestock. The data collected subjected to statistical analysis using ANOVA and Chi square test using computer soft ware SPSS-16 for windows where needed.

RESULTS

The results of the analyzed data regarding animal density in different ecological zone (five districts) of Balochistan are presented in table1.

Animal density: The results disclosed that there is a significant difference in house hold sheep, cattle, buffalo and camel population in the five districts (P<0.05). Highest mean sheep per house hold observed in Killa Saifullah (67.67±5.53) followed by Noshki (55.02±4.32) and lowest was noted in Mastung (20.87±1.241). However, no significant difference in house hold sheep is observed in districts Quetta, Pishin and Noshki (P>0.05). It is further noted that no significant (P>0.05) difference found in house hold goat population among districts. Numerically highest number of goats per house hold was in Noshki (41.97±2.36) and lowest in Pishin (35.72±2.69). The cattle house hold density showed significant difference among districts (P<0.05). Highest cattle and camel per household was recorded in Pishin (5.5±0.66) followed by Quetta (2.17±0.25), similarly Buffalo were more in Quetta (2.88±.28) followed by Pishin (1.98±.34), respectively.

Socio-economic characteristics of Livestock farmers: The outcome of socio-economic characteristics of Livestock farmers are presented in table 2. The results of the data revealed there is a significant association in ethnic groups (P<0.05) among districts indicate geographic distribution of the

tribes. Out of total sample collected it is observed that Pashton tribes lived in Pishin 40(100%), Killa Saifullah 40(100%) and Quetta 28(70%); while Baloch and Brahvi are main tribes lived in Mastung 40(100%) and Noshki 29(72.5%), respectively.

Family size: The family size of the house hold in the districts also revealed significantly different association (P<0.05). The maximum frequency of (7-9) in the category of family size of house hold observed 18(34.65%) members and minimum in the range of (>13) members as 3(8.6%), in Pishin district as compared to rest of the districts.

Age of house hold: The age of the elder of the house hold indicated significant association among classification and districts (P<0.05) among districts. More aged persons were found in-charge of the house hold in districts Pishin and Mastung, while minimum frequency observed in Killa Saif Ullah. The result of education in the district indicate a significance association (P<0.05). Most of the respondents 71(35.5%) are Illiterate (no formal education) fallowed by primary, middle, matriculation and intermediate education; 63(31.5%), 39(19.5%), 17(8.5%) and 10(5.0%) respectively.

Income of house hold: There is no significant association among income and district house hold (P>0.05). The data regarding the monthly income Pak Rupees per house hold per month revealed that majority of the farmers 59(28%) is earning between (31000-40000), followed by have 44(22%) earning range (41-50000), 42(21%) earning range (<=30000), 29(14.5%) earning range (51000-60000) and 26(13%) >60000. Income obtained from livestock activity on an average Pak Rupees 190/day/person (≈2 $) in the studied area.

There is no significant association among profession and district house hold (P>0.05) among districts. However, it is numerically there was variation among house hold profession and district. The household members occupied in different professions were found to be mainly involved in farming predominantly livestock 98(49%) and agriculture 37(18.5%) as compared to other professions.

The results of the time (table 2) involve in the farming revealed no significant association among house hold and district (P>0.05). The data regarding the time period, the responding farmers 73(36.5%) was engaged in livestock farming for (>10 years), whereas a sizeable proportion 56(28%) was associated during last ten years, while 54(26%) of them were associated in livestock farming over 5 years. 17(8.5%) of the respondents did not give any clue about their association with the business.

Feeding system: The feeding system adopted by farmers in various districts of Balochistan was found that majority farmers (77%) depend on natural grazing (range) followed by stall feeding 9.8% green fodder + roughage, 4% roughage, 2.6% concentrate + roughage, 6.6% natural + concentrate. Data suggested a relevantly different feeding pattern observed in Quetta district, where a major proportion (37%) fed their animals solely on roughages (green + dried) only 33% of the respondents relied on natural grazing, whereas a sizeable proportion (21%) of the farmers supplemented range grazing with concentrates.

Utility: Small ruminant especially and large ruminants in general are raised in almost every house hold of the rural community for mutton, milk and wool for domestic as well as commercial activities. Animals in large numbers are slaughtered during festivals and religious occasions (Eid-ul-Azha). Farmers utilize wool for hand-knotted carpet and rugs and also sold in to market. In tribal living system of Balochistan, Landi (Dried meat) is prepared during winter season. It is also one of the ways of preserve meat. Milk amd milk products (curd, lassi, ghee and butter) are used for their own consumption and also serve as source of cash income as sold in the local markets.

Production system: Sheep production system adopted by the farmers in the study area mainly depends on grazing (80%), transhumant and sedentary (20%). The farming of the animals is very much relying on the natural pasture and crop residues. Since availability of grasses in the range is not uniform through out year, similarly, quality of the pasture varies with the season. In winter the grass land has less vegetation available for livestock and may not be enough for the daily maintenance requirements of the animals. This could hinder the productivity potential of the animal, susceptibility to diseases and decrease income of the farmers.

Sheep breeds reared: The data on sheep breed reared by the farmer in the focused districts of Balochistan revealed Shinwari (25%), Balochi (27%), Rakhshani (19%), Balkhi (12%), Biverigh (8%), Mengali (5%) and Harnai (4%). The Shinwari breed was highest percentage reared by the farmers. It is additional exposed that the majority of sheep breeds give milk range (0.300 to 1.200 liter) with mean of 0.500 liter.

Goat breeds reared: The data on goat breed reared by the farmers in various districts of Balochistan revealed that the Khurasani breed was more prevailing and observed 55%, Lehri breed 30% and Barbari breed 15% reared by the farmers. It is further revealed that most of goat breeds give milk range (0.500 to 1.500 liter) with mean of 0.900 liter.

Constrains: The distribution of respondents according to rearing livestock the main problem was observed lack of feed resources, cost of feed, expensive medication/vaccination (costly treatment against diseases), lack of investment and skilled labor (70%, 12%, 8%, 6% and 4%) respectively. Lamb mortality, with a mean of 11-15% and as high as 18% was the major health problem. Parasitic infestation and diseases (Enterotoxaemia, pneumonia and abortion) were reported as major culprits of this loss in the area.

Table 1. Animal density in different ecological zone (five districts) of Balochistan

Districts	Sheep	Goat	Cattle	Buffalo	Camel
Quetta	48.35 ± 2.26^a	39.45 ± 2.27	$4.07\pm.312^b$	$2.88\pm.28^a$	$1.88\pm.25^{ab}$
Pishin	54.80 ± 2.82^a	35.72 ± 2.69	$5.50\pm.66^a$	$1.98\pm.34^b$	$2.18\pm.26^b$
Killa Saifullah	67.67 ± 5.53^b	38.22 ± 3.95	$3.35\pm.41^c$	$0.45\pm.11^c$	$1.40\pm.18^a$
Mastung	20.87 ± 1.241^c	41.07 ± 2.55	$1.45\pm.08^d$	$0.70\pm.14^c$	$1.73\pm.22^a$
Noshki	55.02 ± 4.32^a	41.97 ± 2.36	$2.20\pm.20^d$	$0.35\pm.076^c$	$1.33\pm.15^a$
Overall Mean	49.34 ± 1.93	39.29 ± 1.26	3.32 ± 0.20	$1.27\pm.12$	1.70 ± 0.09

^{abcd}means with different superscript in the same column indicate significant difference(P<0.05)

Table 2. Socio Economics Characteristics of Livestock Farmers of Five Districts of Balochistan

Parameter		Districts (Frequency)					
		Quetta	Pishin	Killa Saifullah	Mastung	Noshki	%
Ethnic group*	Pashtoo	28	40	40	0	0	54.0
	Brahvi	12	0	0	40	11	31.5
	Baloch	0	0	0	0	29	14.5
Family size (No)**	<=6	10	15	13	9	12	29.5
	7-9	5	18	12	11	6	26.0
	10-12	14	4	10	12	14	27.0
	>13	11	3	5	8	8	17.5
Age (years)	<=40	18	9	6	15	17	32.5
	41-50	14	19	29	13	15	45.0

	>50	8	12	5	12	8	22.5
Marital status	Married	33	28	36	27	27	75.5
	Unmarried	7	12	4	13	13	24.5
Education	Illiterate	18	16	8	16	13	35.5
	Primary	11	9	9	16	18	31.5
	Middle	6	7	14	5	7	19.5
	Matriculatic	3	5	4	3	2	8.5
	Intermediate	2	3	5	0	0	5.0
Family income (Rs)	<=30000	6	10	6	11	9	21.0
	31-40000	13	11	12	12	11	29.5
	41-50000	9	10	8	7	10	22.0
	51-60000	6	4	7	6	6	14.5
	>60000	6	5	7	4	4	13.0
Profession	Agriculture	8	8	8	6	7	18.5
	Skilled Labor	3	3	3	4	3	8.00
	Unskille labor	3	3	3	3	3	7.5
	Busines shop	2	2	2	2	2	5.0
	Govt. Servant	2	2	2	2	3	5.5
	Private service	1	1	2	5	4	6.5
	Livestoc	21	21	20	18	18	49.0
Time spend in Livestock inter-vention	5 years	10	12	10	12	10	27.0
	10 years	12	10	12	10	12	28.0
	>10 years	12	15	15	16	15	36.5
	NA	6	3	3	2	3	8.5

Parameters with (**) indicate significant association between house hold and district P<0.05)

DISCUSSION

Raising livestock mainly small ruminants is one of the key economic activities on the enormous rangeland of Balochistan. The dearth of water for irrigation does not permit the expansion of farming ahead of a certain limit (Tariq *et al.*, 2011). Livestock and livestock products are imperative components of agricultural yield on which many farmers depend for their livelihood (Amimo *et al.*, 2011).

Socio economic characteristics of the farmers indicated that mostly local inhabitants were involved in the small ruminant production, usually with small holdings dominated by extensive production system. Foreign or national investment is completely invisible at any stage of production, consequently major capital investment and scientific innovations regarding management, feeding and other relative skills are almost at its lowest level. Although it is playing a major role in providing livelihood to the involved families, small ruminant production system is operational merely on self sustained basis and has not gained momentum as commercially viable economical enterprise.

The results of the present study of house hold animal population and production system is in agreement with findings of Hyder *et al.* (2002) observed similar animal population per house hold and adopted production systems i.e. 70(58.33%) and 18(15%) were transhumant and sedentary, respectively. However, nomad farmers 32(26.66%) share was contradictory to the present study. The combination of livestock production systems and number of animal owned by the farmers in the rural communities are in line to investigations performed in other parts of the world especially in agriculture based developing countries (Mwacharo and Druckker 2005, Rege *et al.*, 2001).

The outcome of the present study regarding education rate and family size were supported by (Hyder *et al.*, 2002; Amimo *et al.*, 2011). Hyder *et al.*, (2002) reported the literacy rate in nomad, transhumant and sedentary respondents was 1.43%, 18.57% and 27.78% in his study areas. While, overall percentage of educated individuals was 15.83. Education is a tool which opens the minds of the people, changes their philosophy and allows them to explore their potentials to bring change in their life style (Khan and Usmani, 2005).

The findings of major constraints to livestock productivity of present study is well maintain by Amimo *et al.*, 2011 and Tariq *et al.*, 2011; Rafeeq *et al.*, 2011. Amimo *et al.* (2011) reported the main constraints of livestock productivity as diseases (86%), inadequate and low quality feed (12%) and high cost inputs (2%). They also reported that the farmers identify lack of market, poor infrastructure and negative role of middle man as (48, 39 and 12%) respectively as main constraints. The findings of the presesent study regarding mortality are in agreement with Aldom *et al.* 2009 and Tariq *et al.* 2011. Parasitic infestation Enterotoxaemia, Pneumonia and reproductive

disorder/diseases was reported as major health of Balochistan and causes 10-15% mortality (Tariq *et al.*, 2011).

The out come of the present study concerning utility of livestock are in harmony with Kakar and Ahmad, 2004; Khan *et al.*, 2007; Eyduran *et al.*, 2009; Olorunnisomo *et al.*, 2010; Tariq *et al.*, 2011) worked in different parts of the world and also expected that present growth in human population will result in higher demands for meat, milk, and other commodities from livestock.

Mutton is obtained from sheep and goat from Balochistan is self-sufficient as it has 45% of sheep and goat population of the country but cattle and buffalo are out sourced from Punjab and Sindh (Kakar and Ahmad, 2004). Hence, provides the major part of mutton to the country; but development of the mutton industry is constrained by the largely traditional meat marketing system, which provides limited incentive for the production of good quality meat. This is evident in the lack of facilities in live animal markets, the old-fashioned slaughter facilities and wet market retail structure. The main constraint to the development of mutton export as Balochistan has the vast potentials is the present high cost of processing compared to other large volume exporters (Heinz, 2000). Reducing costs would require sophisticated management and even if achieved, export opportunities are limited to those countries with few quarantine regulations. Due to non-grading sale system, the butchers are getting more profit while buying aged, female and culled animal for slaughtering. Although pre-and post mortem examination exists, yet illegal slaughtering is taking place in the province. For instance, Quetta is the provincial capital having only one slaughterhouse **(Ahmed and Alvi, 1988; Adesehinwa *et al.*, 2004).**

Income obtained from livestock activity observed approximately Rupees one hundred and ninety/day/person (≈2$) in the studied area, same income was received by common Pakistani (GOP, 2011). Respondents were just sustaining the families on or below poverty line which does not provide enough opportunity to the concerned farmers to improve their production system in terms of feeding, housing, management and disease control measures. Consequently no proper housing was usually available for their livestock, the term referred as katcha was usually bush fencing in summer and small mud rooms in winter without paying any notice towards sanitation, ventilation and space requirement of the animal. Absence of drinking water facility in the living sites of these animals may have seriously compromised the productivity of reared animals. Similarly with the exception of Quetta district no proper supplementation is being offered to the range feeding to full fill the nutritional requirements. The exceptional feeding trend in Quetta district might indicate the effects of previous drought along with increased urbanization–consequent unavailability of grazing resources and diversion of livelihood from sources other than livestock.

The genetic potential for growth could be explored through optimum suitable combination of concentrate and forage. The performances (productive and reproductive) of sheep are subjective to many physical and environmental factors, genetic potential and nutrition (Rafeeq et al., 2010). Most of the farmers got initiated livestock business during the more than ten years which may be due to variety of reasons including the initiation and investment of mega livestock development projects initiated by the federal government (GOP, 2011), uncertainty and increasing vulnerability of the crop sector of Agriculture, better prices of livestock, increased cross border trade and decreasing means of employment due to prevailing economic situations of the country. Data regarding available livestock resources suggested that a major proportion of replacement livestock is home rose which may have beneficial impact on the sustainability of such livestock keepers.

CONCLUSIONS AND SUGGESTIONS

It is concluded from the present study that small ruminants are the major livestock of the house hold. Significant difference in sheep, cattle and buffalo and camel was noted among districts. The tribes are very distinctly prevailing in the districts and significant association in family size, age, education was revealed among districts. Range land grazing is the dominant source of feeding for livestock. The major constrain reported by the house hold are diseases, feed availability, private and public sector investment, traditional manage-mental and marketing system. Public and private sector in Balochistan ought to consider the structural development, range management evaluation and consequent advisory service for the farmers. Feed supplementation along with range feeding must be planned and techniques should be adopted to improve and conserve range land and its successive utility.

REFERENCES

Adeschinwa, A.O.K., Okunola, J.O. and Adewumi M.K. 2004. Socio-economic characteristics of ruminant livestock farmers and their production constraints in some parts of South-western Nigeria. *Livestock Research for Rural Development*, 16 (8).

Ahmed, W. and A.S. Alvi, 1988. Goat Meat Production in Pakistan. *In*: Devendra, C. (ed.), *Goat Meat Production in Asia"*, Workshop proceedings held in Tandojam, Pakistan 13 -18 March, p 161–8.

Aldom, F., Hussein, N.O., Sawalha, L., Khateem, K., Aldomy, A., 2009. A national survey of prenatal mortality in sheep and goat in Pakistan. *Pakistan Veterinary Journal*, 29(3): 102-106.

Amimo, J.O, Thumbi, S., Inyangala, B.O., Junga, J.O. and Mosi, R.O. (2011). Socio- economic characteristics and perceptions of cattle keepers and constraints to cattle production in Western Kenya. *Livestock Research for Rural Development, 23 (6).*

Atinmo, O. and Akinyele, O. 1983 Nutrition and Food Policy of Nigeria. Published by National Institute for Policy and Strategic Studies, Kuru, Jos. p 3 - 10.

Eyduran, E., Karakus, K., Karakus, S., Cengiz, F., 2009. Usage of factor scores for determining relationships among body weight and some body measurements. *Bulgarian Journal of Agricultural Science*, 15 (4): 373-377.

GOP, (Government of Pakistan). (2011). *Economic Survey of Pakistan, 2010-11.* Economic Advisors wing Finance Division, Islamabad. p 5.

Hashem, M.A.M., Moniruzzaman, Akhter, S. and Hassain, M.M. 1999. Cattle fattening by rural farmers in different district of Bangladesh. *Bangladesh Journal of Animal Science*, 28 (1-2): 81-88.

Heinz, G., 2000. *The Supply of Livestock Products to Asian Cities*. Paper Presented in the Regional Seminar on "Feeding Asian Cities. Bangkok, Thailand, November 27-28, p 345.

Hyder, A.U., Lodhi A.S., Yaqoob M. and Gondal, K.Z. (2002). Small ruminants production practices in upland ranges of Balochistan. *Pakistan Veterinary Journal*, 22(2): 59-63.

Kakar, M.A., Ahmad, M., 2004. *An over-view of livestock in Balochistan (2003-2004).* Livestock and Dairy Development Department Balochistan, Quetta 40-85.

Khan, R.N. and Usmani R.H. (2005). Characteristics of rural subsistence small holder livestock production system in mountainous areas of NWFP, Pakistan. *Pakistan Veterinary Journal* 25(3):115-120.

Khan, S.A., Khan, M.A., Khan, S.A., Mehmood, S., 2007. Genetic resources and diversity in Pakistani sheep. *International Journal of Agriculture and Biology* 9(6): 941-944.

Mwacharo, J.M and Drucker, A.G. 2005 Production objectives and management strategies of livestock keepers in south-east Kenya: implications for a breeding programme. *Tropical Animal Health and Production,* 37(8): 635–652.

Rafeeq, M., Tariq M.M. and Bajwa, M.A. (2010). Comparative study to estimate the productive performance of different sheep breeds of Balochistan in semi intensive conditions. *ABAH Bioflux.* 2(1):35-38.

Rege, J.E.O, Kahi A. K., Okomo-Adhiambo M., Mwacharo, J. and Hanotte O. (2001). Zebu Cattle of Kenya: Uses, Performance, Farmer Preferences, Measures of Genetic Diversity and Options for Improved Use, *Animal Genetic Resources Research 1*; ILRI, Nairobi, Kenya.pp 8.

Tariq, M.M., Ahmed, M., Waheed, A. (2011). Growth Curve in Mengali Sheep Breed of Balochistan. *The Journal of Animal and Plant Sciences,* 21(1): 5-7.

Tariq, M.M., Ahmad M., Ferhat A., Eyduran E. (2011). Some Morphological, Fertility and Growth Traits for Mengali Sheep of Balochistan, Pakistan. *Iğdır University Journal Institute Science and Technology* (JIST), 1(1): 63-68.

West, K.B. 1990. *An overview of livestock production in Nigeria.* Paper presented at the National Conference on Nigeria Livestock industry and prospects for the 1990s. Organized by NISER and Federal Department of Livestock and Pest Control, p 1-3.