Economic Affairs: Vol. 59 Special Issue: 757-765: 2014

Status and Constraints in Livestock Farming amongst Tribal Farmers of Kamrup District in Assam

D.K. Mazumder[1*], D.N. Kalita[2] and S.C.Kalita[3]

[1]*Horticultural Research Station, Kahikuchi, Guwahati, Assam, India.*
[2,3] *Krishi Vigyan Kendra, Kamrup, Kahikuchi, Guwahati, Assam, India.*

**Corresponding author: D.K. Mazumder; dkmazumder6@gmail.com*

Paper No. 189 Received: 18 May, 2014 Accepted: 21 June, 2014

Abstract

Livestock is an integral part of the agricultural economy of Assam and its role is particularly significant in the social, economical and environmental system of the tribal society in the state. In recognition of its importance and potential, the development of livestock was viewed as a key strategy for overall development of the tribal economy.

Using the stratified multistage random sampling technique, a sample of 200 beneficiary farmers in tribal areas of *Boko* block in Kamrup district comprising 124 landless and marginal, 60 small and 16 medium farm households were selected. Primary data collected in pre-tested schedule by personally interviewing the farmers was analysed to fulfil the objectives of the study. The findings revealed that the farming system practice was crop based, with livestock and homestead as other activities. Agricultural practices followed were mostly traditional with partial application of improved package of practices and homestead gardens were not scientifically managed. The productivity of the livestock and poultry reared by the farm families was low attributed to various technological, socio-economic and infrastructural constraints. The study recommended various strategies for the development of the livestock sector that would help to improve production and income, generate employment opportunities in a sustainable manner and ensure livelihood security of the rural people.

Keywords: Farming system, survey method, household income, livestock, constraint analysis, technological intervention.

Agriculture is the primary source of livelihood for more than 75% of rural population in Assam characterised by subsistence nature of farming and low use of inputs and productivity. The farming system practice is crop based along with livestock and homestead activities as secondary activities. Although, rice dominate the cropping pattern in the region, the importance of livestock as an alternative

source of income, employment generation and livelihood sustainability is significant particularly in the tribal economy of Assam where about two-thirds of female work force is engaged in this sector. Moreover, studies revealed that livestock wealth is more equitably distributed than that of land and thus the importance of livestock in poor households is felt even more. Though, livestock is an integral part of social, economical and environmental system of tribal society yet, the productivity of the livestock and poultry reared by the farm families was low attributed to indigenous breeds and traditional method of rearing

Livestock rearing contributes to on-farm diversification and intensification and the importance of livestock is felt more in rainfed areas because of the constraints in crop intensification, limitations of technology dissemination, etc. It is particularly relevant to Assam situation where out of the total gross cropped area of 41.60 lakh ha in Assam, more than 70% of the area is rainfed (Anonymous 2013).

In the North-East, more than 90% of people are non-vegetarian and as there is no social and religious restriction on the consumption of meat and eggs, the demand of these products is significantly high in the region. The present production in the region is inadequate and the demand is supplemented by importing from other states. The high cost of transportation and profit margin of intermediaries highly inflates the retail price of these products paid by consumers. Thus, to bridge the gap between demand and supply of this product in the region, there is need to adopt suitable strategies and policies which can augment production and improve income of farmers on a sustainable basis and thus accelerate the pace of poverty alleviation. With this context, the present study has been undertaken in the tribal dominated areas of Boko block in Assam. It is envisaged that the analysis of livestock sub-sector at this specific level would help in planning for livestock development at the macro-level base on the resource endowment of the specific region. The specific objectives of the study were -

(i) To study the socio-economic characteristics of the sample households

(ii) To study the existing practices for livestock.

(iii) To analyse the constraints associated with livestock sector.

(iv) To identify the strategies for development of livestock sector.

Methodology

The study was conducted in 10 backward tribal villages in Boko block of Kamrup district. Using the stratified multistage random sampling technique and following the proportional allocation method, a sample of 200 beneficiary farmers from ten villages belonging to 3 different size group viz. landless and marginal (up to 1 ha), small (1 to 2 ha) and medium above 2 ha was selected. The sample comprised 124 landless and marginal 60 small and 16 medium farm households and they were reckoned as group I, group II and group III respectively. Primary data pertaining to the objective of the study was collected by survey method through pre-tested schedule by personally interviewing the households during March – April, 2013. Secondary data to substantiate the objectives of the study was also collected. The collected data was tabulated and analyzed using tools like percentage, average rank, etc. to fulfil the objective of the study.

Table 1. Distribution of households in the selected villages

Sl. No	Name of the village	Group - I	Group – II	Group - III	Total
1	Agchia	20	-	-	20
2	Bhogdabari	17	6	2	25
3	Chakabaha	4	5	1	10
4	Jabepara	9	9	2	20
5	Mugakhol	10	8	2	20
6	Pahlapara	11	6	3	20
7	Raipara	9	8	3	20
8	Rangchipara	20	10	-	30
9	Tinigharia	9	5	1	15
10	Turukpara	15	3	2	20
Grand total		124	60	16	200

Results and Discussion

The results of the study are discussed in this section with reference to the stated objective.

1. Socio-economic characteristics

The socio-economic profile has been studied in respect of family size, sex ratio, size of holding, education status of family head and income and is presented in Table 2. The study area was dominated by Group I farmers comprising 62% followed by Group II (30%) and Group III (8%). The average size of holding worked out as 0.503, 1.33 and 2.82 ha for the above three size groups respectively.

The average size of family at the aggregate level worked out as 5.05 and there was no systematic and considerable variation between the size-group in respect of family size. The distribution of population according to population indicated that the male population was slightly higher than that of female population in the different size groups and at the overall level the sex ratio was worked out at 969.

Generally the head of the household plays a major role in the farm decision making and therefore the academic attainment of the head of the household was analyzed. It was found that at the overall level 9% was illiterate, 18.5%, 28% and 42% studied upto primary, middle and high school level respectively. Only 7% had studied above high school level. The above analysis clearly indicated that although the literacy% was satisfactory but it was confined upto the high school level only.

 Print ISSN: 0424-2513 Online ISSN: 0976-4666

Table 2. Family size, sex ratio, size of holding, education status of family head and annual household income

Sl. No.	Socio-economic characteristics	Size Group			
		Group I	Group I	Group I	Overall
1	Sample households (No)	124	60	16	200
2	Sample households (%)	62	30	8	100
3	Average size of family (No)	5.08	4.97	5.12	5.05
4	Sex ratio	969	987	907	969
5	Average size of holding (ha)	.503	1.33	2.82	0.936
6	Education of family head (%)				
	Illiterate	4.84	5.00	-	4.5
	Primary level	16.94	20.0	25.0	18.5
	Middle level	25.81	31.67	31.25	28.0
	High school level	46.77	35.0	31.25	42.0
	Higher	5.64	8.33	12.5	7.0
7	Different sources of annual household income (₹)				
	Agriculture	13,776.00 (24.0)	32,122.40 (39.75)	78,778.40 (56.17)	24,480.11 (34.45)
	Livestock	11,824.40 (20.60)	15,556.10 (19.25)	22,860.75 (16.30)	13,826.76 (19.46)
	Homestead	7,117.60 (12.40)	10,748.00 (13.30)	21,738.75 (15.50)	9,376.41 (13.20)
	Off-farm income	24,682.00 (43.00)	22,384.50 (27.70)	16,872.10 (12.03)	23,367.72 (32.89)
	Total	57,400.00 (100.00)	80,811.00 (100.00)	1,40,250.00 (100.00)	71,051.00 (100.00)

Figures in parenthesis indicate percentage to total income.

Family income is perhaps is one of the most important criteria that determines the socio-economic status of an individual/family and hence the source-wise and group-wise annual family income was worked out.

The per household annual income in case of group I, group II and group III was ₹ 57,400/-, ₹ 80,811/- and ₹ 1,40,250/- respectively. An analysis of the source-wise income revealed that at the aggregate level, agriculture contributed 34.45% followed by off-farm (32.89%), livestock (19.46%) and homested (13.20%) respectively. The contribution of different enterprises to total household income in size-group showed that in case of group I, 43% came from off-farm source followed by agriculture (24%). In group II, of the total household income 39.75% came from agriculture followed by off-farm source (27.70%). For group III of the total household income agriculture attributed for the bulk share (56.17%)

Thus from the above table, it can be interpreted that landless and marginal farmers depended upon off-farm sources as the most important source of income to sustain their livelihood and was progressively replaced by agriculture with increase in farm size. Another significant feature of the surveyed households was preparation of rice bear exclusively carried out by the women folk of the community, which supplemented the income in most of the families.

Existing farming system

The farming system prevailing in the study area was a combination of crops, livestock and homestead activities and this system of practice has been followed as a tradition. The above system besides providing income throughout the year also helped to keep the household members occupied and provides nutritional security.

Agriculture and homestead

Among field crops, rice was the major crop grown during *kharif* season and it occupied about 90% of the gross cropped area. During *rabi* season, rapeseed and pulses were grown only by few farmers. As such, the area was mainly mono cropped. Irrigation was the major constraint that prevented the farmers to go for double cropping. Horticultural crop were mainly raised in homestead included coconut, arecanut, beetlevine, banana, papaya, Assam lemon, pineapple, bamboo, vegetables, etc. Few farmers raised vegetables in the main field on a commercial basis. Agriculture practices followed were mostly traditional with partial application of improved package of practices and homestead gardens were not scientifically managed. As such the production and productivity of crops was low that fulfilled the domestic needs with little marketable surplus.

Livestock

The different types of animals and birds reared in the study area (Table 3) were cattle, bullocks, young calves, goats, pigs, poultry birds, ducks and pigeon. The size of animals and birds maintained by the farm families was uneconomic. The average number of cattle and goats per household were worked out as 1.32 and 2.29 while that of pigs and poultry birds were 2.72 and 10.5 respectively. Enterprises like bullocks, ducks and pigeons were less than one. It was observed that the households did not rear all types of animals and birds and as such the average number per farm showed fractional value which in real sense should have been integer number. The type of animals and birds reared were mostly indigenous breeds and the method of rearing was traditional as backyard farming. Only few crossbred pig population was observed. Thus, the productivity of the livestock and poultry reared by the farm families was low attributed to indigenous breeds, unbalanced feeding and traditional method of rearing.

 Print ISSN: 0424-2513 Online ISSN: 0976-4666

Table 3. Population of livestock / birds of the sample households

Sl. no	Category of livestock / birds	Group – I		Group – II		Group – III		Overall	
		Total	Per farm	Total	Per farm	Total	Per farm	Total	Per farm
1	Indigenous cattle	140	1.13	88	1.44	36	2.25	264	1.32
2	Crossbred cattle	18	0.145	12	0.2	6	0.38	36	0.18
3	Young calves	65	0.524	40	0.67	16	1.0	121	0.605
4	Working bullock	40	0.32	45	0.75	14	0.875	99	0.495
5	Goat	300	2.42	100	1.67	58	3.625	458	2.29
6	Pig	320	2.58	155	2.583	70	4.38	545	2.72
7	Fowl	1250	10.08	700	11.67	150	9.375	2100	10.5
8	Duck	100	0.806	50	0.83	40	2.5	190	0.95
9	Pigeons	30 pairs	0.242	20 pairs	0.333	12 pairs	0.75	62 pairs	0.31

Further, it was observed that in the study area every household used to maintain though small in size a flock of poultry birds and few pigs perhaps due to their socio-cultural ethics and norms and the prevailing socio-economic environment (Kumar A and Singh D. K). The entire 200 households interviewed belonged to the *Rabha* community listed in the Scheduled Caste category and thus caste had an influence on the decision of livestock rearing. Moreover, pig and poultry farming were sources of cash income for the subsistence of the households. The interview of the farmers further revelled that they were interested particularly in the commercialization of these two enterprises primarily due to the attachment of these two enterprises with their traditional culture and religious practices.

Constraint Analysis

At the time of survey, the farmers were interviewed to indicate the factors that had acted as constraints in the livestock developed sector. Three types of constraints i.e. technological, socio-economic and infrastructural constraints as perceived by the sample households were studied and the results are presented in Table 4.

Technological

Non-availability of improved breeds was the most significant problem reported by 95% followed by high cost of concentrate feed (86.5%). Lack of knowledge on scientific management and rearing of animals and inadequate availability of fodder as constraints at the individual farmer's level were stated by 85% and 70% respectively. Lack of departmental coordination and inadequate veterinary infrastructure for prophylactic and curative measures were the other major constraint stated by 70% and 65% of the respondents. Farmers felt the need for adequate veterinary infrastructure and animal health services especially with respect to manpower for overall development of the livestock sector. Birthal and Negi (2012) in their study stressed on improved health and veterinary services in the livestock development agenda.

Table 4. Constraint analysis of sample households

Sl. No	Constraints	Group – I		Group – II		Group – III		Overall		Rank
		F (N = 124)	%	F (N = 60)	%	F (N =16)	%	F (N = 200)	%	
Technological										
1	Non availability of improved breeds	100	80.65	48	80	12	75	160	80	IV
2	Non availability of feeds and fodders	107	86.29	53	88.33	13	81.25	173	86.5	II
3	High cost of concentrate feed	116	93.55	59	98.33	15	93.75	190	95	I
4	Inadequate knowledge of scientific management of livestock / birds	108	87.1	52	86.67	10	62.5	170	85	III
5	Lack of departmental coordination	90	72.58	41	68.33	9	56.25	140	70	V
6	Inadequate veterinary services	76	61.29	38	63.33	11	68.75	125	62.5	VI
Socio-economic										
1	Social system norms	120	96.77	54	90	10	62.50	184	92	I
2	Non receipt of subsidy	90	72.58	39	65	7	43.75	135	67.5	II
3	Low level of education	22	17.74	15	25	8	50	45	22.5	III
Infrastructural										
1	Lack of adequate credit facilities	104	83.87	48	80	13	81.25	105	82.5	I
2	Shortage of electricity	93	75	45	75	10	62.5	148	74	II
3	Inadequate transport facilities	26	20.97	14	23.33	5	31.25	45	22.5	IV
4	Lack of marketing facilities	20	16.13	12	20	8	50	40	20	V
5	Non availability of labour	30	24.19	25	41.66	8	50	63	31.25	III

Socio-economic

The major socio-economic constraint revealed by 92% of the households was rigidity to change from the traditional system of rearing. They preferred the open system of rearing particularly for piggery that requires minimum care characterised by extensive use of locally available food-stuff, kitchen waste, home grown cereals and their by-products. This system helped in cleaning the debris, etc. within the homested and its surroundings. The high incidence of diseases and mortality may be attributed to the above unhygienic system of management. Majority of the farmers in the study area were economically poor and they desired incentives in the form of external aid and subsidies for expansion of their farm

business or for introduction of new technology etc. Hence, the non-receipt of subsidy as a constraint was reported by 67.5% of the respondents. Low level of education especially in the context of taking farm decisions and acquiring new ideas as a constraint was reported low (22.5%).

Infrastructural

The poor assess to credit (Srinivas D, 2013) reported by 82.5% of the households was observed to be the most important infrastructural constraint in improving the management system, expansion and commercialization of their farm business. Thus the access to institutional credit would induce the households to shift from subsistence nature of livestock rearing to commercialization. Shortage of electricity had adversely affected commercialization and was reported by 74% of the respondents. The problem of transportation and lack of marketing facilities was reported low in the area. The area was well linked to Guwahati, through the National Highway No 31. Moreover local markets were also available. As such, farmers did not have problem in disposing of their surplus livestock and other farm produce. However, the problem of transportation and marketing were reported by 22.5% and 20% of the sample farmers located in the interior of the villages. Livestock rearing primarily depended upon family labour and hence the non-availability of labour as a constraint was reported low (40%).

Necessary technological interventions

The constraints should be addressed with adoption of suitable strategies. The following strategies in the form of technological interventions has been suggested for the overall development of the livestock sector

1. Lack of awareness and technical know how was a major constraint in adoption of improved technology and therefore the study suggested the need for imparting training on scientific management practices for livestock and birds. Other extension programmes like trials and demonstrations should also be conducted at farmers/household level to assess a new technology and for popularizing a proven technology.
2. The farmers need to be encouraged to rear improved breeds of animals and birds to reap the benefit of increased production and productivity along with feeding of balanced nutrition.
3. There is need to create awareness for crossbreeding of local / indigenous with improved breeds. This strategy would help to improve the productivity of indigenous stock of animals and birds, etc.
4. Credit has played an important role in commercialization and mechanization of farm business. Arrangement should be made for providing external credit from nationalized banks and other financial institutions. Also the credit should be made convenient to the farmers, timely and credit documentation should be simplified and farmers friendly.
5. Adoption of strategies for further strengthening the existing animal health and veterinary services that would help for development of a strong livestock economy.
6. Supply of improved breeds, feeds etc. at subsidized rate particularly to the economically weaker sections.

7. Effort need to be made for enhancing the availability of quality fodder through increasing the productivity of fodder, introduction of forage crops on fallow land, wasteland, etc.
8. Promotion and production of low cost feed with locally available ingredients for livestock. This would reduce the cost of production of livestock products which is otherwise incurred with feeds brought from other states at a high market value (Kumar *et al*., 2007).
9. Steps need to be undertaken for improvement of the power supply system in rural areas.

Conclusion

An attempt was made in this paper to study the livestock profile in tribal areas of Boko block in Assam. It had been observed that the present practice of rearing livestock and poultry was traditional in nature, uneconomic in size and the breeds of livestock and poultry were indigenous with low productivity and income. The farmers were unaware of the scientific management practices as they were not exposed to sufficient training and other extension programmes for the enhancement of their knowledge and skill. There were also other factors that acted as constraints in the commercialization and development of the livestock sector. It is expected that the strategies that has been suggested would help in the overall development of the livestock sector. The farmers' capacity would be enhanced that would ensure their livelihood security and rural employment opportunity would also increase. A set of empowered and skilled entrepreneurs would grow in the community that in turn would inspire the neighbourhood localities and overall economic development of the region.

References

Anonymous 2013. *Economic Survey, Assam*, Published by Directorate of Economics and Statistics, Assam, Chapter **6**: 69.

Birtal, P. S. and Negi D.S. 2012. "Livestock for higher sustainable and inclusive growth" *Economics and Political Weekly.* **47**(26 and 27): 89-99

Kumar A and Singh D. K. 2008. "Livestock Production in India – an appraisal across Agro- Ecological Regions" *Indian Journal of Agricultural Economics.* **63**(4): 586-590.

Kumar A, Staal S, Elumalai K, Singh D. K. 2007. "Livestock Sector in North Eastern Region of India: An Appraisal of Performance" *Agricultural Economics Research Review.* **20**(2): 255-272.

Shreenivas D., 2013. "Constraints analysis of tribal livestock farming in Warangal district of Andhra Pradesh" published in the *Souvenir cum Compendium* of National Seminar on Extension approaches for inclusive Agricultural Development in Hilly, Tribal and Backward areas, held at CV. Sc. Guwahati, from 20th - 22nd, August, 2013 and organized by Indian Veterinary Extension Forum.

 Print ISSN: 0424-2513 Online ISSN: 0976-4666