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ON SOME ASPECTS OF LIVESTOCK ECONOMY WITH PARTICULAR REFERENCE TO CATTLE AND BUFFALOES IN RURAL INDIA

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INTRODUCTION

The major source of income in agriculture next to cultivation is animal husbandry and dairying which contributes about seven per cent of total national income. Though one-third of total world's cattle population is located in India, the value of production of the cattle industry is not commensurate with such large size of cattle population. This is due to the tropical climate and the uneconomic condition of the enterprise. But it is a fact that the potential value of the cattle products in India is very great.

The uneconomic condition of the cattle industry in India, which has a direct impact on national economy, is caused by the existence of aged male animals incapacitated for work, and of female animals with very low milk yield. Besides, factors like late maturity and parturition, delayed oestrus cycle, resulting in long calving intervals also contribute to the uneconomic condition of the enterprise. Bad management and poor feeding are the main causes for the uneconomic nature of the livestock enterprise. With better management and balanced feeding India's milk yield can be raised by 50 per cent according to some experts in animal husbandry. Since only 5 per cent of India's total bovine population is located in urban areas, the remaining 95 per cent of rural bovine population belonging to the rural area of the country has the major share in the contribution of livestock to national economy. A study has therefore been made on national investment in livestock, household expenditure on feeding the livestock and services rendered in the rural area of the country with particular reference to cattle and buffaloes.

The data generally used in this study are obtained from National Sample Survey (NSS) through household in rural areas of the country. Two types of households have been considered, *viz.*, cultivator households and non-cultivator households. Households having "cultivable" lands are classified under the former type and other households under the latter.

NATIONAL INVESTMENT IN LIVESTOCK WITH PARTICULAR REFERENCE TO BOVINE

Table I shows that the NSS estimate of national investment in livestock is Rs. 276.8 crores per year, which is nearly 39 per cent of total investment in all goods in the country. Out of the total investment, Rs. 244.6 crores are on account of purchase of livestock and rest is on account of addition by births. The estimate obtained per household in rural areas of the country is Rs. 97.3 thousand per year which is composed of Rs. 86 thousand and Rs. 11.3 thousand due to purchase and addition by birth respectively.

TABLE I—NATIONAL INVESTMENT IN LIVESTOCK IN RURAL AREAS OF THE COUNTRY DURING JULY 1958—JUNE 1959

Items	Value and Percentage of Investment					
	By purchase		By birth		Total	
	Value	Percentage	Value	Percentage	Value	Percentage
1. National Investment (in crores of rupees)						
All goods	440·9	100	269·0	100	710·8	100
Livestock	244·6	55·5	32·2	61·9	276·8	39·0
2. Per Household Estimate (in thousand rupees)						
All goods	155·0	—	94·6	—	249·6	—
Livestock	86·0	—	11·3	—	97·3	—

Source : NSS Draft Report No. 104—Tables with Notes on Capital Formation.

An estimate of household expenditure on account of maintenance of livestock population in rural areas of the country is provided by the National Sample Survey in NSS Report No. 65. The total expenditure in rural areas of the country has been worked out to be Rs. 832.4 crores (Table II) during the year (July 1955-June 1956). Out of this, the share of the cultivator households is estimated at Rs. 779 crores and that of non-cultivator households at Rs. 53.5 crores. Thus 94 per cent of the expenditure on cattle feed is incurred by the cultivator households.

TABLE II—ANNUAL EXPENDITURE FOR MAINTENANCE OF LIVESTOCK IN RURAL AREAS OF THE COUNTRY: JULY 1955—JUNE 1956

Type of household	Aggregate cost of feed (lakhs of rupees)	Percentage
Non-cultivator	53,47·6	6
Cultivator	778,96·3	94
All Rural	832,43·9	100

Source : The National Sample Survey: Eleventh Round : August 1956—January 1957, No. 65—Tables with Notes on Animal Husbandry, Cabinet Secretariat, Government of India, 1962.

By applying Gadgil's[1] cattle equivalent scale of livestock feeding in a slightly modified way, the total cost of feeding is allocated to all types of livestock and estimates of annual cost of feed per cattle and per buffalo are obtained as shown in Table III.

TABLE III—ANNUAL COST OF MAINTENANCE OF FEED PER CATTLE AND PER BUFFALO IN RURAL AREAS OF INDIA: JULY 1955 — JUNE 1956

(in Rupees)

Type of household	Type of Bovine	
	Cattle	Buffalo
Non-cultivator	251·8	294·6
Cultivator	187·7	219·6
All Rural	190·8	223·6

Source : NSS Report No. 65—Tables with Notes on Animal Husbandry, *Op. cit.*

1. D. R. Gadgil: Economic Effects of Irrigation, Gokhale Institute of Politics & Economics, 1948, as quoted by Central Statistical Organisation in National Income Statistics.

It is seen that in the non-cultivator household sector expenditure incurred on account of feed is higher by Rs 64.1 per cattle and Rs. 75.0 per buffalo respectively than those incurred by cultivator household. The reason may be that a cultivator household gets more grazing facilities than a non-cultivator household. Moreover non-cultivator households generally possess milch animals which are fed and managed better than those belonging to cultivator households which possess more of draught animals than milch animals, maintained under poor condition of feeding and management on account of other economic factors in agriculture.

Assuming that there is not much of difference in the quantity of feed taken by different types of large animals, an estimate has been obtained (Table IV) of annual quantity of feed taken per livestock (excluding small animals like goats, sheep and calves). Though the estimate as presented in Table IV is for the total cost of maintenance of all large animals including horses, donkeys, camels, etc., the estimate gives a rough idea of the average intake per cattle and buffalo in rural areas of the country in a year, as the households maintain a negligible number of horses, donkeys and camels. It is seen that on an average a livestock (say, one cattle or one buffalo) takes 236.25 maunds of feeds consisting of green fodder, straw, dry fodder, gram, bran, oilcakes, seeds and oilseeds, salt and concentrates in non-cultivator household sector as against 168.83 maunds in cultivator household sector. This lower

TABLE IV.—QUANTITY OF FEED TAKEN PER LIVESTOCK (LARGE HEAD) ANNUALLY IN RURAL AREAS OF INDIA : JULY 1955 — JUNE 1956

(in maunds)

	Items of Feed	Household Type		
		Non-cultivator	Cultivator	All Rural
1.	Green Fodder	131·16	78·76	81·15
2.	Straw	55·34	50·86	50·97
3.	Fodder	37·10	32·43	32·64
4.	Gram	3·70	1·09	1·21
5.	Bran	1·61	1·84	1·83
6.	Oilcakes	4·60	1·60	1·74
7.	Seeds and Oilseeds	1·62	1·07	1·09
8.	Salt	0·26	0·27	0·27
9.	Cencentrates	2·86	0·91	0·22
10.	Total	236·25	168·83	171·12

feed quantity is due to poor economic conditions of cultivators in India. In non-cultivator households a cattle or a buffalo is fed with 131.16 maunds of green fodder, 4.60 maunds of oilcakes and 2.86 maunds of concentrates as against 78.76 maunds, 1.60 maunds and 0.91 maund respectively in cultivator households. In the case of other items it is more or less the same. In other words, a cattle or a buffalo gets 25.60 seers of feed per day in a non-cultivator household, and 18.40 seers per day in a cultivator household. According to the Indian Council of Agricultural Research,[2] a cattle or a buffalo should take 20 to 25 seers of feed per day. Thus the quantity of feed given to a cattle or a buffalo is much below the standard in cultivator households.

2. Harbans Singh: A Hand Book of Animal Husbandry for Extension Workers.

Table V shows that of the important items of feed, *viz.*, green grass, straw and fodder, cultivator households supplied 95 per cent in green grass, 86 per cent in straw and 93 per cent in fodder from home produce whereas the corresponding

TABLE V—PERCENTAGE DISTRIBUTION OF SUPPLY OF FEED BY SOURCES (HOME SUPPLY AND PURCHASE) IN RURAL HOUSEHOLDS OF INDIA: JULY 1955—JUNE 1956

Items	Household Type					
	Non-cultivator		Cultivator		All Rural	
	Home supply	Purchase	Home supply	Purchase	Home supply	Purchase
1. Green Grass	88	12	95	5	95	5
2. Straw	38	62	86	14	83	17
3. Fodder	58	42	93	7	90	10
4. Gram	1	99	61	39	52	48
5. Bran	20	80	70	30	68	32
6. Oilcakes	5	95	11	89	10	90
7. Seeds and Oilseeds	0	100	22	78	20	80
8. Salt	2	98	10	90	9	91
9. Concentrates	99	1	49	51	79	11

Source : NSS Report No. 65—Tables with Notes on Animal Husbandry, *Op. cit.*

proportions in the non-cultivator households are 88, 38 and 58 per cent. Similarly 65 per cent of total grams, 70 per cent of bran are available from home produce as against 1 per cent and 20 per cent in non-cultivator households. Since the value of feed from home supply is evaluated on the basis of the price quoted by the household it is quite likely that the cultivator's price of home supply is slightly lower than the rate at which purchased by non-cultivator households.

Estimates are obtained from NSS Report No 65 with regard to cost of feed, cost of services rendered for herding and attending animals and cost due to medical services and other services. Cost of milk is obtained by dividing the aggregate of cost of maintenance, cost of depreciation of animals and cost of services per milch animal by quantity of milk produced. Thus

$$\text{Cost of milk per seer} = \frac{\text{Cost of maintenance of milch animals} + \text{Depreciation of animals} + \text{Cost of services}}{\text{Quantity of milk produced}}.$$

Depreciation of milch animals is the difference between the value of purchase and sale of an animal during the year. The cost of maintenance is apportioned between cows and buffaloes by applying Gadgil's cattle equivalent scale and the depreciation cost is also evaluated for cows and buffaloes separately but service cost has been assumed to be same. Annual milk production is also estimated for cows and buffaloes separately from the NSS Report No 65. Table VI shows that the cost of cow milk per seer is Re. 0.42 and Re. 0.47 in non-cultivator household and cultivator household respectively. Similarly the cost of buffalo milk is evaluated at Re. 0.32 and Re. 0.20 respectively for the two types of household.

TABLE VI—COST OF MILK PER SEER PER MILCH COW AND MILCH BUFFALO IN RURAL AREAS OF INDIA : JULY 1955—JUNE 1965

(in Rupees)

Item	Per Type of Animal	Type of Household		
		Non-cultivator	Culti-vator	All Rural
1 Cost of Feed	Cow	251.77	187.65	190.80
	Buffalo	294.57	219.55	223.60
2. Cost of Services..	Cow and Buffalo combined	122.91	57.01	60.04
3. Depreciation Cost of Animal ..	Cow	—21.20	3.87	1.01
	Buffalo	37.21	12.76	13.25
4. Total Cost	Cow	253.48	248.53	251.85
	Buffalo	454.69	289.32	296.89
5. Milk Production	Cow	836.52	527.04	546.72
	Buffalo	1,109.04	1,420.08	1,121.78
6. Cost per Seer of Milk	Cow	0.42	0.47	0.46
	Buffalo	0.32	0.26	0.26

CONCLUSION

An analysis of the results presented above will show that the non-cultivator households manage cattle and buffaloes better than the cultivator households in rural areas of India. Cultivator households constitute 80 per cent of rural households in India. Poor feeding and management practices in cultivator households have resulted in an uneconomic growth of cattle and buffalo population in India. Consequently, development of agriculture and animal husbandry suffers for want of hard working draught animals and high yielders.