



Effect of Supplementation TANUVAS Mineral Mixture on Productive Performance of Cross Bred Dairy Cows

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Abstract: The experiment was carried out to study the effect of TANUVAS mineral mixture supplementation on milk yield and milk composition of cross bred dairy cattle in Tiruppur district of Tamil Nadu. Hundred cross bred cattle's were selected for the experiment in five different villages of Tiruppur district, Tamil Nadu and divided in to two equal groups. Control group animal fed as per farmer's practices and without addition of mineral mixture whereas animals from Treatment group (T1) were fed with supplementary feeding of TANUVAS mineral mixture @ 50 g/d/cow for a period of 60 days. Milk samples were collected and milk composition viz. fat and solid not fat were analysed for control and treatment group. Cattle supplemented with TANUVAS mineral mixture showed increased milk yield to 1.45 litre per day. The fat and solid not fat increased to 1.21 and 0.67 per cent in cattle. Overall the status of the animals was good and healthy while feeding mineral mixture. Hence, dairy farmers need to be advised for mineral mixture of their cattle for getting optimum productivity and benefits.

Key Words: Dairy cattle, TANUVAS mineral mixture, Milk yield, Milk composition

Introduction

India stands first in milk production in the world, largely due to the large population of its dairy animals. However, milk productivity per animal in the world is still very low in India. Therefore improving the productivity of the animals is important. This can be attributed to poor nutritional management leading to several metabolic disorders such as mineral deficiency diseases. The major challenge in dairy industry feeding of dairy cows is to find the right balance of these nutrients which includes minerals to enhance the productive and reproductive performance of the animals. Animals mainly depends minerals from regular feed and fodder, unfortunately the demand is not meet out by regular feeding.

Mineral imbalances occur in cattle due to poor feeding practices and antagonistic effect of minerals. Inadequate supply of mineral elements adversely affects the inherent capacity of animals for optimum production and reproduction. Large number of livestock in many parts of our country consume feedstuffs that do not meet the optimum requirements of these mineral elements.

Sharma et al. (2002) and Sharma et al. (2003) reported that dairy animals with macro- and micro mineral deficiencies were producing milk sub optimally and subsequently showed improved milk production levels post mineral supplementation.

Among livestock, dairy cows are essential asset to the rural people of Tiruppur district in Tamil Nadu those directly linked in agricultural farming for sustainable nutrition and income generation. The optimum productive and reproductive efficiency of livestock could be achieved only if the animal receives required quantity of feedstuffs, all nutrients in proper proportion and good management and comfortable environment. Dietary deficiencies of micro minerals result in failure of the mineral homeostasis mechanism affecting the productive and reproductive potential of the animal. This condition is more prominent with high yielding crossbred dairy cows than the local breeds. Most of the dairy farmers do not supplement the mineral mixture.

Hence, the present study was made to assess the effect of TANUVAS mineral mixture supplementation on milk

yield and milk composition of cross bred dairy animals of Tiruppur district of Tamil Nadu.

Materials and Methods

The present experiment was carried out to study the effect of TANUVAS mineral mixture supplementation in milk yield and milk composition of cross bred dairy cattle maintained under semi - intensive system of management in Tiruppur district of Tamil Nadu under field conditions.

Tanuvras Mineral Mixture

TANUVAS mineral mixture released by Department of Animal Nutrition, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu. The composition of TANUVAS mineral mixture presented in Table 1.

Hundred farmers with single cross bred cattle wereselected randomly in five villages vizAmmapalayam, Ugrayanur, Kattur, Malayampalayam, Valasupalayam in Tiruppur district of Tamil Nadu for this study. All the animals selected were at a comparable stage of lactation i.e. within first to second month of lactation and were maintained under similar management conditions throughout the experiment (within 2- 4 months of lactation stage and calving ranging from 2 nd to 5 th calving)

The study was conducted during the year of 2020-2021. Before conducting the experiment awareness programme on Popularisation of TANUVAS mineral mixture in Dairy cattle were conducted among selected farmers. The dairy cattle were dewormed with Fenbendazole @ 10 mg/kg bodyweight before conducting the experiment in selected cows.

All the 100 selected cows divided in to two equal groups. Control group animal fed as per farmer's practices and without addition of mineral mixture whereas animals from Treatment group (T1) were fed with supplementary feeding of TANUVAS mineral mixture @ 50 gm/day/cow for a period of 60 days.

After conduct the awareness programme in identified villages, 3 kg of TANUVAS mineral mixture were distributed to treatment groups of each selected farmers in five villages. The daily milk yield of these animals were recorded to two weeks after supplementation of mineral mixture for a period of 60 days. Milk sample were

collected after supplementation biweekly for two months. Collected milk samples were analysed fat and SNF percentage.

Results and Discussion

The results of the experiment conducted in dairy cows are described in Table 2. Dairy cattle under treatment group showed improvement in terms of milk yield was 19 percent in 60 days study period when compare to regular farmer practice without mineral mixture supplement. The milk fat (1.21 %) and soild not fat (0.67 %) percentage increased and farmers also received better price for milk.

These findings are similar to those of Senthilkumaret al., (2016) reported increase of milk yield, milk fat Percentage and SNF percentage in dairy cows by supplementation of mineral Mixture in addition to the regular feeding. Tiwari et al. (2013) reported an increase in milk production as well as increased in total lactation length in cattle post area specific mineral mixture supplementation. Hackpartet al. (2010) reported an increase in milk production at supplementation of organic zinc, manganese, copper, and cobalt to the dairy animal at mid-lactation stage of milk production. Khare and Bhagel (2010) reported increase in milk yield of mineral mixture supplemented dairy animals by 0.29l/day and decrease in unsupplemented animals by 0.43l/day during the experiment.

Conclusion

In this study, 50 gm/ day/cow regular supplementation of TANUVAS mineral mixture for 60 days period increased milk yield 1.45 litre per day. The fat and SNF increased to 1.21and 0.67 per cent in cattle. In addition to the increased milk yield and milk quality, the incidence of metabolic disorders and mastitis reduced in their dairy animals by regular supplementation of 50 gram TANUVAS mineral mixture

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Table1. Composition of TANUVAS mineral mixture

S.No.	Minerals	Quantity (Percentage)
1.	Calcium	23
2.	Phosphorus	12
3.	Magnesium	6.5
4.	Iron	0.5
5.	Iodine	0.026
6.	Copper	0.077
7.	Manganese	0.12
8.	Cobalt	0.012
9.	Zinc	0.38
10.	Sulphur	0.5
11.	Fluorine	0.07
12.	Selenium	0.3ppm

Table 2: Performance of TANUVAS mineral mixture in cross bred dairy cattle

Particular	Control group	Treatment group
Milk yield (Lt/day)	7.80 ± 0.23	9.25 ± 0.19
Change in milk yield (Lt/day)		1.45
Change in milk production (%)		19
Milk Fat %	3.72 ± 0.13	4.93 ± 0.146
Milk SNF %	7.48 ± 0.21	8.15 ± 0.28
Gross cost (Rs)	7800	7965
Cross return (Rs)	14200	16650
Net return (Rs)	6600	8685
BC Ratio	1.82	2.09



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