

# Dynamics of Livestock and Poultry Sector in Assam: A Critical Analysis

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## Abstract

This paper is a reflection of the recent status of livestock and poultry sector in the state of Assam. Assam has copious livestock and poultry population in the country, accounting for 3.25% and 8.36% of the country's total livestock and poultry population. Assam's pig population is highest in the country (17.96% of the country's total). In case of cattle, buffalo, sheep and goat Assam stood at 11<sup>th</sup>, 19<sup>th</sup>, 15<sup>th</sup> and 13<sup>th</sup> rank respectively. District wise Nagaon and Dibrugarh district has the largest livestock and poultry population with 3076004 and 2890161 numbers respectively. Livestock and poultry population reveal a good growth trend in terms of all the species except buffalo (-7.33%) during the inter census period; 2003-2007. Despite large population, production, productivity and per capita availability of milk, meat, eggs are minimal in Assam. The total milk, meat and egg production of the state for the year 2008-09 were 827 million litres, 30 thousand tonnes and 4664 lakh number respectively. Assam contributes only 0.67%, 0.8% and 0.78% to the country's total milk, meat and egg production respectively during 2009-10. There is a decline in production of milk and egg in the state during recent years and growth rate in production of meat is also not satisfactory.

**Keywords:** Livestock and poultry, population, growth, productivity, per capita availability

Situating in the North-Eastern region of India with a geographical area of 78.44 lakh hectare, Assam provides shelter to 2.57% population of the country. More than 85% of the state's population lives in 77.67 lakh hectare of rural areas. Assam is predominantly an agrarian economy with an estimated GSDP (at factor cost) annual growth rate of 8.42%. With an annual GSDP growth rate of 6.49% Agriculture and allied sectors contribute nearly 25% of Gross State Domestic Product (GSDP) at constant 2004-05 prices during 2010-11, while about 50% of the rural population is dependent on agriculture for their livelihood (Economic Survey, Assam, 2011-12). Although cereals dominate the cropping pattern, livestock and poultry are considered as one of the important homestead activities in the farm households

of Assam. Livestock and poultry, as a source of milk, meat, egg, manure, draught and transportation form an integral part of rural farming system in Assam. Livestock and poultry sector has immense contribution toward rural household economy, employment, food and nutritional security. The contribution of livestock sector to GSDP is estimated as 7.7%, only second to crop agriculture. Assam contributes 3.25% and 8.36% to the total livestock and poultry population of the country. Assam has the largest pig population in the country accounting for 17.96% of the country's total pig population. The livestock population in the state is large in numbers but its productivity is very low compared to other parts of the country. In this paper an attempt is made to present the recent status of livestock and poultry sector in the state of Assam (18<sup>th</sup> Livestock Census, Department of Animal Husbandry, Dairying and Fisheries. M/O Agriculture)

### **Methodology**

The study is mainly based on secondary data on livestock and poultry population, production, productivity and per capita availability of major livestock and poultry products collected and compiled from various published sources. The tabular analysis was undertaken and compound growth rates were computed to show the status of livestock and poultry population and production of different livestock and poultry products. In case of livestock and poultry population, annual compound growth rates of inter-census period were computed using the following formula:

$$P_t / P_o = (1 + r)^t / 100$$

Where,  $P_t$  is population in the  $t^{\text{th}}$  period

$P_o$  is population in the base period

$r$  is the compound growth rate (Bhowmick *et al.*, 2005).

### **Results and Discussion**

#### ***Livestock and poultry population dynamics***

Livestock and poultry population of Assam is quite large in the country. Assam, the most prominent state in the North Eastern region, embodies highest number of livestock in respect of almost all the animals in the region. According to 18<sup>th</sup> livestock census (2007), Assam's share in the total livestock and poultry population of the country is 3.25% and 8.36% respectively. Assam has the largest pig population in the country and contributes 17.96% alone to the country's total pig population. In case of cattle, buffalo, sheep and goat Assam stood at 11<sup>th</sup>, 19<sup>th</sup>, 15<sup>th</sup> and 13<sup>th</sup> rank respectively. State share of livestock population to the country's total during the year 2007 is shown in the Table 1.

**Table 1. State share of livestock population to the country's total- 2007**

Species	Population in India	Population in Assam	Assam's share in India's total (%)	Rank in India
Cattle	199075	10041	5.04	11
Buffalo	105343	500	0.47	19
Sheep	71558	354	0.49	15
Goat	140537	4320	3.07	13
Pig	11134	2000	17.96	1
Others	2051	12	0.59	-
Total livestock	529698	17227	3.25	13
Poultry	347611	29061	8.36	6

Source: 18<sup>th</sup> Livestock Census, Department of Animal Husbandry, Dairying and Fisheries. M/O Agriculture  
District wise, livestock and poultry population of Assam (2007 census) is shown in Table 2.

**Table 2. District wise livestock and poultry population of Assam (2007 census)**

District	Cattle	Buffalo	Sheep	Goat	Pig	Total livestock	Total poultry
Barpeta	647241	21394	31417	225015	729230	1654297	1477322
Baska	361519	4999	9856	161442	683834	1221650	671497
Bongaigaon	322006	1945	30017	91216	352156	797340	602959
Cachar	522805	92185	12363	157491	618635	1403479	1576605
Chirang	408846	19194	5924	52811	522780	1009555	818079
Darrang	414611	21627	37973	158255	513409	1145875	842598
Dhemaji	667385	22689	321	117817	751677	1559889	839843
Dhubri	714257	40033	56908	217956	794203	1823357	1299384
Dibrugarh	728740	33280	79	219922	1057269	2039290	2890161
Goalpara	352092	13227	24826	94929	436661	921735	996808
Golaghat	677364	41710	0	209511	826671	1755256	1481167
Hailakandi	231109	47130	13297	58757	245230	595523	524777
Jorhat	712556	41261	31	181858	820420	1756126	880700
Kamrup	900974	10708	30397	281577	1007564	2231220	1781935
Karbi anglong	606662	22142	474	176550	818011	1623839	1032658
Karimganj	478388	67975	15774	120985	495863	1178985	974208
Kokrajhar	621071	23399	16740	179919	749802	1590931	793087
Lakhimpur	791513	21166	908	168252	879306	1861145	834921
Marigaon	464637	25721	13177	125757	508550	1137842	685269
Nagaon	1355459	18176	10094	361288	1330987	3076004	2784095

Nalbari	323229	8230	21305	128313	377585	858662	509985
N.C. hills	61660	48741	700	40433	163646	315180	179438
Sibsagar	613586	31928	109	172949	682366	1500938	1840960
Sonitpur	1087757	28461	12608	329939	1212681	2671446	1176903
Tinsukia	479704	4155	8	123065	499229	1106161	763558
Udalguri	615334	7996	10519	164766	708448	1507063	801332
Total	15160505	719472	355825	4320773	17786213	38342788	29060249

Source: 18<sup>th</sup> Livestock Census, Department of Animal Husbandry, Dairying and Fisheries. M/O Agriculture

Table 2 reveal that, Nagaon district has the largest livestock population with 3076004 numbers, followed by Sonitpur (2671446 numbers) and kamrup (2231220 numbers) district. In terms of poultry population Dibrugarh is leading with 2890161 numbers followed by Nagaon (2784095 numbers) and Sibsaagar (1840960 numbers) district.

Assam is showing a good growth trend in population in terms of all the species except buffalo. The state has experienced a negative growth rate (-7.33%) in case of buffalo during the inter census period; 2003-2007. Sheep population has recorded a growth rate of 20.13% during the period from 2003 to 2007. In case of cattle, goat, pig and poultry the growth per annum in the state are 4.44, 9.66, 6.70 and 7.64% respectively in the inter census period (2003-2007). Table 3 below presents the species-wise growth rate of livestock and poultry population of Assam in different inter census period.

**Table 3. Species-wise growth rate of livestock and poultry population of Assam**

(thousand heads)

Livestock Species	1994	1997	2003	2007
Cattle	7777	8030 (1.07)	8440 (0.83)	10041 (4.44)
Buffalo	652	728 (3.74)	678 (-1.18)	500 (-7.33)
Sheep	77	84 (2.94)	170 (12.47)	354 (20.13)
Goat	2645	2677 (0.40)	2987 (1.84)	4320 (9.66)
Pigs	828	1082 (9.33)	1543 (6.09)	2000 (6.70)
Poultry	13142	17979 (11.01)	21645 (3.14)	29061 (7.64)

Figures in Parenthesis indicates growth rates (%)

Source: Economic Survey Assam 2008-09, Livestock Census, Directorate of economics and statistics, M/O Agriculture, Directorate of Animal Husbandry and Veterinary Department, Assam.

***Production and productivity of major livestock products***

The NE India including Assam is deficient in milk production. The table below presents the estimates of milk production in Assam over the years.

The total milk production of the state for the year 2008-09 has been estimated at 827 million litres. The growth in production of milk in the state during the period 1996-97 was 1.72%, which has decreased to 0.41% and 0.12% in the later period (2000-01 and 2007-08 respectively). The cattle milk shared 83.56%

of the total milk production during 2008-09. The production of milk from buffalo and goat shared the rest 16.44% of the total milk production.

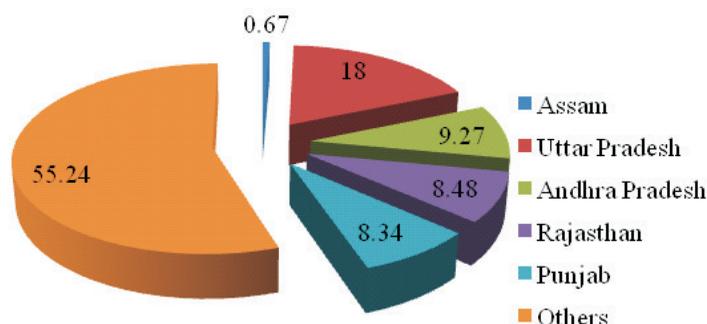
**Table 4. Year wise Milk Production in Assam (million litres)**

Year	Cattle		Total Cattle	Buffalo	Goat	Total	Growth rate (%)
	C.B.	Ind.					
1995-96	129	446	575	100	24	699	-
1996-97	129	454	583	102	26	711	1.72%
1997-98	133	463	596	96	27	719	1.13%
1998-99	139	465	604	94	27	725	0.83%
1999-00	143	466	609	96	28	733	1.10%
2000-01	144	468	612	98	26	736	0.41%
2001-02	159	469	628	97	25	750	1.90%
2002-03	160	487	647	98	28	773	3.07%
2003-04	165	497	662	100	33	795	2.85%
2004-05	171	510	681	102	29	812	2.14%
2005-06	175	514	689	103	30	822	1.23%
2006-07	179	511	690	105	28	823	0.12%
2007-08	181	506	687	109	27	824	0.12%
2008-09	184	507	691	110	26	827	0.36%

C.B.: Cross bred; Ind.: Indigenous.

Source: Directorate of Animal Husbandry and Veterinary, Assam, Guwahati -3

Status of Assam in terms of milk production in India is shown in figure 1. Assam contributes only 0.67%, where as Uttar Pradesh, the leading milk producing state in India contributes 18% to the country's total milk production in the year 2009-10



**Figure 1. Share of Assam and some leading milk producing states to the country's total milk production: a comparison, 2009-10 (Percentage)**

Source: State/UT Animal Husbandry Departments (<http://www.dahd.nic.in>)

Assam’s rank in all India is 17<sup>th</sup> in terms of meat production during 2009-10. The estimated meat production in the State, was calculated on the basis of number of animals slaughtered per season and thus for the year and average meat yield. The total meat production in state during 2008-09 is estimated at over 30 thousand tonnes comprising of both livestock and poultry. The growth in meat production (2007-08 to 2008-09) is estimated at 2.64% in the State. Pig meat contributes 39.13% of the total meat production in the State followed by goat (21.21%) and poultry (20.98%) meat respectively. Meat production in Assam over the years is shown in Table 5.

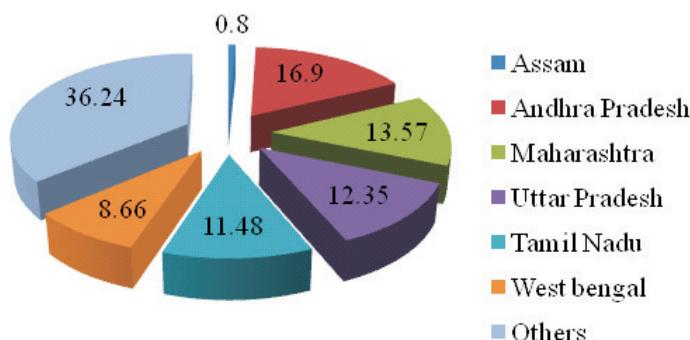
**Table 5: Yearwise meat production of Assam – 1997-98 to 2008-09**

(thousand tonnes)

Year	Cattle	Buffalo	Goat	Sheep	Pig	Fowl	Duck	Total	Growth rate
1997-98	3.04	0.37	3.00	0.10	4.59	3.43	1.12	15.65	-
1998-99	3.06	0.37	3.12	0.10	4.65	3.43	1.12	15.85	1.28%
1999-00	3.11	0.38	3.09	0.10	4.82	3.41	1.13	16.09	1.51%
2000-01	3.45	0.38	3.12	0.10	5.39	3.36	1.22	17.06	6.03%
2001-02	3.9	0.36	3.16	0.12	6.03	4.58	1.30	19.48	14.19%
2002-03	4.23	0.36	3.98	0.12	6.21	4.69	1.32	20.93	7.44%
2003-04	4.23	0.36	4.22	0.12	7.19	4.83	1.37	22.35	6.78%
2004-05	4.33	0.35	4.86	0.13	8.71	4.93	1.41	24.77	10.83%
2005-06	4.52	0.40	5.07	0.18	9.98	5.01	1.44	26.63	7.51%
2006-07	5.25	0.40	5.67	0.17	10.67	4.99	1.63	28.83	8.26%
2007-08	4.35	0.41	6.81	0.18	11.74	4.89	1.50	29.90	3.71%
2008-09	5.19	0.37	6.51	0.17	12.01	5.13	1.31	30.69	2.64%

Source: Directorate of Animal Husbandry and Veterinary, Assam, Guwahati -3

Figure 2 below shows that Assam’s share in the country’s total meat production in the year 2009-10 is only 0.8% as against 16.9% from Andhra Pradesh and 13.57% from Maharashtra.



**Figure 2. Share of Assam and some leading meat producing states to the country’s total meat production: a comparison, 2009-10 (Percentage)**

Source: State/UT Animal Husbandry Departments (<http://www.dahd.nic.in>)

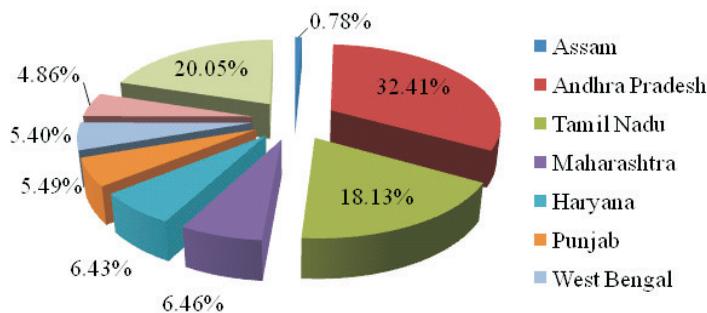
In the whole NER, Assam alone produces more than half of the total eggs. Total egg production in the State was estimated for the year 2008-09 to be 4664 lakh number out of which fowl egg contributed 67.95% of the total egg production. It is showing a decreasing trend from 5050 lakh tonnes during 2000-01 to 4664 lakh tonnes in 2008-09. Thus there has been a marked decline in egg production in the state. Egg production in Assam over the years has been shown in Table 6.

**Table 6. Yearwise egg production in Assam (lakh nos)**

Year	Fowl Egg			Duck Egg			Total Egg	Growth rate (%)
	Local	Imp.	Total	Local	Imp.	Total		
1995-96	2219	764	2983	897	826	1723	4786	-
1996-97	2100	729	2829	1040	949	1989	4818	0.67%
1997-98	2176	652	2828	1174	826	2000	4828	0.21%
1998-99	2181	652	2833	1175	856	2031	4864	0.75%
1999-00	2186	653	2839	1182	862	2044	4883	0.39%
2000-01	2532	622	3154	1177	719	1896	5050	3.42%
2001-02	2423	655	3078	1254	739	1933	5071	0.42%
2002-03	2395	690	3085	1267	742	2009	5094	0.45%
2003-04	2426	674	3101	1295	740	2036	5137	0.84%
2004-05	2522	636	3158	1319	739	2058	5216	1.54%
2005-06	2764	645	3409	1281	669	1950	5359	2.74%
2006-07	2911	534	3445	1296	609	1905	5350	-0.17%
2007-08	3008	301	3309	1230	366	1596	4905	-8.32%
2008-09	2945	224	3169	1163	332	1495	4664	-4.91%

Source: Directorate of Animal Husbandry and Veterinary, Assam, Guwahati -3

Three Southern states of the country namely Andhra Pradesh, TN and Maharashtra are the major egg producing centre. Andhra alone produces 19.39 billion numbers of eggs and contributes about 32% to India's total. Assam contributes only 0.78% to the country's total egg production (Figure 3).



**Figure 3. Share of Assam and some leading egg producing states to the country's total egg production: a comparison, 2009-10 (Percentage)**

Source: State/UT Animal Husbandry Departments (<http://www.dahd.nic.in>)

**Productivity of livestock product**

Productivity of livestock in terms of milk in Assam *vis a vis* India is shown in Table 7. The table reveal that productivity of the milk producing animal is low in Assam when compared with India. For instance, average yield per animal in milk in case of exotic cow in Assam is only 3.31 litres/day, while in India the same is 6.87 litres/day.

**Table 7. Productivity of livestock in terms of milk: Assam *vis a vis* India (2009-10)**

		Exotic/cross bred cows	Indigenous/nondescript cows	Buffalo	Goat
No. of animals in milk (thousand nos)	India	10113	28815	35479	28868
	Assam	153	1299	131	500
Milk Production (thousand tonnes)	India	25358	22467	59201	3910
	Assam	185	451	98	22
Average yield per animal in milk (litres/day)	India	6.87	2.14	4.57	0.37
	Assam	3.31	0.95	2.05	0.12

Source: State/UT Animal Husbandry Departments (<http://www.dahd.nic.in>)

Productivity of livestock and poultry birds in terms of meat is also low in Assam when compared with India. The table below shows the comparison in terms of meat productivity.

**Table 8. Productivity of livestock and poultry birds in terms of meat: Assam *vis a vis* India (2009-10)**

		Cattle	Buffalo	Sheep	Goat	Pig	Poultry
No. of animal/poultry slaughtered (thousand)	India	2476	5884	23269	50707	6746	1568313
	Assam	121	6	27	1157	571	6097
Meat Production (thousand tonnes)	India	223	647	299	531	236	2026
	Assam	5	0.3	0.2	8	13	5
Average yield rate/animal/bird (Kg)	India	90	106	13	10	35	1.14
	Assam	43	49	7	7	23	0.84

Source: State/UT Animal Husbandry Departments (<http://www.dahd.nic.in>)

Although average yield of fowl egg in Assam is lower than India, in case of duck egg, average yield is more in Assam than in India. From Table 9, it could be observed that average yield of layer duck in India is 113 numbers/annum, while the same in Assam is 117 numbers/annum.

**Table 9. Productivity of poultry birds in terms of egg: Assam vis a vis India (2009-10)**

		Fowl	Duck
No. of layers (thousand nos)	India	266900	13162
	Assam	3160	1157
Egg Production (Lakh nos)	India	277986	14942
	Assam	3221	1357
Average yield per layer (nos/annum)	India	211	113
	Assam	105	117

Source: State/UT Animal Husbandry Departments (<http://www.dahd.nic.in>)

### ***Per capita availability of major livestock products***

Production of milk, meat, eggs are minimal in Assam and as such their per capita availability is also low. The per capita milk availability had declined at the aggregate level in NER and it was well below the recommended level of per capita milk consumption. Assam which accounts for two-thirds of milk production of NER registered a significant decline in per capita availability of milk. Per capita availability of milk in the state is only 69 gram per day during 2009 -10 showing a declining trend from 72 gram per day during 2004-05. The availability of egg is only 22 per person per year in the year 2009-10. The demand for egg along with other livestock products is much larger than their production. Despite large livestock population, the productivity of the stock is very low in the state. The State has the lowest per capita availability of livestock products, much lower than the national average. Availability of all the livestock products is low in the state than the requirement as per ICMR recommendations indicating a large demand-supply gap. Demand v/s supply of livestock products in Assam (2009-10) is shown in Table 10.

**Table 10. Demand v/s supply of meat, milk and egg in Assam (2009-10)**

Particulars	Meat	Milk	Egg
Total Production or Supply	31 (million Kg)	0.756 (million tonnes/annum)	467.1 (million nos/annum)
Human population	30 (Million nos.)	30 (Million nos.)	30 (Million nos.)
Requirement as per ICMR recommendation	10.95 (Kg/person/annum)	300 (gm/day/ person)	180 (nos./person/annum)
Demand	329 (million kg)	3.285 (million tonnes/year)	5400 (million nos/year)
Demand – supply gap	298 (million kg)	2.529 (million tonnes/year)	4932.9 (million nos/year)

Note: Population projected as on 1<sup>st</sup> oct of a calender year by the office of RGI is used as mid year population for calculating demand

Source: State/UT Animal Husbandry Departments (<http://www.dahd.nic.in>)

## Conclusion

State of Assam is characterized by land fragmentation, mass of small and marginal farmers particularly in the rural areas and large scale unemployment. Livestock and poultry sector in the state has immense potentiality for employment generation, alleviation of poverty and attaining nutritional security in the rural areas, particularly for small and marginal resource poor farmers. Livestock and poultry in the state of Assam are predominantly owned by small and marginal farmers and landless labourers, particularly as a livelihood option. Present study reveals that despite large livestock wealth, per capita availability of the products is low in India as compared to ICMR recommendation. There are many constraints that hinder achievement of full potential of livestock sector in the state. Lack of proper animal breeding policy, domination of livestock population by local breeds, shortage of feed concentrate and green fodder, small size of holding limiting fodder cultivation, absence of appropriate research focus and planning, absence of livestock development strategies and programmes, fragmented and unorganized market for all livestock products *etc.* stand as obstacle, hindering development of the sector in the state. Reluctance of the farmers towards undertaking livestock production as a profitable alternative and recurrence of natural calamities like flood in Assam causing high incidence of diseases in animals and birds are some other hindrance. Performance of livestock depends upon the availability of quality breeds, quality feed and fodder and effective disease control measures. A comprehensive and collaborative approach from all stakeholders involved to deal with the above key factors could bring a fundamental change to this sector of agriculture in the state and Assam can also reap the advantages of livestock and poultry production not only for self sufficiency creation but also to generate export earnings.

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