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Research article

AN ANALYTICAL STUDY OF LIVESTOCK IN JAMMU AND KASHMIR

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ABSTRACT: Livestock plays a significant role in the rural economy of Jammu and Kashmir. Every rural household is associated with livestock. The number of livestock per 1000 of human population in Jammu and Kashmir as per livestock census 2007 was 882 animals while as at all India level the number was only 457, as per livestock census 2003. But the state still lags behind in production of milk and milk products. The present study conducted in District Jammu and Kathua of Jammu and Kashmir State was an endaveour 'to know about the livestock profile of the respondents, the constraints faced by the respondents and their knowledge of animal rearing practices. The result of study revealed that the major constraints faced by the farmers were High cost of feed, lack of guaranteed price of milk, low yield, lack of milk processing technologies and lack of cooperative network.. Regarding the respondents awareness of different animal rearing practices, the study revealed that only 30% of the respondents had knowledge of balanced feed, 28.33% knew about how to make silage, 11.66% had knowledge of disposal of animal waste and just 20% had knowledge about vaccination of livestock. The study also came up with some interventions for minimizing the constraints faced by the respondents with the ultimate objective of increasing the production and productivity.

Key words: constraints, rearing, practices, economics, awareness, interventions

INTRODUCTION

Livestock forms an integral part of rural India. Farmers not only produce food grains but also manage Livestock. Farmer's income, agriculture and rural economy are heavily dependent on livestock. Infact livestock is a major instrument of production of small farmers. India has the largest cattle population in the world. Almost every rural household in India, whether landed or landless, owns livestock. The livestock population of India is around 535 million comprising of 199 million cattle, 105 million buffaloes, 140 million goats, 71 million sheep and 11 million pigs and ranks first in buffalo while second in cattle and goat population [11]. Of the total livestock in the country, around38.2% are cattle, 20.2% are buffaloes, 12.75 are sheep, 25.6% are goats and only 2.8% are pigs. India has a large genetic diversity of livestock containing 26 breeds of cattles, 8 breeds of buffaloes, 40 breeds of sheep, 20 breeds of goats and 7 breeds of camels. The country has 13 percent of world's cattle population and 57% of world's buffalo population. The milk production in the country is 112 million tonnes mainly being contributed by199 million cattle and 105 million buffaloes. However, average milk yield at 300 Kg per lactation is abysmally low. The per capita availability of milk in our country is 252g/day. The biggest threat is the milk productivity. Despite having the world's largest population the milk productivity per animal comes to 987 Kg/year whereas worldwide average productivity is 2200 Kg per animal per year [12]. The gradual breed deterioration generally occurs from negligence over centuries and consequent rise in the population of non-descript cows (80 %) and buffaloes (50%) along with the chronic shortage of feed and fodder coupled with their nutritive values and low fertility of our dairy animals has resulted in the low productivity [9].

ECONOMIC CONTRIBUTION OF LIVESTOCK

Livestock sector contributes about 24.72% of the agricultural sector and its contribution to the national GDP is about 4.36%. In the arid areas the contribution of livestock to the agricultural GDP is as high as 70 percent while in semi arid areas the contribution is over 40%. The average growth rate in livestock sector is 3.5%, more than agricultural growth rate. Livestock wealth is more equitably distributed than that of land (Kumar and Singh, 2008). The total earning from milk alone comes to rupees 1, 62, 136 crore which is more than our staple food grain crops i. e Paddy (95,038 crore), wheat (71579 crore). Export earnings from livestock, Poultry and other related products is rupees 8,656 crore. All this reveals the growing importance of the Livestock sector in the country's economy and food security. India from a net importer of livestock products till 1985 has become a net exporter post 1985, indicating the export potential of Indian livestock sector [8]. Over the last three decades livestock production grew faster than crop sector as a whole and made significant contribution to agricultural growth, which is considered to be an important factor in poverty reduction in most developing countries [4].

LITERATURE REVIEW

A study by [5] revealed that Livestock sector in India has experienced remarkable growth during the last two decades in terms of production, value of output from livestock and trade. Livestock sector contributes nearly 25 percent to the gross value of agricultural output at the national level. At the household level, its contribution is much more in the case of small landholders who comprise a sizeable proportion of rural households, and control bulk of the livestock resources. The contribution of livestock to rural employment witnessed declining trends in recent years. Though the proportion of workers engaged in livestock production declined, livestock production is more women oriented as women contribute more than 70 percent to the labour requirement. [1] Reported that Livestock asset is more equitably distributed than land. The regression analysis of relationship between poverty and livestock income has shown that growth in livestock sector contributes more towards poverty reduction. These results indicate that livestock can be used as an effective tool for reducing rural poverty.

Livestock makes substantial contributions towards conservation of environment. By utilizing huge amounts of crop residues and byproducts as feed and fodder it contributes positively to the environment. In addition, utilization of crop residues and byproducts by the animals makes substantial land available for food production, which otherwise would have been needed for fodder production. Direct contributions of livestock in terms of supplies of draught power and dung (organic manure and domestic fuel) save nonrenewable environmental polluting energy sources (chemical fertilizers, diesel, petrol, etc.). Thus, in view of such interactions between crop and livestock it is increasingly realized that livestock production would be more sustainable and growth-promoting in the mixed cropping systems as in India [10].

LIVESTOCK IN JAMMU AND KASHMIR

In Jammu and Kashmir, animal husbandry plays a significant role as 0.13 per cent of gross domestic product (GDP) of the state is contributed by this sector. The state has a precious wealth of livestock in form of cattle-buffalo, sheep, goats, poultry, etc. The cattle and poultry amongst all the livestock are considered the most important tool for the development of the rural economy. The production of
Pashmina shawls and other animal products like carpets, shawls and blankets of Kashmir earn handsome foreign exchange for the nation. Therefore livestock industry in the state has vast scope for development rendering quick economic returns and has been identified as critical to the overall economic and social development. As per provisional estimates of 18th livestock census 2007, total livestock population in the State has increased from 98.99 lakh in 2003 to 104.73 lakhs in 2007, registering an increase of 5.8%.

The number of livestock per 1000 of human population as per livestock census 2007 was 882 animals while as at all India level the number was only 457, as per livestock census 2003 (Epilogue, 2011). The economic contribution of livestock sector of Kashmir valley was 775.91 crores rupees during the year 2003-04. Out of these Rs. 690 crore from milk, Rs. 38.8 crore from eggs, Rs. 17.1 crore from poultry meat and Rs. 30 crore from farm yard manure [2]. Besides, 5.6 million poultry are contributing 63.2 million eggs per annum. Small ruminants comprising 3.4 million sheep and 2 million goats also contribute significantly to the total livestock population of the state. The state also has highest population of about 47,000 yaks in the country.
Despite all this the milk production in the state is low and it is less than even the northern states. Farmers still take it as a means of subsistence. The study was therefore conducted to ascertain the reasons for this sorry state of affairs in Livestock production with the following specific objectives:

a. To know about the socio personal profile of the respondents
b. To find the constraints faced by livestock owners and suggest interventions thereof
c. To know their knowledge of different animal rearing practices

RESEARCH METHODOLOGY

The present study was conducted in Jammu and Kathua District of Jammu and Kashmir state. Multi stage sampling was employed for conducting the study. From each district two blocks, from each block two Panchayats and from each Panchayat two villages were selected. Thus s total of sixteen villages were selected from eight Panchayats of four blocks of two Districts. Fifteen respondents were selected from each Panchayat on the basis of proportional allocation of number of households in each village. In this way a total of 120 Livestock farmers were selected and interviewed by face to face contact interview method. The data were collected by using a pre-designed interview schedule developed for the purpose. Following the tabulation and necessary sorting, statistical analysis viz. frequency, percent were used to draw the inferences.

RESULTS AND DISCUSSION

The data in the table 1 shows the socio-personal profile of the respondents. The maximum no. of respondents (47.5%) was from middle age category. As far as education is concerned the maximum numbers of respondents (44.1%) were educated up to primary level. All the respondents were married. More than eighty (82.5%) of the respondents were Hindus. Crop and livestock was the major occupation of more than sixty (63.3%) of the respondents. Sixty percent of the respondents had Nuclear family. Social participation of the respondents was just dismal at only 6.7 percent.

The data in the table 2 depicts the distribution of respondents on the basis of land holdings. 3.3 percent of the respondents were landless. 61.7% of the respondents were marginal having less than 1 hectare of land. 21.7 percent of the respondents fall in small category having 1-2 hectares of land and only 1.3 percent of the respondents were in semi medium category having 2-4 hectares of land.

The data in the table 3 reflects the livestock profile of the selected respondents. Sixty two (51.66%) respondent had herd size of 2-3 cattles. None of the respondents was involved in Sheep rearing. Only twenty percent of the respondents had taken over Goatry as an enterprise. 73.39% and 69.73% of cows and buffaloes were of local breed respectively. As far as material possession is concerned only 14 respondents (11.7%) had permanent cattle sheds, 76 (63.3%) had semi permanent and 30 (25%) had temporary cattle sheds. About eighty percent of the respondents had no draught animal whereas 14 (11.66%) of the respondents had only one draught animal and nine (7.5%) of the respondents had 2-3 drought animals

Table 1: Demographic profile of the respondents

S. No	Profile	No. of respondents	Percentage
1	Age		
	Young (Less than 35)	43	35.83
	Middle (36 to 50)	57	47.50
	Old (More than 50)	20	16.66
2	Education		
	Illiterate	33	27.50
	Primary	53	44.16
	Middle	12	10.00
	High school	10	8.33
	High secondary	12	10.00
	Above	_	_
3	Marital Status		
	Married	120	100
	Unmarried	_	_
4	Religion		
	Hindu	99	82.50
	Sikh	9	7.50
	Muslim	12	10.00
	Christian	_	_
	Others	_	_
5	Caste		
	Brahmin	92	76.66
	Rajput	7	5.83
	Jatt	18	15.00
	Others	3	2.50
6	Occupation		
	Crops + Livestock	76	63.33
	Crops + Livestock + Govt. Job	12	10.00
	Crops +Livestock +Private Job	24	20.00
	Crops+ Livestock+ Business	8	6.66
7	Family type		
	Nuclear	72	60.00
	Joint	48	40.00
8.	Social participation		
	Yes	8	6.67
	No	112	93.33
9.	Type of House		
	Permanent	67	55.84
	Semi permanent	43	35.83
	Temporary	10	8.33

Table 2: Distribution of the respondents according to the size of holdings

S. No	Size of holdings	No.	Percentage
1	Landless	4	3.33
2	Marginal (less than 1 ha)	74	61.67
3	Small (1-2 ha)	26	21.67
4	Semi medium (2-4 ha)	16	1.33
5	Medium (4-10 ha)	_	_
6	Large (More than 10 ha)	_	_

Table 3: Livestock profile of the respondents

S. No	Livestock	No	Percentage
1	**Herd size**		
	Cattle		
	1 only	32	26.67
	2-3	62	51.67
	More than 3	26	21.66
	Sheep		
	No	120	100
	1-5	_	
	5-10	_	
	More than 10	_	
	Goat		
	No	96	80.00
	1-5	6	5.00
	5-10	8	6.67
	More than 10	10	8.33
2	**Type of livestock**		
	Cow		
	Local	91	73.39
	Cross bred	33	26.61
	Buffalo		
	Local	53	69.73
	Cross bred	23	30.27
3	**Material possession**		
	Cattle shed		
	Permanent	14	11.67
	Semi permanent	76	63.33
	Temporary	30	25.00
4	**Farm Power**		
	No draught animal	97	80.08
	1 drought animal	14	11.66
	2-3 draught animal	9	7.50
	More than 3	_	_
	Tractor	_	_

Table 4: Average milk yield per household per day for different categories of farmers

S. No	Category of farmer	Average milk yield(litres)
1	Marginal	
	Cow	2.30
	Buffalo	2.32
	Average	2.31
2	Small	
	Cow	3.35
	Buffalo	3.39
	Average	3.37
3	Semi medium	
	Cow	3.34
	Buffalo	4.32
	Average	3.83

The data in the table 4 shows the average milk yield per household per day (240 days/year for cow and 270 days/year for Buffalo) for different categories of farmers. It was 2.31 litres in case of marginal farmers, 3.37 litres in case of small farmers and 3.83 litres in case of semi medium farmers.

Table 5: Constraints faced by the farmers in livestock sector

S. No	Nature of Constraint	No. of respondents(%age)	Intervention
1	a. Low milk yield b. Late sexual maturity c. Short lactation Period	88(73.33) 65(35.20) 42(35)	a. Increasing stock availability through cross breeding to increase lactation period b. Motivating and facilitating small farm holders to use improved breeds of cattles
2	a. Lack of Credit facilities for livestock b. High cost of feed c. Lack of guaranteed price of the milk	84(70) 97(80.83) 102(85)	a. Encouraging Public and Private financial institutions to provide cheap loans b. Developing feed resource base including pastures , community grazing lands and other natural forages to reduce the expenses of feed c. Access to land in case of small and marginal farmers for forage d. Regulating price of milk by announcing Minimum Support Price for milk and milk products like that of food grains
3	a. Lack of dairy processing technologies b. Lack of insurance	104(86.6) 112(93.3) 79(65.83)	a. Providing value addition and food processing at the Panchayat level b. Developing projects to involve both Public and Private sector for cent percent insurance coverage of livestock
4	a. Poor extension services regarding veterinary like vaccination b. Lack of cooperative organizations c. Improper collection and distribution network d. Lack of artificial insemination facilities	98(81.6) 107(89.16) 109(90.83) 48(40)	a. Institutional improvements for delivery of animal health services b. Improving extension services through programmes like PARAVET* c. Promoting a milk market expanded to the region outside the traditional centers of milk consumption

*PARAVET is a programme launched by government of Jammu and Kashmir for development of livestock. As per the estimates of planning commission the state needs 4000 veterinary centers and presently there are only 3000. To meet this gap the state instead of opening new centers has started PARAVET scheme. The scheme aims at providing the youth training in artificial insemination and veterinary first aid. The scheme also has the provision of Kits, mobile phones and bicycles to reach the inaccessible areas. The data in the Table 5 depicts the different constraints faced by respondents (in percentage) and the possible interventions that can be tried. The major constraints faced by the farmers engaged in livestock are low milk yield (73.33%), late sexual maturity, short lactation period, lack of credit facilities for livestock, high cost of feed (80.83%), lack of guaranteed price of the milk (85%), Lack of dairy processing technologies (86.6%), Lack of insurance (93.3%), Lack of timely vaccination Poor extension services regarding veterinary (81.6%), lack of cooperative organizations (89.16%), Improper collection and distribution network (90.83%) and lack of artificial insemination facilities by 40% of the respondents

Table 6: Distribution of livestock farmers according to their knowledge on selected animal rearing practices (N=240)

S. No	Name of the Practice	No. of respondents	Percentage
1.	Balanced feed	36	30.00
2.	Preparing silage	34	28.33
3.	Cleaning of shed	56	46.66
4.	Artificial insemination	120	100
5.	Vaccination	24	20.00
6.	Castration	18	15.00
7.	De worming	46	38.33
8	Disposal of animal waste	14	11.66

Table 6 shows the knowledge of livestock owners regarding different animal rearing practices. Out of the eight practices selected all the respondents had knowledge about artificial insemination. But in case of other practices the respondents knowledge was well below fifty percent. The lowest was regarding vaccination where just 20% of the respondents know about different diseases and their vaccination schedule. Only thirty percent of the respondents knew about balanced feed for their livestock. Twenty eight percent of the respondents had knowledge of silage making. Thirty eight percent of the respondents had knowledge of how to de worm the animals and just only eleven percent knew how to dispose of the animal waste.

INTERVENTION

The low milk yield is largely due to the use of local (Desi) varieties of livestock. These have a short lactation period and are therefore not much productive. Hence there is an urgent need to increase stock availability through cross breeding. This alone will not suffice and at the same time we have to motivate and facilitate small farm holders to use improved breeds of cattles. High cost of mineral mixture is also another constraint. Due to reduction in grazing areas and pastures the farmers are over dependant on feed that costs them heavily. As such our priority should be to develop feed resource base including pastures and community grazing lands and other natural forages to reduce the expenses of feed. There is an urgent need to regulate the price of milk by announcing Minimum Support Price for milk and milk products like that of food grains. Provision of value addition and food processing at the village or Panchayat level is also a welcome step in this direction and private sector may be involved in this. Universal insurance coverage of livestock should be done, institutional improvements for delivery of animal health services through schemes like PARAVET and promoting a milk market expanded to the region outside the traditional centers of milk consumption are some of the interventions that can go a long way in improving our livestock productivity and maintain our status as world leader. Today only 30 percent of the milk is procured by the co-operatives which have to be increased to 65 percent in next 15 years in order to achieve the demand for milk which is projected to be around 200 million in 2021-22 (Anonymous, 2012).

RECOMMENDATIONS FOR STRENGTHENING LIVESTOCK SECTOR

It is estimated that the demand for livestock products will double by the year 2020. As a result, the livestock sector will produce more than half the agricultural output in value terms. A significant proportion of this demand will come from developing countries due to rising incomes, growing urbanization, and population growth. It is expected that by 2030 the share of developing countries will increase to 63 and 54 percent respectively for meat and milk. The private sector has to play a pro-active role in the marketing of livestock products. It has a vital role in strengthening forward linkages and value-addition particularly in areas that have remained neglected.

Urgent initiatives are needed from the Public as well as Private sector for strengthening this sector and make it globally more competitive so that it can come up to the our growing expectations. A majority of our farmers still have local breed of cattles which have poor conception rates, less lactation period, low yield and take more time to mature sexually. India's livestock productivity is 20-60 per cent lower than the global average. Hence farmers need to be familiarized with cross bred cattles which have high milk yields and at the same time financial institutions should ensure 100% coverage for all the livestock owners so that credit facilities and insurance services are provided at their door steps. The Indian Tobacco Company (ITC) has taken the initiative in this direction. Under its Livestock Development Programme the Company in collaboration with Bhartiya Agro Industries Foundation [3] assists small and landless farmers to cross-breed their low milk-yielding cattle with high-yielding breeds like Jersey and Holstein-Friesian. The Company also provides a services like artificial insemination (AI), using high quality frozen semen from BAIF's state-of-the-art production centre in Pune, Regular follow-up for investigation of diseases, vaccination and nutritional advice and Pre and post-natal care for artificially inseminated cattle and the progeny (BAIF). The National Dairy Plan Also called as 'Mission Milk' unveiled by Agricultural minister Sharad Pawar aims to increase the productivity of milch animals through a scientifically planned multi state initiative. The NDP phase-1, with an outlay of rupees 2,242 crore spread over six years will be implemented in 14 major milk producing states Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal. Deficiency of feed and fodder is the biggest factor responsible for 50 per cent of the total unrealized production potential, followed by inadequate breeding and reproduction, and increasing diseases among animals. Genetic enhancement to increase the quantity and nutritive value of cereal crop residues can also be tried. Success in the genetic improvement of nutritive value with Cynadon Dactylon indicates similar success is possible with cereals that are related taxonomically. Further given the genetic variation available for selection, it should be possible to increase both quantity and quality of crop residues without sacrificing grain yield [6]. The FAO has also collaborated with the National Dairy Development Board (NDDB) in a joint initiative called the South Asia Pro Poor Livestock Policy Programme with the objective of facilitating and contributing to the development of pro poor livestock policies and programme implementation [13]. Adoption of livestock-related technologies is poor because of absence of animal husbandry extension network. The livestock extension education has to play an important role in this context to empower the farmers with appropriate technological knowledge and skills through various extension education and training programmes with special reference to Indian livestock farming situations. The concept of extension with a focus on livestock extension should be made a policy issue.

CONCLUSION

Agriculture sector undergoes a historic change as livestock surpasses the economy of food grain. Policy makers in India are finally acknowledging a structural shift in the agriculture sector they have been noticing for a decade. The target of 183 MMT milk production in 2022 can only be achieved by pursuing right policies, practices and technology in breeding [14]. Economic contribution of livestock is today more than that of food grain crops. Rise of the livestock sector has implications for poverty. The states with higher livestock share have low level of poverty and vice versa. A Planning commission report concludes that rural poverty is less in states where livestock contributes more to farm income, Punjab, Haryana, Jammu and Kashmir, Himachal Pradesh, Kerala, Gujarat and Rajasthan are a case in point. The states with higher livestock share have low level of poverty and vice versa. About 70 per cent of the livestock market in India is owned by 67 per cent of the small and marginal farmers and by the landless. One way, prosperity is now more dependent on per capita livestock ownership than on farms. This implies that the growth of the livestock sector would have more effect on poverty reduction than the growth of the crops sector. But this is not the full potential of the sector. Absence of policy focus has stifled the sector that caters to the poorest.

As livestock is less prone to global warming and climate change, it can be considered more reliable than rain-fed agriculture. But livestock receives only 12 per cent of the total public expenditure on the agriculture and allied sector and four-five per cent of the total institutional credit flow into the sector. Hardly six per cent of the livestock are insured. The only Centrally sponsored scheme on livestock extension, with a budget of Rs 15 crore in 2011-12, is yet to spend a penny. The livestock sector is expected to emerge as an engine of agriculture growth in the 12th Plan and beyond in view of rapid growth in demand for animal food products. Livestock has assumed the most important role in providing employment and income generating opportunities. For Techno-economic transformation of Dairy sector the farmers should be provide with technical knowledge and productive resources and services to enable them to increase their income and improve their standard of living.

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