

RESEARCH ARTICLE.....

## Yield of milk and milk constituents of lactating dairy cows fed on paddy straw plus non-forage fibre sources based complete rations having varying levels of neutral detergent fibre

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ABSTRACT..... A study of six months duration was conducted to assess the yield of milk and milk constituents of lactating dairy cows fed on paddy straw plus non-forage fibre sources based complete rations containing different levels of NDF, in two phases, viz., early and mid lactation. Three isonitrogenous and isocaloric complete rations, T<sub>1</sub>, T<sub>2</sub> and T<sub>2</sub> with 25, 30 and 35 per cent NDF, respectively were formulated as per the recommendations of ICAR-NIANP (2013). Paddy straw was the sole source of roughage NDF, in all the three rations. Eighteen dairy cows yielding approximately 10 kg of milk per day were divided into three groups of six each and allotted to the three experimental rations. The average daily milk yield of cows fed on the experimental rations,  $T_1$ ,  $T_2$  and  $T_3$ , in phases I and II were similar (P<0.05), even though the milk yield of the animals tended to increase with increase in NDF content of the ration. The cows fed on ration T<sub>3</sub> attained peak milk yield earlier and had greater persistency of milk yield than cows fed on rations T<sub>2</sub> and T<sub>1</sub>. The yield of four per cent fat corrected milk (FCM), fat and protein yield of cows in phase I was significantly higher for those fed on rations  $T_2$  and  $T_3$ (P<0.05) than T, with T, and T, being similar (P>0.05). All these yields were highest in cows of  $T_{2}$ , followed by  $T_{2}$  and  $T_{1}$ , in descending order, with the values in the three dietary treatments being significantly different (P<0.05), among themselves in phase II as well as the total experiment. A thorough evaluation of the results obtained in the present study, reveal that the animals in all the three dietary treatments performed well, with the complete rations T<sub>2</sub> with 35 per cent NDF and T<sub>2</sub> with 30 per cent NDF, showing better performance than T<sub>1</sub> with 25 per cent NDF. Among T<sub>2</sub> and T<sub>3</sub> which were more or less comparable in milk yield, the cows fed on diet T<sub>2</sub> remained in peak milk yield for longer period than those in T<sub>2</sub>. The cows fed on diet T<sub>2</sub> had a significantly higher (P<0.05) FCM, fat and protein yield in early, mid and total lactation than those fed on the diet  $T_2$ , indicating that  $T_3$  was better than  $T_2$ . These results suggest that complete rations with 25 to 35 per cent NDF, containing paddy straw as the sole source of roughage NDF, can be recommended for use among early and mid lactation dairy cows, with 35 per cent being the ideal NDF level.

**KEY WORDS.....** Complete feeds, NDF, Paddy straw, Milk yield, Fat corrected milk yield, Fat yield, Protein yield, Cows

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