

NPN Takes Care of the Bugs

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Urea has become a bad word for cattle producers in central Montana. This is largely due to the misconception that protein supplements containing urea are being fed to cattle. That is not the case. Protein supplements feed bugs.

The microbes within the rumen are the number one source of protein for cattle. These bugs help digest the ration and are absorbed through the small intestine as protein. Increasing microbial population allows more efficient body score maintenance.

Microbes use nitrogen to build protein. Nitrogen is provided naturally in the rumen through the creation of ammonia. Natural protein is broken down and turned into urea, then recycled back into the rumen through saliva. It is then turned into ammonia, and used by microbes to produce protein. Excess ammonia is processed by the liver and sent out as waste. Urea and other forms of non-protein nitrogen add efficiency, as they are directly available as a source of N.

While providing urea in feed, more is not necessarily better. If ammonia levels in the bloodstream exceed the amount that can be processed by the liver, toxicity problems will arise. The amount of urea that can be utilized by the microbes is *completely* dependant upon the amount of carbohydrates present, but should be around .8 oz/hd/day as a general rule. At this level 1.5 to 2.0 oz of urea could cause toxicity problems. Therefore in the case of a 20-6 cake, where 6% of the protein is derived from urea, every pound contains .192 oz of urea. Therefore 4 lbs. can be fed for utilization. Toxicity problems could arise as 8-10 lbs.

Carbohydrates play a vital role in ammonia utilization. NPN should always be fed with a good carbohydrate source. Examples would be a soluble fiber such as wheat midds in cake or sugars from molasses in lick tubs. Extra carbohydrates allow for an increasing amount of microbes and more availability for ammonia to be utilized.

Feeding NPN should be well managed, but not feared. It is a great way to enhance efficiency for low quality forage and add effectiveness to your protein supplement program at a low price.