

IMPACT OF BALANCED FEEDING ON MILK PRODUCTION, MILK FAT AND FEEDING COST IN CROSSBRED COWS

D.G. Vaghamashi, V.D. Murkute, P.R. Jangale and A.H. Jotaniya

AMUL Dairy, Anand-388001

E-mail: dgvaghamashi@gmail.com

Abstract: A study was undertaken to investigate the effect of feeding a balanced ration on the fat content of milk and production performance of crossbred cows in Anand district of Gujarat, India. 20 crossbred cow's Milk yield, milk fat and net daily income of milk producers were recorded before and after feeding a balanced ration. On feeding a balanced ration for 12 weeks, there was improvement average daily milk yield from 7.50 to 8.45 kg and milk fat from 3.98 to 4.22% on feeding a balanced ration. This translated into an additional daily monetary benefit of about ` 38 per animal to the milk producers. The study revealed that feeding of a balanced ration helped in improving milk production, fat content of milk and resulted in improve daily income of milk producers.

Keywords: Balanced ration, milk production, crossbred cows, fat, feeding cost.

Introduction

In India, animal husbandry is part of agricultural life and largest animal population size in world. The average daily milk production data at 6.52 kg for crossbreds, 2.10 kg for indigenous cattle and 4.44 kg for buffaloes (NSSO, 2007) suggests that the productivity of these animals is far below their genetic potential. Added to this, the in-milk animals as a percentage of the total breedable population, is also very low. This is attributed in part to the deficiency of critical nutrients in the ration. Low productivity of animals with higher genetic potential can be primarily attributed to the imbalanced and inadequate feeding. The milk price is determined by its fat and SNF content. Sometimes due to low fat and SNF of milk producer had heavy deduction on payment. Quality and quantity of milk are depends on animals genes and feeding practice. Imbalanced feeding leads to excess feeding of some nutrients whist others remain deficient. This not only reduces milk production and increases costs per kg milk, but also affects various physiological functions including long term animal health, fertility and productivity. To ensure improved productivity it is necessary to augment and secure feed resources through short and long term planning. It is also essential that milk producers feed their animals the nutrients in amounts that match the physiological needs and objective of keeping the animal. Keeping these facts in mind, this study was planned to assess

the nutrient status of crossbred cows having balanced and help to improve production and health.

MATERIALS AND METHODS

The present study was conducted in Ration Balancing Programme (RBP) implemented villages of Anand district of Gujarat where total 20 crossbred cows identified. Prevailing feeding practices and milk parameters were measured right at the farmers' doorstep continue for three times once in month. The representative samples of feeds and fodders offered to individual animals were collected for proximate analysis, so the ration of all animals was balanced for crude protein (CP), total digestible nutrient (TDN), calcium and phosphorus using the ration balancing software developed by National Dairy Development Board (NDDB) which is based on NRC (2001) standard. The balanced ration fed to all animals for 12 weeks. After feeding a balanced ration, milk yield and milk fat were recorded every monthly basis.

Feed and fodder samples were analyzed for proximate composition (AOAC, 1995). The milk samples were analyzed for fat at Dairy Co-operative Society (DCS) level. Observations of various parameters recorded during experimental period were tabulated and the data generated were analyzed statistically as per Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

Generally compound cattle feed, maize cake and cottonseed cake were the most commonly used concentrate for feeding crossbred cows by the milk producers in Anand district of Gujarat. Milk producer also fed crushed maize/wheat, rice bran, straw of rice/paddy/wheat and green fodder of maize/jowar/local grasses.

On feeding a balanced ration, average daily milk yield increased ($p>0.05$) from 7.50 to 8.45 kg and milk fat from 3.98 % to 4.22 % (Table 1). The improvement may be due to balancing of nutrients which might have improved rumen environment and maximum utilization of nutrients. Also in balancing ration, essential minerals requirement full fill for better performance. On feeding a balanced ration, dietary energy and protein could be utilized in a more efficient manner in lactating cows (Garg and Bhanderi, 2011). Findings are similar to that of Halдар and Rai (2003) and Bhanderi Et al (2016). Lactating cows' physiology is more demand of minerals because of synthesis of milk and drainage in milk. Supplement of minerals in diet of lactating ruminants has been reported to improve milk yield along with improvement in milk composition. (Kannan et al 2010). The result are in favour with previous reports (Dutta et al 2010 and Khochare et al 2010).

Table 1. Effect of balancing ration on Milk fat, milk yield and feed cost

Particular	Group	
	Before RB	After RB
Milk Fat % *	3.98	4.22
Milk Yield (kg)*	7.50	8.45
Cost of feeding (₹/kg milk)*	18.50	16.84

Values with different superscript in row differ significantly (p<0.05)

There was also reduction in feeding cost from ₹ 18.50 to ₹ 16.84 per kg milk yield in cows. Average increase in daily milk yield by 0.95 kg/animal and fat by 0.24 % resulting in an additional return through sale of milk by ₹ 29.60 per animals. This translated into daily benefit of about ₹ 38/animal to the milk producers. This benefit due to reduce extra feeding wastage and improvement in production performance. Similar finding revealed by Bhanderi 2016.

CONCLUSIONS

This study revealed that feeding a balanced ration helped in improving production performance milk yield and milk composition. Also reduced feeding cost/kg milk yield and improvement in daily income of milk producers.

REFERENCES

- [1] AOAC 1995. *Official Methods of Analysis*. 16th Edn. Association of Official Analytical Chemists, Washington. DC.
- [2] Bhanderi, B.M., Garg, M.R., Goswami Ajay and Shankhpal Sachin. 2016. Effect of feeding balanced ration on solid-not-fat content of milk and production performance of lactating crossbred cows. *Indian J. Anim. Nutr.*33:131-137.
- [3] Dutta, N., Sharma, K., Pattanaik, A.K., Singh, A and Narang, A. 2010. Effect of strategic supplementation of limiting macro-nutrients on lactation performance of buffaloes. In: *Proc. VII Animal Nutrition Association Conference* held at Bhubaneswar, Odisha, India from Dec.17-19, 2010. p27.
- [4] Garg, M.R. and Bhanderi B.M. 2011. Enhancing livestock productivity through balanced feeding. In: *Proc. Livestock Productivity Enhancement with Available Fedd Resources*” from 3rd to 5th November,2011 held at G.B. Pant University of Agriculture and Technlogy, Pantnagar, Uttrakhand, India.pp11-21.

- [5] Halдар, S. and Rai, S.N. 2003. Effect of energy and mineral supplementation on nutrient digestibility and efficiency of milk production in lactating goats. *Indian J. Anim. Nutr.*20:244-251.
- [6] Kannan, A., Garg, M.R. and Singh, P. 2010. Effect of ration balancing on methane emission and milk production in lactating animals under field conditions in Rae Bareli district of Uttar Pradesh. *Indian J. Anim. Nutr.*27:103-108.
- [7] Khochare, A.B., Kank, V.D., Gadegaonkar, G.M. and Salunke, S.C. 2010. Strategic supplementation of limiting nutrients to medium yielding dairy animals at field level. In: *Proc. VII Animal Nutrition Association Conference* held at Bhubaneswar, Odisha, India.p.30.
- [8] NRC 2001. *Nutrient Requirement of Dairy Cattle*.7th rev. edn. National Research Council, National Academy of Science, Washington, DC, USA.
- [9] NSSO. 2007. National Sample Survey Organization. NSSO 61st Round. Livestock productivity and ownership across operational land holding classes in India, Department of Statistics, GOI.
- [10] Snedecor, G.W. and Cochran, W.G. 1994. *Statistical Methods*. 8th edn. Affiliated East-West Press Pvt. Ltd., New Delhi.