

# **Role of Livestock in Indian Economy**

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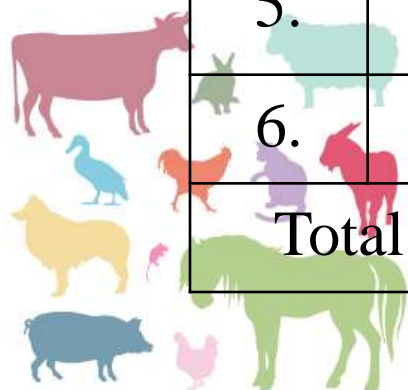
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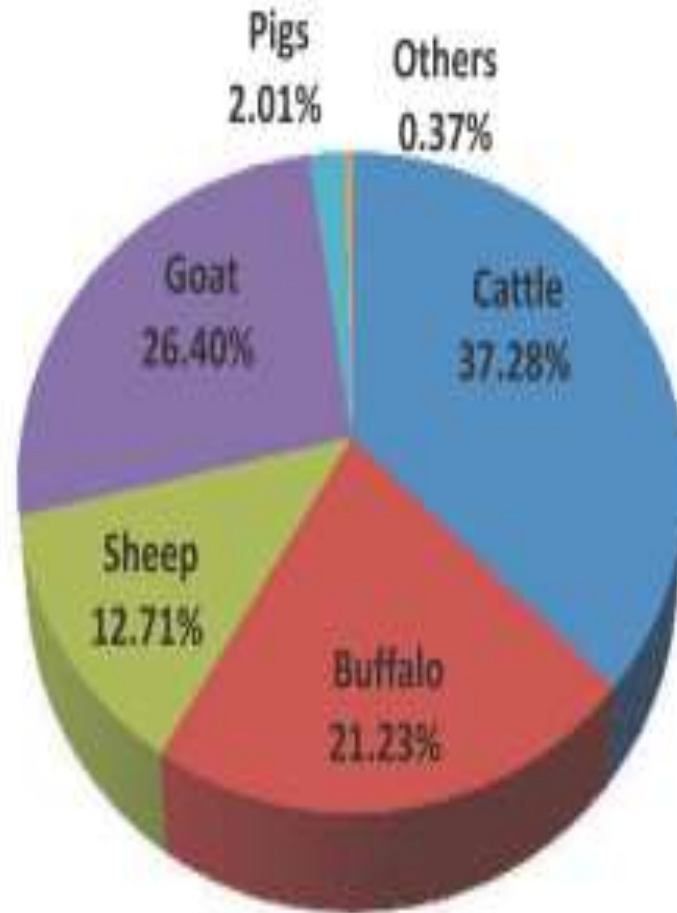
# Introduction

- India's livestock sector is one of the largest in the world.

Sl.No.	Species	Population	% share in world's livestock
1.	Cattle	190.9 million	12.5% (2 <sup>nd</sup> )
2.	Buffalo	108.7 million	56.7% (1 <sup>st</sup> )
3.	Sheep	65 million	2.4%
4.	Goat	135.1 million	
5.	Pig	10.29 million	1.5%
6.	Poultry	729.2 million	3.1%
Total livestock		512.05 million	-----



# Distribution of livestock population



# Livestock Census

- First livestock census was conducted in the year **1919**
- So far, **19** such censuses have been conducted
- Last livestock census: **19<sup>th</sup> Livestock Census (2012)**
- Forthcoming: 20<sup>th</sup> livestock census (2017)
- **Funding agency:** 100% funding from Department of Animal Husbandry, Dairying and Fisheries (DAHD&F), Ministry of Agriculture, GOI
- **Census conducting agency:** State Department of Animal Husbandry
- Contribution to Gross Domestic Product (**GDP**): **25.6%** of Agricultural GDP and **4.11%** of National GDP is from livestock sector (in 2012).

# Livestock Production

- Livestock Production and Agriculture are intrinsically linked, each being depending on the other and both crucial for overall food security.
- According to estimates of the **Central Statistical Office (CSO)**, the value of output from livestock sector at current prices was about **Rs. 7,33,054 crore** during 2014 which is about **28.7%** of the value of output from agricultural and allied sector. At constant prices the value of output from livestock is about 27.8% of the value of output from total agriculture and allied sector

# Importance of livestock farming

- Animal husbandry is an integral component of agriculture
- Supporting livelihood of more than 2/3<sup>rd</sup> of the rural population.
- Livestock provide
  - Nutrient-rich food products (milk, meat, egg)
  - Draught power
  - Dung as organic manure and domestic fuel
  - Hides & skin
  - Regular source of cash income
  - Natural capital
  - As a insurance against income shocks of crop failure
  - Employment generation















# Transformation in the utility of livestock

- Influenced by changes in agriculture and food consumption patterns
- The non-food functions of livestock are becoming weaker
- Importance of livestock as source of 'draught power' has declined
- Use of dung manure is increasingly being replaced by chemical fertilizers.
- On the other hand, their importance **as a source of quality food** has increased.

# Scope for growth in livestock sector

- Sustained income and economic growth
- Fast-growing urban population
- Burgeoning middle income class
- Changing lifestyles
- Increasing proportion of women in workforce
- Improvements in transportation and storage practices and rise of supermarkets
- Increase in consumption of animal food products



# Scope for growth in livestock sector

- Demand for animal food products is responsive to income changes and is expected to increase in future
- Between 1991-92 and 2008-09, India's per capita income grew at an annual rate of 4.8% and urban population at a rate of 2.5%.
- By the end of 12<sup>th</sup> Plan (2012-2017) demand, for milk is expected to increase to 141 million tons and for meat, eggs and fish together to 15.8 million tons.
- Global market for animal products is expanding fast and is an opportunity for India to improve its participation in global market.

# Growth rate in livestock sector

- Livestock sector grew at an annual rate of **5.3%** during 1980s  
**3.9%** during 1990s and  
**3.6%** during 2000s.
- Despite deceleration, growth in livestock sector remained about 1.5 times larger than the crop sector
- It implies the critical role of livestock sector in cushioning agricultural growth

# Land and livestock holding

- Distribution of livestock is more equitable than that of land.
- Marginal farm households ( $\leq 1.0$  hectare of land) who comprised 48% of the rural households
- But they control
  - More than **50%** of country's cattle and buffalo
  - 2/3<sup>rd</sup>** of small animals
  - 2/3<sup>rd</sup>** of poultry and
  - 24%** of land.
- Nearly 70% of the rural household keeps one or other form of livestock

# Economic contribution of livestock

- Livestock has been an important source of livelihood for small farmers.
- Livestock contributed about 16% to small farmer's income, more so in states like
  - Gujarat :24.4%
  - Haryana 24.2%
  - Punjab 20.2% and
  - Bihar 18.7%.

# GROUND REALITIES

NEARLY 90 PER CENT OF INDIA'S FARMERS HAVE LESS THAN TWO HECTARES OF LAND



**AVERAGE MONTHLY INCOME PER HOUSEHOLD: Rs. 6,426**

Cultivation **Rs. 3078** | Livestock **Rs. 765** |

Wage/salary **Rs. 2069** | Non-farm business **Rs. 514**

Source: NSSO (2014)

86.58% of rural farmers have less than 2 hectare of land

# Livestock and poverty alleviation

- The distribution patterns of income and employment show that small farm households hold more opportunities in livestock production.
- The growth in livestock sector is demand-driven, inclusive and pro-poor.
- Incidence of rural poverty is less in states like Punjab, Haryana, Jammu & Kashmir, Himachal Pradesh, Kerala, Gujarat, and Rajasthan where livestock accounts for a sizeable share of agricultural income as well as employment.
- Empirical evidence from India as well as from many other developing countries suggests that livestock development has been an important route for the poor households to escape poverty.

## Hen economics in scavenging and semi-scavenging system

Year State Breed	2007 West Bengal ND bird			2008 Madhya Pradesh Kadaknath		
	Parameters	No,	unit (rs) value	total value	No,	unit value
Egg laid	46	–	–	84	–	–
Egg spoiled	06	–	–	25	–	–
Egg sold	25	2.5	62.5	20	4.5	90
Chick hatched	15	–	–	39	–	–
Birds dead	04	–	–	06	–	–
Cock sold	5.5	60	330	16.5	250	4125
Hen sold	5.5	60	330	16.5	150	2475
<b>Gross income (Rs)</b>			<b>722.5</b>			<b>6690</b>
Hen	01	60	60	01	200	200
Feed/bird	12	2.2	26.4	34	120	4080
Health care	13	5.9	70.8	34	5	170
<b>Total cost (Rs)</b>						
			<b>157.2</b>			<b>4450</b>
<b>Net income( Rs)</b>			<b>565.3</b>			<b>2240</b>
<b>Net income/ rural poverty line</b>			<b>5.7%</b>			<b>18.59%</b>

(SA-PPLPP, 2010)

# Poverty Line

- Based on the Suresh Tendulkar panel's recommendations in **2011-12**, the poverty line had been fixed at **Rs 27** in rural areas and **Rs 33** in urban areas, levels at which getting two meals may be difficult.
- **Rural area:** If a person earning less than **Rs.9855** per annum he will be considered as poor.
- **Urban area:** If a person earning less than **Rs.12045** per annum he will be considered as poor.

# Latest Poverty Line

- Rs 32 a day in rural areas and Rs 47 in towns and cities should not be considered poor
- Those spending over Rs 32 a day in rural areas and Rs 47 in towns and cities should not be considered poor-RBI Governor.

## Contribution of single hen in poverty alleviation

- If a farmer keeps one **Non-descript hen**: in a year, he can earn net income of **Rs. 565.3** under scavenging system. Hence, single hen is helping to alleviate **5.7%** of poverty in an individual.
- If a farmer keeping one **Kadaknath Hen**: in a year, he can earn net income of **Rs. 2240** under scavenging system (Kadaknath: Egg and Black meat fetches higher market value because of medicinal value). Hence, single hen is helping to alleviate **18.59%** of poverty in an individual.

# Need for policy interventions

- There are number of socio-economic and environmental challenges that need to be overcome through
- **Appropriate policies**
- **Technologies** and
- **Strategies** in order to exploit the pro-poor potential of livestock.

# Productivity of livestock in India and World

- Improving productivity in a huge population of low-producing animals is one of the major challenges.
- The average annual milk yield of Indian cattle is **1172 kg** which is only about **50%** of the global average and much less than developed countries.

Country	Average annual milk yield per cow
<b>India</b>	<b>1172</b> kg
New Zealand	3343 kg
Australia	5600 kg
UK	7101 kg
US	9332 kg
Israel	<b>10214</b> kg

# Productivity per animal

- Average daily milk yield of cattle and buffalo in 2009-10
  - Crossbred cows **6.87 kg**
  - Buffaloes **4.57 kg**
  - Indigenous cow **2.14 kg**
- The meat yield of most species is 20-60% lower than the world average.
- Average daily milk yield of cattle and buffalo in 2014-15

Exotic/Crossbred Cows (kg/day)	Indigenous/Non-Descript Cows (kg/day)	Buffalo (kg/day)	Goat (kg/day)
7.15	2.54	5.15	0.46

# Production potential and yield

- The growth in milk production decelerated from 4.4% during 1990s to 3.9% during 2000s.
- There remains a huge gap between the potential and the realized yields in Indian livestock.
- Only 27-75% of the dairy animal potential yield is realized in different regions of the country because of constraints related to
  - Feeding
  - Breeding
  - Health
  - Management
  - Technologies
  - Marketing
  - Inputs

# Milk production status

Year	Production (Million tons)	Per capita availability (gm/day)
2010-11	121.8	281
2011-12	127.9	290
2012-13	132.4	299
2013-14	137.7	307
<b>2014-15</b>	<b>146.3</b>	<b>322</b>

## Karnataka

**Production 6.121 million tones (2014-15)**

**Per capita availability: 272 grams/day (2013-14)**

# Crossbreeding programme

- Crossbreeding of indigenous species with exotic stocks to enhance genetic potential of different species has been successful only to a limited extent
- Limited AI services, deficiency in quality germ-plasm, infrastructure, technical manpower, poor conception rate
- After more than three decades of crossbreeding, the crossbred population is only 16.6% in cattle, 21.5% in pigs and 5.2% in sheep.

# Feed and fodder scenario

- Livestock derive major part of their energy requirement from agricultural byproducts and crop residues
- Hardly 5% of the cropped area is utilized to grow fodder
- India is deficit in
  - Dry fodder by **11%**
  - Green fodder by **35%** and
  - Concentrates feed by **28%**.
- The common grazing lands too have been deteriorating quantitatively and qualitatively.

# Livestock health status

- Frequent outbreaks of diseases like FMD, BQ, PPR, Influenza etc. continue to affect livestock health and productivity.
- India has about 55000 veterinary institutions including polyclinics, hospitals, dispensaries and stockman centers.
- Veterinary and animal health services are largely in the public sector domain and remain poor.

# Estimated annual loss due to livestock diseases in India

Disease	Annual loss (Rs in crores.)
FMD <sup>1</sup>	4000 15000-20000
PPR <sup>2</sup>	1690-1800
HS <sup>3</sup>	100
Avian Flu <sup>4</sup>	245.517*

Source:

1 – Bandyopadhyay (2003) Prabu *et al.* (2004)

2 – Kumar *et al.* (2004), Venkataramanan *et al.* (2005)

3 – Singh *et al.* (1996)

4 – Ganesh Kumar *et al.* (2008)

\* - The figures correspond to losses in Manipur state only

## FMD, a major threat to Livestock Sector

- ❑ One of the major obstacles in achieving the targeted growth rates in the sector is the prevalence and outbreaks of diseases, particularly List A OIE diseases like FMD.
- ❑ It is generally not fatal in mature livestock, but increases the risk of spontaneous abortion among pregnant animals and of mortality among young livestock.
- ❑ The disease situation is complicated by several factors
  - ❑ Large population of susceptible animals
  - ❑ No systematic vaccination
  - ❑ Unrestricted movement of animals within the country.

# Indirect losses due to FMD

- Permanent reduction in production
- Body weight loss (feed/maintenance/)
- Abortion
- Long intercalving period / service period
- Permanent lameness of draught animals
- Market and price effects
- Trade effects
- Food security and nutrition
- Health and environment effects
- Costs of inspection, monitoring and surveillance

# Livestock and Environment

- India's huge population of ruminants remains a major source of greenhouse gases adding to global warming.
- Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- Over grazing in pasture and forest area is resulting in pasture degradation and deforestation.
- Reducing the carbon footprint in livestock production is essential for earning carbon credits.

# Budget spending on livestock sector

- Livestock sector did not receive the policy and financial attention it deserved.
- The sector received only about 12% of the total public expenditure on agriculture and allied sectors
- It is disproportionately lesser than its contribution to agricultural GDP.
- The sector too has been neglected by the financial institutions.
- The share of livestock in the total agricultural credit has hardly ever exceeded 4% in the total (short-term, medium-term and long-term).

# Livestock insurance

- The institutional mechanisms to protect animals against risk are not strong enough.
- Currently, only 6% of the animal heads (excluding poultry) are provided insurance cover.
- Livestock extension has remained grossly neglected in the past. Only about 5% of the farm households in India access information on livestock technology.
- These indicate poor outreach of the financial and information delivery systems.

# Livestock market

- Access to markets is critical to speed up commercialization of livestock production.
- Lack of access to markets may act as a **disincentive** to farmers to adopt improved technologies and quality inputs.
- Except for poultry products and to some extent for milk, markets for livestock and livestock products are **underdeveloped, irregular, uncertain** and lack transparency.
- Further these are often dominated by **informal market** intermediaries who exploit the producers

# Pro-poor livestock potential

- The extent to which the pro-poor potential of livestock can be harnessed would depend on how technology, institutions, policies and financial support address the constraints of the sector.
- The number-driven growth in livestock production may not sustain in the long run due to its increasing stress on the limited natural resources.
- The future growth has to come from improvements in technology and service delivery systems leading to accelerated productivity, processing and marketing.

# References

- 19<sup>th</sup> Livestock Census, 2012

<http://dahd.nic.in/sites/default/files/Livestock%20%205.pdf>

- Working committee report on animal husbandry: Planning Commission, 12<sup>th</sup> Five Year Plan.

[http://planningcommission.gov.in/aboutus/committee/wrkgrp12/agri/AHD\\_REPORT\\_Final\\_rev.pdf](http://planningcommission.gov.in/aboutus/committee/wrkgrp12/agri/AHD_REPORT_Final_rev.pdf)

## Livestock in Indian Economy

<http://www.insightsonindia.com/wp-content/uploads/2013/08/role-of-livestock-in-indian-economy.pdf>

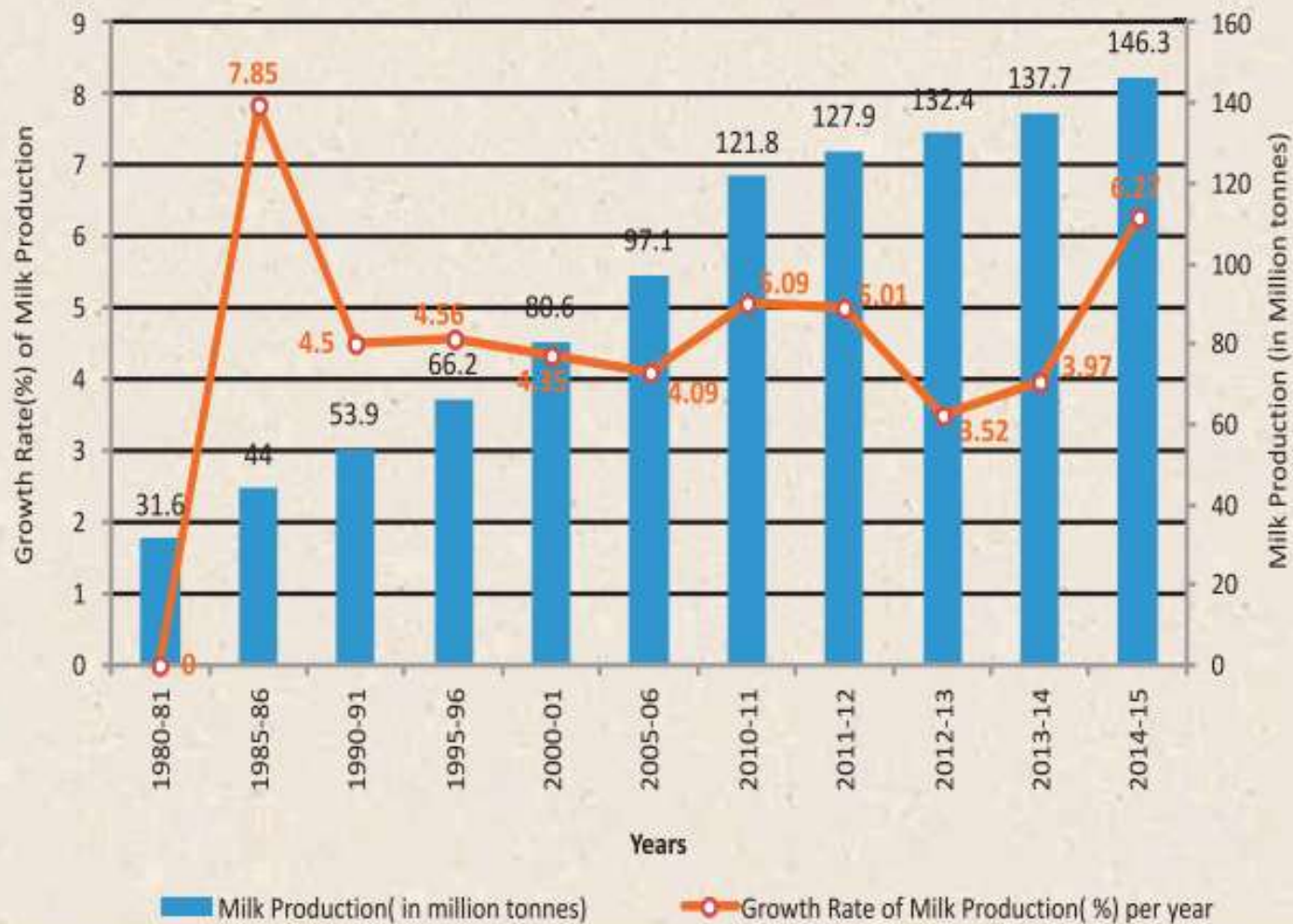
- Annual Report, Department of Animal Husbandry, Dairying and Fisheries

<http://aipvt.vci.nic.in/REPORT.pdf>

# Livestock and Poultry population in three census

S. No.	Species	Livestock Census 2003 (no. in millions)	Livestock Census 2007 (no. in millions)	Livestock Census 2012 (no. in millions)	Growth Rate (%) 2007-12
1	Cattle	185.2	199.1	190.9	-4.10
2	Buffalo	97.9	105.3	108.7	3.19
3	Yaks	0.1	0.1	0.1	-7.64
4	Mithuns	0.3	0.3	0.3	12.88
	Total Bovines	283.4	304.8	300.0	-1.57
5	Sheep	61.5	71.6	65.07	-9.07
6	Goat	124.4	140.5	135.2	-3.82
7	Pigs	13.5	11.1	10.3	-7.54
8	Other animals	2.2	1.7	1.48	-12.94
	Total Livestock	485	529.7	512.05	-3.33
9	Poultry	489	648.8	729.2	12.39

**Chart 1.1: Milk Production and Corresponding Growth Rate (%) from 1980-81 to 2014-15**



**1.5.2.1 Average Yield Rate for Milk:** The average yield of milk per day per animal in milk at National level from different species during 2014-15 is given below:

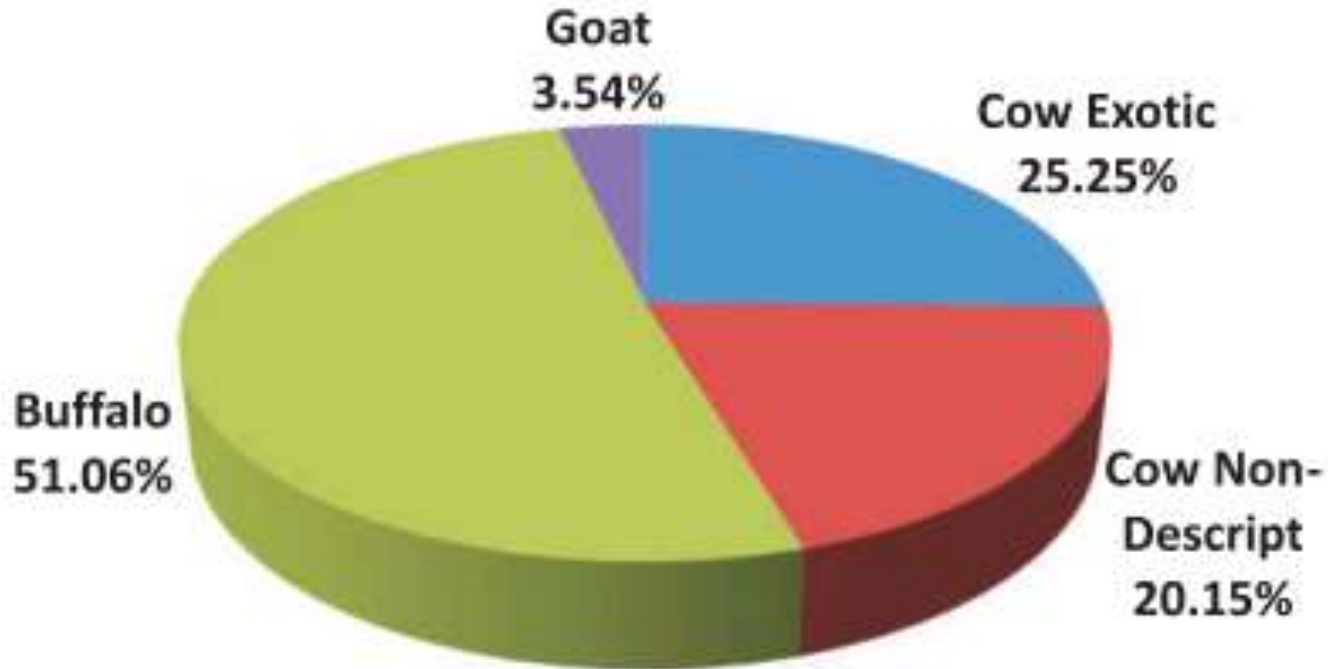
**Table 1.2: Average Yield Rate for Milk**

Exotic/Crossbred Cows (kg/day)	Indigenous/Non-Descript Cows (kg/day)	Buffalo (kg/day)	Goat (kg/day)
7.15	2.54	5.15	0.46

**1.5.2.2 Percentage Share of Milk Production 2014-15.**

Table 1.3	
Category	Total Production (000 tonnes)
Cow Exotic	36938.92
Cow Non-Descript	29484.53
Buffalo	74709.90
Goat	5180.18
Total	146313.53

**Chart 1.2: Percentage Share of Milk Production 2014-15**



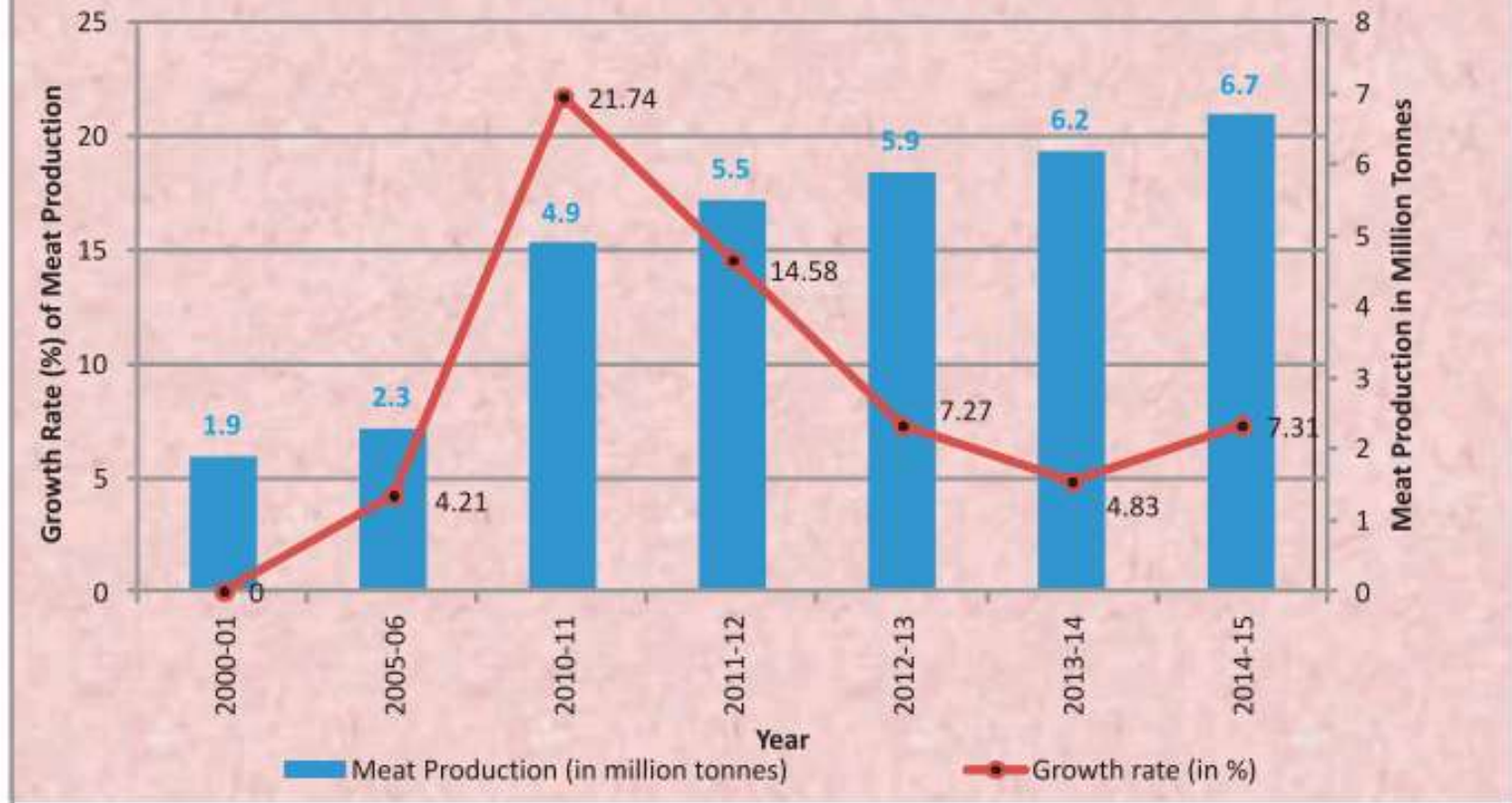
- More than half (51.06%) of the milk in India is produced from buffaloes
- Cow (Indigenous + Crossbred) = 45.40% of the milk

**1.5.3.1 Average Yield Rate for Egg:** The average yield of egg per year at National level from Fowls and Ducks during 2014-15 is given below:

**Table 1.4: Average Yield Rate for Egg**

Fowls (nos./year)		Duck (nos./year)	
Desi Fowls	Improved Fowls	Desi Duck	Improved Duck
107	276	111	176

**Chart 1.5: Meat Production and Corresponding Growth Rate (%) from 2000-01 to 2014-15**

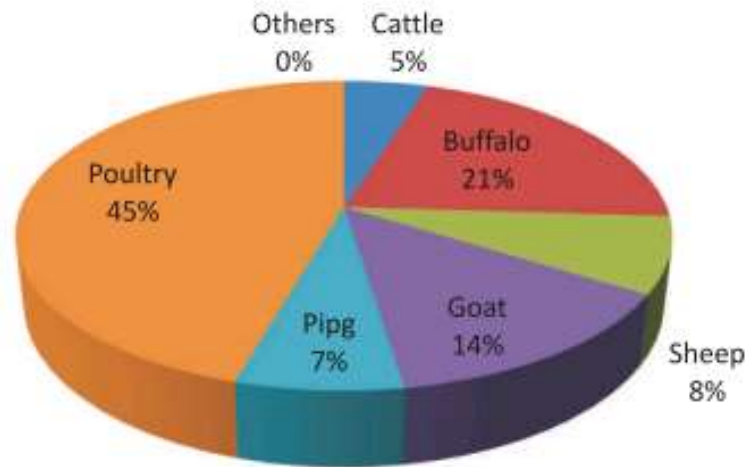


- **Total meat production in India (2014-15): 6.7 Million Tonnes**

### 1.5.5.1 Percentage Share of Meat Production 2014-15

Table No. 1.5	
Category	Total Production (000 tonnes)
Cattle	334.44
Buffalo	1403.65
Sheep	529.08
Goat	914.13
Pig	464.11
Poultry	3045.10
Others	0.48
Total	6690.99

**Chart 1.6: Percentage Share of Meat Production 2014-15**



Livestock Species	Percentage share in Meat Production
Poultry	45
Buffaloes	21
Goat	14
Sheep	8
Pig	7
Cattle	5

## PRODUCTION OF MAJOR LIVESTOCK PRODUCTS-ALL INDIA

Year	Milk (Million Tonnes)	Eggs (Million Nos.)	Wool (Million Kgs.)	Meat (Million Tonnes)
1995-96	66.2	27,187	42.4	-
1996-97	69.1	27,496	44.4	-
1997-98	72.1	28,689	45.6	-
1998-99	75.4	29,476	46.9	1.9
1999-2000	78.3	30,447	47.9	1.9
2000-01	80.6	36,632	48.4	1.9
2001-02	84.4	38,729	49.5	1.9
2002-03	86.2	39,823	50.5	2.1
2003-04	88.1	40,403	48.5	2.1
2004-05	92.5	45,201	44.6	2.2
2005-06	97.1	46,235	44.9	2.3
2006-07	102.6	50,663	45.1	2.3
2007-08	107.9	53,583	43.9	4.0
2008-09	112.2	55,562	42.8	4.2
2009-10	116.4	60,267	43.1	4.5
2010-11	121.8	63,024	43	4.9
2011-12	127.9	66,449	44.7	5.5
2012-13	132.4	69,731	46.1	5.9
2013-14	137.7	73,438	47.9	6.2
2014-15	146.3	78,484	48.1	6.7

In the year 2014-15

**Milk:** 146.3 million Tonnes

**Eggs (Million Numbers):** 78483 million=74.8 billion numbers

**Meat :** 6.7 Million Tonnes

**Wool :** 48.1 Million Kgs

Thank You