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Bovine population dynamics of West Bengal – A case study

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Abstract

The Present study was undertaken to assess the bovine population dynamics in west Bengal during 1940-2004. The state was divided into 3 Zones namely, Tarai, Lower gangetic Plain and Lateritic belt. The total period of 60 years was further divided into three sub-periods viz., 1940-61, 1961-84 and 1989-2004. District wise livestock population data was collected from different census report published. The total cattle recorded the growth rate of 2.71 and 1.13 and 0.83 per annum during 1940-61, 66-84, 89-2004 respectively. Total buffalo population growth curve showed the growth rate of 0.83 during 1989-2004.

Keywords: bovine population dynamics, 3 Zones, census report.

Introduction

A Population is a homogeneous group with respect to a specific characteristic. It interacts with other populations or factors and also within their own population. This interaction causes increase and decrease in the population number. Thus, a population dynamics is the measurement of the variation in the total number of units in a given population over time or the measurement of the effects of population interaction. Bovine population dynamics is the changing scenario or regional variations in terms of bovine population density composition and productivity.

Productivity of Indian bovine varies from place to place because of different factors. Though crossbred cows are known for their better productivity and reproduction potential, still certain farmers maintain desi cows and buffaloes for milk production (Rajendran et al. 1993). As far as West Bengal is concerned; people prefer cattle than buffalo (Misra et al., 2003). Among cattle, during recent Past, growth rate is higher in crossbred population than that of indigenous one. The reasons attributed for preferring crossbred cows are higher milk field, ready market for fluid milk and better, reproductive, performance (Prabaharan et al 1993) The least preference for buffalo might be due to high initial investment, breeding problem, calf mortality etc (Rajendiran et al., 1993) Different factors have been identified as the reasons behind the changing sceneries in the bovine population from causes to causes, region to region and within population. The relation between the size of land holding and the maintenance of milch animal is positive (Vaithianathan 1988). Decline in working male numbers may be also due to farm mechanization. It is often assumed that past changes in bovine population owing to competition for manual and manmade resources have resulted in the present day population (sing et al., 1979). Keeping this in view, the present work was undertaken with the objective to identify various factors affecting bovine population dynamics of West Bengal.

Materials and Methods

The present study was used on 18 districts of West Bengal viz., Darjeeling, Jalpaiguri, Cooch Behar, Uttar

and Dakshin Dinajpur, Malda, Murshidabad, Nadia, Burdwan, Howrah, Hooghly, North and South 24 pargaras, Kolkata, Birbhum Bankura, Purulia and Midnapur.

For Present study, the state has been divided into three zones Viz., Tarai, Lower Genetics Plain and Lateritic belt. The study covers a period of 60 years from 1940 to 2004 Total period was further divided into three sub-periods viz., 1940-61, 1961-84 and 1989-2004.

District wise livestock population data was collected from different census report published (Anon, 1940-2003) approximately in five years interval starting from 1940 upto 2004.

Results and Discussion

Table.1 Census wise total population of different categories of bovines in different zones.

Zone	Year	Total cattle	Buffalo	Total Bovine
Tarai	1940-61	7046321	626011	7672332
	1966-84	22401020	1373179	23774199
	1989-2004	16382036	1116889	17498925
Lower Gangetic Plain	1940-61	11184445	545972	11730417
	1966-84	30029199	2293023	32322222
	1989-2004	22725440	1585448	24310888
Lateritic belt	1940-61	12138689	368910	12507599
	1966-84	32637397	1995295	34632692
	1989-2004	25432871	1646023	27078894
Total		179977418	11550750	191528168

Bovine Population Dynamics:

Tarai Zone:

Growth of total cattle population revealed that from 2nd census (1945); growth rate has increased till 1956. Thereafter, a slow progress was seen.

Total buffalo population growth pattern has been explained in which, population increased from the base year slowly followed by sharp increase till 1961, than reduced to almost base level. (Table 2) growth curve for total cattle, total buffalo and total bovine did not show and definite trend during 1989-2004. They recorded a growth rate of 0.83, 1.57 and 0.85 percent per annum respectively during same period (Table 2).

Lower Gangetic Plain:

Total cattle, total buffalo and total bovine recorded a growth of 1.68, 0.86 and 1.16 percent per annum respectively during the period 1989-2004 mentioned (Table 2).

Lateritic Belt

The growth rate for total cattle, total buffalo and total bovine during 1989-2004 were 0.77, 0.63 and 0.76 respectively (Table 2)

Table 2 Growth rate (%) of bovine population in different area.

Zone	Year	Total cattle	Buffalo	Total Bovine
Tarai	1940-2004	3.2	0.05	2.98
Lower Gangetic Plain	1940-2004	1.9	2.25	1.92
Lateritic belt	1940-2004	1.8	1.56	1.84

Table 3 Growth rate (%) of different types of bovine population in different areas during different sub periods.

Zone	Year	Total cattle	Buffalo	Total Bovine
Tarai	1940-61	4.4	6.14	4.5
	1966-84	5.07	2.8	4.3
	1989-2004	1.97	1.57	1.93
Lower Gangetic Plain	1940-61	1.47	4.91	1.6
	1966-84	4.2	1.17	3.9
	1989-2004	1.17	1.27	1.17
Lateritic belt	1940-61	1.6	1.81	1.69
	1966-84	2.5	2.5	2.5
	1989-2004	0.77	0.63	0.76

Conclusion

Investigation has been undertaken to study the bovine population dynamics of west Bengal from 1940 to 2004. Secondary data were collected from different source pertaining to different districts. The state was divided into three Zone viz., Tarai, Lower Gangetic Plain and Lateritic Belt basing on agricultural situation, land utilization pattern and bovine production practices.

As far as bovine population dynamics is concerned, in Tarai zone, during 1940-1961, buffalo population growth was high in almost all the districts and correspondingly, cattle population growth was less during 1961-1984, cattle production recorded higher growth than that of buffalo in all the distich except Darjeeling and Jalpaiguri. This zone maintained a balanced structure of the bovine herd during 1989-2004.

In Lower gangetic plain, during 1940-61, all the districts have recorded a positive cattle population growth except Maida Correspondingly, buffalo production recorded negative growth in all the districts except Burdwan. During 1961-84, cattle population growth rate was higher in almost all the districts whereas, buffalo population growth rate was least in kolkata recorded which negative population growth in all categories of buffalo. The district Nadia recorded maximum buffalo population growth during the same period.

In Lateritic Belt, during 1940-61, both cattle and buffalo have shown a positive population growth except that in Midnapur districts, which favoured working animals over milch animal. In Bankura district higher cattle population growth than that of buffalo was observed. During 1961-84 cattle population growth was higher and correspondingly, buffalo population was growth was lower in all the districts.

The findings on the factors affecting bovine population dynamics indicated that, total holding size had positive relationship with total buffalo. Net cropped area was positively correlated with total cattle, total buffalo and total bovine.

Inadequate feed and fodder, pressure on land due to ever multiplying human population are the other major problems. In recent years, farm mechanization is taking upper hand thereby reducing the utility of draft animal composition of bovine population. Thus people of west Bengal prefer cattle over buffalo.

Thus it could be conducted that composition of bovine changed remarkably in favour of cattle in the state during last sixty years. Share of work animals has declined in all the districts. Crossbred cattle are replacing indigenous cows as milch animal. Districts of west Bengal did not only differ in terms of socio – economic and agro climatic profile but also in terms of concentration, composition and population growth rate of bovine. Thus while planning for future bovine production system, the above findings along with local needs, environment and suitability of particular type of bovine in the region are considered.

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