P: ISSN NO.: 2394-0344
E: ISSN NO.: 2455-0817
Remarking
Vol-II * Issue- XII* May- 2016

Role of Holding Size on Economic Performance of Cross-Bred Cows in Akola Block of Agra District

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Abstract

An investigation was carried out in Akola block of Agra district to studied the role of holding size viz: landless, marginal, small, medium and large, on economic performance of cross-bred cows and found that the milk production performance of these cows reared by large holding size groups was much better than that of landless and marginal holding size groups. Milk production was increase with increase in holding size, significantly. The cost of milk production was higher in landless holding size groups than that of large holding size groups. The role of holding size groups on cost of milk production per litre was significant. The study revealed that the cost of milk production was decrease with increase in holding size groups, significantly. It is due to the former had greater lactation milk yield, longer lactation period and almost equal maintenance cost but a greater economy in milk production. Thus, bringing out a greater economic return to the milk producers.

Keywords: Cross-Bred Cow, Holding Size, Lactation Period, Milk Yield.

Introduction

India is predominantly an agrarian economy with more than 75 percent of population in villages depending on agriculture, animal husbandry and allied activities for their lively hood. Among many livestock enterprises, dairying is the most ancient occupation established in rural setting of our country. Livestock farms one of the components of the backbone of the Indian economy and an important sub sector of agriculture farming which is an integral part of crop farming. Livestock farming is the most suitable production system that has enormous potential to improves the socio-economic status of the large percentage of the rural population. Currently dairying provides 70-80 million farm families the triple benefit of nutritive food, supplementary income and productive employment, while setting right the seasonal imbalance in employment. Dairy animals, apart from their role in milk production and contribute huge quantity of organic manure. (Tanwar and Kumar, 2014).

Inida is blessed with huge bovine population of 199.10 million cattle and 105.30 million buffaloes accounting 16.24 and 56.90 percent, respectively in world bovine population and stand first in the world in number of bovine population **(livestock census 2007, GOI)**. Before independence, milk production in India was below 20 million tones and the quality was also very poor. Owing to the white revolution, India has emerged highest milk producer in the world i.e. 112.5 million tones with per capita availability of 263 gm/day**. (Dept. of A.H. & Diarying & Fiseries, Ministry of Agriculture, GOI, 2007).**

Dairying in India is by large in the hand of small/marginal land holders and agricultural labours. Eighty percent of 97.7 million farm families in India possess cattle and/or buffaloes that have neither the knowledge nor the appreciation of the concept of cost of production. So as to assess the viability of such an activity **(Rao et. al. 2000)**. The economics of milk production could be envisaged through two angles, viz: decreasing the unit cost of milk production and increasing the milk productivity of milch animals. Any attempt to achieve these objectives will encourage the producer to produce more milk by mobilization of the available resources **(Kumar & Bhaskar, 2013).** The milk production is one of the important economic indicators of the dairy animals. Since, it is the yield that ultimately gives the return of the cattle keepers. The total milk production per milch animal in a lactation depends on the daily milk producing efficiency of the animal, duration in milk, herd size of animals, holding size of families, species and breeds of the animals and its level of feeding (**Bhaskar and Gupta, 1992**).

Thus, keeping in view the role of dairying as an instrument in augmenting the income of rural households through increasing production of milk, the present investigation was therefore undertaken to assess the role of holding size on economic performance of cross-bred cows in Akola block of Agra district

Aim of the Study

1. To determine the productive and reproductive performance of cross-bred cows.
2. To determine the cost of milk production per litre of cross-bred cows.
3. To determine the input-output ratio and net return per litre from cross-bred cows.
4. To determine the role of holding size on economic performance of cross-bred cows reared by village farmers.

Research Methodology

The present investigation was carried out during 2013-14 session in 6 villages of Akola block of Agra district. After selection of villages, a list of families having different holding size groups as describe below and cross-bred cows was prepared. In all, 30 dairy farms having 84 cross-bred cows were, selected for this study. Holding size groups was divided into 5 groups as delineated below:

1. Landless (having no land).
2. Marginal (having 0-1.0 Acre)
3. Small (having 1.1-2.0 acre)
4. Medium (having 2.1-3.0 acre)
5. Large (having above 3.0 acres).

Detailed information from each selected milk producers regarding fixed capital investment, animal cost, feeds cost per animal/lactation, length of lactation, dry period, feeds give to milch animals, labour and other charges, miscellaneous charges, milk yield per lactation per animal and sale price of milk per litre, were collected through the records maintained by producers and personal interview and analyzed according to the systematic method relevant for the village farmers. The fixed and variable cost per milch animal incurred in different holding size groups were calculated to find out the maintenance cost. The net maintenance cost was then calculated by subtracting the dung value from the maintenance cost. The cost of milk production per litre of milk was estimated by dividing the net maintenance cost by the total milk production.

Finding & Suggestions

The Table-1 revealed that the milk production per lactation per animal in different holding size groups of cross-bred cows viz, landless, marginal, small, medium and large were found to be 2591±41,2625±46, 2707±49, 2747±42 and 2809±51 litre, respectively. These results revealed that the cross-bred cows elicited significantly greater milk production in large holding size groups than that of landless and marginal holding size groups.

Table-1
Item Wise Cost of Milk Production per Litre of Cross-Bred Cows in Different Holding Size Groups

S.No/ Characters	Landless	Marginal	Small	Medium	Large	Overall Average	F Value
Milk Yield (lit.)	2591±41	2625±46	2707±49	2747±42	2809±51	2696±46	4.26^{++}
Value of Milk (Rs.)	64780±86	65615±93	68680±89	69668±101	70230±98	67800±96	4.09^{++}
Lactation pd.(Days)	332±8	334±7	338±8	337±8	342±9	6337±8	0.86^{NS}
Dry period (Days)	89±5	83±5	77±4	71±5	66±4	77±4	2.99^{+}
Inter calving pd. (Days)	421±11	417±12	415±10	408±11	408±11	414±10	3.04^{+}
Fixed Cost (Rs.)	16358±217	15980±183	16215±203	15893±193	15235±182	15936±201	1.34^{NS}
Variable Cost (Rs.)	36314±388	35475±301	35997±296	35283±316	33821±286	35378±314	4.22^{++}
Maintenance Cost (Rs.)	52672±527	51455±511	52212±418	51176±432	49056±516	51314±508	3.16^{+}
Dung Value (Rs.)	3623±33	3661±32	3697±29	3746±31	3799±30	3705±30	2.99^{+}
Net Maint. Cost(Rs.)	49051±271	47794±285	48516±297	47430±266	45256±255	47609±278	5.31^{++}
Cost of milk prod./Lit(Rs.)	18.93±0.41	18.21±0.36	17.92±0.51	17.27±0.21	16.11±0.33	17.64±0.43	4.63^{++}
Input-output Ratio	1:1.32±0.02	1:1.37±0.01	1:1.42±0.01	1:1.47±0.02	1:1.55±0.01	1:1.42±0.02	5.11^{++}
Net return per lit.	6.07±	6.79±0.16	7.08±0.18	7.73±0.11	8.89±0.14	7.36±0.14	4.84^{++}

Note : NS = Non-significant
\+ = Significant p≤0.05
++ = Significant p≤0.01

The table further revealed that the milk production increase with increasing holding size which is due to more feeds and fodders should be more available to the animals resulting increase in milk production. It is observed from the study that landless labour and farmer's having small area of land viz: Marginal and small pay more heed to their animals than those having large area of land. The lactation length of cross-bred cows in above holding size groups were found to be 332±8, 334±7, 338±8, 337±8 and 342±9 days, respectively. The lactation length was higher in large holding size groups as compared to landless holding size groups. This variation was insignificant.

The data presented in above table indicated that the maintenance cost of these animals was found to be Rs.52672±527, 51455±511, 52212±418, 51176±432 and 49056±516, respectively. The statistical analysis of these data revealed that the maintenance cost was decrease with increase in holding size, significantly. These results are similar with the findings of Gupta and Agrawal 1996, Chandra and Agrawal, 2000 and Bhaskar,2015. The net maintenance cost showed similar trend as the maintenance cost. The dung value of cross-bred cows per animal in lendless, marginal, small, medium and large holding size groups were found to be Rs.3623±33, 3661±32, 3697±29, 3746±31 and

3799±30, respectively. The analysis revealed that holding size have significant effect on dung value of these cows.

The table further indicated that the cost of milk production per litre of these cows in the same holding size groups were found to be Rs.18.93±0.41,18.21±0.36,17.92±0.51, 17.27±0.21 and 16.11±0.33, respectively. The analysis further revealed that the cost of milk production per litre decrease significantly with increase in holding size groups. The input-output ratio was significantly greater in large holding size groups than landless holding size groups. The table further revealed that the input-output ratio was significantly increase with increase in holding size groups. The same trend was also found in net return per litre of these cows.

Our observations on cost of milk production and input-output ratio are similar with those reported by Bhaskar et.al (1991), Badal and Dhaka (1998), Bhaskar et.al. (2007) and Bhaskar (2015).

Conclusion

It is concluded that the productive as well as reproductive performance of cross-bred cows reared by village farmers having different holding size groups was found better in large holding size groups as compared to landless and marginal holdings. The cost of milk production per litre of these cows was also found much higher in landless than that of large holding size groups. The input-output ratio and net return was found better in large holdings than landless as well as marginals. Thus, the farmers which have large area of land have better productive, reproductive and economic performance than landless and those farmers having small area of land.

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