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Dynamics of Bovine population in Bihar

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ABSTRACT: *Bihar has witnessed the increase in the population of bovine over last decade. This has major significant value in the agrarian based economy of the state. Bihar has great potential to be the major milk producer state. In this regard, an attempt has been made for the in-depth study of trend of the population and growth of cattle and buffalo, cross-bred cattle, indigenous cattle, milch animals, breedable cattle and buffalo. Secondary data were used for result and trend analysis based on the three animal census reports i.e. 16th, 17th, and 18th Livestock Census with the date of reference of 15th October 1997, 2003 and 2007 respectively. Cattle population had decreased from 1997 to 2003 and during 2003 to 2007, it was found to be increased. Annual Growth Rate for cross-bred cattle was reported to be 32.84 percent, similarly, during 2003 to 2007 it was found to be 11.60 per cent. The number of indigenous cattle decreased during 1997 to 2003 with AGR of -12.91 per cent and during 2003 to 2007, it was reported to be increased by 4.02 per cent. During 1997 to 2003, AGR of cross-bred milch animals, indigenous milch animals, and milch buffalo was reported to be 42.47 per cent, (-) 10.30 per cent, and 0.10 per cent respectively. While during 2003 to 2007, it was 10.11 per cent, 1.30 percent, and 1.52 per cent respectively. The number of buffalo decreased during 1997-2003 with AGR of (-) 0.39 per cent, while increased during 2003-2007 with AGR of 3.89 per cent. During 1997-2003, AGR for cross-bred cattle was found to be 41.73 per cent, for indigenous cattle (-) 10.41 per cent, for total cattle (-) 7.79 per cent and for buffalo it was reported to be (-) 0.01 percent. Similarly, from 2003 to 2007, AGR for crossbred cattle was found to be 13.02 per cent, 4.84 per cent for indigenous cattle, 6.37 per cent for total cattle and 4.50 per cent for buffalo.*

Key words: *Annual Growth Rate* ***(AGR)****, Livestock census, Milch animals, Cross-bred cattle, Indigenous cattle, Buffalo, Breedable cattle. Date of reference.*

INTRODUCTION

In India, dairy sector plays an important role in daily life of farmers who are the major stakeholders of the agricultural economy. The dairy production scenario in India is witnessing a dynamic change for the last few decades and Bihar is not the exception for this shift. Bihar, with a geographical area of about 94.2 thousand square km is divided by river Ganges into two parts, the North Bihar with an area of 53.3 thousand square km and the South Bihar having an area of 40.9 thousand square km. Based on soil characterization, rainfall, temperature and terrain, three main agro-climatic zones in Bihar have been identified. These are: Zone-I, North-West Alluvial Plain, Zone-II, North-East Alluvial Plain, and Zone-III, South Bihar Alluvial Plain, which represents the vivid diversity of the state. The share of milk of cross-bred cow in Bihar has gone through a major change. During 2000-2002, there was a negative growth in this aspect. However, since 2003-2004, there has been a shift change in the contribution of the milk of cross-bred cows. This has gone up to the level of 1382 thousand tonnes, which is 21.20 percent of the total milk production in Bihar. The indigenous cow population in the state has been declining and being replaced by cross-bred cows. The buffalo population has been steadily increasing. These changes in population trends are attributed to the increasing milk production. So, there has been a change in the production of milk which has contributed to the agriculture based state economy. The whole scenario has been changed, in terms of, contribution of milk

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from bovine. Thus, there is need to find out what were the changes in bovine population in the state of Bihar by the last three animal census. Viewing such up and down in the population of the bovine an in-depth study of trend of the population and growth of cattle, buffalo, cross-bred cattle, indigenous cattle, milch animals, breedable cattle and buffalo has been made.

MATERIALS AND METHODS

To study the dynamics of bovine population in Bihar, secondary data were used based. On the basis of three animal census reports i.e. 16th, 17th, and 18th Livestock Census with the date of reference of 15th October 1997, 2003 and 2007 respectively, population and Annual Growth Rate, trends were represented. Secondary data from different Governmental Institution, Animal Husbandry Department etc. were collected. All charts and tables have been made by comprehensive study of the data from census. All comparisons are given in simple table form for better comprehension of the data.

RESULT AND DISCUSSION

Table 1
Bovine population during 1997 to 2007 (in thousands)

Years	*Cattle*	*Buffalo*
1997	24598	5879
2003	10729	5743
2007	12559	6690

Cattle population had decreased from 1997 to 2003 and during 2003 to 2007, it was found to be increased. Similarly, buffalo population was found to decrease first then, there was an increase in population. This decrease in population of both cattle and buffalo may be caused due to formation of new state Jharkhand from Bihar, thus sharing animal population.

Table 2
Change in population of cross-bred cattle

Particulars	*Year/ time period*	*Cross-bred female*	*Total Cross-bred*
Population	1997	115	232
(thousands)	2003	1057	1274
	2007	1632	1976
AGR	1997-2003	44.68	32.84
(percentage)	2003-2007	11.47	11.60

Cross-bred cattle population was found to be increasing and this increase from 1997 to 2003 was found to be highest for Bihar during this period. This number was found to be increasing from 2003 to 2007. Annual Growth Rate (AGR) for cross-bred female cattle during 1997 to 2003 was found to be 44.68 per cent, while for total cross-bred cattle, it was 32.84 per cent. Similarly, AGR for cross-bred female cattle during 2003 to 2007 was found to be 11.47 per cent, while for total cross-bred cattle was found to be 11.60 per cent. This more growth during 1997 to 2003 can be attributed to more liking and greater economic profitability.

Table 3
Change of population and AGR of indigenous cattle 1997 to 2007

Particulars	*Year/ time period*	*Indigenous cattle*
Population	1997	24366
(thousands)	2003	9455
	2007	10583
AGR	1997-2003	–12.91
(percentage)	2003-2007	4.02

This was observed from the analysis of secondary data that number of indigenous cattle decreased during 1997 to 2003 with AGR of –12.91 per cent. During 2003 to 2007, the population indigenous cattle were reported to be increased with AGR of 4.02 per cent, which represent the positive inclination towards the indigenous cattle.

Table 4
Change in population and AGR of milch animals

Particulars	*Year/ time period*	*Cross-bred milch animal*	*Indigenous milch*	*Milch buffalo*
Population	1997	68	5451	2662
(thousands)	2003	569	2839	2990
	2007	2662	2679	2846
AGR	1997-2003	42.47	–11.30	0.10
(percentage)	2003-2007	10.11	1.30	1.52

It was reported that total no of milch animals decreased during 1997 to 2003, with Annual Growth Rate of cross-bred milch animals, indigenous milch animals, and milch buffalo being 42.47 per cent, –10.30 per cent, and 0.10 per cent respectively. It was also reported that total no of milch animals increased during 2003 to 2007, with AGR of cross-bred milch animals, indigenous milch animals, and milch buffalo being 10.11 per cent, 1.30 per cent, and 1.52 per cent respectively. The decrease may be attributed to the sharing of animal resource with Jharkhand state.

Table 5
Change in population and AGR of buffalo in Bihar

Particulars	*Year/ time period*	*Buffalo*
Population (thousands)	1997	5879
	2003	5743
	2007	6690
AGR(percentage)	1997-2003	– 0.39
	2003-2007	3.89

It was revealed that number of buffalo decreased during 1997-2003 with AGR of -0.39 per cent, while increased during 2003-2007 with AGR of 3.89 per cent. This shows the positive inclination toward the buffalo population. Increasing number of milk cooperatives coming up in the state and more emphasis over fat percentage for better enumerative price may be the reason behind this increase.

Table 6
Change in Annual Growth Rate of breedable cattle between three livestock census.

Years	*Cross-bred cattleAGR (%)*	*Indigenous cattleAGR (%)*	*Total cattleAGR (%)*	*BuffaloAGR (%)*
1997-2003	41.73	– 10.41	– 7.79	– 0.01
2003-2007	13.02	4.84	6.37	4.50

It was reported from the analysis that during 1997-2003, total no. of breedable cattle and buffalo decreased. Annual growth rate for cross-bred cattle was found to be 41.73, for indigenous cattle it was reported to be – 10.41 per cent, for total cattle – 7.79 percent and for buffalo it was reported to be – 0.01 percent., Similarly for the period of 2003 to 2007, AGR for crossbred cattle was found to be 13.02 per cent, 4.84 percent for indigenous cattle, 6.37 per cent for total cattle and 4.50 per cent for buffalo. Negative growth during 1997 to 2003 can be greatly attributed to the formation of new state Jharkhand from Bihar.

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