

LD
5655
A762
no. 151
1967
c.2



Dairy Guidelines

COOPERATIVE EXTENSION SERVICE, V.P.I., BLACKSBURG, VIRGINIA

VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY LIBRARIES

Series 151 - Revised September 1967

Adding Urea to Corn Silage

W. R. Murley, Extension Dairy Specialist,
C. C. Mast, Extension Livestock Specialist,
J. P. Fontenot, Research Nutritionist, Animal Science Dept.,
C. E. Polan, Research Nutritionist, Dairy Science Dept.

Considerable interest in adding urea to corn silage at ensiling time has been shown in recent years because of the low protein content of corn silage. Also, when fed in proper amounts, urea is a low-cost source of protein.

Research results at Virginia Tech and the Forage Research Station, Middleburg, as well as other state research stations, indicate that urea can be added to corn silage at ensiling time and good response obtained in beef and dairy animals. Adding urea to corn silage raises the level of protein in the silage, thus, a lower percent protein supplement can be fed, or in feeding dry cows or beef cows, no protein supplement is needed.

Amount to Add

Ten pounds of urea (45% N), either in powder or granular form, per ton of fresh-cut corn silage is the accepted amount to add. Determining the tons of silage on the wagon or truck may be difficult. If at all possible, weigh several loads to get an average tonnage per load. This would be much more desirable than estimating tonnage. But, if weighing several loads is not practical, the following guides may be helpful:

Calculate the cubic feet of silage on the wagon (width x length x depth). An average wagon is about 7' x 14' x 4'. However, wagon beds are different, so measure each one.

Once the cubic feet are determined, multiply this by 20 lbs. which is the estimated weight of a cubic foot of fresh-cut corn silage. (The dry matter content is going to influence the weight per cubic foot, so if possible weigh a known amount of fresh-cut corn silage to get a more exact weight.)

The cubic feet in the wagon multiplied by the weight per cubic foot and divided by 2,000 will give the tons on the wagon.

The Urea Must Be Evenly Distributed

Upright Silos:

Sprinkle the proper amount of urea (see above) for the load uniformly over the top of the load of fresh-cut corn silage. The urea should be thoroughly mixed by the time the silage is conveyed into the blower, either by side-unloading or rear-unloading wagons, or by dumping from a dump truck, blown into the silo and then fed out later. However, be careful that no lumps or handfuls of urea get into the manger at feeding time.

Horizontal Silos:

Even distribution of urea in trench or bunker-type silos will be more difficult than when filling upright silos. However, with special care, it is possible to do so.

If side unloading wagons are used for filling horizontal silos, the same procedure used in filling upright silos may be used. Sprinkling the urea uniformly on top of the wagon load, augering it onto the silo, and then the leveling and packing with a tractor and blade should adequately distribute the urea. The same procedure can be used for rear-unloading wagons.

If dump trucks are used for filling the silo, then the best procedure for adding the urea uniformly is to dump the silage, level it with a tractor equipped with a scraper blade and then use a cyclone seeder to distribute the urea. Another method that has been successfully used is to dump the load and uniformly distribute the urea by hand over the pile and then work it out with the tractor.

Urea - Limestone Mixture

Mixtures of urea and various minerals, chiefly limestone, may be available for use on silage. The value of limestone in beef cattle rations varies and may be beneficial under certain feeding regimes. If used in silage for beef cattle, the accepted amount to add is 10 lbs. per ton of fresh cut corn silage.

In dairy cattle rations, limestone in silage has not proven beneficial; in fact, it may be detrimental since it would increase the amount of calcium intake, thus making it difficult to maintain a calcium:phosphorus ratio within the optimally accepted range of 1:1 and 2:1.