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Inter Regional Disparities in the Distribution of Draught Animals in Gujarat State

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ABSTRACT

In Indian agriculture draught animals are vital source of farm energy. In Gujarat common working animals are bullocks, male camels, donkeys and tattues. The distribution of draught animals and their density differed from region to region. In the State bullocks are the most important working farm animals and accounted for about 93 per cent of the total draught animals. Middle Gujarat region accounted for the maximum number of working animals in the State and Bhal and Coastal areas the minimum. Use of camels was common in North Gujarat and North-West Gujarat regions where they accounted for about 4.38 per cent and 11.5 per cent of the total working livestock respectively. In the State the per farm average number of draught animals was 1.11 which ranged from 1.29 in North Saurashtra to only 0.79 in Bhal and Coastal areas. In the State the number of working animals, per hundred hectares, was 32.16. It ranged from 56.55 animals, per hundred hectares in Middle Gujarat to 16.83 animals per hundred hectares in Bhal and Coastal region. The investigation revealed that there is high concentration of bullocks in the State particularly in the South Gujarat (heavy rainfall), Middle Gujarat,North Gujarat and South Gujarat regions.

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INTRODUCTION

In Indian agriculture draught animals are extensively used as they are the vital source of farm energy (Anantram and Vyas, 1987). In Gujarat State the working animals are mainly used for ploughing, land levelling, irrigation, threshing and other farm operations. They are also widely used in many agricultural based rural industries like Khandsari and oil extraction and also for rural transportation (Singh and Goel, 1969). Studies have shown that bulk of the required farm energy comes from draught animals and there is need to reduce the dependence on animal draught power (Saran, 1984). The distribution of draught animal population, their density and the magnitude and composition of animal drawn farm implements differ from region to region depending upon the economic and agro-climatic features. It is therefore, pertinent to determine the magnitude of draught animal stock and its composition by species; and to study the density of draught animals in different agro-climatic regions of Gujarat State.

MATERIALS AND METHODS

To fulfill the objectives of the investigation secondary data generated by the Department of Economics and Statistics, Directorate of Agriculture, Gujarat State; Livestock Census Annual reports of different district panchayats

of the State, etc. have been used. The analytical procedure used in the study is simple tabular analysis.

RESULTS AND DISCUSSION

Gujarat State, according to its climate, topography, soil characteristics and cropping pattern, is divided into eight homogeneous agro-climatic regions. North Saurashtra region had the maximum net cultivated area (N.C.A.) of 22,33,141 hectares followed by North-West Gujarat with 16,71,880 hectares; Middle Gujarat with 14,74,335 hectares and South Saurashtra region with 10,56,338 hectares. South Gujarat, Bhal and Coastal areas and South Gujarat (heavy rainfall) regions are relatively smaller areas and their N.C.A. ranged from about 589 thousand hectares to 477 thousand hectares. The irrigated land as percentage of N.C.A. was 23.10 for the State. It ranged from a maximum of 44.25 per cent in the North Gujarat region to a low of only 12.87 per cent in Bhal and Coastal areas. The percentage of irrigated land in South Gujarat and Middle Gujarat regions was also approximately close to the State average. But the South Gujarat (heavy rainfall), North West Zone and Bhal and Coastal areas have very low percentage of irrigated area. Irrigation facilities of a region to a great extent determines the area put to cultivate two or more crops during the year and thus, affects cropping intensity. The average cropping intensity of the State was 114.64 per cent. Maximum cropping intensity of about 125 per cent was observed in the North Gujarat region followed by the South and North Saurashtra regions, in that order, where it was 121.70 per cent and about 117 per cent respectively. In other regions the intensity of cropping was less than the State average. Minimum intensity of cropping of only about 104 per cent was observed in the Bhal and Coastal areas. It was observed that net cultivated area wise Middle Gujarat, North Gujarat, North West Zone and North Saurashtra region were relatively bigger regions of the State. Agricultural progress and prosperitywise Middle Gujarat, North Gujarat and South Saurashtra regions were relatively better-off where as North West Region and Bhal and Coastal areas were relatively worse-off.

According to the Livestock Census, 1982 the total population of working cattle in Gujarat is stagnant at around 29 lakh animals since 1966. In the State use of he-buffaloes as draught animal is not common. Bullocks are the most important working farm animals. Use of male camels is also there. They are employed mainly to transport the produce between village and markets. Camels in the State are not used for farm operations. In addition, donkeys and tattues are also used for transportation purposes. Regionwise distribution of various draught animals in the State is presented in Table 1.

During 1982 there were 3219 thousand draught animals in the State. Of the total working animals in the State, middle Gujarat accounted for about 26 per cent of them followed by North Saurashtra (18.42 per cent), North Gujarat (17.44 per cent), North West Gujarat (11.32 per cent) and South Saurashtra (10.43 per cent). The per cent of total working animals in South Gujarat (heavy rainfall), South Gujarat and Bhal and Coastal areas was 7.45, about 6 and about 3, respectively. Bullocks accounted for 93 per cent of total working animals of the State. Their share ranged from 81.66 per cent in North-West Gujarat to 99.45 per cent in South Gujarat (heavy rainfall) region. The use of camels was common in North and North-West Gujarat regions where they accounted for

TABLE 1

Agro-climatic regionwise distribution of draught animals in Gujarat State during 1982.

Sr. No.	Agro-climate Region	Bullocks	Bullocks as % of total draught animals	Camel (Male)	Donkeys	Horses and mules	Total
1.	I South Gujarat (Heavy rainfall)	238636	99.45	25	742	548	239951 (7.45)
2.	II South Gujarat	188323	90.09	9	2008	1651	191991 (5.96)
3.	III Middle Gujarat	818608	97.53	6312	12114	2262	839296 (26.07)
4.	IV North Gujarat	506305	90.16	24360	28573	2295	561533 (17.44)
5.	V North-West-Gujarat	297424	81.66	41824	20450	4507	364205 (11.32)
6.	VI North Saurashtra	559516	94.36	3227	19652	10549	592944 (18.42)
7.	VII South Saurashtra	322476	96.17	1369	6687	4960	335492 (10.43)
8.	VIII Bhal and Coastal areas	87601	39.30	1912	2591	1755	93859 (2.91)
	State	3018889	93.00	79038	92817	28527	3219271 (100.00)

Figures in parentheses indicate the percentage to the total number of draught animals.

Source : Annual Reports of Different District Panchayats.

about 4.38 per cent and 11.5 per cent of total working livestock respectively. The donkey population was mainly concentrated in the Middle Gujarat, North Gujarat, North-West Gujarat and North-Saurashtra regions where they accounted for about 1.44 per cent, about 5 per cent, 5.66 per cent and 3.31 per cent of the total draught livestock respectively.

Regionwise density of draught animals, per farm and per hundred hectares of cultivated land, is gives in Table 2. In the State the per farm average number of draught animals was 1.11. It ranged from 1.29 per farm in the North Saurashtra to only 0.79 per farm in the Bhal and Coastal areas. The number of bullocks on an average farm in the State was only 1.04, that means only about half pair. It shows that all the cultivators did not own bullocks and to perform the operations they either own tractors and or hire-in the services of bullocks and tractors. This practice needs to be encouraged as the demand for bullock services is seasonal in nature and during most parts of the year bullocks remain idle. The density of draught animals in the State was 32.16 heads per hundred hectares of cultivated land. It ranged from 56.55 animals per hundred hectares in the Middle Gujarat region to only 16.83 animals per hundred hectares in Bhal and Coastal areas. It is also revealed that cultivated landwise middle Gujarat region has maximum density of bullocks, i.e. 55.16 per hundred hectares, followed by South Gujarat (heavy rainfall) region where the density was 50.61 bullocks per hundred hectares.

Minimum number of total draught animals and bullocks, per farm as well as per hundred hectares were found in the Bhal and Coastal areas of the State. In this region the number of bullocks and draught animals per hundred

TABLE 2

Agro-climatic regionwise density of working animals in Gujarat State during 1982.

Sr. No.	*Region*	*Per farm house-hold*		*Per hundred hectares of N.C.A.*	
		Bullocks	*Total draught animals*	*Bullocks*	*Total draught animals*
1.	I	1.02	1.03	50.61	50.89
2.	II	0.91	0.93	31.99	32.62
3.	III	1.23	1.26	55.16	56.55
4.	IV	0.83	0.92	31.78	35.25
5.	V	0.97	1.18	15.97	19.56
6.	VI	1.21	1.29	23.80	25.22
7.	VII	1.12	1.17	29.23	30.41
8.	VIII	0.74	0.79	15.71	16.83
	Average	1.04	1.11	30.15	32.16

hectares was only 15.71 and 16.83 respecively. Thus, it is observed that the regions where percentage of irrigated land and cropping intensity are relatively more have comparatively higher density of bullocks and draught animals.

The analysis revealed that wide disparities existed in the distribution of draught animals, particularly bullocks, in different agro-climatic regions of the State. It was also found that the density of bullocks in general was more in all the regions particularly in South Gujarat (heavy rainfall). Middle Gujarat, North Gujarat, South Gujarat and South Saurashtra regions. Farm operations being seasonal in nature, most of the bullock power remains under used. Thus, there is scope to lower the density of bullocks. The small and marginal farmers, instead of owning the bullock pair individually may form bullock cooperatives to meet their demands of bullock power, at the same time there is also need to improve the efficiency of existing bullock drawn machinery and implements. Efforts may also be made to increase the imployment of draught animals in the activities like processing and or marketing of farm products.

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