

Identification of constraints limiting the productivity of livestock and strategies for its improvement in Bundi district of Rajasthan

B L DHAKA¹, K CHAYAL² and M K POONIA³

Krishi Vigyan Kendra, Bundi, Rajasthan 323 001 India

Received: 27 September 2009; Accepted: 6 October 2010

Key words: Constraints, Farmers, Livestock, Production

Livestock plays an important role in the economy of India in general and sustainable livelihood of poor people of rain-fed agro-ecosystem in particular, because of inherent risk involved in the crop farming due to uncertainty of rainfall and occurrence of recurrent droughts (Mishra 2005). Small stock acts as a cash buffer and large ruminants as a capital reserve. Despite of promising opportunities of livestock, its potential is not being realized. The productivity of livestock is affected adversely by number of factors. The purpose of this study was to investigate the factors limiting the productivity of livestock at farmers' field.

The study was conducted in Bundi district of Rajasthan. The constraints responsible for the low productivity of livestock production system were identified through a pilot study. The intensity of the identified constraints in the actual field situation was measured to prove their validity and to find out the extent to which they were perceived by farmers as barriers for sustainable livestock production. All the constraints were measured by interviewing 250 farmers with the help of a well-structured and pre-tested interview schedule developed for the study. The data thus collected were tabulated and statistically analyzed to interpret the results. The quantification of data was done by first ranking the constraints based on the responses obtained from the respondents and then calculating the Rank Based Quotient (RBQ) (Sabarathnam 1988), which is as follows:

$$RBQ = \frac{\sum f_i (n+1-i)}{N \times n} \times 100$$

wherein, f_i , number of farmers reporting a particular problem under i th rank; N , number of farmers; n , number of problems identified.

Socio-economic characteristics of respondents

A profile of socio economic characteristics of respondent farmers is presented in Table 1. The majority (56.4%) of the

Table 1. Socio-economic profile of respondent farmers (n=250)

Variables	Category	Frequency	% age
Age (in years)	Young (<30)	37	14.8
	Middle (31–50)	141	56.4
	Old (>50)	72	28.8
Education	Illiterate	23	9.2
	Functional literate (up to middle class)	145	58.0
	High school	65	26.0
Knowledge level	Graduate and above	17	6.8
	Low	112	44.8
	Medium	99	39.6
Mass media exposure	High	39	15.6
	Low	107	42.8
	Medium	96	38.4
Land holdings (in ha)	High	47	18.8
	Marginal (<1 ha)	84	33.6
	Small (1–2 ha)	126	50.4
Resourcefulness	and Semi-medium (2–4 ha)		
	Medium (4–10 ha)	27	10.8
	Large (>10 ha)	13	5.2
Herd composition	Rich	47	18.8
	Medium	67	26.8
	Poor	136	54.4
Milk production	Non-descript	167	66.8
	Improved breed	51	20.4
	Both	32	12.8
	Low	138	55.2
	Medium	86	34.4
	High	26	10.4

respondents belonged to middle age group followed by old age (28.8%) and young age (14.8%) group. Results revealed that majority of respondents were functionally literate (up to middle class) (58.0%) followed by high school (26.0%) and illiterate (9.2%). However, only 6.8% respondents had education higher than the high school level. It was observed that 44.8% farmers belonged under the category of low knowledge and 39.6% to the category of medium knowledge

Present address: ¹⁻³ Subject Matter Specialists (e-mail¹: bldhaka@gmail.com).

about various aspects of livestock production. Out of total 250 respondents interviewed, 42.8% had a low exposure to the mass media followed by 38.4% and 18.8% had medium and high exposure to the mass media respectively. Results on land holding show that nearly 80.00% of respondents were marginal (33.6%) to small and semi-medium (50.4%) farmers. Further, it was also observed that majority of respondents were resource poor (54.4%). The study also showed that the percentage of respondents having non-descriptive animal was very high (66.8), whereas only 12.8% of respondent had crossbred animals. Consequently the milk production of majority of the respondents fell under low level (55.2%) to medium level (34.4%).

Constraints: Livestock productivity was affected adversely by a wide range of technical, economic and social causes. Most of them were common, which were crosscutting and featured prominently in the study area. The constraints faced by the respondent farmers presented in Table 2 along with Rank Based Quotient (RBQ) for each constraint and respective rank. The constraints the lack of knowledge about various aspects of good management practices for sustainable livestock production including housing, breeding, feeding, health care and general care and management were identified as the major reasons of low productivity of livestock (Table 2). Based on RBQ value, lack of knowledge was given first rank among constraints affecting livestock production adversely. Similarly, Singh and Chauhan (2006), Mohi and Bhatti (2006) and Rathore *et al.* (2009) also reported lack of knowledge is the major constraint in livestock production. Further, poor genetic potential of animals, inadequate availability and poor quality of feed and fodder, high incidence of diseases and pests was reported by majority of the farmers as the key factors limiting the livestock production. Other constraints such non-availability of support services in time, long calving intervals, poor extension support and repeat breeding were also found major impediments to productivity of farm animals. Findings of Rajendran and Prabakaran (1998), Singh and Chauhan (2006) and Rangnekar (1995) have identified similar constraints

limiting livestock production.

Strategies for improving livestock productivity: After identifying the major impediments that hindered the livestock productivity, it was tried to identify strategies for improving livestock productivity. On the basis of informal discussion with scientists, key informants and progressive farmers, several steps has been suggested that could be taken up to enhance the productivity of animals. The following interventions seem to be most promising and could be adopted in order to improve the productivity of animals.

Strengthening of livestock extension services: Many farmers are unaware of the availability of suitable technologies pertaining to various aspects of good management practices for livestock production. They lack proper knowledge about housing, breeding, feeding, health care and general care and management. This might have secluded the farmers from technology. Technical know-how should be provided to the farmers with respect to appropriateness of livestock for the situation and for its proper use. The need is to reform and strengthen livestock extension services and develop effective and efficient delivery systems for inputs and services to enable the farmers to make farmers familiar with the scientific practices of livestock production and management.

Breed improvement: Genetic upgradation of local non-descript animals through crossbreeding with superior germplasm should be started. The farmers should be encouraged to breed indigenous cows and buffaloes with improved breeds through artificial insemination to improve the productivity of the existing livestock resources. This could be done in order to combine the hardy characteristics of local (namely tolerance to poor nutrition, heat stress and tropical disease challenge) with higher milk-producing qualities and hence the higher income potential from improved breeds.

Support services: Availability of support services including veterinary, facility for artificial insemination and pregnancy diagnosis, surveillance and monitoring of infectious and contagious diseases, prophylactic measures and emergency services for treatment of animals in

Table 2. Constraint faced by farmers in livestock production (n=250)

Constraints	Ranks								R.B.Q	Overall Rank
	I	II	III	IV	V	VI	VII	VIII		
Inadequate knowledge	67	60	38	31	30	18	6	00	76.25	I
Inadequate availability and poor quality of feed and fodder	45	34	54	52	30	19	8	8	69.15	III
High incidence of diseases	40	43	49	47	34	17	10	10	68.35	IV
Poor genetic potential of animals	60	65	46	36	17	8	7	11	75.40	II
Non-availability of support services in time	29	41	36	41	47	22	17	17	62.25	V
Poor extension support	5	0	11	20	33	43	64	74	33.45	VII
Long calving intervals	4	7	16	17	29	60	58	59	36.65	VI
Repeat breeding	0	0	0	6	30	63	80	71	28.50	VIII

time should be ensured. Exploitation of modern tools for enhancing productive and reproductive performances may be taken up. Intensive epidemiological studies of the livestock diseases particularly the infectious diseases should be undertaken to plan programme for control and eradication.

Improved feeding practices: The major constraint that farmers face here is in terms of feeding practices. In order to improve the productivity of animals proper nutritional management is essential. Rations must be formulated to provide for the basic physiologic needs of the animal and to ensure optimal growth and productivity.

Integrated animal health management: The farmers should be encouraged to keep more productive animals and adopt a regular vaccination and de-worming schedule as a preventive measure, and provide mineral supplements to animals to overcome the problem of infertility in case of buffaloes and crossbred cattle. Prophylactic health measures should be implemented.

SUMMARY

The productivity of livestock is constrained by several factors including inadequate knowledge, inadequate availability and poor quality of feed and fodder, poor genetic potential of animals, high incidence of diseases, repeated breeding, long calving intervals, non-availability of support services in time and poor extension support were

emerged major limiting factors to livestock production. The strategy proposed in this paper could be helpful to improve the productivity of livestock to boost the livelihood of the farmer.

REFERENCES

- Mishra A K. 2005. Contingency planning for feeding and management of livestock during drought. *Drought Management*. pp 276–86. (Eds) Sharma K D and Ramasatri K S. Allied Publishers Pvt. Ltd, New Delhi.
- Mohi A K and Bhatti J S. 2006. Constraints encountered by dairy farmers in adoption of improved dairy farming practices. *Journal of Dairying Foods and Home Sciences* 25 (1): 47–50.
- Rajendran K and Prabakaran R. 1998. Constraints in milk production in rural areas of Dharmapuri district of Tamil Nadu. *Indian Journal of Animal Production and Management* 14 (2): 123–25.
- Rangnekar S D. 1995. Livestock feeding by women. *Proceedings of 7th AAAP Animal Science Congress*, pp.89–101. Bali, Indonesia.
- Rathore R S, Singh R, Kachwaha R N and Kumar R. 2009. Constraints perceived by cattle keepers in adoption of recommended breeding, feeding and housing management practices. *Indian Journal of Animal Sciences* 79 (5): 530–33.
- Sabarathanam V E. 1988. *Manuals of Field Experience Training for ARS Scientists*. National Academy of Agricultural Research Management, Hyderabad.
- Singh M and Chauhan A. 2006. Constraints faced by dairy owners in adoption of scientific dairy farming practices. *Indian Journal of Dairy Science* 59 (1) : 49–51.