



# If you have drought-stressed corn

HOPEFULLY, most readers do not need to read this column. But some areas of the country received very limited rainfall.

Bill called in late August and asked when he should chop his barren stalk corn silage, what should he add, and what is its feed value? Drought-stressed corn silage (and perhaps frost-damaged corn silage in September) may be an alternative for your 2002-2003 dairy feeding program. Bill's answers to his questions are listed below, plus a few items to consider.

## When should drought-stressed silage be chopped?

Ensiling should occur at the same dry matter level as normal corn silage (30 to 35 percent dry matter), depending on your storage unit. The problem is that the milk line guideline may not be available (no ears and kernels). If the plant has green material, it still is alive converting sunlight and soil nutrient to plant nutrients even if no ear is present.

Do not chop the corn plant too early. The best guideline is to chop up several representative stalks, and conduct a dry matter analysis on your farm using a Koster tester or microwave, or send it to a commercial lab. You must have dry matter levels in the optimal range (30 to 35 percent) for proper fermentation to occur.

## What is the feed value of drought-stressed corn?

The good news is the feeding value (protein, energy, and mineral levels) will be similar to normal corn silage. The bad news is there won't be very much of it.

Ensile stressed silage, and run a forage test, especially starch and soluble protein (these values will be different). Expect slightly higher neutral detergent fiber levels, but a digestibility test may reflect higher-than-normal energy values.

## If nearby drought-stressed corn is good-quality forage, should I buy from my neighbor?

One guideline is 1 to 1.5 tons of 30 to 35 percent corn silage per foot of barren cornstalk. The best recommendation is to weigh several chopper boxes of stressed corn silage and price it on a dry matter and yield basis.

Conservatively, reduce the value of stressed corn silage by 10 to 15 percent per ton, compared to current corn silage prices, or price the forage after fermentation and a silage test has been conducted (if you and the seller are willing). Be sure to deduct the cost of harvesting, transportation, and storage loss costs (\$5 to \$10 a ton). The fertility value of cornstalks (if the grain farmer would plow it down) is \$25 to \$35 an acre (for example,

4 to 5 feet of corn with no grain contains 55 pounds of nitrogen, 12 pounds of  $P_2O_5$ , and 60 pounds of  $K_2O$ ).

## What about nitrates?

Nitrate nitrogen ( $N-NO_3$ ) can be higher with drought stress. The plant's photosynthetic surfaces (green material) are reduced, and nitrates are not converted to plant protein and growth. The table illustrates the typical nitrate levels

Nitrate-nitrogen levels at different sections of a normal corn plant*	
Distance from the roots (inches)	Nitrate-nitrogen level (ppm)
0-12	6,160
12-18	5,613
18-24	3,891
24-36	2,194
36-48	1,187
48-60	453
Over 60	16

\*The ear contains 22 ppm and is not included in any area below.

in various parts of the corn plant. Checking with a major Wisconsin forage testing lab on August 1, levels of nitrate nitrogen (be sure you are using the same unit of measurement) were not high except in the west Dakotas (over 1,500 ppm or 0.15 percent on a dry matter basis).

Nitrate-nitrogen levels over this guideline should be diluted down with other feeds. If animals are adjusted to high nitrate containing feed, health risks are reduced (gradually boosting the higher nitrate feed in the ration over a two-week time period). Ensiling stressed corn silage can reduce nitrate levels by 15 to 50 percent.

A commercial lab can analyze your fermented silage for \$7 to \$10 per sample (nitrate and moisture levels). Testing standing corn plants in the field is not recommended as it will vary daily due to soil type, moisture, and plant maturity changes. Chopping the corn plant 6 to 18 inches high will reduce nitrates as shown in the table, but significantly reduces yield.

## What about adding dry corn or other additives?

Adding a research-based effec-

tive silage inoculant is recommended to "jump-start" the fermentation. Two reasons to inoculate drought-stressed corn silage are:

- Silage will be variable in dry matter due to varying soil moistures and heat stress effects.
- Hot weather can reduce the normal bacteria found on the corn plant that would start the fermentation process.

Research over the last 10 years has clearly indicated an effective silage inoculant will return \$3 to \$6 for each \$1 invested in the inoculant. This is based on Kansas State and Washington State data.

Adding dry corn is not recommended. It will reduce the moisture level of the corn silage which will make good fermentation a problem.

Test the stressed silage after ensiling, and have your nutritionist balance starch and nutrient levels. Do not add ammonia, urea, or other nitrogen additives as they delay the fermentation process (raises pH) and higher levels of nitrates (a source of NPN) may be present. Again, test and let your nutritionist balance for soluble protein.

Adding wet brewers' grains, liquid whey, or wet by-product (over 70 percent moisture) can raise silage moisture and improve fermentation if done correctly. Using a lawn sprinkler will add water, but the amount will not be significant.

## Is ensiling the best strategy?

Making silage is the best alternative for drought-stressed corn. You avoid selective grazing (compared to pasture), you get a uniform forage (green chopping allows the crop to change daily), ensiling reduces nitrate levels, and the silage can be tested to develop a balanced ration.

If stressed corn is green chopped and it heats in the wagon or bunk, some nitrate may be converted to nitrite (making it more deadly). If the plant is alive and late rains fall, expect plant nitrates to rise for several days as roots absorb moisture and nitrates and the plant is delayed or prevented in converting to nutrients.

With ensiling, be aware that higher levels of silo gas (nitrogen gases) will be released. Do not enter a silo unless you have supplemental oxygen or air tank or run the blower for several minutes before entering and continuously while you are inside. Open up the silo room and barn to get proper ventilation to avoid silo gas accumulation.

Making corn hay is difficult until a killing frost because the cornstalk retains moisture leading to moldy forage (corn hay should be under 20 percent moisture at baling).



"We never moved to the city — it moved to us!"

## When you decide to get serious about slippage

Conewango can play a major role. Within a week of installing our inflations you will see a significant improvement in slippage or you won't pay for the liners. Regardless of which brand you now are using.



Slippage, squeaking, squawking — whatever you call it — is a major cause of introducing pathogens. Sleep and Slaph into the udder. Every time your liner slips, bacteria is sucked past the sphincter muscle inside the teat and into the udder.

And usually you can't hear it as over 90% of slippage is completely silent. Reduce slippage and you improve udder health, reduce mastitis and increase milk production. It's that simple.

There are several other improvements Conewango can give you — all guaranteed or you won't pay for the liners. Let us tell you about them.

Call Toll Free 600-828-9258

**Conewango**

Conewango Products Corp.  
Randolph, N.Y. 14772 716/351-6712

## Youth leaders, check out our quizzes at www.hoards.com



Quality Liquid Manure Equipment  
You Can Depend On

**U.S. Funds Real Deals**

Husky Farm Equipment Limited  
Alma, Ontario Canada

1-800-349-1122

