



# Feeding of UMMB Licks to Dairy Animals: A Farmers' Reactive Study

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## ABSTRACT

Livestock sector has significant contribution in GDP of India. India ranks first in milk production but this is attributed to large livestock population and not to the productivity. However, the average livestock productivity in India is quite low due to low genetic potential, poor nutrition and poor management of animals. Poor nutrition is due to unavailability of green fodder throughout the year. In order to provide the balanced nutrition to the dairy animals, urea molasses mineral block (UMMB) lick technology can play a major role but the adoption of this technology is low. The Krishi Vigyan Kendra made an attempt to popularize this technology amongst dairy farmers of district Kapurthala. Farmers were provided with UMMB licks and were asked to observe the effect of its feeding on the dry matter intake, water consumption, milk production and overall health status of their animals. After three months of UMMB feeding, a study was carried out to know the reactions of the farmers. Results of the study showed that with the use of UMMB licks, milk yield and fat percentage increased in 44.0 and 11.5 per cent cases, respectively. Similarly, farmers observed improvement in the dry matter intake (73.1%) and water intake (46.5%). More than eighty per cent of the dairy farmers were satisfied with this technology. The results of the technology were almost immediate and observable. It was concluded that farmers are ready to adopt this technology but availability of UMMB licks, as and when required, due to limited production is hindrance in its adoption. It was suggested that farmers should be trained in the preparation of UMMB licks for enhancing the adoption of this technology.

**Key Words:** Feeding , Dairy animals, Farmers, UMMB, Milk production, Water intake.

## INTRODUCTION

India has the largest population of dairy animals and is largest producer of milk in the world. The livestock sector in India contributes to the rural economy by providing milk, meat, wool, manure, urine energy etc. This sector provides an avenue for huge self-employment especially for rural youth. This is evident by the fact that more than 50 per cent of the rural population is engaged in rearing of livestock and its contribution in the total GDP is estimated to be about 9.0 per cent, which itself depicts its valuable contribution to socio-economic upliftment of the downtrodden section of the society.

According to Ingavale (2012) dairy sector in India is characterized by large number of cattle

and low productivity. Though India has largest dairy animal population, the average productivity of milch animals is quite low but the demand of milk is increasing day by day and is expected to reach 180 MT by 2020. For this, annual growth rate of milk production needs to be increased from present level of 2.5 per cent to 5.0 per cent (Bhattu *et al*, 2013). The low milk yield is mainly attributed to low genetic potential for milk production, poor nutrition and poor management and care of the animals. Dairy animals in India are fed on poor quality crop residues, which are not only deficient in nitrogen, minerals and vitamins, but also have poor digestibility due to presence of lignin in them. Hence, proper feeding of the animals is essential for improving their

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production potential. Most of the small-scale dairy farmers' animals survive on crop residues namely rice straw, wheat straw, maize stalks and natural herbage like grass, tree leaves etc. Such feeding practice does not provide adequate nutrients to the animals for improving their growth and exploiting their full production potential. In general, low quality crop residues are deficient in fermentable nitrogen, carbohydrates and important minerals. Thus, prevailing practices of keeping dairy animals solely on wheat straw and a small amount of poor grade concentrate is not satisfactory.

For supplementing the poor diet such as wheat straw / paddy straw or any other crop residue-based diet of large and small ruminants, the use of urea molasses mineral block (UMMB) licks has been recommended by many livestock researchers. The main aim is to improve the nutritive value of the traditional straw-based diet, which promotes healthy growth and milk productivity of dairy animals.

Further, ruminants have the unique ability to convert non-protein nitrogen (NPN) compounds in their diet to a microbial protein of high biological value. Considering these facts, UMMB was developed to supplement the diet of ruminants fed on poor quality roughages. As the name suggests, these blocks contain urea, molasses, minerals and binding agent. The benefits of using UMMB are well documented by various researchers. However, research on fate of UMMB licks technology at farmers' field, particularly among dairy farmers in developing countries is very limited. Even in India, where UMMB production technology was introduced in the co-operative dairy sector in 1984, research on impact of this technology at field conditions is very limited.

Therefore, present study focusing on impact of technology at field level and its adoption among dairy farmers was planned. Efforts were made to get feedback from dairy farmers about the utility of UMMB licks in the daily feeding schedule of animals and its effects on dry matter, water intake, milk production and overall health status of animals kept at their homes. Specifically, an attempt was made to study the reaction of dairy farmers towards UMMB lick technology in order to find out whether there is a need to change or

modify the technology, extension and popularization methods and also the approach to developing such technology. This on farm study was conducted to study the impact of UMMB licks on of milch animals, reactions of the farmers towards UMMB lick technology and the feeding strategy used by the dairy farmers.

## MATERIALS AND METHODS

This on farm study to evaluate impact of UMMB licks on animals, its adoption and reaction of farmers towards this technology was conducted in the year 2012-13 in Kapurthala district of Punjab (India). Data were collected from eight villages. Two villages each from four blocks of Kapurthala district viz; Dhilwan, Kapurthala, Phagwara and Sultanpur Lodhi were purposively selected where dairy farmers were made available UMMB licks for feeding to their milch animals. Reactions of the farmers who were provided these UMMB licks were solicited by purposively developed interview schedule. Data were collected by conducting interviews telephonically. To know the reaction of farmers about impact of UMMB licks on milk yield, fat percentage, feed and water intake, animal health etc., a total of 25 farmers from each selected village were randomly interviewed. Thus, data from 200 famers were collected using semi-structured interview schedule. Data for 400 animals (two animals per farmer) were collected during the study. Farmers were also interviewed about feeding strategy used by them.

## RESULTS AND DISCUSSION

After conducting demonstrations on supplementing UMMB in daily feeding schedule of crossbred cows and buffaloes, the owners of the dairy farms were interviewed to know the effects of UMMB licking on fodder consumption, water intake, milk yield, milk fat and overall health status of their animals.

### Effects on water intake and dry matter consumption

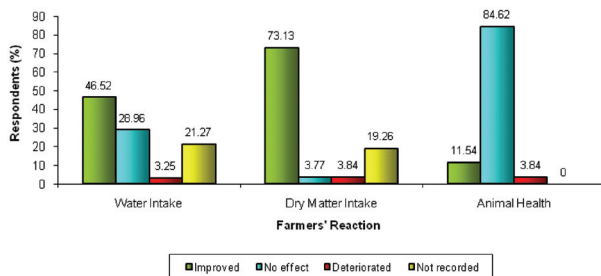
During the investigation, majority of the respondent farmers (46.5 %) reported that water intake was increased whereas only 28.9 per cent of the respondent farmers had indifferent reaction about effect of UMMB feeding on water intake in

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dairy animals. On the other hand, about 21 per cent of them did not take note of water consumption. Similarly, majority of the respondent farmers (73.1%) reported that animals had higher dry matter intake with the use of UMMB licks. Only about 4 per cent of the respondent farmers reported that it has no effect on dry matter intake. About twenty per cent had no record on this account (Fig 1).

### Impact on animal health

As data pertain to the use of UMMB licks for three months only, no significant impact of UMMB licks on animal health could be found (Fig 1). Large numbers of respondent farmers (84.6%), therefore, were indifferent about the effect of UMMB licks on animal health. About twelve per cent respondent farmers reported positive effect of this technology on the health of dairy animals under study. Only about 4 per cent of respondent farmers observed negative effect of use of UMMB licks on the health of the animals. This was probably due to the fact that the animals could take large amount of UMMB lick, when provided *ad lib.* and thus could have created imbalance in rumen digestion.



**Fig 1: Reaction of farmers about impact of UMMB licks on dairy animal (n =200)**

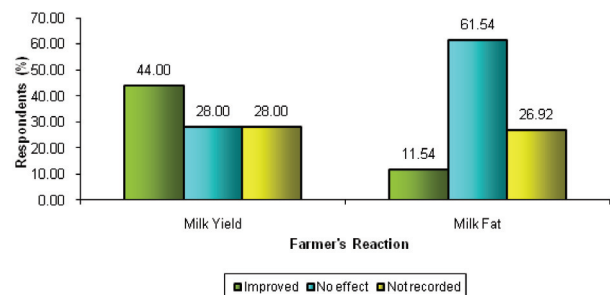
### Effect on milk yield

Majority of the respondent farmers (44.0%) informed that there was an increase in the milk yield varying from 0.5 kg. to 2.0 kg./d/animal whereas 28.0 per cent of them were indifferent about the effect of UMMB licks feeding on milk yield. Increase in milk yield from 1.0 to 1.5 kg was also reported by Chen *et al* (1993). On further probe from the respondents who were indifferent about effect on milk yield, about 71.0 per cent of them realized that unlike previous years there was no reduction in the milk yield especially during hot months (April to June). This means that

feeding of UMMB helped in sustaining the milk yield in milch animals during the period when there was a shortage of green fodder and thus reduced dry matter intake. Farmers reported that use of UMMB licks with wheat straw was able to maintain milk yield equivalent to yield obtained when animal was fed on berseem fodder. Thus, by supplementing UMMB, the farmers could harvest a yield similar to that of green fodder feeding. Researches have revealed that wheat straw along with UMMB licks is able to provide maintenance energy to maintain the health of dairy animals. Perhaps that's why the animals were able to maintain milk yield in absence of green fodder. Only eight per cent of the respondent farmers informed that there was no effect of feeding UMMB on the milk yield. Since at most of the dairy farms, major dairy farm operations are being performed by hired casual labourers, so 28.0 per cent farmers reported that they did not record the milk yield but were happy with the performance due to the fact that they were of the opinion that animals relished the taste of UMMB (Fig 2).

### Effect on milk fat

There is an inverse relationship between milk fat and milk yield. This is evident from the farmers' observations as only 11.5 per cent respondent farmers informed that fat percentage increased whereas 44.0 per cent farmers informed that milk yield increased. Similarly, 61.5 per cent of them observed that fat percentage remained same and 28.0 per cent informed that milk yield remained same (Fig 2).



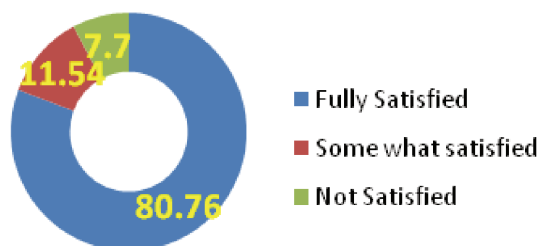
**Figure 2 : Reaction of farmers about impact of using UMMB licks on milk yield and fat percentage**

### Reaction of Dairy Farmers towards UMMB licks technology

It is very important for the research scientists as well as extension workers to know the fate of technologies generated and transferred by them

among the end users. With this concept in mind, effort was made to know about the satisfaction level reached by the dairy farmers after making use of UMMB in the daily feeding schedule of milch animals.

It was noticed that about 81.0 per cent of respondent farmers were fully satisfied with the results obtained and had adopted this technology (Fig 3). That's why all of them were ready to purchase UMMB from the suppliers at their own level. Non-availability of UMMB licks as and when required by the farmers was observed as the major hindrance in the adoption of this technology. Only about 8.0 per cent respondent farmers were not satisfied. Moreover, these were the farmers who had adopted wrong strategy to feed the animals. However, about 12.0 per cent farmers were found to be partially satisfied.



**Fig 3 : Satisfaction level of farmers about the utility of UMMB licks (n =200)**

**Feeding strategy used by farmers**

Licking of licks was normal almost in all the animals. In some cases, initially animals did not start licking. Farmers fed licks by mixing in animal feed. In some cases there was over feeding by the animals. Researches have proved the variation in lick intake mainly due to the composition and degree of hardness of the block. Texture of the block as well as energy and protein content of the basal diet also influence daily intake. Thus, the feeding strategy used by the farmers can be a single deciding factor in the adoption decision making process of dairy farmers. It is evident from Table 1 that majority of respondent farmers (53.0 %) kept the full block of 3 kg in the manger of animal and did not monitor its consumption. Twenty one per cent of them kept full UMMB licks for a specific time for consumption of animals. This feeding strategy resulted in over consumption of licks by animals. It is important to mention that accidentally the animal (cows) of one farmer took about more than

1 kg UMMB and did not take feed for about next 3 days. During this follow up study, it was found that in totality only those farmers were not satisfied with this technology where animals over fed the licks. Moreover, in all the cases over feeding occurred in cows only. Nearly one fourth (26.0%) of the respondent farmers used specific size pieces for feeding of their animals. All these dairy farmers were satisfied with the UMMB technology.

**Table 1: Feeding strategy of UMMB licks used by the farmers (n =200).**

Feeding strategy	Number of respondents	Percentage of respondents
Full brick	106	53
Pieces	52	26
Full brick for specific time	42	21
<b>Total</b>	<b>200</b>	<b>100</b>

**Reasons for Quick Adoption**

The characteristics of any technology as perceived by the potential adaptors play an important role in its adoption by them. An effort was also made in this study to know the farmers' reactions about different characteristics of UMMB licks. This technology has favourable characteristics, which an innovation should have (Table 2). The feeding of lick was found to be convenient by majority of the respondent dairy farmers (93.0%). Further, these blocks were easy to transport and store as perceived by about 90.0 per cent of respondent farmers. Results of UMMB feeding were quite observable as evident from reactions of respondents about its impact on water intake, dry matter intake and ultimately on milk yield discussed above. Thus, farmers found feeding of the blocks a convenient and inexpensive method of providing a range of nutrients required by the animal, which may be deficient in their current diet. From manufacturers point of view, these licks are easy to prepare and convenient to pack.

**Table 2: Characteristics of UMMB licks as perceived by the farmers (n =200).**

Characteristics	Number of respondents	Percentage of respondents
Easy to transport	186	93
Easy to store	180	90
Convenient to feed the animals	180	90

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### CONCLUSION

The technologies developed by research scientists at experimental stations are transferred to farmers' field by extension personnel. These technologies are of importance only when farmers find it useful in the field conditions. A farmer will accept a new technology only if he is convinced that the method is suitable and profitable to him. The diffusion of innovation to small farmers, even if they are appropriate, is one of the most difficult tasks of research and extension personnel. The technologies evolved in the field of animal nutrition have far-reaching consequences in bringing socio-economic transformation of the rural and urban dairy owners of this country. The UMMB lick technology has potential to improve the productivity of animals. Majority of the respondent dairy farmers found it useful at their farms as results were immediate and observable. Few cases of negative effect of feeding of UMMB licks on water intake, dry matter intake and animal health might be due to intake of large amount of UMMB lick, when provided *ad lib*. Thus, non-availability of UMMB licks and wrong feeding strategies used by farmers may hinder adoption of the technology. Though the numbers of

respondents with negative effect were less, the extension personnel should keep in mind that few cases of negative impact can ruin the fruits of positive impact. Accordingly, the extension personnel should properly demonstrate the right way of offering UMMB licks to the animals to avoid such negativism. As limited availability of the UMMB licks is the major hindrance in the adoption of this technology. There is need to train the farmers in preparation of UMMB licks so that this technology could reach at the door steps of each and every dairy farmers and milk productivity could be enhanced.

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Received on 22-12-2013 Accepted on 14-03-2014