

## **APPENDIX 5**

### **IN CASE OF POISONING DUE TO THE UREA**

**Cases of poisoning** of the animals due to consuming multinutrient blocks or treated forages are **generally very rare**, indeed they should be nil if the instructions concerning their utilisation are followed. The few cases which the authors have encountered were mainly caused by one of the following reasons:

- ingestion of a solution of urea by thirsty animals;
- voluntary feeding from damp treated straw by animals which were not yet adapted and were hungry (often animals from the neighbourhood which have managed to reach a stack or silo which was not fenced in or was open);
- excessive feeding from multinutrient blocks which were too soft.

#### **The mechanism of poisoning (Figure 8)**

A high rate of ingestion of urea, or indeed any other non protein source of nitrogen, particularly by an animal which is not adapted, causes high concentrations of ammonia ( $\text{NH}_3$ ) in the rumen fluid and as a result, an intoxication following absorption of this ammonia into the blood stream if the concentration is too high. This is what happens in the case of an animal which is not adapted, when it ingests a large amount of treated straw (particularly if the straw contains a lot of residual urea such as can occur at the bottom of the silo).

An animal which drinks a good gulp of urea solution which has been prepared for treatment stands a high risk of dying through intoxication; in effect:

- the concentration of urea in the solution is about 10 % (5 kg of urea in 50 litres of water) and so ingesting a litre of this solution by a small ruminant would give a consumption of 100 g of urea whereas, following the standard feeding instructions, it should only receive 15 g of urea per day (adult sheep and goats fed on a basic ration of low quality forages);
- the ingestion rate has been abrupt, whereas it should be ingested throughout the day.

## Symptoms

In the case of slight intoxication, the animal's breathing becomes difficult and halting, with perhaps colic and a blowing up of the belly being noticeable.

In the case of severe poisoning, the animal is ill at ease and looks exhausted, its skin and muscles tremble, it salivates excessively and its movements are poorly coordinated. The first symptoms often appear only 20 minutes following the intake and if first aid is not applied immediately or if the urea intake is too great, it can die within an hour or an hour and a half after the start of these spasms.

## Treatment for the poisoning

The treatments most commonly used and which give the best results consist in administering acids to the rumen through the mouth so as to reduce the pH and slow down the transmission of the urea in the rumen through to the blood stream. These treatments are efficient as long as they are administered as soon as the symptoms appear:

- a solution of alcohol vinegar of 50 % (half commercial vinegar, half water). This should preferably be administered through the mouth, 3 to 4 litres for cattle or buffalo and between 0.5 and 1 litre for a small ruminant.
- administration of lemon juice or sour milk (this has been shown to be efficient in Niger, for example).