



Beef Breeds
by
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UREA AND MINERAL ADDITIVES FOR CORN SILAGE

Corn silage is a popular and effective feed for both feedlot steers and for wintering cows and calves. However, corn silage is deficient in protein, calcium and phosphorus for most classes of beef cattle.

Table 1. Deficiency of Protein, Calcium and Phosphorus in Corn Silage

	Crude protein %	Calcium %	Phosphorus %
Corn silage	8.1	.27	.20
Daily requirements:			
Growing steers (500 lbs.)	12.2	.31	.25
Finishing steer (800 lbs.)	11.1	.38	.29
Lactating cow	9.3	.28	.22

One method to correct the inadequacy of corn silage for these nutrients and to improve fermentation is to add urea and minerals to the silage at the time it goes into the silo. Adding urea, limestone, or a combination has been shown to increase the production of organic acids in the silage. Of particular importance is the increased production of lactic acid during fermentation.

A dry urea usually has 45 percent nitrogen, which is equivalent to 281 percent crude protein for a ruminant. By adding 10 pounds of urea to corn silage that is 30 percent dry matter and 8 percent

crude protein, the protein content of the silage will increase to 12.7 percent crude protein. This may be both an effective and economical way to provide supplemental protein to most classes of beef cattle since there will be no further cost for either protein supplements or for the labor and equipment to pro-

vide the supplement. Additionally, adding urea at ensiling time may be more effective than adding it to the silage at the time of feeding. Research at Ohio State and Illinois has shown a slight advantage in performance for cattle on urea-treated silage compared to when urea was added as a supplement at feeding.

Some other important steps in using urea and mineral-treated silage include:

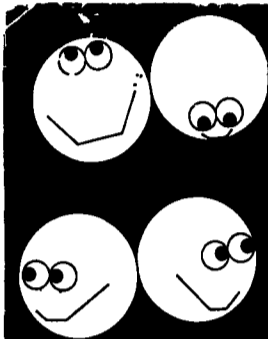
- Get a feed sample of the silage analyzed after the material has fermented to be sure rations are balanced correctly.
- There is some indication addi-

tional sulfur may be of benefit in rations which use urea as the primary protein source.

- Use untreated silage or hay to start stressed calves in a feedlot.
- Calves under four months of age will not be able to use the urea as protein until their rumen is more fully developed.

It is essential to know the dry matter value of the silage before attempting to mix urea and minerals with it. In general, urea can be added to silage that is between 30 percent and 40 percent dry matter.

When the silage is too wet, the urea may escape as seepage, and when it is too dry the urea may be lost as ammonia and make the silage unpalatable.



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Table 2. Urea-Mineral Mixes for Silage

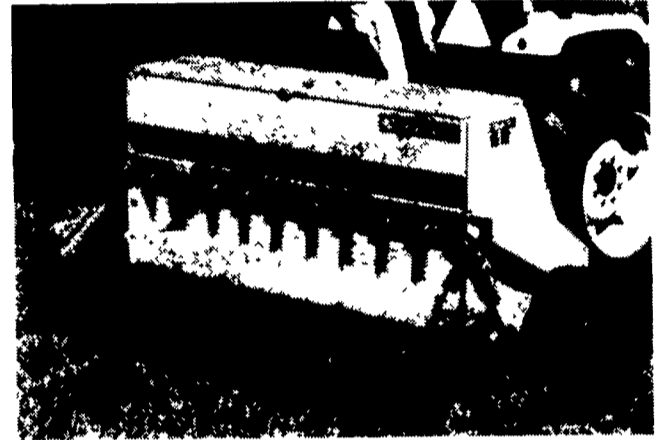
Item	Percentage of mix
Urea (45% nitrogen)	58.0
Dicalcium phosphate	18.0
Sodium sulfate	8.0
Trace-mineral salt	16.0

% dry matter in silage	Application rate	
	Pounds of mix per ton of wet silage	
30	17	
32	18.1	
34	19.3	
36	20.4	
38	21.5	
40	22.7	

It is important to get the urea-mineral mix spread evenly through the silage. Poor mixing can result in caking and bridging of the silage, poor animal performance. (Turn to Page C3)

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