Corn Silage Quality: What Can You Expect This Year?

UNIVERSITY PARK (Centre Co.) — What will the quality of this year's corn silage crop be?

In recent years, advances in forage analysis and rationbalancing programs have generated additional information as to how forages are utilized by the cow. The availability of this information has generated increased interest in the correlation between weather patterns and forage quality.

What will the quality of this year's crop be?

Several specialists have offered a number of theories based on their observations from years with similar weather patterns with 1996 being the most recent. Corn silage harvested in that year did not ferment very rapidly or efficiently. Many dairy producers and their nutritional advisers complained that cows did not increase production until late December or January when fed corn silage produced in 1996.

Examination of information provided by Dr. Greg Roth, corn specialist with Penn State University, and Kurt Ruppel, dairy specialist for Pioneer Hi-Bred International, Inc., may provide some insight as to the quality of this year's corn silage.

As most of the Northeast has received an abundance of rainfall, corn silage quality will most likely be less than optimal. Tall plants can result in lower grain-to-stalk ratio, unless the plants have multiple ears.

Research at the Miner Institute in New York has illustrated that lignin levels in corn plants increases in wet weather, thus decreasing fiber and whole plant digestibility.

Data from other institutions and from field observations supports the Miner Institute observations. One solution may be to chop silage with the head set higher than normal. Research at Pioneer, Penn State. and other universities has illustrated that chopping silage higher than usual (12 to 18-inches) decreases NDF levels and increases whole plant digestibility. However, this practice reduces total yield and actually results in less milk per acre.

Results of a Penn State study indicate a one-ton loss in dry matter yield, but a 1.5point decrease in the NDF content of corn silage with a 12-inch change in cutting height. Similar results from Pioneer indicate an increase of 72 pounds of milk per ton of silage, but a loss of 258pounds of milk per acre. If forage supplies are abundant this year, and they should be, the reduction in yield may be less of a negative factor.

Before accepting a blanket recommendation to high chop corn silage, examine the whole farm effects of your decision. Evaluate the decision based on total forage supply and quality. Improving the quality of corn silage may be desirable, as much of the hay crops are already of lower quality. Improving overall forage quality is especially important for highproducing herds.

Be sure to consider the long-term ramifications on milk components and milk pricing. Dr. Satter at the U.S. Dairy Forage Research Center in Wisconsin evaluated harvest height of "wellmatured" corn silage. The comparison was made between a stubble height of 13inches versus 27 inches. The dry matters were rather high at 36 and 43 percent, respectively. The neutral detergent fiber on the 27-inch stubble was 34 percent on a drymatter basis. The butterfat averaged 3.39 percent on the high-chopped corn compared to 3.74 percent on the 13-inch stubble.

Another issue that may present a problem is plant drydown. Observations of a number of fields have indicated that kernel maturity may be occurring at a faster rate than whole plant drydown.

There is considerable variation in the relationship between whole-plant moisture and the position of kernel milkline. Differences in hybrids, their drydown characteristics, and the growing conditions contribute to this variation.

Use kernel milkline as an indicator of when to start checking whole-plant moisture. It is time to measure the corn's moisture content when kernel denting begins and the milkline becomes visible.

To check moisture, handharvest a few dozen-corn plants within a field. Reduce the plant particle size, i.e. bedding chopper, to adequately dry the sample using a Koster tester or a microwave oven. When using these drying devices, obtain a stable endpoint weight before calculating the same dry matter percent. This will avoid overestimating the dry matter content.

Base corn silage harvest on a whole-plant moisture of 65-70 percent. This will vary somewhat, depending on the storage structure and the amount of corn silage ensiled.

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Monitoring whole plant moisture will be critical to timing corn silage harvest. If kernel moisture levels are lower than normal, it will be beneficial to harvest the crop with a machine equipped with a kernel processor.

If this year's crop is similar to the crop in 1996, there are several other recommendations you should consider. Treating the silage with a preservative will help fermentation efficiency. The preservative should contain both bacteria and enzymes, as the enzymes will enhance the fermentation process by improving the availability of nutrients needed by the bacteria.

Be sure to incorporate sound harvesting and silo filling practices this year to limit oxygen and enhance silage fermentation. When filling trenches, use the progressive wedge system. Be sure to use a tractor that is of adequate size and weight, considering the rate at which silage is being delivered to the trench.

Adding sugar to the ration may pay off. That assumes that the corn plant does not contain the usual sugar levels or the corn is lower in overall digestibility. Many liquid and dry sugar products are available that may be cost effective. Forage analysis will be important for determining nutrient content. However, forage analyses on corn silage grown under wet conditions are often overvalued. The silage is not as good as the forage analysis, making it difficult to accurately balance rations. Work with a nutritional consultant to deal with these potential issues.

Each growing season presents a new set of challenges. As additional information is gathered in the future, it may be possible to accurately predict the quality of forage that producers must deal with. Until then we must rely on the research available and years of field observations to adjust our management practices to insure we have top quality forage to feed our high producing cows.

Producers have access to new technologies, kernel processors and new hybrids, that can help deal with environmental conditions. However, they do not guarantee a particular outcome on a consistent basis. Good basic silage making practices are still the key for quality silage production.



First-Time Five-Acre

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better in farming, More believes there has to be a greater usage of the crop, calling for more ethanol production and more grain exports.

"My outlook right now is, if the farmer isn't holding the government's hand, he'll be dead. It's kind of a big picture, at least it is to me," More said.

"The Freedom to Farm Act ran from 1996 to 2002, and I know they're trying to think right now about a new program," he said.

More hopes the flexibility is there so the farmer doesn't have his hands tied and is allowed freedom to farm.







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