



Effect of mineral mixture feeding on milk yield in buffalo

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ABSTRACT : A field study was conducted in Ghaziabad district to observe the effect of mineral mixture feeding on milk yield in Buffalo. Animals were selected randomly from 5 villages of Ghaziabad (U.P.) (Muradnagar, Noorpur, Kanoja, Kusalia, and Badka). 20 Buffaloes were selected in their 2nd and 3rd stage of lactation and divided into two groups of 10 animals each. First group (T) was fed with 60 g mineral mixture daily till 90 days of lactation. Other group (C) of 10 animals were not fed additional mineral mixture, which is farmers practice in that particular area. The farmers were not fed scientific method of feeding. They could not added proper quantity of mineral mixture in balance ration. To keeping in mind a trial was conducted in Ghaziabad district since 2016-17 (2017-18). Milk yield of these animals was recorded by their owners and these values were averaged for fortnightly interval. Milk production parameters like average daily milk yield, peak yield and total milk yield were compared between treatment and control groups. It was observed that average daily milk yield, peak yield and total milk yield were found significantly ($P < 0.05$) higher by 11.04, 12.37 and 11.61 per cent in mineral mixture fed group than control group. On the basis of this, it is recommended that continuous feeding of mineral mixture bettered performance of milk yield in buffaloes.

KEY WORDS : Mineral mixture, Feeding on milk yield, Buffalo

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INTRODUCTION

India is the first in milk producing country in the world accounting for 18.5 per cent of world milk production and achieving an annual output of 146.3 million tones during 2014-15, with a growth of 6.26 per cent. However, in other aspect present level of buffaloes milk in Western U.P. is very low, under production is mainly result of involuntary culling due to poor body condition, low fertility and some health issue, eventually it affects profitability from the animals. The balanced nutrition is very essential for keeping animal body in good condition and renders them to maintain their optimum production out of all

nutrients minerals and vitamin play a crucial role in metabolism, location, reproduction and even for microbial fermentation in rumen (Bhannderi *et al.*, 2014).

Most of the animals in developing countries including India are fed on agriculture by products and low quality crop residues, which have got low inherent, low nutritive value and digestibility. High producing buffaloes in early lactation do not consume sufficient dry matter to support maximum production of milk (Goff and Horst, 1997). Demand for energy is very high during early stage of lactation but supply is not commensurate with demand due physiological stage or limited intake may affects production potential of animal in the whole lactation length (Sirohi *et al.*, 2010).

Problem of mineral deficiency and metabolic disease in all categories of dairy livestock have been reported by many Scientist due to lower content and low bioavailability of some essential macro and micro mineral in different

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feed stuffs. Regular feeding of mineral mixture supplement have reportedly improved milk yield in some parts of India (Tiwari *et al.*, 2013). The present study was conducted to observe the effect of mineral mixture feeding on milk yield of buffalo over a period of 90 days.

MATERIAL AND METHODS

Twenty buffaloes (10 in treatment group, 10 in control group) were selected randomly from 5 villages of Western U.P. in Ghaziabad district (Muradnagar, Noorpur, Kanuoja, Kusalia, Badka) during the study period (October 2016 to December 2017).

All the animals were selected at a comparable stage of lactation *i.e.* within first month of lactation and were maintained under similar management conditions throughout the trial. Animals from treatment group were fed mineral mixture (Table A) at the rate of 60 g/animal/day for a period of 3 months, whereas animals from control group were not fed supplemented, milk yield of these animal was recorded by their dairy farmer and these value were averaged daily milk yield, peak yield, total milk yield, milk fat percentage, SNF percentage, total milk solid and 90 days milk production (lit) was noted regularly in whole experiment period of 3 months. Forthightly analysis of milk sample was done to find out composition of the milk. The data recorded on various parameters were analyzed for statistical difference by analysis of variance (Snedecor and Cochran, 1989) and Duncan's multiple range test (Duncan, 1995).

On the basis of this, it is recommended that continuous feeding of mineral mixture bettered performance of milk yield in buffaloes.

Source	Weight (in kg)
Dicalcium phosphate	55 kg
Calcium carbonate	30 kg
Ferrous sulphate	2 kg
Magnesium sulphate	10 kg
Copper sulphate	0.5 kg
Manganese sulphate	0.5 kg
Zinc sulphate	0.5 kg

RESULTS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

Milk yield parameter:

The observation was recorded for milk yield and their composition and data presented in Table 1.

It was observed that average daily milk yield was found significant ($P < 0.05$) higher in treatment group than the control group. Beside this, treated animals were produced significantly ($P < 0.05$) higher total milk yield for 90 days than the control group. Noeek *et al.* (2006) has also found higher milk yield in mineral supplementation group of buffaloes. Average daily milk yield and total milk yield was found higher in treatment group over control group by 11.61 per cent and 15.00 per cent, respectively.

Table 1 : Effect of mineral mixture on milk yield parameter in buffaloes (Mean \pm SE)

Milk yield parameter	Treatment (T)	Control (C)
Average daily milk yield (lit)	11.4 \pm 1.62	9.6 \pm 1.42
Peak milk yield (lit)	12.37 \pm 0.17	10.77 \pm 0.30
Time laps to reach peak yield (day)	31.2 \pm 1.12	23.5 \pm 1.25
Total milk yield for 90 day (lit)	980 \pm 0.92	878 \pm 1.25
Average milk fat %	7.84 \pm 0.37	7.02 \pm 0.34
Average milk SNF %	9.59 \pm 0.10	9.24 \pm 0.78
Total solid in milk	18.02 \pm 0.17	17.57 \pm 0.18

Singh *et al.* (2016) also reported same result of improved milk production in mineral fed buffaloes. The recorded peak milk production in treatment group was also found significantly ($p < 0.05$) higher in treatment group. However, time laps to achieve peak production was found non-significant higher in treatment group. It mean buffalo fed with mineral mixture was getting more time in her peak production but these buffaloes were found more persist in nature. The treatment group buffaloes were able to hold per peak yield for longer duration than the control group. Result indicating that feeding of mineral mixture could improve milk production potential of buffaloes due to having impact on the milk production cells in the udder. Their micro and macro element contribute in the working of memory cell to enhance their production. These finding is in full agreement with Rohilla and Bohra (2007) observation.

Average percentage of milk fat was found non-significantly higher in treatment group (7.84%) than the control group (7.02%). The percentage SNF and total solid of milk (TS) was followed the same trend as the parameters were found non-significantly higher in mineral fed group than the control group. These finding was comparable with result obtained by Verma *et al.* (2009).

Conclusion:

It could be recommended that supplementation of mineral mixture in milking buffaloes improve their health and production potential, so with its supplementation farmer can earn more profit from their buffaloes.

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