

RESEARCH ARTICLE

Dynamics and Performance of Livestock and Poultry Sector in India: A Temporal Analysis

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Abstract

Livestock sector is an important sub-sector of Indian agriculture with significant contribution towards national economy and employment of rural populace. Present study focuses on recent status, performance and growth trends of livestock and poultry sector in India. The country possesses largest livestock wealth in the world (529.7 million head) and rank first in terms of cattle and buffalo population accounting for 16.1% and 57.9% of the world's total. Except pig and duck, there is a moderate to good growth in livestock population during the inter-census period 2003-2007. Buffalo and goat population has almost doubled and poultry population has increased more than threefold during the period from 1982 to 2007. India is leading producer of milk in the world. In 2009-10 the country produced 112.5 million tonnes of milk, 59.8 billion eggs, and 4.0 million tonnes of meat. Per capita availability of milk has also increased from 112 g/d in 1968-69 to 263 g/d in 2009-10. Although there is a good growth in the production of all the livestock products, their per capita availability is still lower than ICMR recommendation of minimum per capita consumption.

Keywords: Livestock, poultry, national economy, employment, ICMR recommendation, per capita availability.

Introduction

India is one of the largest economy in the world, with a GDP (at factor cost) annual growth rate of 6.2% which is driven mainly by industrial growth of 6.21% and service sector growth of 8.20%. Agriculture and allied sectors contribute nearly 14.1% to the Gross Domestic Product (GDP) at constant 2004-05 prices, while providing livelihood to 58.2% of the country's population. Although contribution of agriculture to national GDP is steadily declining over the years, the contribution of livestock sub-sector to agricultural GDP has increased impressively in the last 20 years, from less than 15% in the late 70s to over 33% in 2009 (Economic Survey, India, 2011-12; Directorate of Economics and Statistics, Govt. of India).

Livestock sector is an important subsector of Indian agriculture and occupies a very important place in the socio-economic development of the country. The sector contributes significantly to the national economy besides being a source of livelihood for approximately 20 million people, particularly women, in principal or subsidiary status. According to 18th livestock census data, the country possesses the largest livestock wealth in the world accounting for the largest number of cattle (16.1% of the world population) and buffaloes (57.9%). India is leading milk producing country in the world. There is good growth in the livestock and poultry population along with production and per capita availability of livestock products during recent years.

However, despite large population and good growth, productivity of the stock is low in the country and per capita availability of all the products is still lower than their respective ICMR recommendation (Basic animal husbandry statistics, 2006, 2010; Govt. of India, Ministry of Agriculture, Dept. of Animal Husbandry, Dairying and Fisheries, Krishi Bhawan, New Delhi). Livestock sector makes multifarious contribution to overall welfare of India's rural population in terms of generating more employment opportunities, especially for the marginal and small farmers and landless labourers, alleviating poverty and stabilizing farm income. Besides, it supplies draught power and organic manures to the crop sector and hides, skin, bones, blood and fibres to the industries. In addition, it provides for environmental conservation by utilizing huge amount of crop residues and by-products as feed/fodder and supplying non-renewable energy sources in terms of dung and draught power. Thus, it is evident that the livestock sector plays an important role in providing nutritive food, in supplementing family incomes and generating gainful employment in the rural sector. The significant role of livestock sector in the national economy and in the socio-economic development of the country thus, demands an increasing focus towards it from research and development and policy making point of view. Keeping this in view, the present study was undertaken to focus on the recent trend and performance of livestock and poultry sector in India in terms of growth in population, production and per capita availability of major livestock and poultry products.

Materials and methods

Experimental design: The study is mainly based on secondary data. The data on livestock and poultry population, production, productivity and per capita availability of major livestock and poultry products viz. meat, milk and egg were collected and compiled from various published sources like Livestock census, Directorate of economics and statistics, various census reports, reports of Animal Husbandry Statistics Division, Dept. of Animal Husbandry, Dairying and Fisheries, M/o Agriculture, GoI and FAOSTAT production data (www.faostat.org). The major analytical tool employed for the study was tabular analysis. Simple averages and percentages were worked out to facilitate easy comparison. Compound growth rates were computed to show the status of livestock and poultry population and production of different livestock and poultry products. Inter-census period growth rates in livestock and poultry population were computed using the following formula:

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

Where, P_t is population in the t^{th} period, P_o is population in the base period, r is the compound growth rate (Bhowmick and Kalita, 2005).

Compound annual growth rates (CAGR) of production of different livestock products was estimated using the following formula:

$$Y = ab^t \text{ or } \log y = \log a + t \log b$$

Where, Y = production, a = constant, b = regression coefficient, t = time variable (1,2,3.....n).

The compound growth rate was worked out as

$$\text{CAGR (r)} = (b-1) \times 100$$

Where, b = antilog of estimate of b .

Results and discussion

Status and growth of livestock population in India: The growth rate of livestock population in the world is almost same as that of human population. Over the years, the demand for livestock products has been increasing significantly owing to rapid urbanization, changing lifestyle, rising income levels, increased nutritional awareness etc. With the ever increasing food needs of a growing human population, there is an increase in almost all the livestock species across the world to satisfy the growing demand. India, among other countries, is bestowed with a significant share of world's livestock resources possessing one of the largest livestock wealth in the world. India's position in the world in terms of livestock and poultry population is quite impressive, being first in case of cattle and buffalo, second for goat and third, fourth and fifth for sheep, duck and chicken respectively.

India alone contributes 57.69% of the world's total buffalo population. In case of cattle and goat population also India shares 14.66 and 16.74% of the world's total. India's share in world population of major livestock species in the year 2007 is presented in the Table 1. The changes experienced by the country since independence in terms of structure and economic growth is also reflected in the structure and growth of livestock population. The sector has shown considerable growth in recent decades especially since the late 1990s. According to 2007 Census data, the country had 529 million livestock population and 648 million poultry population, having the highest numbers of cattle (199 million), the highest numbers of buffaloes (105 million), the third highest numbers of sheep (71 million), the second highest numbers of goats (140 million), the fifth highest numbers of chickens (617 million) and the fourth highest numbers of ducks (27 million) in the world. Species-wise number and growth rate of livestock and poultry population of India in different inter census period is presented in Table 2. Livestock sector growth is increasing day by day due to its importance as an alternative source of income, employment and its significant contribution to food security aspects. From the growth pattern revealed from Table 2, it can be observed that in the case of cattle population the growth per annum is 1.83% during the inter census period (2003-2007). Annual growth rate of sheep is 3.87% and poultry population has recorded a growth rate of 7.33%. Although pig population has experienced a negative growth (-4.74) during the period, buffalo and goat population has almost doubled and poultry population has increased more than threefold during the 1982 to 2007. Growth pattern of livestock and poultry population in India during the inter census period 1951-2007 is shown in Table 3. Among the states, Uttar Pradesh has the largest livestock population in the country with around 61 million numbers of livestock as per 18th census data and it contributes about 11.51% to the country's total livestock population. Uttar Pradesh is closely followed by Andhra Pradesh and Rajasthan contributing 11.49 and 10.82% to the country's total respectively. In terms of poultry population, Tamil Nadu is leading with 128 million birds followed by Andhra Pradesh and West Bengal with 124 and 86 million birds respectively. These 3 states along with Maharashtra contribute around 62.12% to the country's total poultry population. State wise livestock and poultry population in India as per 2007 census data is presented in Table 4.

Production of major livestock products: The livestock sector is highly dynamic worldwide. By 2007, developing countries had outperformed developed countries in terms of meat and eggs production and were almost catching up with for milk production. India's meat production level is low in a global scenario. However, with an impressive increase in milk production between 1980 and 2007, India now produces some 15% of the world's milk.

Table 1. Livestock and poultry population of India and the world in the year 2007.

Species	World population (million)	Population in India (million)	India's share in world population (%)	India's rank in the world
Cattle	1357	199	14.66	1
Buffalo	182	105	57.69	1
Sheep	1105	71	6.43	3
Goat	836	140	16.74	2
Pig	921	11	1.19	-
Chicken	17878	617	3.45	5
Duck	1132	28	2.47	4

Source: FAOSTAT- website year 2006; Department of Animal Husbandry, Dairying and Fisheries, M/O Agriculture, Gol.

Table 2. Species-wise number and growth rate of livestock and poultry population of India–1997, 2003 and 2007 (number in thousands).

Category	1997	2003	2007
Total cattle	198882	185181 (-1.18)	199075 (1.83)
Total buffalo	89918	97922 (1.43)	105343 (1.84)
Total sheep	57494	61469 (1.12)	71558 (3.87)
Total goats	122721	124358 (0.22)	140537 (3.10)
Total pigs	13291	13519 (0.28)	11134 (-4.70)
Others	3079	2553 (-3.07)	2051 (-5.32)
Total livestock	485385	485002 (-0.01)	529698 (2.23)
Total fowl	315428	457399 (6.39)	617734 (7.80)
Total ducks	30915	29959 (-0.52)	27643 (-1.99)
Other poultry	1268	1654 (4.53)	3452 (20.19)
Total poultry	347611	489012 (5.85)	648830 (7.33)

Figures in Parenthesis indicate inter census period growth rates (%), Source: Livestock Census, Directorate of economics and statistics, M/O Agriculture.

Table 3. Inter census period growth rate of livestock and poultry population in India during 1951-2007 (%).

Species	1951	1956	1961	1966	1972	1977	1982	1987	1992	1997	2003	2007
Cattle	-	0.43	2.04	0.07	0.24	0.19	1.35	0.74	0.49	-0.56	-1.18	1.83
Buffalo	-	0.68	2.66	0.69	1.61	1.55	2.39	1.71	2.08	1.32	1.43	1.84
Sheep	-	0.10	0.45	1.07	-1.16	0.50	3.53	-1.29	2.13	2.51	1.12	3.87
Goat	-	3.26	1.91	1.19	0.88	2.29	4.73	2.96	0.90	1.26	0.22	3.10
Pig	-	2.18	1.20	0.78	6.65	1.95	5.79	1.09	3.77	0.77	0.28	-4.74
Total livestock	-	0.93	1.81	0.51	0.55	0.86	2.60	1.20	1.12	0.61	-0.01	2.23
Poultry	-	5.22	3.79	0.21	3.72	2.82	5.47	5.79	2.21	2.51	5.85	7.33

Source: Livestock census, Directorate of economics and statistics, M/O Agriculture–various census reports and Animal Husbandry Statistics Division, Dept. of Animal Husbandry, Dairying and Fisheries, M/o Agriculture, Gol.

Milk production: India ranks first in world milk production and accounts for 15% of the world's total milk production. The country increased its milk production from 17 million tonnes in 1950-51 to about 112.5 million tonnes in 2009-10. At present, the first five countries in the world producing maximum milk are India, USA, Russia, Germany and France. World milk production (1990-2009) is shown in Table 5. Annual milk production in India has grown more than six times since independence. At the beginning, production of milk was only 17 million tonnes in 1950-51 in India. Now it has increased to 112.5 million tonnes in 2009-10. Compound annual growth rate in the production of milk in recent years has been close to 5% (1979-80 to 2010-11). Milk production in India from 1950-51 to 2010-11 is shown in Table 6. Among the states, Uttar Pradesh continues to be the leading milk producing state in India over the years producing about 18% of total milk produced in the country during 2009-10. UP is being followed by AP, Rajasthan and Punjab contributing 9.27, 8.48 and 8.34% respectively to the country's total milk production during 2009-10.

Share of top five milk producing states to the country's total milk production (2009-10) is depicted in Fig. 1.

Meat production: The meat product industry in India is largely in the un-organized sector. The production of meat in India has increased from 1.9 million tonnes to 4.0 million tonnes from 2001-02 to 2009-10 with an average annual growth rate of 7.64%. Meat production in India from 1998-99 to 2010-11 are shown in Table 7. State wise, Andhra Pradesh, Maharashtra, Uttar Pradesh, Tamil Nadu and West Bengal are top 5 meat producing states during 2009-10 contributing around 63%, together to the country's total meat production. Figure 2 shows the share of top five meat producing states to the country's total meat production during 2009-10.

Egg production: East and Southeast Asian countries are leaders in egg production in the world. China ranks first in world's egg production contributing 41.39% to the world total followed by US, India, Japan and Mexico.

Table 4. State wise livestock and poultry population in India-2007 census (no. in thousands).

State/ UT	Cattle	Buffalo	Sheep	Goat	Pig	Others	Total livestock	Total poultry
Andhra Pradesh	11223	13272	25539	9626	439	76	60175	123981
Arunachal Pradesh	503	3	20	292	356	239	1413	1348
Assam	10041	500	354	4320	2000	12	17227	29061
Bihar	12559	6690	218	10167	632	76	30342	11420
Chhattisgarh	9491	1604	140	2768	413	2	14418	14246
Goa	71	37	0.12	11	58	0	177	505
Gujarat	7976	8774	2002	4640	22	101	23515	13352
Haryana	1552	5953	601	538	134	81	8859	28786
Himachal Pradesh	2269	762	901	1241	2	42	5217	810
J and K	3443	1050	4127	2068	1	298	10987	6683
Jharkhand	8781	1506	483	6592	732	6	18100	11231
Karnataka	10503	4327	9558	6153	281	37	30859	42068
Kerala	1740	58	1	1729	59	0	3587	15686
Madhya Pradesh	21915	9129	390	9014	193	55	40696	7384
Maharashtra	16184	6073	2909	10391	327	70	35954	64756
Manipur	342	62	9	51	314	11	789	2404
Meghalaya	887	23	21	365	524	3	1823	3093
Mizoram	35	6	1	16	267	3	328	1239
Nagaland	470	35	4	178	698	34	1419	3156
Orissa	12310	1190	1818	7127	612	0	23057	20600
Punjab	1777	5062	208	290	26	45	7408	10686
Rajasthan	12120	11092	11190	21503	209	549	56663	4946
Sikkim	135	0	3	92	35	5	270	157
TN	11189	2009	7991	9275	284	11	30759	128108
Tripura	954	14	4	633	264	0	1869	3701
UP	18883	23812	1188	14793	1350	246	60272	8755
Uttarakhand	2235	1220	290	1335	20	41	5141	2602
WB	19188	764	1577	15069	815	6	37419	86210
A and N islands	49	10	-	67	48	0	174	979
Chandigarh	7	20	0.05	1	0.27	0	28	129
DandN Haveli	57	4	0.20	25	0.18	0.62	87	170
Daman and Diu	3	1	-	3	0.17	0	7	26
Delhi	92	278	6	21	20	1	418	2
Lakshadweep	7	-	-	76	-	0	82	167
Puducherry	84	3	4	69	1	1	162	387
All India	199075	105343	71558	140537	11134	2051	529698	648830

Totals may not tally due to rounding up of figures, Source: 18th Livestock Census, Dept. of Animal Husbandry, Dairying and Fisheries. M/O Agriculture.

Table 5. World estimates of milk production from 1990 to 2009 (million tonnes).

Year	Cow	Buffalo	Goat	Sheep	Total *	India to World
1990	479.2(88.3)	44.1 (8.1)	10.0 (1.8)	8.0 (1.5)	542.5(100.0)	53.9 (9.9)
1991	470.0(88.1)	44.4 (8.3)	9.8 (1.8)	7.9 (1.5)	533.3(100.0)	55.7(10.4)
1992	460.6 (87.6)	46.1 (8.8)	10.4 (2.0)	7.8 (1.5)	526.1(100.0)	58.0(11.0)
1993	460.1(87.1)	48.2(9.1)	10.9(2.1)	7.7(1.5)	528.0(100.0)	60.6(11.5)
1994	461.3(86.7)	50.5(9.5)	11.3(2.1)	8.0(1.5)	532.3(100.0)	63.8(12.0)
1995	464.4(86.0)	54.4(10.1)	11.7(2.2)	8.0(1.5)	539.8(100.0)	66.2(12.3)
1996	466.9(85.6)	57.2(10.5)	11.8(2.2)	8.3(1.5)	545.4(100.0)	69.1(12.7)
1997	469.4(85.3)	59.5(10.8)	12.0(2.2)	8.2(1.5)	550.4(100.0)	72.1(13.1)
1998	475.2(84.9)	62.2 (11.1)	12.5(2.2)	8.1(1.5)	559.4(100.0)	74.1(13.2)
1999	483.5(84.9)	65.4(11.5)	11.4(2.0)	8.2(1.4)	569.8(100.0)	78.3(13.7)
2000	491.2(84.8)	67.4(11.6)	11.6(2.0)	8.1(1.4)	579.6(100.0)	80.6(13.9)
2001	497.6(84.4)	70.4(11.9)	11.9(2.0)	8.3(1.4)	589.4(100.0)	84.4(14.3)
2002	508.9(84.4)	72.3(12.0)	12.2(2.0)	8.1(1.3)	602.7(100.0)	86.2(14.3)
2003	518.5(84.2)	75.5(12.3)	12.5(2.0)	8.3(1.3)	616.1(100.0)	88.1(14.3)
2004	523.4(84.1)	76.5(12.3)	12.5(2.0)	8.6(1.4)	622.3(100.0)	92.5(14.9)
2005	543.1 (83.9)	78.9 (12.2)	14.5(2.2)	8.8 (1.4)	646.9(100.0)	95.6(14.8)
2006	559.1 (84.0)	81.4(12.2)	14.6(2.2)	9.2(1.4)	665.8(100.0)	99.3(14.9)
2007	569.6 (83.9)	83.9(12.4)	14.8(2.2)	9.2(1.4)	679.2(100.0)	103.3(15.2)
2008	578.7 (83.4)	89.6(12.9)	15.2(2.2)	9.1(1.3)	694.2(100.0)	109.0(15.7)
2009	580.5(83.3)	90.3(13.0)	15.1(2.2)	9.0(1.3)	696.6(100.0)	110.0(15.8)

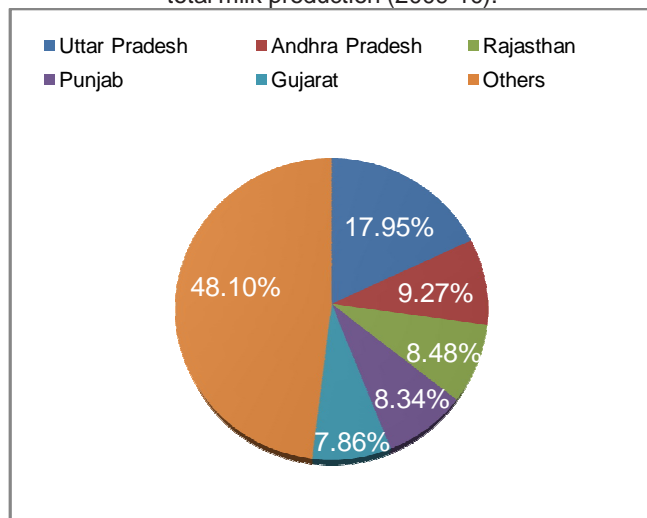
*Milk total for world includes camel milk; Figures in parenthesis show percentage to total, Source: FAOSTAT production data, www.faostat.org.

Table 6. Milk production in India 1950-51 to 2009-10 ('000 tonnes).

Year	Milk production (million tonnes)	Annual growth rate (%)
1950-51	17.0	-
1955-56	19.0	2.25
1960-61	20.0	1.03%
1968-69	21.2	0.73%
1973-74	23.2	1.82%
1979-80	30.4	4.61%
1980-81	31.6	3.95%
1981-82	34.3	8.54%
1982-83	35.8	4.37%
1983-84	38.8	8.38%
1984-85	41.5	6.96%
1985-86	44.0	6.02%
1986-87	46.1	4.77%
1987-88	46.7	1.30%
1988-89	48.4	3.64%
1989-90	51.4	6.20%
1990-91	53.9	4.86%
1991-92	55.7	3.34%
1992-93	58.0	4.13%
1993-94	60.6	4.48%
1994-95	63.8	5.28%
1995-96	66.2	3.76%
1996-97	69.1	4.38%
1997-98	72.1	4.34%
1998-99	75.4	4.58%
1999-2000	78.3	3.85%
2000-01	80.6	2.94%
2001-02	84.4	4.71%
2002-03	86.2	2.13%
2003-04	88.1	2.20%
2004-05	92.5	4.99%
2005-06	97.1	4.97%
2006-07	100.9	3.91%
2007-08	104.8	3.87%
2008-09	108.5	3.53%
2009-10	112.5	3.69%
2010-11*	116.2	3.29%
CAGR (%)	4.23	-

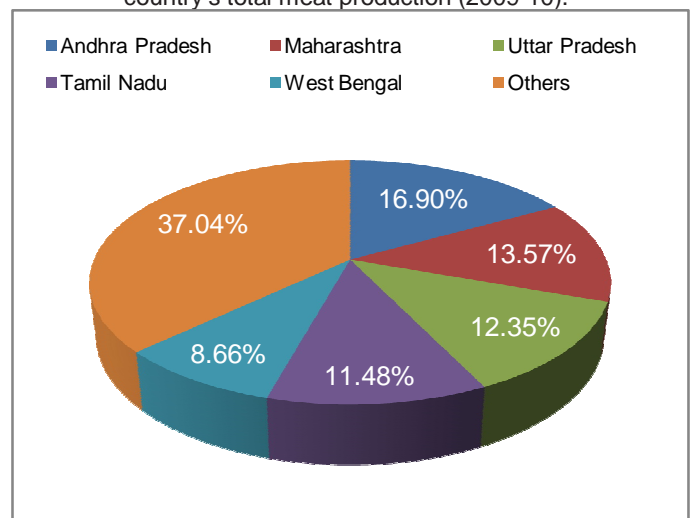
*Anticipated achievements, Source: State/UT Animal Husbandry Departments, Dept. of Animal Husbandry, Dairying and Fisheries, M/O.

Fig. 1. Share of leading milk producing states to the country's total milk production (2009-10).



Source: State/UT Animal Husbandry Departments.

Fig. 2. Share of leading meat producing states to the country's total meat production (2009-10).



Source: State/UT Animal Husbandry Departments.

Table 7. Meat production in India (from recognized sector) 1998-99 to 2010-11 (million tonnes).

Year	Meat production	Growth rate
1998-99	1.9	-
1999-00	1.9	0.00%
2000-01	1.9	0.00%
2001-02	1.9	0.00%
2002-03	2.1	10.53%
2003-04	2.1	0.00%
2004-05	2.2	4.76%
2005-06	2.3	4.55%
2006-07	2.3	0.00%
2007-08	3.7	60.87%
2008-09	3.8	2.70%
2009-10	4.0	5.26%
2010-11	4.2	5.00%
CAGR (%)	7.64	-

*Anticipated achievements, Source: State/UT Animal Husbandry Departments.

Table 8. Production of egg by major countries of the world from 2007 to 2009.

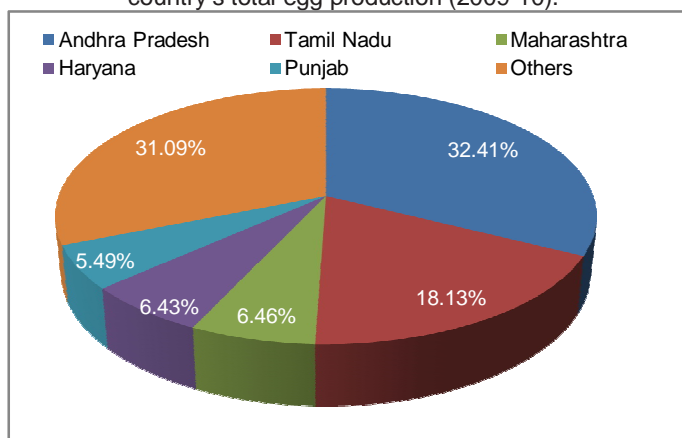
Country	Production (million tonnes)			Rank in the world
	2007	2008	2009	
China	25.65 (39.90)	26.73(40.44)	27.90 (41.39)	1
US	5.40 (8.39)	5.34 (8.08)	5.34 (7.92)	2
India	2.94 (4.58)	3.06 (4.63)	3.06 (4.54)	3
Japan	2.58 (4.02)	2.55 (3.86)	2.51 (3.72)	4
Mexico	2.29 (3.56)	2.34 (3.54)	2.34 (3.47)	5
Others	25.44 (39.6)	26.08 (39.5)	26.26 (39.0)	-
World total	64.30 (100.00)	66.10 (100.00)	67.41 (100.00)	-

Figures in parenthesis indicates % share to World total, Source: FAOSTAT production data, www.faostat.org.

As per FAOSTAT production data, India is the third largest egg producing country contributing 4.54% to the world's total. Production of egg by major countries of the world from 2007 to 2009 is given in Table 8. Poultry is one of the fastest growing segments of the agricultural sector in India today. Their growth rate has been rising at 8 to 10% per annum. As a result, India ranks third in the world with annual egg production of 3.06 million tonnes. Egg production in India during the period from 1950-51 to 2009-10 has been presented in Table 9. At present, production of egg in the country is estimated to be 59.84 billion numbers (2009-10).

Egg production has increased from 21 billion numbers in 1990-91 to 51 billion numbers in 2006-07 and 59.84 billion numbers in 2009-10. Compound annual growth rate (CAGR) in egg production is around 6% (1979-80 to 2010-11). Three Southern states of the country namely Andhra Pradesh, Tamil Nadu and Maharashtra are the major egg producing centre. Andhra alone produces 19.39 billion eggs and contributed about 32% to India's total during 2009-10. Figure 3 shows the contribution of top five egg producing states to the country's total egg production during 2009-10. Haryana, Punjab, West Bengal and Karnataka come next to the three southern states in the list of highest egg producing states of India. During 2009-10 these five states together contributed around 69% to the country's total egg production.

Fig. 3. Share of leading egg producing states to the country's total egg production (2009-10).



Source: State/UT Animal Husbandry Departments

Although livestock population of the country is very large, their productivity is not up to the mark. The potential of the sector could not be realized fully due to many reasons. The most prominent of them is the dominance of the population by the local breeds. Again, the country's livestock sector is mainly owned by the rural populace and the production system is mostly unorganized, characterized by low input, low technology and improper management, leading to low productivity of the stocks. Besides, there is acute shortage of fodder and feed concentrates in the country relative to large livestock population. Productivity of livestock and poultry birds in terms of milk, meat and egg is presented in Table 10a-c.

Table 9. Egg production in India (1950-51 to 2009-10).

Year	Egg production (million nos)	Growth rate
1950-51	1832	-
1955-56	1908	0.82%
1960-61	2881	8.59%
1968-69	5300	7.92%
1973-74	7755	7.91%
1979-80	9523	3.48%
1980-81	10060	5.64%
1981-82	10876	8.11%
1982-83	11454	5.31%
1983-84	12792	11.68%
1984-85	14252	11.41%
1985-86	16128	13.16%
1986-87	17310	7.33%
1987-88	17795	2.80%
1988-89	18980	6.66%
1989-90	20204	6.45%
1990-91	21101	4.44%
1991-92	21983	4.18%
1992-93	22929	4.30%
1993-94	24167	5.40%
1994-95	25975	7.48%
1995-96	27198	4.71%
1996-97	27496	1.10%
1997-98	28689	4.34%
1998-99	29476	2.74%
1999-2000	30447	3.29%
2000-01	36632	20.31%
2001-02	38729	5.72%
2002-03	39823	2.82%
2003-04	40403	1.46%
2004-05	45201	11.88%
2005-06	46235	2.29%
2006-07	50663	9.58%
2007-08	53581	5.76%
2008-09	55395	3.39%
2009-10	59844	8.03%
2010-11*	61454	2.69%
CAGR (%)	5.98	-

*Anticipated achievement, Source: State/UT Animal Husbandry Departments.

Table 10a. Productivity of livestock in terms of milk in India (2009-10).

Particulars	Exotic/cross bred cows	Indigenous/nondescript cows	Buffalo	Goat
No. of animals in milk (thousand nos)	10113	28815	35479	28868
Milk Production (thousand tonnes)	25358	22467	59201	3910
Average yield per animal in milk (L/d)	6.87	2.14	4.57	0.37

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

Table 10b. Productivity of livestock and poultry birds in terms of meat in India (2009-10).

Particulars	Cattle	Buffalo	Sheep	Goat	Pig	Poultry
No. of animal/poultry slaughtered (thousand)	2476	5884	23269	50707	6746	1568313
Meat production (thousand tonnes)	223	647	299	531	236	2026
Average yield rate/animal/bird (Kg)	90	106	13	10	35	1.14

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

Table 10c. Productivity of poultry birds in terms of egg in India (2009-10).

Particulars	Fowl	Duck
No. of layers (thousand nos)	266900	13162
Egg Production (Lakh nos)	277986	14942
Average yield per layer (nos/annum)	211	113

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

Table 11. Per capita availability of milk, egg and meat in India (1989-90 to 2009-10).

Year	Per capita availability of milk (g/d)	Per capita availability of egg (nos per annum)	Per capita availability of meat (kg per annum)
1998-99	210	30	1.93
1999-00	214 (1.90)	30 (0.00)	1.89 (-2.07)
2000-01	217 (1.40)	36 (20.00)	1.87 (-1.06)
2001-02	222 (2.30)	37 (2.78)	1.83 (-2.14)
2002-03	224 (0.90)	38 (2.70)	1.99 (8.74)
2003-04	225 (0.45)	38 (0.00)	1.95 (-2.01)
2004-05	233 (3.56)	42 (10.53)	1.93 (-1.03)
2005-06	241 (3.43)	42 (0.00)	2.02 (4.66)
2006-07	246 (2.07)	45 (7.14)	2.08 (2.97)
2007-08	252 (2.44)	47 (4.44)	2.05 (-1.44)
2008-09	258 (2.38)	48 (2.13)	2.37 (15.61)
2009-10	263 (1.94)	51 (6.25)	3.47 (46.41)
CAGR (%)	2.11	4.76	3.49

Figures in parenthesis indicates growth rate (%), Source: State/UT Animal Husbandry Department.

Table 12. Demand v/s supply of meat, milk and egg in India (2009-10).

Particulars	Meat	Milk	Egg
Total production or Supply	4.0 (million tonnes/annum)	112.5 (million tonnes/ annum)	59844 (million nos/annum)
Human population (Million nos)	1700 (Million nos)	1170 (Million nos)	1170 (Million nos)
Requirement as per ICMR recommendation	10.95 (Kg/person/annum)	300 (gm/day/person)	180 (nos/person/annum)
Demand	12.81 (million tonnes/year)	128.1 (million tonnes/year)	210600 (million nos/year)
Demand-Supply gap	8.81 (million tonnes/year)	15.6 (million tonnes/year)	150756 (million nos/year)

Note: Population projected as on 1st oct of a calendar 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>).

Per capita availability of major livestock products: The consumption of livestock products has increased in the country over the years owing to increase in livestock population and related production, changes in consumers income and lifestyle etc. Per capita availability of egg has increased from 30 numbers per annum in 1998-99 to 51 in 2009-10. In case of meat per capita availability is quite low in the country (3.47). Per capita availability of milk has increased from 210 g/d in 1998-99 to 263 g/d in 2009-10. Compound annual growth rate in per capita availability of milk, meat and egg is 2.11, 4.76 and 3.49% during the last decade. Per capita availability of egg is highest in AP (232 nos/annum) followed by Lakshadweep (184 nos/annum), TN (162 nos/annum) and Haryana (155 nos/annum). Punjab is the leading state in terms of per capita availability of milk increasing the same from 917 g/d during 2004-05 to 944 g/d during 2009-10. Punjab is followed by Haryana, Gujarat and Rajasthan in the list. Table 11 presents the trend in per capita availability of milk, egg and meat in India during the period from 1989-90 to 2009-10. Despite large livestock and poultry population, per capita availability of meat is very low (<5 kg per year) as compared to world availability of about 14 kg per year and ICMR recommendation of 10.95 kg per year. The per capita annual availability of 51 eggs is also lower than ICMR recommendation of minimum per capita consumption of 180 eggs annually.

Despite a higher growth rate, the per capita availability of milk in India is 263 g/d which is lower than the ICMR recommendation of 300 g/d and world average of 265 g/d. When the requirements of meat, milk and egg are computed in terms of ICMR recommendation, there exist a big gap between demand and supply of all the products in the country. Demand v/s supply of livestock products in India (2009-10) is shown in Table 12.

Conclusion

The present study has been undertaken to provide a reflection of the status of livestock and poultry industry in India as a subsector of agriculture. On the basis of the important findings of the study, the following conclusions are drawn and presented here. As per 18th livestock census, the country has the largest livestock population in the world (529.7 million head) and accounts for the largest number of cattle (16.1% of the world population) and buffaloes (57.9%), the second largest number of goats (16.7%), the third highest number of sheep (5.7%), fourth largest number of duck and fifth largest number of chicken in the world. Except pig and duck, there is a moderate growth in livestock population during the inter-census period 2003-2007. Buffalo and goat population has almost doubled and poultry population has increased more than threefold during the period from 1982 to 2007. India is leading in terms of milk production in the world.



In 2009-10, this sector of the nation produced 112.5 million tonnes of milk, 59.8 billion eggs, and 4.0 million tonnes of meat. With the increase in production, the per capita availability of milk, meat and meat has also increased during the last decade though it is low when compared in terms of requirement as per ICMR recommendation. Despite large livestock wealth, productivity of the stock is low on account of many factors. The chief among those are dominance of the population with local low yielding breeds, shortage of feed and fodder, improper management and disease control measures etc. Proper emphasis on the mentioned factors along with support from Government and all the stakeholders involved towards framing comprehensive livestock development policies could revolutionize this significant sector of agriculture in the country.

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