

## **Palatability Test on Animals**

Having been successful in preparing a hard and reasonably low cost UMB at the Feed Mixing Plant, it became necessary to find out its acceptability to farm animals. It was also essential to determine the level of UMB intake by the animals. In principle, the daily intake of UMB should support and maximise the

activities of rumen microbes for efficient digestion of fibrous diets. In other words, the level of UMB intake should be such that the requirement of rumen microbes for essential nutrients is met at all times. It is also equally important that the level of UMB intake should not exceed a certain limit which leads to urea/ammonia toxicity in animals. Therefore palatability tests were conducted on farm animals to determine the level of intake and also to note any adverse effects. For this purpose about 50 oven-dried UMBs, each weighing about 2.7 to 3 kg, were prepared.

### Laboratory Animals

Four laboratory rams and two bulls fed on fibrous diets were individually given UMBs to lick at will for eight days. The weight of each block was recorded every morning. Rumen fluids were drawn from each of the two fistulated rams and bulls before and after supplementation of UMB to determine the ammonia concentration in the rumen of each animal. (The level of ammonia in the rumen indicates whether the animal in question requires an extra amount of dietary nitrogen or not). It is generally regarded that when the ruminal ammonia falls below 100 mg/litre of rumen liquid, it indicates that the animal requires additional dietary nitrogen for the normal functioning of rumen microbes (Preston and Leng 1987). However, the optimum level of rumen ammonia for maximum microbial fermentation was reported to be above 200mg/litre of rumen fluid (Mehrez et al. 1977). The recorded results of the daily intake of UMB and ruminal ammonia concentration are given in Table 3.

**Table 3: UMB Intake and Ammonia Concentration in the Rumen of Laboratory Animals**

	Sheep	Bulls
1. UMB intake, I/h/d	147.5	1120
2. Ruminal ammonia concentration (mg/litre of rumen fluid)		
(a) Before supplementation	129.5	121
(b) After supplementation	195.0	210

Note: The animals were fed daily on shunted orchard grass supplemented with cattle concentrate @ 0.5 kg for sheep and 1.0 kg for bulls.

### Farm Animals

In another observation, it took about four days for 14 adult sheep housed in a group to finish a 6.1 kg block. All the sheep showed great interest the UMB and most of them licked it immediately. The UMBs were also individually given to four Jersey cross-bred dairy cows at Wangchutaba Dairy Farm for five days. All cows were fed on paddy straw with some concentrate supplements and produced about two to three litres of milk daily. The sheep and dairy cows took a consistent daily intake of 109 and 925 grammes per head and no deleterious effects of urea toxicity were noticed in the animals.

The daily consumption of urea during the short-term UMB palatability test was recorded at 13.3, 84, and 101 grammes for sheep, cows, and bulls respectively. For large ruminants the urea intake can be as high as 300 grammes/day (Preston and Leng 1987). It has also been claimed that there is little risk of urea toxicity when urea is given with readily fermentable energy in the form of a molasses' block.

The energy and protein supplied by the above levels of UMB intake by farm animals are shown in Table 4, where it can be noted that a large part of the crude protein (CP) required for body maintenance is met through the use of UMB supplement. It can also be noted that the energy supplied by the UMB was small in comparison to the total energy required for body maintenance. However, this small amount of energy plays a crucial role in stimulating the rumen microbes for better digestion of fibrous material.