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Economics of feeding high yielding Murrah buffaloes under field conditions and its validation under organized farm conditions

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Abstract

Twelve post-partum high yielding buffaloes maintained at Animal farm of ICAR-Central Institute for Research on Buffaloes, Hisar were selected for the present study. These buffaloes were selected on the basis of equal milk yield into two groups of 6 animals in each group. One group was kept on organized farm feeding management (control group) and another group was kept on the most rational feeding management (treatment group) i.e. practice of the farmer. The experiment was conducted for 3 months. During the period test day milk yield was recorded. In the control group, the lactating buffaloes were fed farm feeding (concentrate mixture, Green feed, and wheat straw). In the treatment group, the feed was offered two times a day 1 hr. before the milking time i.e. 5 .00 AM and 4.00 PM and each buffalo were fed 3 kg gram churi, 1.5 kg cotton seed cake, 1.5 kg wheat dalia, 10 kg green fodder and 1 kg wheat straw in each time. Economics was calculated by adding cost of various ingredients used to the preparation of concentrate mixture, the cost of green fodder and wheat straw fed to the animals. Feed cost of control ration was Rs.1984.10/qtls and that of treatment was 2191.75 + mineral mixture cost extra. The mineral mixture was given on the basis of milk production. Feeding cost/buffalo/day was Rs. 217.50 and Rs. 315.10 in control and treatment groups respectively. Total milk production in days was 6197.10 and 6835.00 kg in control and treatment group respectively. 637.9 kg more milk was produced in the treatment group. Feed cost/kg milk was Rs. 19.15 and 25.20 in control and treatment group respectively. On-farm feeding, the economics of feed/ buffalo/day and feed cost/ Kg milk was higher in the treatment group as compared to control group, the reason behind this was buffaloes in this group were fed more concentrate mixture to validate the feeding management of high yielding buffaloes under field conditions.

Keywords: economics, feeding, Murrah, buffaloes, validation

Introduction

India possesses 193.46 million cattle and 109.85 million buffaloes (BAHS, 2019) and India's milk production is growing by 35.61% during the last six years to 198.4 million tonnes in 2019-20 (The Economic Times, 2019) [3]. These Ruminants play a major role in providing nutritional and livelihood security for millions of rural households in India. Among many factors governing the livestock productivity, feeding accounts for more than 60-70 per cent of the total recurring cost and hence qualitative and quantitative improvement in this aspect will usually improve productivity. Buffaloes are being preferred over cattle because of their superior quality of milk (High fat and protein, low cholesterol), better efficiency of nutrient utilization from poor quality roughages (Paul *et al.*, 2003) [2]. Under field condition, farmers feed high yielding buffaloes in different ways. Farmers have adopted different feeding strategies to feed their high yielding buffaloes. Some feed daily oil, some feed protein in various forms to provide bypass protein knowingly or unknowingly feeding channa churi, some feed gur, some feed sugar. Feeding strategies varies from farmer to farmer. So to establish scientific rational of high yielding buffaloes under field condition present study economics of feeding high yielding Murrah buffaloes under field conditions and its validation under organized farm conditions was undertaken.

Materials and Methods

Twelve post-partum high yielding buffaloes maintained at Animal farm of ICAR-Central Institute for Research on Buffaloes were selected for the present study. These buffaloes were selected on the basis of equal milk yield into two groups of 6 animals in each group (Table 1). One group was kept on organized farm feeding management (control group) and another group

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was kept on the most rational feeding management (treatment group) i.e. practice of the farmer (Table 2). The experiment was conducted for 3 months. During the period test day milk yield was recorded. In the control group, the lactating buffaloes were fed farm feeding (concentrate mixture, Green feed, and wheat straw). In the treatment group, the feed was offered two times a day 1 hr. before the milking time i.e. 5 .00 AM and 4.00 PM and each buffalo were fed 3 kg gram churi, 1.5 kg cotton seed cake, 1.5 kg wheat dalia, 10 kg green fodder and 1 kg wheat straw in each time.

Table 1: Grouping of buffaloes on the basis of milk yield

No of Buffaloes	Control	Treatment
	Milk yield (kg)	Milk Yield
1	13	15.8
2	11	10.7
3	13.9	14
4	14.1	12.7
5	11	7.6
6	8.4	10
Average NS	11.90	11.80

Table 2: Ingredient composition and cost of control and treatment concentrate mixture

SN	Ingredients	Control	Treatment
		Parts	Parts
1	Maize	20	-
2	Wheat	10	25
4	Barley	10	-
5	Cotton Seed Cake	18	25
6	GNC	17	-
7	Channa Churi	-	50
8	DORB	22	-
9	MM	2	Up to 10 kg milk=50 gm and above 10 kg, 10 gms/kg milk
10	Salt	1	-
Total		100.00	100.0

Economics was calculated by adding cost of various ingredients used to the preparation of concentrate mixture, the cost of green fodder and wheat straw fed to the animals.

Results and Discussion

Various ingredients used in making control and treatment

rations along with their cost are given in Table 3. Feed cost of control ration was Rs.1984.10/qlts and that of treatment was 2191.75 + mineral mixture cost extra. The mineral mixture was given on the basis of milk production; accordingly, its cost was calculated.

Table 3: Ingredient composition and cost of control and treatment concentrate mixture

SN	Ingredients	Control		Treatment	
		Parts	Cost (Rs)	Parts	Cost (Rs)
1	Maize	20	366.00		
2	Wheat	10	162.50	25	406.25
4	Barley	10	141.00	-	-
5	Cotton Seed Cake	18	400.00	25	555.50
6	GNC	17	486.00	-	-
7	Channa Churi	-	-	50	1230.00
8	DORB	22	225.70	-	-
9	MM	2	200.00	Upto 10 kg milk=50 gm and above 10 kg, 10 gms/kg milk	
10	Salt	1	2.9	-	-
Total		100.00	1984.10	100.00	2191.75+ MM cost

Various parameters of feed consumption and milk production are given in Table 4 to calculate the cost of milk production and daily feeding cost of the buffaloes. Buffaloes in control group consumed 42.45 QTLs and in treatment group consumed 60.93 QTLs of concentrate mixture in 91 days. Concentrate mixture consumption was high in the treatment group. Green fodder consumption was 131.91 and 156.92 QTLs in control and treatment group, which was again higher in the treatment group. Wheat straw consumption was 23.25 and 7.92 QTLs in control and treatment group respectively.

Wheat straw consumption was less in the treatment group. Total feed cost during the experimental period of 91 days was Rs. 118744.50/- and Rs. 172067.00/- in control and treatment group respectively. Feeding cost/buffalo/day was Rs. 217.50 and Rs. 315.10 in control and treatment groups respectively. Total milk production in days was 6197.10 and 6835.00 kg in control and treatment group respectively. 637.9 kg more milk was produced in the treatment group. Feed cost/kg milk was Rs. 19.15 and 25.20 in control and treatment group respectively.

Table 4: Ration consumed and feeding cost in experimental buffaloes

SN	Parameters	Control	Cost (Rs)	Treatment	Cost (Rs)
1	Concentrate mix (qtls)	42.45	84225.00	60.93	133543.00
2	Green Fodder (qtls)	131.91	26382.00	156.92	31384.00
3	WS (qtls)	23.25	8137.50	7.92	2772.00
4	MM(80gms/buffalo/day)	-	-	43.68	4368.00
5	Total Feed (qtls)		118744.50		172067.00
6	Total Milk Production (kg)	6197.10		6835.00	

7	Feeding cost/ buffalo /day (Rs)		217.50		315.10
7	Feed cost /kg milk (Rs)		19.15		25.20

Conclusion

On-farm feeding, the economics of feed/ buffalo/day and feed cost/ Kg milk was higher in the treatment group as compared to control group, the reason behind this was buffaloes in this group were fed more concentrate mixture to validate the feeding management of high yielding buffaloes under field conditions.

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