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## RESEARCH ARTICLE

### RELATIVE SHARE OF LIVESTOCK POPULATION OF HARYANA

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#### Abstract

Animal husbandry is an integral part of agriculture in India since ages and plays an important role in the rural economy. Besides having vast employment potential, the sub-sector provides milk, egg, meat, wool, hides and skins, dung, bones, hooves and draught power but also stabilizes the farm income. Haryana holds a very prominent place in the country for its livestock wealth. Haryana has a pride of being the birthplace of leading breeds of Haryana Cow's and Murrah buffaloes. For designing appropriate policies of livestock development and thereby giving a future fillip to their contributions, it is extremely essential to focus on the nature and significance of changes taking place in the animal husbandry subsector in the state. The number of livestock has undergone substantial changes in terms of composition over the year in the state. The relating indices of changes have been manipulated. The estimated compound growth rates and for this the calculation of exponential trend have been shown. The population of buffaloes, sheep, goats, horses and ponies and total livestock has increased at the compound rate of 2.92 percent, 1.99 percent, 0.69 percent, 1.32 percent and 1.87 percent. On the contrary, the population of cattle and camels has exhibited a negative growth rate during the same period. The compound growth rate of cattle and camels are -0.72 and -1.92 % respectively. The highest growth rate in case of buffaloes reflect that farmers are taking care of these milk animals because of heavy investment, consumer preference to buffaloes milk as well as their higher milk yield as compared to indigenous cows.

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#### INTRODUCTION

In the developing world domestic animals play a major role as source of energy, food, raw material and manure for the primarily rural farmers. India is home to the largest livestock population in the world accounting for about 57 per cent of the world's buffalo population and about 15 per cent of the world's cattle population and as a result is the largest milk producer in the world. The majority of these livestock (about 88%) are owned by marginal, small and semi medium farmers (with operational holding area less than 4 ha). Livestock refers to all domestic animals that are produce food and other valuable products for man. It includes cattle, buffaloes, sheep, goats and pigs. Livestock may be milk producing and meat producing. Livestock mixed farming system has been played a pivotal role in the social, economical and cultural development of the society. Where livelihood options are limited, livestock in arid or semi-arid forms an integral part of the age old crop, livestock mixed farming system. They can live on rough plant and vegetable foods that man cannot eat. Their bodies are living like chemical factories, which continuously go on converting feed into milk, meat and working energy for the benefits of man.

India is predominantly an agricultural country with about 70% of its population dependent on income from agriculture. Rapid depletion of natural resources, especially the common property resources, particularly due to growing human and livestock population and due to adoption of non sustainable practices, have seriously affected the underprivileged, marginalized and landless people. Livestock have been an integral component of India's agricultural and rural economy since time immemorial, supplying energy for crop production in terms of draught power and organic manure, and in turn deriving their own energy requirements from crop byproducts and residues. The advances in bio-chemical and mechanical technologies, however, have weakened the synergy between livestock and crops. Livestock are now more valued as source of food and contribute over one-fourth to the agricultural gross domestic product and engage about 9% of the agricultural labour force. The livestock sector has been growing faster than crop sector; however, in recent years, the growth both in livestock production and productivity has decelerated considerably.

## MATERIALS AND METHODS:

### Study Area:



**Fig.No. 1: Profile view of Haryana (India)**

Haryana is a landlocked state in northern India. It is located between 27°39' to 30°35' N latitude and between 74°28' and 77°36' E longitude while its altitude varies from 700 to 3600 ft above sea level. The populations

reported in the present study are from the Yamuna- Ghaggar plain that forms the largest part of the state. This state is undergoing rapid ecological changes due to economic development and its consequential urbanization.

#### Data Collection:

The inferences drawn from this study are based on secondary data collected from various issues of statistical abstracts of Haryana, published by the Directorate of Economics and Statistics, Government of Haryana and the Agricultural Statistics at a glance, published by Ministry of Agriculture, Government of India.

### RESULTS AND DISCUSSION:

Haryana has the pride of being the place of origin of famous breeds of Haryana Cows and Murrah buffaloes. The number of livestock has undergone substantial changes in terms of composition over the year in the state. This is shown in table no.1. According to 1966 livestock census, the total livestock population in the state was 55.2 lakh consisting of 22.2 lakh cattles, 19.3 lakh buffaloes, 5.1 lakh sheep, 5.1 lakh goats, 1 lakh horses, ponies, donkeys and mules.

Among the farm animals the percentage share of buffaloes has witnessed a spectacular improvement from 35 percent to 65.78 percent in 2007. On the contrary the percentage share of cattle, camel and donkey in total livestock population has declined from 40.28 percent, 2.40 percent and 1.26 percent in 1966 to 17.15 percent, 0.42 percent and 0.05 percent in 2007 respectively. Despite some increment in absolute terms, the percentage share of mules, horses and ponies remained almost similar in most of the census years. The number of livestock has undergone substantial changes in terms of absolute number over the year. The relating indices of changes are indicated in the Table no.2. In the table, the index number of cattle changed 100.00 in 1966 to 69.70 in 2007. For mules, buffaloes and sheep it shifted to 153.62, 307.70 and 116.39 respectively. The estimated compound growth rates and for this the calculation of exponential trend are shown in table no.3. The population of buffaloes, sheep, goats, horses and ponies and total livestock has increased at the compound rate of 2.92 percent, 1.99 percent, 0.69 percent, 1.32 percent and 1.87 percent. On the contrary, the population of cattle and camels has exhibited a negative growth rate during the same period. The compound growth rate of cattle and camels are -0.72 and -1.92 % respectively. It is clear from the data that the villagers are now taking interest for milk stock in buffaloes milk rather than cow milk.

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 in the crop sector which implies its critical role in cushioning agricultural growth.

The livestock sector contributes to about 30 percent of the State Agricultural GDP and the production of milk and egg has increased more than 5 times and 160 times, respectively since the formation of the State.

Introduction of mechanization and commercialization in agriculture increased utility of livestock sector; these have changed the livestock scenario of Haryana.

Due to the commercialization of dairying at national level, Haryana is the best place for the buffalo rearing. The cattle compound growth declined in all livestock census and buffaloes increasing in all census periods. This reveals that there is shift from the cattle to buffaloes rearing in the state because the development of Murrah high milk producing breed of buffalo is given maximum profit to farmers. Draught animal power growth is declining due to the mechanization of state agriculture. The structural of bovine population rearing is transformed from subsistence to the commercial level (Jha, 2004).

**Table No.1: Relative Proportion of Livestocks in Haryana**

(in 00)

Particulars	1966	1972	1977	1982	1988	1992	1997	2003	2007
<b>Cattle</b>	22268 (40.28)	24518 (38.98)	24418 (35.36)	23420 (29.58)	22001 (25.09)	21335 (1.44)	23998 (21.73)	15402 (16.31)	15523 (17.15)
<b>Buffaloes</b>	19347 (35.00)	25179 (40.03)	29401 (42.58)	33694 (42.55)	38285 (43.65)	43729 (43.96)	48224 (43.67)	60348 (63.90)	59532 (65.78)
<b>Horses &amp; Ponies</b>	239 (0.43)	245 (0.39)	264 (0.38)	2950 (0.37)	332 (0.37)	497 (0.50)	491 (0.44)	2480 (0.26)	210 (0.23)
<b>Donkeys</b>	696 (1.26)	727 (1.16)	773 (1.12)	676 (0.85)	685 (0.78)	738 (0.74)	634 (0.57)	83 (0.08)	48 (0.05)

<b>Mules</b>	69 (0.12)	88 (0.14)	107 (0.15)	174 (0.22)	164 (0.18)	256 (0.25)	345 (0.31)	136 (0.14)	106 (0.11)
<b>Sheep</b>	5166 (9.35)	4595 (7.31)	5415 (7.84)	7580 (9.57)	8911 (10.15)	10438 (10.49)	12933 (11.71)	6330 (6.70)	6013 (6.64)
<b>Goats</b>	5174 (9.36)	4781 (7.60)	5196 (7.53)	6078 (7.67)	6752 (7.70)	7994 (8.03)	7972 (7.22)	4602 (4.87)	5383 (5.94)
<b>Camels</b>	1324 (2.40)	1328 (2.11)	1305 (1.89)	1208 (1.53)	1284 (1.46)	1283 (1.29)	962 (0.87)	500 (0.53)	386 (0.42)
<b>Pigs</b>	997 (1.80)	1432 (2.28)	2025 (2.93)	2497 (3.15)	3399 (3.87)	5173 (5.20)	6751 (6.11)	1198 (1.27)	1335 (1.47)
<b>Dogs</b>	-	-	144 (0.20)	3567 (4.50)	5881 (6.70)	8028 (8.07)	8105 (6.11)	5590 (5.92)	1914 (2.11)
<b>Total</b>	55280 (100.00)	62893 (100.00)	69048 (100.00)	79184 (100.00)	87694 (100.00)	99471 (100.00)	110415 (100.00)	94437 (100.00)	90501 (100.00)
<b>Poultry</b>	4794	9663	14155	20142	53390	85802	92229	136189	287854

Note: Figures in parenthesis indicate percentage shares to their corresponding total.

**Table No.2: Changes in the Livestock of Haryana**

Particulars	1966	1972	1977	1982	1988	1992	1997	2003	2007
<b>Cattle</b>	100.00	110.10	109.65	105.17	98.80	95.81	107.76	69.16	69.70
<b>Buffaloes</b>	100.00	130.14	151.96	174.15	197.88	226.02	249.25	311.92	307.70
<b>Horses &amp; Ponies</b>	100.00	102.51	110.46	122.17	138.91	207.94	205.43	103.76	87.86
<b>Donkeys</b>	100.00	104.45	111.06	97.12	98.41	106.03	91.09	11.92	6.89
<b>Mules</b>	100.00	127.53	155.07	252.17	237.68	371.01	500.00	197.10	153.62
<b>Sheep</b>	100.00	88.94	104.82	146.72	172.49	202.05	250.34	122.53	116.39
<b>Goats</b>	100.00	92.40	100.30	117.65	130.49	154.50	154.07	88.94	104.03
<b>Camels</b>	100.00	100.30	98.56	91.23	96.97	96.90	72.65	37.76	29.15
<b>Pigs</b>	100.00	143.60	203.10	250.45	340.92	518.85	677.13	120.16	133.90
<b>Dogs</b>	-	-	100.00	2477.08	4084.02	5575.00	5628.47	3881.94	1329.16
<b>Total</b>	100.00	113.77	124.90	143.24	158.63	179.94	199.73	170.83	163.71
<b>Poultry</b>	100.00	201.56	295.26	420.15	1113.68	1789.77	1923.84	2840.82	6004.46

Note: Figures indicate indices of change over the period.

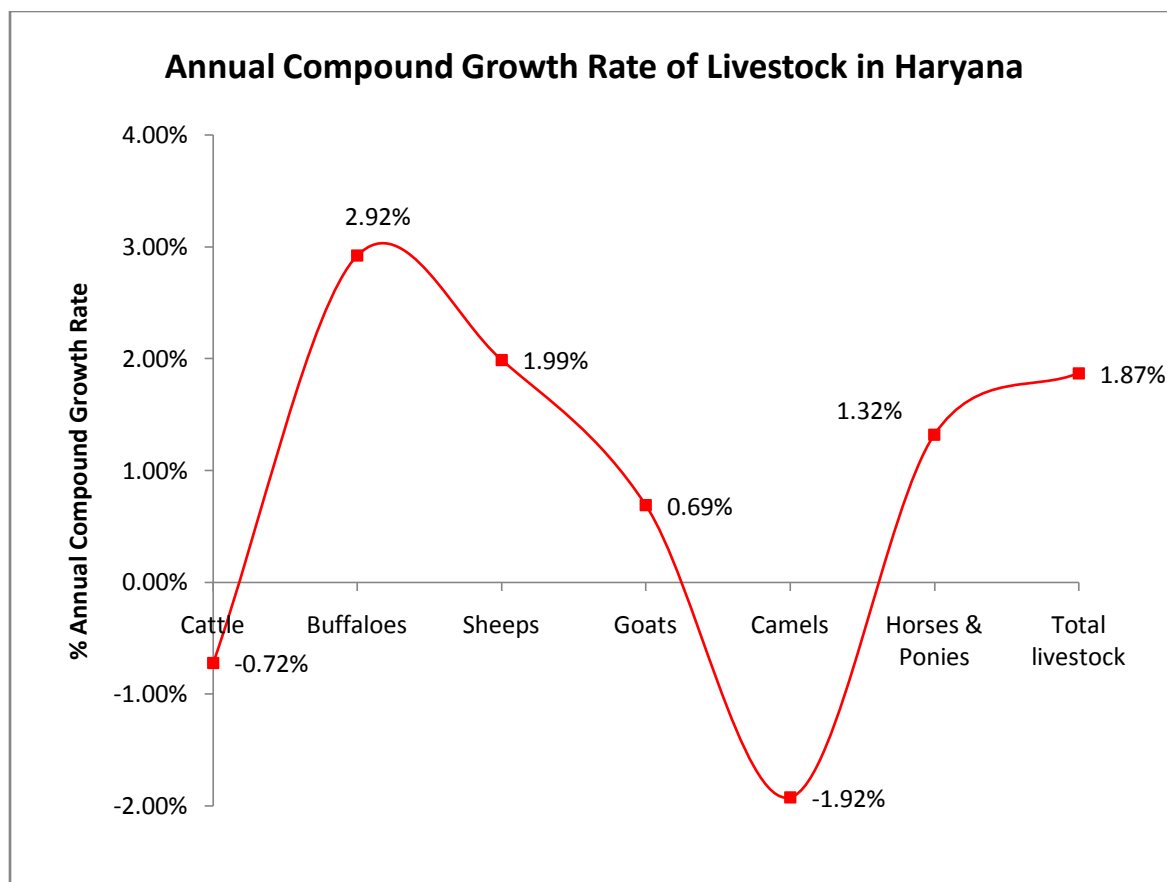
**Table No.3: Trends and Growth rates of livestock in Haryana (1966-2007)**

<b>Particulars</b>	<b>Equation of the exponential trend</b>	<b>Annual compound growth rate</b>
<b>Cattle</b>	$Y= 25351.28 (0.9927)^x$	-0.72 %
<b>Buffaloes</b>	$Y= 19971.00 (1.0292)^x$	2.92 %
<b>Sheeps</b>	$Y= 4905.68 (1.0199)^x$	1.99 %
<b>Goats</b>	$Y= 5180.36 (0.9807)^x$	0.69 %
<b>Camels</b>	$Y= 1613.61 (0.9807)^x$	-1.92 %
<b>Horses &amp; Ponies</b>	$Y= 240.87 (1.0132)^x$	1.32 %
<b>Total livestock</b>	$Y= 56104.79 (1.0187)^x$	1.87 %

Note: In total: Donkeys, mules, pigs and dogs are included.

India's livestock sector is one of the largest in the world. It has 56.7% of world's buffaloes, 12.5% cattle, 20.4% small ruminants, 2.4% camel, 1.4% equine, 1.5% pigs and 3.1% poultry. In 2010-11, livestock generated outputs worth Rs 2075 billion (at 2004-05 prices) which comprised 4% of the GDP and 26% of the agricultural GDP. The total output worth was higher than the value of food grains.

Livestock sector is expected to emerge as an engine of agricultural growth in the 12th plan and beyond in view of rapid growth in demand for animal food products. Achieving growth rate of 5-6%, however, would require addressing challenges of shortage of feed and fodder and frequent occurrence of some deadly diseases. The sector has remained under-invested; and neglected by the financial and extension institutions. Livestock markets are under-developed, which is a significant barrier to the commercialization of livestock production. Besides, the sector will also come under significant pressure of increasing globalization of agri-food markets.



**Fig. No.2 : Annual Compound Growth Rate of Livestock in Haryana**

Indian poultry industry is well equipped and organized to achieve target growth rate of 11% for commercial broilers and 7% for layers although it failed to diversify in favor of duck, quail, turkey and emu production. Rural poultry sector however, needs financial, infrastructure and technological support to raise the present 2% growth rate to 3%. Need-based import of grandparent stock of reputed international brands may be continued with strict enforcement of biosecurity measures.

Camel and equine population have shown a decline. The population of Mewari and Kutchhi camel as dromedaries and double humped camel-bactrians and all the six registered Indian breeds of equines need special attention as these may be threatened in numbers. There is a need to have a national equine breeding policy.

Bulk of the investment for livestock development comes from the state governments. The central government contributes about 10% to the total investment. There is hardly any private sector investment in animal husbandry. The dairy sector, however, has attracted considerable private investment in processing, value addition and marketing. Flow of institutional credit, mainly the commercial banks is about 10%. More than 70% of the refinance disbursement by NABARD goes for dairy development. Investment linked tax incentives and attractive credit facility to private investors are missing.

Driven by the structural changes in agriculture and food consumption patterns, the utility of livestock has been undergoing a steady transformation. The non-food functions of livestock are becoming weaker. Importance of livestock as source of 'draught power' has declined considerably due to mechanization of agricultural operations and declining farm size. 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. Sustained income and economic growth, a fast-growing urban population, burgeoning middleincome class, changing lifestyles, increasing proportion of women in workforce, improvements in transportation and storage practices and rise of supermarkets especially in cities and towns are fuelling rapid increases in consumption of animal food products. Between 1983 and 2004, the share of animal products in the total food expenditure increased from 21.8% to 25.0% in urban areas and from 16.1% to 21.4% in rural areas.

Natural resource management has to be the number one strategy for accelerating and sustaining agricultural growth in Haryana. In fact, major weaknesses and threats to the sustainable growth in the State are natural resource induced, particularly in the context of soil health, water scarcity and quality, emerging threats due to climate change and biodiversity management.

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