

Status of Livestock Sector: A Micro Study of North Eastern India

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Abstract

This paper tries to find out how the livestock sector is performing in North-eastern (NE) region. The share of livestock sector to the agriculture GDP is decreasing over the years in NE states. In between 1997 and 2003, the population of cattle, buffalo and yak has declined in the region but registered significant increase in sheep (51%), pig (25%) and poultry (13%) population. Maximum growth in crossbred population was observed in Nagaland (58%) and Sikkim (54%). Milk production has increased by nine per cent during 1998-99 and 2005-06. In aggregate level in NE states, egg production is only two per cent of the total egg production level in the country during 2005-06. The meat production in recognized sector has also gone up by 63 per cent in NE region between the period of 2000-01 and 2005-06. The study concludes that rearing of small ruminants, pig have good scope for the landless and marginal farmers as they are prolific and require low input.

Introduction

The seven sisters Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim constitutes the North-Eastern (NE) region of India which occupies about eight per cent of total land area and 3.8 per cent of total population of the country. Agriculture is the major source of employment and livelihood for around 70 per cent of population in this region. Livestock is an important component of mixed farming system due to preference of meat in their diets. The area is known as meat consuming zone of India. There are no social taboos in taking any type of meat but the most preferred meat is pork, followed by beef, chicken and others. Consumption of milk and milk products is lower in this part in comparison to Northern states of India due to food habit and less availability of milk but due to increase in per capita income and changes in life style demand for milk and milk products is also growing. Moreover, the

area is poverty ridden and the issue of nutrition in the distant hills remains unresolved. Hence, enhancement of milk production especially in landless and marginal households may be of prime importance. About 30 per cent of landless and 48 per cent of marginal households keep livestock in the NE region (NSSO, 2003). Livestock sector can also generate alternate livelihood to the marginal section of the society. Keeping in view about the potential of livestock sector vis-à-vis poverty alleviation, nutritional security and employment generation in hilly tracts of the NE region, it is pertinent to study the status and performance of the livestock sector in the region. This paper is an attempt in that direction.

Data and methodology

Secondary data were collected from various issues of National Accounts Statistics of the Central Statistical Organization (CSO), Indian Livestock Census and Basic Animal Husbandry Statistics. Data were subjected to Tabular analysis to come at logical conclusion. Simple percentages and averages were calculated to get overall picture of the status of livestock sector in NE region and compare with corresponding national averages.

Results and discussions

Share of livestock in agricultural State Domestic Product (SDP)

Over the years the share of agriculture and allied sector to the Gross Domestic Product (GDP) of India has started declining whereas the share of livestock sector to the agriculture GDP is increasing over the years but the trend is reverse in case of livestock sector in NE states (Table 1). Growth in both sectors has varied widely across states within the NE region. However, the inter-state growth in the livestock sector has been more equitable than the crop sector (Kumar *et al.*, 2007).

Livestock and poultry population

According to Livestock Census 2003, NE region is home for 210.32 lakh livestock and 364.62 lakh poultry which accounts for 4.34 per cent of the

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total livestock and 7.46 per cent of poultry birds in India (Table 2). Assam being the largest state have maximum (66 % and 59 %) of the total livestock and poultry resources of NE Regions and followed by Meghalaya (7 % each) and Tripura (7 % & 8 %). Cattle population occupies 55 per cent of the total livestock of the NE region. Goats and pig are the other major animals reared in the region with a share of 21 per cent and 18 per cent of the total livestock population.

Maximum of the cattle population is local cows, crossbreds (CB) being only 8 per cent which is much lower than the national average of 13 per cent. The proportion of crossbred animals to total population in Nagaland (54%), Sikkim (50%) and Manipur (17%) is higher than the national average. Nagaland has 26 per cent of the total CB population of the NE Region, after Assam (47%). The region is also home tract of 91 percent of Mithun population of India and mainly concentrated in Arunachal Pradesh. Assam, Nagaland and Meghalaya are the major pig rearing states of NE region. Twenty eight per cent of total pig population of India is found in the region. In case of poultry, Assam accounts for 59.42 per cent of the total poultry population of NE region, followed by Tripura (8.38 %) and Manipur (8.07%).

The change in structure of livestock production is depicted in Table 3. In between 1997 and 2003, the population of cattle, buffalo and yak has declined in the region. Yak population has declined significantly (35 %) in Arunachal Pradesh but the region has registered significant increase in sheep (51 %) and pig (25 %) population during the same period. The percentage increase in sheep, goat and CB population is higher in NE region than the average national level increase. The region has experienced an increase of 13 per cent in poultry population. Maximum growth in CB population can be observed in Nagaland (58%) and Sikkim (54%) but decline can be observed in most of NE states in case of local cows. Only in Mizoram and Meghalaya the population of buffalo increased during the period of 1997-2003. Sheep population has jumped by 102 per cent and 100 per cent in Assam and Nagaland during the same period. Maximum growth in goat population can be observed in Arunachal Pradesh and Sikkim.

Production trends

Milk production has increased from 1075 thousand tonnes in 1998-99 to 1169 thousand tonnes in 2005-06 which is an increase of 9 per cent but during the same period milk production of India has increased by 35 per cent (Table 4). Milk production has increased in all the NE states except

Mizoram during the period of 1998-99 and 2005-06. Increase in milk production is higher than the national average only in two states, i.e., Nagaland and Sikkim. It is interesting to note that Assam which has the largest livestock resource in the region has the minimum growth in milk production which may be contributed to the fact that it has maximum of indigenous breed in total cattle population. The total milk production of the region is only 1.20 per cent of the total milk production of the country during 2005-06 which is a clear decline from 1.49 per cent during 1998-99.

The per capita milk availability is 100g/day during 2005-06 which is only 40 per cent of the national average of 241 g/day and much lower than the Indian Council of Medical Research (ICMR) recommendation level of milk consumption of 220 g/day for a person. The per capita milk availability has increased from 7 per cent during 1998-99 and 2005-06 while during the same period national average has improved by 13 per cent. Arunachal Pradesh, Assam and Mizoram witnessed decline in per-capita availability of milk while in other states, it has increased.

In aggregate level in NE states egg production is only two per cent of the total egg production level in the country during 2005-06 (Table 5). Assam is the highest (55 %) producer of egg in the region, followed by Tripura (11%) and Nagaland (9%). Though the country has witnessed a huge leap in egg production during the 1998-99 and 2005-06 but it has been much slower in NE region. A significant decline of 78 per cent can be observed in egg production in Arunachal Pradesh whereas Nagaland has witnessed highest (81%) increase in egg production in the region during the same period.

In NE states per capita egg availability is 34 in comparison to national average of 42. The per capita availability of eggs is higher in Nagaland (41) followed by Manipur (40) and Meghalaya (39). All the states registered varying degree of increase in per capita egg availability except Sikkim, Mizoram and Tripura.

The meat production in recognized sector has also gone up by 63 per cent in NE region between the period of 2000-01 and 2005-06 which is significantly higher than the increase in all India level (Table 6). Though all the states in the region have witnessed increase in meat production but the increase in Nagaland and Assam is significant which may be due to their large livestock base and people's preference for meat.

Productivity of animals

From Table 7 it is clear that the average productivity of crossbred cattle in milk in NE region is 6.37 litres per day which is slightly lower than the national average of 6.44 litres per day. The productivity of crossbreds in Meghalaya, Mizoram and Manipur is more than the national average. But the local cows which constitute more than 90 per cent of the total cattle population of the region are low yielder with productivity of 1.25 litre of milk per day only. Amongst the NE states, in Nagaland the productivity of local cows is highest (2.2 litre/day) whereas in Assam, which is the major milk producing state in NE region, it is lowest (0.92 litre per day). Perusal of productivity of milk in case of buffalo shows that the buffaloes in the region are very low yielder in comparison to other parts of India. Similarly, the productivity of deshi and improved fowl is much lower than the national average. Deshi fowls of Arunachal Pradesh and Sikkim produces more than the rest of India whereas improved fowls of Sikkim, Nagaland and Arunachal Pradesh produces more than the rest of India.

Feed and fodder

The quantum, the type and quality of feed resources also vary across the states in the region. (Table 8). Crop residues and byproducts are used as animal feed in the region. The feed resources used by the farmers of the region are not balanced in terms of protein and energy to meet the nutrient requirement of the animal leading to poor performance. The gap between demand and availability is major challenge to the animal rears in the hills, especially in summer. The area under fodder is very minimal in NE region as like whole India (Table 10). Farmers mainly depend on common property resources, viz., permanent pastures and grazing lands, wastelands, fallows etc. for grazing of animals. However, these resources have been dwindling over time (Kumar *et al.*, 2007). Gap in availability of concentrate is around 75 per cent (Gupta, 2007).

Veterinary services

Animal health is an important aspect for development of livestock sector. The veterinary infrastructure in NE region is inadequate in terms of both quantity as well as quality (Table 9). In this region, only about 22 per cent of the farmers could avail veterinary services, while at all India level 32

per cent of the farmers could use this service. Veterinary hospitals and dispensaries mainly perform curative action but they lack prophylactic measures which is very important in relation to the Avian Influenza disease.

Marketing opportunity

Absence of organized marketing channels in NE region is one of the major constraints faced by livestock sector of the region. Only a few cooperative milk plants are working in the region. Only three per cent of the total marketed milk and milk products is handled by organized sector, both cooperative and private in Assam. Thus, the traditional market is the only option available in the region to market the indigenous as well as processed milk products.

Conclusions

Contribution of livestock sector to agriculture GDP has declined in the NE region over the years. Population of crossbred cattle, sheep, goats and pig in the region has increased. Rearing of small ruminants, viz., sheep and goat have good scope for the landless and marginal farmers as they are prolific and require low input. Pig rearing is very promising in the region due to high demand for pig meat within the tribal people of the NE region. Therefore, it is suggested that attention is required in providing technical assistance in breed improvement, scientific management practices, feed and fodder availability, control of disease etc which will lead to increase in the livestock production and productivity. Government initiatives are required to explore the possibility of improved fodder production in 7.8 m ha cultivable wasteland of the region. Hence, it is concluded that the livestock sector can play a good role not only in the issues of food security and nutritional security in the NE region but also will be helpful in income and employment generation to the rural poor if proper policy initiatives are taken.

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Table 1 : Share of livestock in agricultural GDP and compound growth rates in agriculture, crop and livestock sector (in %)

A. Share of livestock in agricultural GDP				
States	TE 1992-93		TE 2002-03	
	Share of agriculture in GDP	Share of livestock in agricultural VOP	Share of agriculture in GDP	Share of livestock in agricultural VOP
NE region	34.2	19.5	28.8	18.1
All India	29.2	24.1	21.4	27.6
B. Compound growth rate				
States	Agriculture	Crops	Livestock	
	1993-94 to 2004-05	1992-93 to 2002-03	1992-93 to 2002-03	
NE region	2.99	3.13	2.37	
All India	2.48	2.09	3.51	

Source: National Accounts Statistics (various years), CSO

Table 2 : Total Number of livestock and poultry: 2003 (in thousand)

States	Cattle			Buffalo	Sheep	Goats	Pigs	Yaks	Mithun	Total livestock	Total poultry
	CB	Local	Total								
Arunachal Pradesh	13	445	458	11	19	231	330	9	192	1257	1743
Assam	440	8000	8440	678	170	2987	1543			13829	21664
Manipur	69	349	418	77	6	33	415		20	971	2941
Meghalaya	23	744	767	18	18	327	419			1551	2821
Mizoram	9	27	36	6	1	17	218		2	280	1125
Nagaland	243	208	451	34	4	175	644		40	1349	2789
Sikkim	80	79	159	2	6	124	38	7		337	322
Tripura	57	702	759	14	3	472	209			1458	3057
NE region	934 (3.78)	10554 (6.58)	11488 (6.20)	840 (0.86)	227 (0.37)	4366 (3.51)	3816 (28.23)	16 (24.62)	254 (91.37)	21032 (4.34)	36462 (7.46)
All India	24686	160495	185181	97922	61469	124358	13519	65	278	485002	489012

CB denotes crossbreed and Figures in parentheses indicate percentage of NEH region to all India
Source: Livestock Census (2003)

Table 3 : Change in livestock and poultry population: 1997-2003

(in %)

States	Cattle			Buffalo	Sheep	Goats	Pigs	Yaks	Mithun	Total livestock	Total poultry
	CB	Local	Total								
Arunachal Pradesh	18.18	1.14	1.55	-8.33	-29.63	50.00	32.53	-35.71	54.84	21.22	34.91
Assam	19.24	3.52	4.24	-6.87	102.38	9.94	42.61			8.72	18.97
Manipur	0.00	-20.50	-17.72	-18.95	-25.00	0.00	6.96		17.65	-7.61	-3.73
Meghalaya	35.29	0.68	1.46	5.88	5.88	16.79	19.37			8.92	31.09
Mizoram	12.50	8.00	9.09	20.00	0.00	13.33	33.74		-33.33	26.13	-13.93
Nagaland	57.79	-9.17	17.75	-5.56	100.00	8.70	12.78		21.21	13.55	14.12
Sikkim	53.85	-13.19	11.19	0.00	20.00	44.19	40.74	40.00		23.44	45.70
Tripura	-21.92	-39.22	-38.19	-22.22	-50.00	-26.13	-0.95			-30.74	-14.97
NE region	24.04	-2.69	-0.96	-8.00	51.33	6.88	25.44	-15.79	43.50	5.05	12.97
All India	22.82	-10.23	-6.89	8.90	6.91	1.33	1.72	10.17	57.06	-0.08	40.68

Source: Livestock Census (1997 & 2003)

Table 4 : Estimates of milk production and per capita milk availability

States	Milk Production (in '000 tonnes)			Per capita milk availability (g/day)		
	1998-99	2005-06	% increase	1998-99	2005-06	% increase
Arunachal Pradesh	45	48	6.67	119	113	-5.04
Assam	725	747	3.03	79	72	-8.86
Manipur	65	77	18.46	87	92	5.75
Meghalaya	61	73	19.67	76	82	7.89
Mizoram	20	15	-25.00	65	43	-33.85
Nagaland	48	74	54.17	69	96	39.13
Sikkim	35	48	37.14	186	232	24.73
Tripura	76	87	14.47	69	70	1.45
NE region	1075 (1.49)	1169 (1.20)	8.74 (25.29)	93.75 (44.01)	100 (41.49)	6.67 (50.71)
All India	72128	97066	34.57	213	241	13.15

Figures in parentheses indicate percentage of NE region to all India
Source: Basic Animal Husbandry Statistics (2006)

Table 5 : Estimates of egg production and per capita availability of eggs

States	Egg production (in lakh nos.)			Per capita availability (in nos./annum)		
	1998-99	2005-06	% increase	1998-99	2005-06	% increase
Arunachal Pradesh	326	73	-77.61	32	33	3.13
Assam	4864	5359	10.18	19	26	36.84
Manipur	645	835	29.46	32	40	25.00
Meghalaya	825	973	17.94	38	39	2.63
Mizoram	334	326	-2.40	40	35	-12.50
Nagaland	480	868	80.83	26	41	57.69
Sikkim	160	146	-8.75	31	24	-22.58
Tripura	1080	1100	1.85	36	32	-11.11
NE region	8714 (2.96)	9680 (2.09)	11.09 (19.50)	31.75 (105.83)	33.75 (80.36)	6.30 (15.75)
All India	294756	462307	56.84	30	42	40.00

Figures in parentheses indicate percentage of NE region to all India
Source: Basic Animal Husbandry Statistics (2006)

Table 6 : Estimate of meat production (in thousand tonnes)

States	2000-01	2005-06	% increase
Arunachal Pradesh	18.4	20	8.70
Assam	17.18	26.64	55.06
Manipur	20.95	23	9.79
Meghalaya	34.32	36.54	6.47
Mizoram	7.64	9.24	20.94
Nagaland	18.73	63.25	237.69
Sikkim	NA	0	
Tripura	NA	12.22	
NE region	117.22	190.89	62.85
All India	1851	2310	24.80

NA indicates data not available

Source: Basic Animal Husbandry Statistics (2006)

Table 7 : Milk productivity across animals: 2005-06

States	Milk (Kg/day)			Eggs (No/annum)	
	Cross breed	Local	Buffalo	Deshi	Improved
Arunachal Pradesh	6.00	1.15	NA	184*	296.96*
Assam	3.52	0.92	1.75	93.2	180.25
Manipur	7.49	1.41	2.95	60.91	118.14
Meghalaya	8.93	0.74	1.87	104.01	216.1
Mizoram	8.12	1.1	1.76	74.1	205.88
Nagaland	6.39	2.21	2.51	144.95	290.66
Sikkim	NA	NA	NA	182.5*	337.42*
Tripura	4.12	1.19	2.71	98.85	165.13
NE region	6.37	1.25	2.26	96.00	196.0267
All India	6.44	1.97	4.3	111.65	258.29
* data for 2003-04 and not included for calculation of productivity of egg of NEH region					
NA indicates data not available					

Source: Basic Animal Husbandry Statistics (2005)

Table 8 : Average fodder availability per adult bovine (kg/day) in North Eastern States

States	Dry fodder	Green fodder (average of 1997-2002)
Arunachal Pradesh	10.4	178.0
Assam	3.8	2.4
Manipur	4.4	7.6
Meghalaya	2.8	12.8
Mizoram	19.9	250.0

Source: Sirohi and Michaelowa, 2004

Table 9 : Area under fodder crops in NE region: 1998

States	Percentage of total cropped area
Arunachal Pradesh	0.04
Assam	0.15
Manipur	0.02
Meghalaya	0.03
Mizoram	0.07
Nagaland	0.36
Sikkim	2.58
Tripura	0.00
NE region	0.16
All India	2.29

Source: NSSO, 54th Round (1998)

Table 10 : Number of veterinary institutions in NE region: 2006

States	Veterinary hospitals & polyclinics	Veterinary dispensaries	Veterinary aid centre (stockmen centres / mobile dispensaries)
Arunachal Pradesh	1	93	189
Assam	29	428	1213
Manipur	55	109	34
Meghalaya	4	70	151
Mizoram	5	35	103
Nagaland	4	27	127
Sikkim	12	25	58
Tripura	15	56	396
NE region	125	843	2271
All India	8732	18830	25195

Source: Basic Animal Husbandry Statistics (2006)

