

Comparative Profitability of Cross Breed and Indigenous Cattle in West Bengal

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ABSTRACT

The present study was carried out in Tehatta-II block of Nadia district in West Bengal. There were 17 blocks in the Nadia district of which Tehatta-II block was selected purposively. The block consisted of 7 gram panchayats and 2 gram panchayats namely Palsunda-I and Barnia were selected randomly. Fifty dairy farmers were selected from each gram panchayats based on judgement sampling. The study area was more or less homogenous with respect to animal husbandry practices, socio-cultural conditions, facilities for service and critical inputs. Most of the dairy farmers in study areas were unorganized in milk production. Relevant information from the individual milk producers (dairy farmers) have been collected through personal interrogation method with the help of a structured interview schedule prepared for the study. The study revealed that crossbred cows were more economical and gave higher yield than the indigenous cows, inclusion of a few crossbred cows can increase the income of a dairy entrepreneur and provide gainful and round the year employment of its family labour.

Key words: Profitability; Dairy farmers; Milk production

Indian economy is predominantly rural economy with about 75% of its population residing in rural areas. Dairy farming is an integral occupational support system on which the entire social and economic structure of the village life anchors in India. It provides employment especially self-employment to a substantial number of rural population, many of whom are women who play a major role in the care and management of livestock. Livestock contributes in improving the national nutritional standards by providing valuable balanced animal protein in the form of meat, milk, egg and dairy products and by-products. According to National Commission on Agriculture (1976), 70% of the livestock belong to small, marginal and agricultural workers. So, any improvement of these livestock will definitely help to these categories of people. Among the livestock production milk is main commodity that has emerged as the second largest agricultural commodity next to rice. Shah and Shah (1995) assessed milk production of different breeds of buffaloes and cattle. It was found that a reduction of feed cost and expenditure on feeds and fodder and an increase in the price of milk would result in greater margin for the farmers. The profit in crossbred cow's milk was more price sensitive than other breeds. It was also reported that concentrate was most significant input influencing milk output. Green and dry fodder inputs also influenced milk production positively in almost all seasons. Chouhan and Chouhan (1982) showed that level of aspiration in farmers' getting low

milk production from their cattle was positively and significantly associated with their knowledge about dairying. Considering the future prospects of dairy farming, an attempt has been made to find out the profitability of milk production.

METHODOLOGY

There were 17 blocks in the Nadia district of which Tehatta-II block was selected purposively. The block consisted of seven gram panchayats and out of these two gram panchayats namely Palsunda-I and Barnia were selected randomly. From each of both the gram panchayats 50 dairy farmers were selected based on judgement sampling i.e. whether they were involved in dairying and their cows were in the stage of milk production or not. The sampling was taken from the study area in such a way that 60 crossbred cattle owners, 18 indigenous cattle owners and 22 both type (mixed) cattle owners (total 100 respondents) were selected. Data were collected through personal interview with the help of structured interview schedule. Independent Samples' t-test, Cobb-Douglas Method and One way analysis of variance were used to analyse the data.

RESULTS AND DISCUSSION

It was evident from Table 1 that except average depreciation cost per day per cow all other economic parameters like average production per day, output-input

ratio per litre of milk, average profit per litre of milk, average income per day per cow, cost of concentrate per day per cow, average cost of roughage per day per cow, average labour cost per day per cow, average value of cow-dung per day per cow, average income from milk per day per cow, average feed cost per day per cow, average interest per day per cow and other depreciation cost per day per cow, differ significantly due to breed type and it was found that for each of these variables cross breed had significantly higher mean values than the indigenous breed. For other parameters like average miscellaneous cost per day per cow, average interest of cattle-shed per day per cow, average depreciation cost per day per cow, average depreciation cost of cattle-shed per day per cow, average medical cost per day per cow no significant difference was found between the breed type.

Table-2 clearly revealed that R² -values were found highly significant in mixed farmers (0.71), crossbred farmers (0.56), crossbred cattle (0.52) and indigenous cattle (0.34), respectively. A perusal of Table-2 clearly showed that concentrates were fed judiciously by both crossbred and mixed categories of dairy farmers in the locality for both crossbred and indigenous cattle separately. This can be visualized from the fact that the regression co-efficient with respect to concentrates were found to be significant at 5% level of significance on mixed farmers and indigenous cattle, in another way 1% level of significance on crossbred cattle. The regression co-efficient for roughage was found to be significant for crossbred farmers at 5% level of significance and highly significant at 1% level of significance on crossbred cattle. Roughage had no significant effect on milk production of indigenous cattle. The labour cost was found to be significant in case of crossbred rearing farmers at 5% level of significance. The miscellaneous cost was also found to be significant in case of crossbred cattle at 5% level of significance. In case of crossbred farmers and cattle, constant return to scale was found to be less than indigenous farmers and cattle. This indicated that there was possibility of steady increase in the returns from crossbred if resources were mobilized meaningfully. However, a comparative analysis on the basis of resource use efficiency, it may be concluded that crossbred cow may be preferred to indigenous cow because there was scope to further increase the returns from milk production. Otherwise mixed farming will be second best option to increase the resource use efficiency.

Table 1. Independent Samples't-test for milk economic parameters due to breed type (crossbred vs indigenous) (Sample size of crossbred category = 99 & sample size of indigenous category = 45)

Parameters (Per day per cow basis)	Category	Mean±S.E	t-value	Sig.
Average production per day	Crossbred	6.894±. 229	11.516	.000
	Indigenous	3.955±. 113		
Output-Input ratio per litre of milk	Crossbred	1.3858±3.003E-02	4.537	.000
	Indigenous	1.1593±3.334E-02		
Average profit per litre of milk	Crossbred	2.6400±. 1902	4.000	.000
	Indigenous	1.2310±. 3130		
Income per day	Crossbred	71.5477±1.9549	9.012	.000
	Indigenous	7.5173±1.8135		
Concentrate per day	Crossbred	16.024±. 692	6.877	.000
	Indigenous	9.736±. 597		
Roughage per day	Crossbred	14.35±. 60	6.713	.000
	Indigenous	9.53±. 40		
Labour cost per day	Crossbred	13.53±. 56	2.942	.004
	Indigenous	11.27±. 53		
Value of cow-dung per day	Crossbred	10.81±. 29	5.996	.000
	Indigenous	8.64±. 22		
Average income from milk per day	Crossbred	60.7396±1.8441	11.757	.000
	Indigenous	36.0219±1.0096		
Average feed cost per day	Crossbred	30.188±1.095	7.789	.000
	Indigenous	19.293±. 870		
Miscellaneous cost	Crossbred	3992±2.516E-02	1.182	.239
	Indigenous	3476±3.341E-02		
Interest of cow per day	Crossbred	2.7522±7.818E-02	6.888	.000
	Indigenous	1.8630±8.379E-02		
Interest of cattle shed per day	Crossbred	2.1165±. 2059	1.872	.070
	Indigenous	1.4801±. 2479		
Depreciation cost of cow per day	Crossbred	2.1178±. 4623	-1.976	.050
	Indigenous	3.6530±. 5397		
Depreciation cost	Crossbred	6356±3.946E-02	.658	.512
	Indigenous	5901±5.456E-02		
Medical cost per day	Crossbred	1.0404±5.456E-02	.585	.560
	Indigenous	9658±. 1057		
Other depreciation cost per day	Crossbred	8.547E-02±4.931E-03	6.514	.000
	Indigenous	3.132E-02±5.843E-03		

Table 2. Resource use efficiency in Milk Production Following Cobb-Douglas Method

Category	Observation	Constant	Regression Co-efficient					R ² Value	S.E. of Est.
			Roughage Cost	Concentrate Cost	Labour Cost	Miscellaneous Cost			
1. Types of Cattle owner									
Crossbred	60	6.98	0.211* (0.102)	0.404** (0.092)	0.169* (0.07)	0.067 (0.054)	0.56**	0.20	
Indigenous	18	9.431	0.097 (0.253)	0.315 (0.308)	0.237 (0.20)	0.053 (0.18)	0.46	0.28	
Mixed	22	6.315	0.265 (0.209)	0.475* (0.176)	0.021 (0.158)	0.17 (0.111)	0.71**	0.24	
2. Types of Cattle									
Crossbred	99	14.17	0.209** (0.06)	0.270** (0.065)	0.041 (0.047)	0.102* (0.05)	0.52**	0.19	
Indigenous	45	22.74	0.138 (0.098)	0.176* (0.073)	-0.05 (0.074)	0.042 (0.041)	0.34**	0.14	

*= Significant at 5% level of significance, ** = Significant at 1% level of significance. All brackets values are Standard Error.

CONCLUSION

The study revealed that crossbred cows were more economical and gave higher yield than the indigenous cows, inclusion of a few crossbred cows can increase the income of a dairy entrepreneur and provide gainful

and round the year employment of its family labour. So, inclusion of crossbred cows should be popularized simultaneously with Artificial Insemination programme to augment milk production of the indigenous and crossbred cows more scientifically and profitably.

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