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EFFECT OF SILAGE FEEDING ON MILK PRODUCTION AND COMPOSITION IN NILI-RAVI BUFFALOES

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A feeding trial of 84 days duration was conducted on 12 Nili-Ravi buffaloes. They were randomly divided into two groups (A & B) of six animals each and fed sorghum silage and green fodder to meet maintenance requirements and concentrate for production requirements. Average daily consumption of sorghum silage and green fodder on dry matter basis was 8.49 ± 0.08 kg and 8.26 ± 0.07 kg, while values for the concentrate intake for silage and green fodder groups respectively, were 3.01 ± 0.02 and 2.97 ± 0.02 kg. Statistical analysis indicated that animals in group A (fed sorghum silage) produced significantly more milk on as such basis as well as on FCM basis as compared to those fed green fodder (group B). Non-significant differences were found regarding milk composition. The results of the present study suggested that silage feeding can be practised as a substitute for green forage to a great extent in dairy animals during the periods of fodder scarcity.

INTRODUCTION

The supply of adequate amount of fodder is considered as the key to get ideal production from milch animals. Due to seasonal fluctuations, animals are subjected to scarcity of fodder in Pakistan, leading to lowered production which in turn results in heavy monetary losses to the owners. The possible solution lies in the preservation of surplus fodder. Buffalo population in Pakistan has been estimated to be 14.7 million as against the cattle population which is 17.6 million (Anonymous, 1989-90). Inspite of their lesser number, buffaloes contribute about 74% of the total milk production. Because of being palatable, succulent and one of the most practical fodder preservation systems, silage is the most effective substitute for green fodder especially during scarcity period. This project was therefore, designed to study the effect of silage on the production and composition of milk in Nili-Ravi buffaloes.

MATERIALS AND METHODS

This study involved 12 Nili-Ravi buffaloes at approximately the same stage of lactation and with about the same milk yield maintained at the .Livestock Experiment Station, University of Agriculture, Faisalabad. The buffaloes were randomly divided into two feeding regimes (A and B) with 6 animals in each. The duration of the experiment was 84 days. The animals in feeding regime A were fed sorghum silage, while those in B were given green fodder to meet maintenance requirements. Concentrates were given to the buffaloes in both groups to meet the production requirements at the rate of 1 kg/2.5 litres of milk produced.

The sorghum silage was prepared from the crop harvested at bloom stage, then chaffed and ensiled in a silo pit layer by layer. The entire chaffed fodder was pressed thoroughly and was covered with polythene sheet. The silage was kept sealed for 3

weeks before feeding to the animals. Proximate analysis of both the rations was carried out according to A.O.A.C. (1984). The observations on daily feed intake, daily milk yield and milk composition (weekly) were recorded. To remove the carry over effect of preceding ration, the data collected during the first 7 days of each period, termed as standardization period, were not considered in the final calculations. The data collected for different parameters were subjected to the analysis of variance (Petersen, 1985).

RESULTS AND DISCUSSION

Feed intake: The animals in group A consumed 8.49 ± 0.08 kg of sorghum silage while those in group B consumed 8.26 ± 0.07 kg of green fodder per day on dry matter basis (Table 1). Consumption of sorghum silage was slightly higher than green fodder. However, the difference in forage intake by both the groups was statistically non-significant. These results almost agree with the findings of Motta *et al.* (1980) who observed no significant difference among different feeds when fed to Holstein Friesian x Gir cows. The amount of concentrate consumed by the two groups (A & B) was 3.01 ± 0.02 and 2.97 ± 0.02 kg respectively. The statistical analysis revealed that concentrate consumption was significantly higher in group A as compared to that of group B. These results are in agreement with those of Rivero and Combellas (1983) who showed that average daily milk yield was higher with 9.0 kg concentrate compared to 5.0 kg supplemented with sorghum silage fed *ad libitum*.

Milk yield: The buffaloes in group A given sorghum silage produced on an average 7.47 ± 0.04 kg of milk, while those in group B fed green fodder, yielded 7.28 ± 0.05 kg of uncorrected milk per day. On the other hand, silage fed group produced 9.39 ± 0.06 kg and the green fodder group yielded 9.08 ± 0.06 kg of FCM milk daily. The results of the present study are in agreement with those of Bertilsson (1987).

Table 1. Average feed consumption and milk yield of buffaloes fed sorghum silage and sorghum fodder

Particulars	Sorghum silage (kg)	Sorghum fodder (kg)
Silage	8.49 0.08	-
Green fodder	-	8.26 0.07
Concentrate	3.01 0.02	2.97 0.02
Daily milk yield (As such basis)	7.47 0.04	7.28 0.05
Daily milk yield (FCM basis)	9.39 0.06	9.08 0.06

Milk Composition

Butter fat: The values for butter fat contents in case of silage group were slightly higher as compared to those of animals given green fodder. The analysis of variance for fat contents revealed non-significant difference. The results of the present study are in line with those reported by Ghebriel *et al.* (1981) who treated forage sorghum with NaOH at 4% of dry matter.

Protein: Statistically there was non-significant difference in milk protein contents in both groups of animals which were fed sorghum silage and green fodder as shown in Table 2. The findings of this study are supported by Schwarz and Kirchgessner

(1982) who reported that daily milk yield, fat or protein contents remain the same by feeding silage.

Table 2.Average milk composition of buffaloes fed sorghum silage and sorghum fodder

Particulars	Sorghum silage		Sorghum fodder	
Fat (%)	5.08	0.10	5.74	0.10
Protein (%)	4.67	0.08	4.78	0.07
Total solids (%)	5.15	0.12	15.14	0.12
Solids-not-fat (%)	9.35	0.06	9.40	0.05

Total solids and solids-not-fat: On analysing the data of both the groups, it was found that the difference in total solids and solids-not-fat contents in the milk was non-significant. These observations are in accordance with those of Motta *et al.* (1980) who observed that total solids and solids-not-fat were not significantly different if maize silage was supplemented with cottonseed oil meal.

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