

# MEDICINE AND MANAGEMENT

By CARL TROOP, VMD



## Urea feeding requires caution

**EDITOR'S NOTE:** The concluding portions of *Medicine and Management* appearing in last week's issue were unintentionally omitted. Titled "Urea may lead to profits and death," the missing portions considered areas of urea feeding which should be managed with caution. With apologies for any inconvenience our error may have caused, we're reprinting the vet column in its entirety.

Urea can also be a poison when added to rations in excess or not well mixed and should be handled with care. Urea plus molasses liquid formulations can be particularly toxic when fed free choice to undernourished cattle without adequate roughage.

Signs of urea toxicity or poisoning develops very rapidly, usually within 30 to 60 minutes after ingestion of too much urea, which may include gasping, excessive salivation, grinding of teeth, incoordination, weakness

and collapse. Death often occurs within a matter of hours.

As with most things, there is no way to say whether feeding urea would be of benefit as a hard and fast rule. The answer would vary with each and every different feeding program and costs of the products involved. One must weigh the benefits, the possible bad effects and remember, if the decision is made to feed urea, feed management must be constantly and carefully watched to avoid potential problems.

Summer is past history and Fall is well upon us. There are two very critical jobs to be accomplished during these transition months between the growing season of Summer and the feeding season of Winter. One task is the culmination of the harvest which started in early Spring with Winter rye, proceeded through the Summer with small grains and hay, silage harvest of

early Fall, and finally the corn grain and soybeans before the snow starts to fly. The other task occurs as the farmer stands back, takes stock of the feed he has been able to produce himself, and decides what is going to be necessary to purchase to supplement his home grown feeds.

The largest cash outlay for purchased feed is by far protein, and this is the area farmers most often look to when cutting corners or cutting costs. However, the management decisions as to whether to substitute non-protein-nitrogen (NPN) sources for vegetable protein requires a completely different line of thought than it did a few years ago. In the "good ole days" (and this was not too many years ago) urea was cheap and could always be substituted for vegetable protein at a substantial savings. Now with the increased cost of urea and the rollercoaster prices of

vegetable protein, one must use his calculator to decide if substitution of a NPN source is economical at any one particular time, and this may change several times during a year.

Protein is made up of smaller units called amino acids which in turn are made up of several elements including nitrogen, which is essential. Most animal's requirement of protein must be satisfied by ingesting the intact protein or amino acids. It was discovered in 1891 that the bacteria and protozoa of the rumen can use non-protein nitrogen for the formation of protein. As the rumen microorganisms multiply they manufacture their own body protein, mostly from the raw

material of the ration ingested. This bacterial and protozoal protein may then be digested in the stomach and intestine of the ruminant host. So bacteria can take nitrogen from a non protein source such as urea, combine it with certain carbohydrates to form protein, which is then available to the host animal. Early research resulted in usage of non protein sources of nitrogen in the livestock industry starting during World War II. The question of whether or not to feed urea or other non protein nitrogen source as a substitute for some of the natural vegetable protein must be made on more than just economic considerations. There are many who would never feed urea and feel that urea itself is harmful and can cause problems.

The facts are that urea can be a cheaper substitute for protein rich feeds or supplements (depending on the prevailing prices) for any animal with an actively functioning rumen, excluding young calves but including cattle, sheep, goats, camels, deer, giraffes, and buffalo. However extreme care must be exercised to successfully feed non protein nitrogen. When feeding NPN you are substituting a simple synthetic nitrogen containing compound for some natural

vegetable protein which also contains vitamins, minerals, carbohydrates etc. Such a NPN ration should thus be suitably fortified to insure adequate phosphorus, trace minerals, sulfur and soluble carbohydrates (starches and sugars) so as to provide the rumen organisms adequate building blocks to combine with the nitrogen to make the protein.

Urea must be fed only to a limited degree, most figures being given at about three per cent of the concentrate. Since rumen organisms must adjust gradually to urea feeds, introduction should be gradual, usually three to four weeks being adequate.

### CONSUMER GUIDELINES



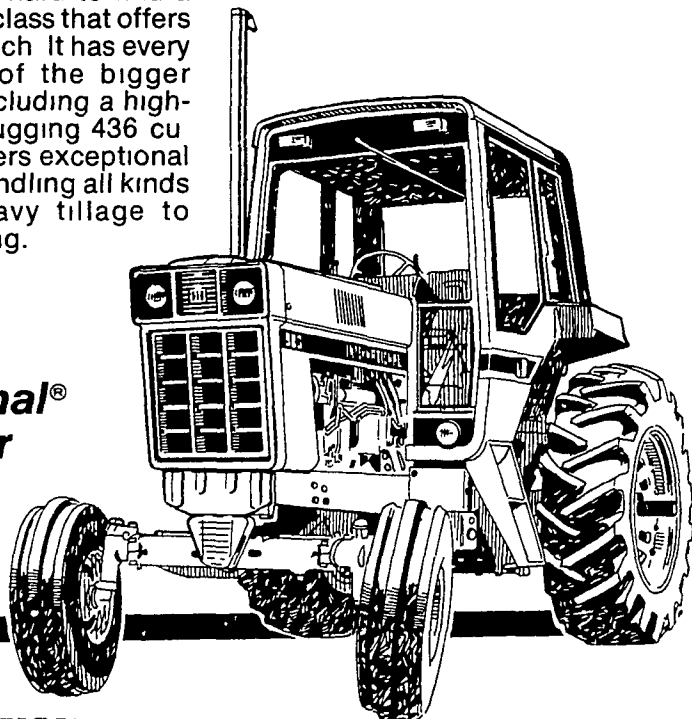
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