



Assessment studies on UMMB licks vs PEM bolus in milch cattle under field conditions

Rakesh Thakur*, Arun Sharma¹ and P.K. Dogra²

CSK Himachal Pradesh Krishi Vishwavidyalaya
Krishi Vigyan Kendra, Kangra-176 001, India.

*Corresponding author: drthpau@gmail.com

Manuscript Received: 04.09.2021; Accepted: 11.11.2021

Abstract

Milk production follows a seasonal fluctuation which corresponds to the availability of green fodder. To sustain milk production during lean season's use of various nutrient dense feed supplements is advocated. In the present study effectiveness of UMMB licks vs PEM bolus was assessed under field conditions. These supplements were provided to milch animals of randomly selected dairy farmers regularly for fifty days and the farmers feedback was collected through personnel interview. The information so generated revealed that both UMMB and PEM supplements were effective in improving milk production but has no apparent impact on body condition. Further in terms of ease of feeding PEM bolus supplementation was reported good while that of UMMB was poor. Farmers also gave the feedback that keeping quality of PEM bolus is not satisfactory and need to be improved.

Key words: UMMB, PEM, body condition, milk production

Rearing of dairy animals is an integral part of hill agriculture. As per census 2012, out of the total 15,72,067 households in Himachal Pradesh, 47% rear cattle and 22% buffaloes. District Kangra with 3,59,129 cattle and 1,49,719 buffaloes is amongst the highest milk producing districts in the state of Himachal Pradesh. In the region grasslands, crop residues and fodder trees constitute the main forage resources as only a very miniscule fraction of the cultivated land is under fodder cultivation. The availability of quality green fodder and hence milk production has marked seasonal variations. To overcome the effect of green fodder shortage and reduction in productivity of milch animals various technologies like silage production, urea molasses mineral brick (UMMB) licks etc has been developed and found to be beneficial for economical milk production in hilly areas (Tripathi *et al.* 2006). These technologies are being increasingly used by progressive dairy farmers. Recently a new protein energy mineral (PEM) bolus has been developed by

CSKHPKV Palampur. The present on-farm testing elucidates the assessment of UMMB licks vs PEM bolus in milch animals during shortage of quality fodder in Kangra district of Himachal Pradesh.

Materials and Methods

Urea molasses mineral brick licks each weighing 2.5 kg and Protein energy mineral bolus each weighing 100 g were procured from Deptt of Animal Nutrition, CSKHPKV Palampur. UMMB contained 30% molasses, 10% urea, 10% cakes, 7.2% salt, 15% mineral mixture, 12.8% wheat bran along with 15% maida (fine quality wheat flour) as binding material. On the other hand PEM bolus comprised of ground barley 30%, ground *taramira* 10%, mineral mixture 25%, molasses 15%, by-pass protein 10% and bentonite 10% as binding material.

UMMB and PEM boluses were supplied randomly to twenty selected progressive dairy farmers each possessing atleast two milch animals. The farmers were advised to daily provide UMMB licks for 5-10 minutes

Present address: Department of Livestock Production Management, DGCN COVAS, CSK HPKV Palampur

¹ Department of Animal Nutrition, DGCN COVAS, CSK HPKV Palampur

² Department of Livestock Production Management, DGCN COVAS, CSK HPKV Palampur

to one milch animal and feed two PEM boluses to the other milch animal regularly for 50 days. The information about its impact on animals body condition, milk production, ease of feeding and overall acceptability was generated through personnel interview and the data so generated was analyzed for estimation of descriptive statistics using SAS (ver 9.3).

Results and Discussion

Body condition: Results revealed that majority of the farmers (14/20) in UMMB and (16/20) in PEM group did not observe any change in body condition of the animal. However, in case of UMMB group 4/20 farmers reported improvement while 2/20 farmers reported downfall in body condition of animals. On the other hand, in case of PEM group, equal number of farmers reported improvement 2/20 and downfall 2/20 in overall body condition. These supplements were provided during shortage of green fodder when majority of animals were fed on low quality crops residues and were in a state of negative protein and energy balance. The present study lasted for only 50 days so no appreciable change in body condition was observed upon supplementation of either UMMB or PEM bolus. These observations are in harmony to those of Sharma *et al.* (2014) who reported no change in body condition of animal upon UMMB supplementation. Some farmers also reported negative effect of UMMB licks on the health of the animals. This might be due to excess consumption of UMMB brick, when provided for licking, which in turn could have created imbalance in rumen digestion.

Table 1. Effect of UMMB licks vs PEM bolus supplementation in milch animals

Parameter		UMMB	PEM bolus
Body condition	Improvement	20 %	10%
	No change	70%	80%
	Downfall	10%	10%
Milk production	Improvement	55%	60%
	No change	40%	40%
	Downfall	5%	0
Ease of feeding	Good	30%	90%
	Poor	70%	10%
Willingness to purchase	Yes	60%	70%
	No	30%	20%
	Not decided	10%	10%
Overall acceptability	Good	Good	

Milk production: Majority of the farmers in both UMMB (11/20) and PEM (12/20) group observed improvement in milk yield of the animal. However, 8/20 farmers for UMMB and 7/20 farmers in PEM group reported no change in milk production. Reduction in milk yield was reported by 1/20 farmer in UMMB group and none in PEM group. Upon further probing among farmers who reported no change in milk production, majority in both groups reported that they did not notice the seasonal fall in milk yield as observed during months of November and December owing to unavailability of green fodder. It indicated that both UMMB and PEM supplementation have positive impact on milk yield especially during non availability of green fodder as reported by Tanwar *et al.* (2013) and Lawania and Khadda (2017) for UMMB.

Ease of feeding: A stark contrast was observed regarding ease of feeding. In case of UMMB licks 16/20 farmers faced difficulty in regulating the amount of UMMB intake by animals and reported it's ease of feeding as poor, while in case of PEM bolus 18/20 farmers reported ease of feeding as good. However 2/20 farmers in PEM group also reported that the boluses were hard and the animal faced difficulty in consumption. Some of the farmers in UMMB group broke the brick into small pieces for easy feeding to their animals. National dairy development board has developed UMMB dispenser which restricts UMMB intake to lick only and prevent biting and over feeding by animals (Anonymous, 2011). Such dispensers may be adopted where available for improving ease of feeding of UMMB.

Willingness to purchase: Farmers were willing to purchase UMMB 60% and PEM bolus 70% for supplementing their animals feeding especially during limited availability of green fodder. As the availability of these inputs/products is limited, so hand on training to farmers may be imparted so that some entrepreneurs may start producing these products (UMMB/PEM bolus) and improve their availability in rural areas.

Overall acceptability and farmer feedback: Overall acceptability of technology is good for both UMMB and PEM bolus but the keeping and packaging quality of PEM bolus need to be strengthened as it readily absorbs moisture which facilitates mould and fungal growth and in turn reduce the presentation of these

PEM boluses. Packing of PEM bolus in polybags like those of UMMB may be helpful in improving the keeping quality of PEM bolus.

Conclusion

Thus it may be concluded that both UMMB and PEM bolus supplementation are effective in

improving animal productivity during scarcity of green fodder but their availability/access among rural farmers need to be strengthened. Further, among UMMB and PEM bolus, the latter is easy to feed but its packing needs to be improved.

Conflict of interest: There is no conflict of interest in this research paper among the authors.

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