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Cost and benefit analysis of milk production in pertaining to the type of ownership in western part of U.P

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Abstract

A survey study was under taken to asses the relation of the type of ownership with a view to analyzing the cost benefit and output relation in milk production at selected 50 dairy units in western U.P. Which are categorized in to I, II, III, IV, groups having 30 private, 13 Trustee, 03 organizational (Military) and 04 Governmental dairies respectively. It revealed that maintenance cost per animal per head, the average cost was Rs. 20.43 and Rs. 3161. The share of different variable cost ie feeding and labour was 61 and 14 percent and veterinary and miscellaneous value was 0.49 and 1 percent. Organization farms are more scientifically managed followed by private, Govt. and Trustee dairies.

Keywords- Milk production, ownership, herd size , cost benefit , input-output relationship, net income

Introduction

Man needs food to survive, but it is nutrition that forms the foundation for health, strength and intellectual vitality in all human beings. This foundation has yet to be laid in our country. Indian agriculture is an economic symbiosis of crop and milk production. Historically, the role of livestock has been complementary to crop production. Dairying and agriculture are bound together by a set of mutual input-output relationship. Dairying is not an adjunct to the crop mix of Indian farms but is an integral part of the total farming system. Hence, treating dairy cattle as a backbone of the live stock wealth and health of our country would not be an exaggeration. Livestock plays and important role in the economy by generating employment and providing income and health to small farmers and society. At present more than 87 percent of the livestock is owned by farmers having less than 4 ha farm land. The share of agriculture output to GDP was decreased but in same period share of livestock has increased. A growth rate of 4.5 percent has been achieved by dairy sector during past decades as compared to 2 percent growth recorded by agricultural sector as a whole with about 6 percent country's GDP. In term of output, milk is how single largest agriculture commodity in India and its contribution is 26 percent to agriculture GDP. The estimate of milk production in 2011-12 is 127.9 mt and is likely to reach 133.7 mt. in this year. Since 1998 India continue to be the largest producer of milk in the world.

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Materials and methods

The study was carried out on the dairy herds situated with the central upland and plains of western Uttar Pradesh. Since physical move up and geographical location of an area influence the management situations and practices for upkeep of livestock through agro-climatic variations, it will not be out of place to spell out some of the more important features of the region under reference. From 50 dairy farms of the western zone 30 private, 13 Trustee, 3 organizational (Military) and 4 states owned governmental farm of varying herd sized located in the five divisions as Lucknow, Agra, Meerut, Bareilly and Muradabad were selected for this study. Besides, 30 dairy units of varying herd strength owned by private individuals were chosen at random from the rural and urban areas of Sitapur, Lakhimpur, Muzaffarnagar, Meerut; Bijinor etc. districts in western Uttar Pradesh, Thus, all 50 dairy units engaged in commercial production of milk were covered under the programme. Inclusion of longer units not only increased the range of herd size but also enabled to collect the data from farms are managed and financed either by educational institutions or by religious or governmental agencies and their primary activity is not milk production for commercial purpose,. Nevertheless, since they are producing milk on large scale of which the surplus is usually sent for selling, it will not be irrational to treat them as semi-commercial and their management can not main much different from those running on commercial lines . Rather, it is expected to be more organized and based on latest know-how, than the ones managed and owned by a farmer. Physical labour put in by a man for 8 hours was taken as the standard may-day and the time spent by him for completing a job was calculated according in man-hours. The labour put in by women and child, if employed an job was calculated accordingly in man-hours. The labour put in by women and child, if employed in the unit was brought to this standard on the basis of their wage rates.

Selection and specification of variables

In order to depict the production process correctly, the choice of variable should be made in terms of underlying mechanics of milk production. The selection of relevant variables to be included should be based on prior experience and should not be country to any of the physical, biological and economic logic known to underlie the production process. Therefore, appropriate selection and specification of variables are essential steps in the specification of appropriate milk production function. The choice of factors in ascertaining input-output relationship in milk production is, however, constrained by the availability of the empirical data in required magnitude. In view of the fact the milk production is affected by seasonality and various input factors, categories and breeds of animals. The mathematical model of milk production function adopted is given as follows-

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6)$$

Where Y=Value of milk production per animal per day in rupees

X_1=Stage of lactation

X_2=Value of milk animal in rupees

$X^{3=}$ Expenditure on green fodder fed per animal per day in rupees

X^4= Expenditure on dry fodder fed per animal per day in rupees

X^5= Expenditure on concentrate per animal per day in rupees

X^6= Labour expenses per animal per day in rupees

A brief description of the selected variables and their estimation has bee decreased

Results and discussion

I. Variation in the fixed cost at the dairies in relation to the type of ownership of the units -

The means of fixed cost in I (private), II (trustee), III (Organizational) and IV (Governmental) groups were estimated as Rs. 191.71, Rs. 915.27, Rs. 6191.36 and Rs. 2676.37 respectively and that of interest on total fixed capital were Rs. 44565.38, Rs. 22155.66, Rs. 1377057.88 and Rs. 613456.88 respectively indicting an significant difference between groups (Table -1) A similar trend was noticed for depreciation charges on animal, building cost depreciation on building, equipments and total depreciation charges in the dairy units in different groups followed by governmental, trustee and private farms. The least amount was spent on fixed items in private owned farms in the study.

II. Variation in the variable cost of milk production at the dairies in relation to the type of ownership

The total variable cost spent per day in various dairy units in I (private), II (trustee), III (Organizational) and IV (Governmental) Groups averaged as Rs. 623.39, Rs. 2822.76 , Rs. 27555.12 and Rs. 5836.20 respective (Table -2). Privately owned farm spent least input cost on variable items as compared to all the categories of the farms. However, the highest variable cost spent for milk production was observed in the III-group having the military diaries followed by governmental (group-IV) and trustee units (group-II) indicate a significant difference between the groups. Similarly, the different components of variable cost viz. green fodder, dry roughages, concentrate feed, total feed cost, direct, indirect and total labour cost, veterinary and miscellaneous cost indicate a significant difference between groups (Table -2) competent that trustee, organizational and governmental farms to utilize the variable input at cheaper rate and therefore, having least expenditure on variable components.

III. Variation in returns, input-output ratio of milk production in relation to the type of ownership at dairies

The revenue received through various means at the dairy unit's averages as Rs. 146.17, 675.38, Rs. 2523.33 and Rs. 600.00 in I, II, III and IV groups through dung Rs. 669.90 Rs. 4083.92, Rs. 52602.00 and Rs. 4529.25 respectively. The total income received from milk in I (private), II (trustee), III (Organizational) and IV (Governmental) Groups averaged as Rs. 1244.83, Rs. 4245.54, Rs, 52602.00 and Rs. 6875.75 respectively and the means for gross income were Rs. 1391.00 Rs. 4860.92, Rs. 5135.35 and Rs. 7475.00 respectively indicating significant differences between groups. The means of the returns in I, II, III and IV groups were Rs. 575.90, Rs. 1122.90, Rs. 21388.05 and Rs. 1037.57 indicating significant difference between groups. Therefore, the dairies owned under the state government are running into loss and this is because of surplus labour including more supervisory staffs at farm on one hand and unscientific management on the other. However, highest returns has been observed in organizational dairies, mostly run by military, followed by group-II (Trustee dairies) and group-I (Private dairies). The input-output ratio of total cost of returns in milk production in I, II, III and groups have been estimated and the values were 1:1.47, 1:1.64 and 1:0.84 and that of the values for variable cost and output ratio were 1:2.19, 1:1.95, 1:2.07, 1:1.19 respectively and the corresponding values for fixed cost and output ratio were 1:7.23, 1:6:30, 1:8.54 and 1: 26 respectively indicating significant difference between groups (Table -3) of percentage in break-even point have been estimated as 29.06 percent, 98.63 percent and

48.46 percent in I,II, III and IV groups respectively indicating no significant difference between the groups.

Table 1 Variation in the cost incurred on different fixed input relation to the type of Ownership at selected dairy

Group No.	Group Description	Avg. No of Units	Depreciation on animal (Rs)	Building cost (Million)	Depreciation on Building (Rs)	Depreciation on equipment (Rs.)	Total Depreciation cost (Rs.)	Interest on total fixed capital (Rs.)	Total fixed cost per day (Rs.)
1	2	3	4	5	6	7	8	9	10
I	Private	30	149.627	204800.00	10240.00	263.08	25409.36	44565.38	191.71
II	Trustee	13	47192.31	1294104.63	64705.23	6193.46	112517.00	221555.66	915.27
III	Organizational	03	660608.31	4371280.00	218564.00	3616.67	882789.00	1377057.88	6191.37
VI	Governmental	04	234977.16	256020.00	127301.00	1138.88	36417.03	613456.88	2676.37
Overall Average F Value		50	97684.43 5.98**	925305.62 18.69**	46265.28 18.69**	627.02 6.05**	126540.74 8.89**	216043.71 10.98**	938.58 10.14**

The results enumerated from study area has been incorporated in table a-1, 2 and 3 containing the information regarding returns, input and output etc. According to type of ownership and area covered under the study. Small and medium sized dairy units are mostly owned by private individuals; No individuals had a unit having more that 100 animals heads. However the higher milk production was noticed in dairies owned by military organization followed by government and trustee farms. The dairy units owned by private person were noticed that the contribution of buffaloes to daily total milk production was found to be greater. This is also clearly indicate that trustee farms are running on religious ground and therefore , they do not bother for profit earning at the farms and more so such farms are receiving donation from various agency on religious ground on the other hand the rest of farms are better managed as indicated clearly things the breakeven point at the dairies. Therefore military farms are more specifically moneyed followed by private, government trustee. The sahiwal indigenous cattle breed was very common in all the dairies in the area of study but some of small dairies have also maintained Gangatiri and Haryana cattle breed. It was clearly found that crosses of Sahiwal with two exotic breed namely Holstein-Friesian and jersey were preferred by most of owner groups, due to reasons as the

Table 2 Variation in the cost incurred on different fixed input relation to the type of Ownership at selected dairies

Group No.	Group Description	Avg. No of Units	Green fodder cost (Rs.)	Dry fodder Cost (Rs)	Concentrate feed cost (Rs)	Total Feed Cost (Rs)	Direct labour Cost (Rs.)	Indirect labour cost (Rs)	Total labour cost (Rs)	Veterinary cost (Cost)	Miscella Neous cost (Water+ electricit) Rs)	Total variable cost/day (Rs)
1	2	3	4	5	6	7	8	9	10	11	12	13
I	Private	30	184.00	11138	190.13	485.51	124.75	1.43	126.18	4.48	7.21	623.39
II	Trustee	13	729.06	520.75	1193.85	244366	205.12	102.92	308.04	16.29	54.77	2822.76
III	Organizational	03	8186.25	1367.00	14438.67	23991.92	2773.33	448.67	3222.00	97.33	243.87	27555.12
IV	Governmental	04	1886.88	6653.55	2152.00	4704.42	767.00	231.00	998.00	27.44	106.34	5836.20
Overall Average F Value		50	942.08 36.03**	337.48 31.14**	1662.96 33.29**	2742.52 36.53*	355.94 3294**	428.96 36.27**	428.96 36.27**	14.95 28.07**	41.70 36.07**	3228.15 37.11**

Table 3 Variation in the cost incurred on different fixed input relation to the type of Ownership at selected dairies

Group No.	Group Description	Avg. No of Units	Income from dung/ manure (Rs.)	Cow's milk Income (Rs)	Buffalo's milk income (Rs.)	Total Income from milk (Rs.)	Gross income (milk & dung) (Rs.)	Net income (Gross income gross cost) (Rs.)	Input-output ratio	Veterinary cost output ratio	Fixed cost output ratio	Break even point
1	2	3	4	5	6	7	8	9	10	11	12	13
I	Private	30	146.17	669.90	577.93	1244.83	1391.00	575.90	1:61	1:2.19	1:7.23	29.06
II	Trustee	13	675.38	4083.92	161.62	4245.54	4860.92	1122.90	1:1.47	1:1.95	1:6.30	98.63
III	Organizational	03	2533.33	52602.00	0.00	52602.00	55135.35	21388.85	1:1.64	1:2.07	1:8.54	23.90
IV	Governmental	04	600.00	4529.25	2345.75	6875.00	4775.00	-1037.57	1:084	1:1.19	1:3.26	48.46
Overall Average F Value		50	447.00 15.52**	4982.22 37.74**	574.64 7.95**	5556.86 37.57	6004.56 36.28**	1837.82 31.92**	1:1.54 7.05**	1:2.03 5.49**	1:6.75 5.49**	48.38 1.01

Sahiwal breed is dairy purpose breed where as the Haryana is a dual purpose type. The buffalos were reared in I and II only excepting the III group. The III group owned by military organization did not kept the buffaloes in the farms. The greatest net income received by private owned dairies followed by organizational and trustee owned. However the input- output ratio was found to be highest in organizational dairies. (1:1.64) and break even point is 23.90 percent followed by 1:1.47 in trustee 1:1.16 in private dairies. The break-even point in private dairies has been found to se 29.06 percent (table -3)

Conclusion

The higher fixed values were found at the organizational farms followed by governmental trustee and private farms. The least amount was spent on fixed items in privately owned dairies. However, the highest variable cost spent for milk production was observed in the group-III (Military dairies) followed by group -II (Governmental) and group-I (Trustee units). Thus it is clearly indicated that the private farms are more competent than trustee, organizational and governmental farms to utilize the variable input at cheaper rate and therefore, having least expenditure on variable components. The study also revealed that the military farms are more scientifically managed followed by private, governmental and trustee dairies, and highest returns and input-output relationship has also been observed in organizational dairies mostly run by military , followed by group II (Trustee) and group -I (private dairies).

References

1. Krishna (1997). Dairying for rural development, *Journal of Rural Development* (3): 387-400.
2. Rao, Neeraj and Prashant Poul (2004). Economics of milk production in district Kanpur (Dehat) Uttar Pradesh, *Indian Journal of Economics* (7)
3. Meen, G.L. Jain, D.K. and Chandel, B.S. (2010). Economics of milk production in alwar district of Rajasthan , *Journal of Dairying, Field and Home Science* 29(11)

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