

## **Lec1: Prelusion-Significance of livestock and poultry in Indian economy-Livestock and Poultry census - role of livestock and poultry in Indian agriculture.**

Livestock farming is an integral part of crop farming and contributes substantially to household nutritional security and poverty alleviation through increased household income. The returns from livestock especially dairying and mixed farming in small and medium holdings are larger and highly sustainable. The progress in this sector results in more balanced development of the rural economy and improvement in economic status of poor people associated with livestock. Indian agriculture is an economic symbiosis of crop and livestock production with cattle as the foundation. Dairy animals produce milk by converting the crop residues and by products from crops which otherwise would be wasted. Dairy sector contributes by way of cash income, draught power and manure. Livestock provides for human needs by way of 1. Food 2. fibre. 3. Fuel. 4. Fertilizer. 5.. Skin and 6. Traction. It is a living bank providing flexible finance in time of emergencies and also serves as insurance against crop failure for survival. If Agriculture is the foundation of our national economy Animal husbandry constitutes the sheet anchor of agriculture. Indian agriculture marches on the patient back of the bullock.

70 percent of the livestock are owned by 67 percent of small and marginal farmers.

76 percent of the milk is produced by weaker sections of society.

One fifth of the worlds livestock population is present in India .

India has nearly 57 % of the worlds buffalo population, 16% of the cattle population, 20% of goat population and 5 % of sheep population although India constitutes less than 3 % of the worlds total land area.

### **Population of livestock and poultry in India and Tamilnadu**

<b>CATTLE</b>	–	<b>209.08 MILLION &amp; 9.10 MILLION</b>
<b>Buffaloes</b>	–	<b>92.19 Million &amp; 2.93 Million</b>
<b>Goat</b>	–	<b>120.60 Million &amp; 5.87 Million</b>
<b>Sheep</b>	–	<b>56.47 Million &amp; 5.61 Million</b>
<b>Pig</b>	–	<b>15.42 Million &amp; 0.60 Million</b>
<b>Poultry</b>	–	<b>3430 Million &amp; 240 Million.</b>

**The production Parameters are**

Milk – 81 Million tonnes ( 00 –01 ) – I in the world ( contributing 14% of the world milk production)

32.4 Billion eggs – 5<sup>th</sup> in the world

47.6 million kgs of wool

4.7 million tonnes of meat

Per capita Milk availability is 221 gms / day ( 00 –01 ) whereas the requirement is 280 gms / day

Per capita egg availability is 33 eggs/ year whereas the requirement is 180 eggs

Per capita availability of poultry meat is 700 gms/ annum whereas the requirement is 10 kgs/ annum.

It is estimated that about 18 million people are employed in the livestock sector in principle or subsidiary status. Export earnings from livestock sector and related products are progressively rising. Finished leather accounted for 50 % ( Rs.1745 crore ) and meat and meat products accounted for 42 % (Rs1457 crore) of the total export from the livestock sector during 2000-01. The contribution of livestock sector to the total Gross domestic product (GDP) was 5.9% in 00-01, accounting for 27 % of total agricultural output.

Though the cattle wealth is quite abundant in terms of population the production from these animals is very poor viz., 987 kgs per lactation whereas the world average is 2038 kgs per lactation. The main reasons for this shortcoming is the abundant population of nondescript cows, chronic shortage of feed and fodder, poor nutritive value of the available feed and fodder, low fertility rates, destruction of grazing land, increasing human population and competition between animals and man for the available feed resources.

To satisfy the nutrient requirement for the huge population of livestock the options are 1.to reduce the unproductive/ low productive animals. 2. feeding of non conventional feed stuffs – among these are the horticultural by products like agriculture by products, vegetable wastes and horticulture industrial wastes.

First step that bridges livestock and agriculture is the efficient utilization of agriculture/horticulture waste to feed animals and convert to high quality meat, milk, wool, egg etc.,

Second linkage is through application of organic fertilizers to crops.

The third application is the usage of draught animal power for ploughing of land.

### Nutrient content of animal and poultry manure

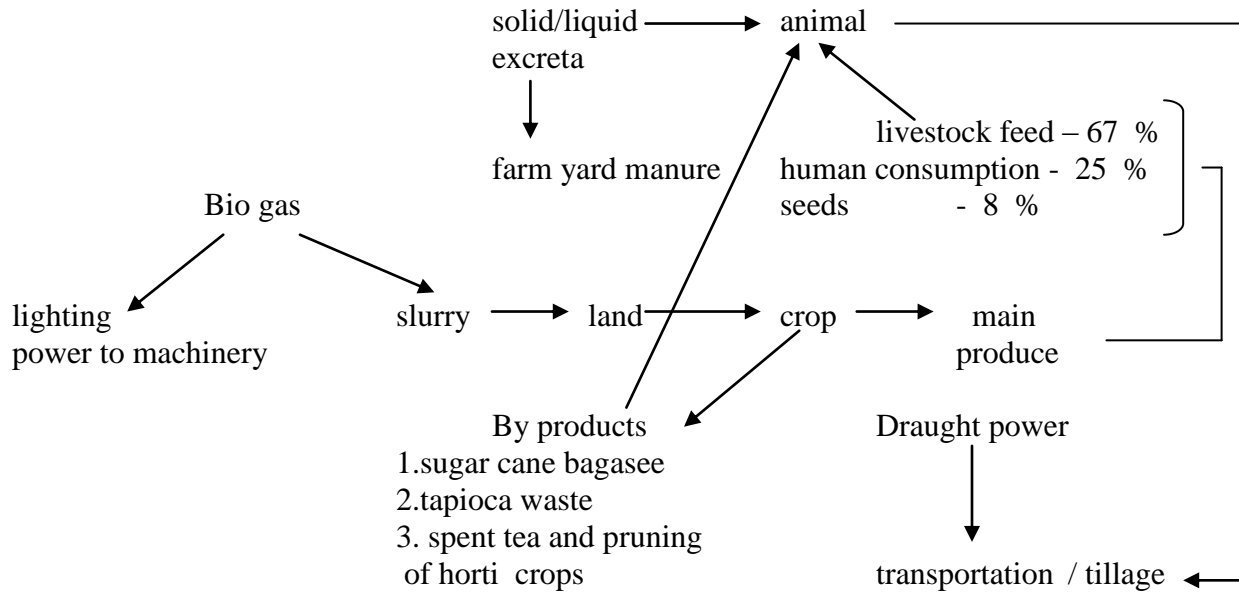
Nutrient	Nutrient content of manure (mg g dry weight <sup>-1</sup> )				
	Cattle	Sheep	Pig	Horse	Poultry
Nitrogen	25-40	20-45	20-45	17-30	28-62
Phosphorus	4-10	4-11	6-12	3-7	9-29
Potassium	7-25	20-29	15-48	15-18	8-29
Calcium	5-8	8-19	3-20	7-29	17-69
Magnesium	5-8	3-6	2-3	3-5	3-8
Sulphur	3-4	2-3	3-5	1-3	4-7

Apart from manurial value biogas can be produced from livestock dung and poultry droppings. 32 kg of cow dung/20 kgs of pig faeces/12 kgs of poultry droppings can produce 1 m<sup>3</sup> – 34 cft of bio gas. the calorific value of bio gas –500 to 700 BTU per cft in comparison to Natural gas – 850 BTU/cft.

1 m<sup>3</sup> of slurry fed to biogas plant produces on an average 0.15 to 0.20 m<sup>3</sup> of biogas daily. Based on equivalent effective heat produced 2 m<sup>3</sup> biogas plant replaces in a month fuel equivalent of 26 kgs of LPG contained in standard gas cylinder or 37 litres of kerosene or 88 kgs of charcoal or 210 kgs of fuel wood or 740 kgs of animal dung.

1. 83 million draught animals
2. The power generated from 83 million draught animals is equivalent to 30,000 million watts in terms of electric power
3. 0.33 ha area of land is cultivated by the animals. The power rating of a full grown bullock a pure Indian draught breed is 0.70 HP average is 0.5 Hp only. A35 Hp tractor can plough about 2.5ha of land in an eight hour shift and consume about 5l diesel / hr.
4. Animal power is also utilised for transport.

25,000 million tonnes km of freight per year which saves 6 million tonnes of diesel /petrol worth Rs.4000 crores



Cow is taken as the basal unit and all other types of animals are equated to have a common platform

cow	1.0	example: if the goat population is is 120 million it means it is equivalent to 24 million cows $120 \times 0.2 = 24.0$
bullock	1.2	
young stock	0.6	
buffalo	1.2	
sheep and goat	0.2	

Nutrient content of animal and poultry manure

Nutrient	Nutrient content of manure (mg g dry weight <sup>-1</sup> )				
	Cattle	Sheep	Pig	Horse	Poultry
Nitrogen	25-40	20-45	20-45	17-30	28-62
Phosphorus	4-10	4-11	6-12	3-7	9-29
Potassium	7-25	20-29	15-48	15-18	8-29
Calcium	5-8	8-19	3-20	7-29	17-69
Magnesium	5-8	3-6	2-3	3-5	3-8
Sulphur	3-4	2-3	3-5	1-3	4-7

### Livestock and Poultry Production

Introduction : Importance of Livestock and Poultry in Indian Agricultural livestock and poultry census and its role in Indian Economy.

1. India owns nearly 23% of the world livestock population.

2. Agricultural is the back bone of Indian Economy and within agriculture livestock plays an importance role in providing sustainable income to farmers throughout the year.
3. Failure of monsoon, pest infestation, floods etc – when crop husbandry fails next alternate is livestock and poultry industry.

### **Animal Husbandry – important steps are -Breeding, Feeding, Weeding and Heeding**

#### Importance of livestock in Agriculture

1. Income from livestock and poultry enterprises contribute as high as 10% of the total national income and nearly 50% of agricultural sector income.
2. Effective utilization of labour – family labour is effectively utilized in animal husbandry.
3. Soil fertility : organic manure – promotes and maintain soil fertility.
4. Effective utilization- cow produces 8 tonnes of farm yard manure per year and farm biomass farm products which includes fodder, feed, edible weed, tree fodder, bund grass are better utilized – and converted to Edible products like – Milk, Meat and Egg.
5. Effective utilization of agri industrial by products  
By products obtained from grain processing (bran), oil seed process (oil cakes), pulses processing (gram, husk) and molasses.
6. Better standard of living : family income from livestock and poultry -‘Bankers cheque’
7. Inter relationship

Man, animal plant interrelation is interdependent (one cannot survive without the help of other) Man not only depends on plants and animals for food but also for income and other needs. He co-ordinates activities of the crop and other husbandry by proper planing.

#### Main objectives of livestock census

1. To assess the growth rate of the livestock
2. It helps to assess/improve the quality/production performance
3. It helps to reduce the uneconomical livestock by culling.