

Economics of Rearing of Buffalo, Sahiwal and Crossbred Heifers up to Maturity

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ABSTRACT

Present experiment was designed to work out the economics of rearing of Buffalo, Sahiwal and Crossbred heifers upto the age of maturity with specific objective to determine their economic appraisal when kept on commercial basis. Based on study, the following suggestions/recommendations were laid down: 1. The buffalo heifers needs pond for wallowing in summer which is necessary it will decrease labour utilized for sprinkling water on the animals, 2. Rearing of heifers on concentrate ration for milk production is a profitable business, 3. Agriculture Development Bank and other financial Institutions should extend soft loan to the farmers for rearing of future dairy animals, 4. Government should arrange compound feed and technical know how about heifers rearing for the farmers.

Key Words: Economics; Rearing; Buffalo; Sahiwal; Crossbred

INTRODUCTION

Livestock rearing is an important source of employment, income and livelihood of rural population of Pakistan. Main commercial dairy animals are Buffalo, Sahiwal and Crossbred cows. Demand for milk is ever increasing over time. Replacement of old animals with female young stock is the only way for sustained milk production. Present experiment was designed to work out the economics of rearing of Buffalo, Sahiwal and Crossbred heifers upto the age of maturity with specific objective to determine their economic appraisal when kept on commercial basis.

MATERIALS AND METHODS

Ten heifers each of Buffalo, Sahiwal and Cross bred (H. Friesian x Sahiwal cattle) were selected at the average age of 375, 280, 269 days, and average weight of 139, 64, and 102 kg, respectively at Livestock Production Research Institute, Bahadurnagar, Okara in December, 1997. Animals were dewormed against internal parasites and dipped against ecto parasites. Animals were fed in uniform groups. Requirements of animals were calculated according to the NRC standard (Anonymous, 1978). Eighty per cent of these requirements were met from concentrate ration and 20% were met from seasonal green fodder available. Weighing of fodder, ration and refusal was observed daily. Routine protection against Hemorrhagic Septicemia, and Foot and Mouth disease was done by immunization with vaccines. Animals were weighed fortnightly and subsequently rations were adjusted according to the weights of animals.

Initial price of animals was assessed according to the prevalent market price in the area. Value of every input spent in rearing of animals was taken into account. It includes cost of concentrate, green fodder, actual labour days spent during the

trial period, depreciation cost of mangers, rent of barns, cost of rope used in tying of animals, water charges, medicinal cost and electricity charges. Market value of animal at the end of experiment was also assessed. Manure price was excluded from the cost stream. For economic analysis, output-input ratio was established.

RESULTS AND DISCUSSION

Age and weight at maturity. The day at which the heifer showed oestrus, was taken as age of maturity. Maturity age was 764, 653 and 484 days in buffaloes, Sahiwal and Crossbred heifers, respectively. Corresponding weights were 373, 289 and 277 kg, respectively (Table I). Average daily weight gain was 600, 470 and 810 gm in Buffaloes Sahiwal and crossbred, respectively. The oestrus was also detected by the use of teaser bulls and then confirmed by manual palpation and subsequently insemination was given. Age at maturity in Sahiwal was significantly lower than reported by Ishaq (1969). This is due to good management and balanced feeding of the heifers.

Feeding cost. Buffalo, Sahiwal and Crossbred heifers consumed 2082, 1770 and 951 kg of concentrate ration per head, respectively. This concentrate ration had 15% crude protein, 64% TDN and 86% dry matter (Table V). Similarly, they consumed 3142, 2075, and 1043 kg green fodder, respectively. Feeding cost uptill maturity from start of the experiment was Rs. 6921, 6052 and 3152 in Buffalo, Sahiwal and crossbred heifers, respectively. Investment on feeding increased the value of these heifers, at the tone of Rs. 10923, 11590 and 12208 in Buffalo, Sahiwal and crossbred heifers, respectively (Table II).

To work out the actual output of investment, fixed and all variable costs were accounted for economic analysis. The cost incurred on housing, feeding, labour including electricity and

Table I. Age and weight at maturity

Breed	Initial live weight (kg)	Initial age (days)	Total weight gain (kg)	Age at maturity	Weight at maturity	Daily weight gain (gm)
Buffalo	139	375	234	764	373	600
Sahiwal	64	280	215	653	289	470
Crossbred	102	269	175	484	277	810

Table II. Ration for female young stock

Breed	Concentrate 1 (kg)	Green fodder 2 (kg)	Feeding cost (1+2)	Initial price of animal	Total cost	Final price of animal	Incremental benefit to feeding
Buffalo	2082	3142	6921	3517	10438	14450	12208
Sahiwal	1770	2075	6052	2610	8662	14200	10933
Crossbred	951	1043	3152	3152	6302	15360	11590

Table III. Total cost per animal

Breed	Initial price of animal	Feeding cost	Housing cost (shed cost)	Rope + Manger depreciation	Labour cost	Medicine cost	Water + Electricity charges	Total cost
Buffalo	13517	6921	180 (7641)	45	394	50	51	11158
Sahiwal	2610	6052	140 (6640)	40	332	39	37	9250
Crossbred	3152	3152	100 (3799)	30	270	50	30	6782

Table IV. Output input ratio

Breed	Total cost (fixed and variable)	Final price of animal	Price of farm yard manure	Total revenue	Profit (TR-Total cost)	Output input ratio
Buffalo	11158	14750	110	14860	3702	1.33 : 1
Sahiwal	9250	14260	79	14339	5089	1.54 : 1
Crossbred	6782	15360	57	15417	8635	2.27 : 1

water charges were also taken into variable cost. Table-III depicts the housing cost as Rs. 180, 140 and 100 for Buffalo, Sahiwal and Crossbred heifers, respectively. Housing cost was higher in Buffalo heifers due to less resistance against the increment weather as compare to Sahiwal and Crossbred heifers. Labour cost incurred per year on rearing of animal was Rs. 394, 332 and 230 for Buffalo, Sahiwal and Crossbred heifers, respectively. Labour utility was higher in Buffalo as these required additional activities like housing against increment weather and provision of water bath thrice in a day in summer season and once in winter. During the rearing on balance ration there was no disease problem observed. Medicine cost included only for vaccination and deworming. Cost of water and electricity light was Rs. 51, 37 and 30 for Buffalo, Sahiwal and Crossbred heifers, respectively. Total cost included initial price of animal and feed cost, were Rs. 11158, 9250 and 6782, while profit per animals was Rs. 3702, 5089 and 8635, in Buffalo, Sahiwal and Crossbred heifers, respectively.

Profit per animals was better than reported by Ali and Chaudhry (1982) in Barani area and Mian and Haider (1982) in Rural milch livestock due to better management at Livestock Production Research Institute, Bahadurnagar, Okara. Escobar (1976) reported that the animals with good body conditions produce more milk in first lactation. Body conditions of the animals in this study reveals better forecast about future milk production of these dairy animals.

Rearing of heifers on concentrate feeding is a profitable business. It is a good source of employment and income. It saves time, labour and money. Profit per heifer is Rs. 5029, Rs. 3702 Rs. 8635 in Buffalo, Sahiwal and Crossbred heifers respectively (Table IV). Expenditure and income relation was 1:1.33, 1:1.54 and 1:2.27.

Table V. Ration formula

Ingredients	Per cent composition
Cottonseed cake	20
Maize gluten	20
Wheat bran	32
Molasses	15
Wheat straw	10
DCP	1
Sodium chloride	1
Urea (46%)	1
Total	100
Crude protein	15
TDN	65
Dry matter	86

Regarding the constraints in rearing of heifers on concentrate, ration, seasonal purchase of ingredients like cotton seed cake, rice polish, molasses, maize grain are very important. Crossbred (FXS) animal showed some increase in body temperature during hot and humid summer. So, They were provided bath by sprinkled water to normalize their body

temperature. No serious problem was observed in all the heifers, and there was no mortality occurred during the experiment. There was no mortality throughout the experiment.

RECOMMENDATIONS/SUGGESTIONS

1. The buffalo heifers needs pond for wallowing in summer which is necessary it will decrease labour utilized for sprinkling water on the animals.
2. Rearing of heifers on concentrate ration for milk production is a profitable business.
3. Agriculture Development Bank and other financial Institutions should extend soft loan to the farmers for rearing of future dairy animals.
4. Government should arrange compound feed and technical know how about heifers rearing for the farmers.

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