

## Freeze-damaged silage retains feed value

UNIVERSITY PARK — Last year a hard freeze in late August and dry weather in some areas has focused attention on the feeding value of corn silage under such stress.

Richard S. Adams, Penn State Extension dairy specialist, says that since the total digestive nutrient (TDN) on energy content of whole-plant varies only from 60-70 percent on a dry matter basis according to maturity and even grain content, most weather-affected silage retains reasonable good feeding value.

Problems may result from abnormal fermentation due to a moisture content over 70 percent or under 60 percent. At high moisture levels more acidity and abnormal acid pattern may develop that reduces dry matter intake from silage. At a low moisture content, too little fermentation may occur. More mold and other problems as well as increased spoilage may result.

Early harvesting due to frost damage may reduce yields of TDN per acre by 36 percent of more on some farms due to lower dry matter yields and somewhat lower digestibility for corn harvested at

the milk or earlier stages.

Adams says that more problems from moldy feed and mycotoxins may be expected. Some ears and even forage portions were moldy when ensiled. Moldy feed often is higher in estrogen content and lower in feeding value than usual.

These may be produced before or after ensiling. Cows may lose appetites, drop in production and be afflicted with a black or bloody diarrhea.

Corn grain in dry or high-moisture form is more susceptible to mycotoxin problems than whole-plant silage. Mycotoxin screening tests are available for suspected feeds. Some corn silage may contain relatively high amounts of hemp dogbane and horse nettle. These may reduce feed intake and sometimes result in toxicity.

When silage pH fails to fall below 4.8 - 5.0 botulism, enterotoxemia, (pulpy kidney disease) listerellosis (circling disease) or mycotoxins may be encountered. Nitrate poisoning seldom occurs but is more prevalent in drought-stricken corn silage. Reproduction may suffer when nitrate in level reaches 2 percent in the total ration dry matter. Toxic symp-

toms and deaths may occur at a 3 percent nitrate ion content.

Silage that does not drop normally in pH may give off dangerous nitrogen oxide gases.

Corn silage that is too finely chopped may depress milkfat test and adversely affect animal health. Average particle-size should be between 3/8 - 3/4 inches with 15 percent of the particles up to 1 - 1 1/2 inches long. Ensiling whole-plant material when the grain is too hard may reduce digestibility by as much as 6 percent. Adams says that this depression cannot be overcome by fine-chopping or use of re-cutters.

Excessively coarse chopped silage may result in more abnormal fermentation, greater dry matter losses and unloading problems due to poorer packing and sorting. Frequently cows will not eat large sections of stalk or sizable pieces of cob resulting in inadequate fiber intake as well as feed wastage.

Cutting stalks at higher levels or harvesting just ears and husks from some rows will not appreciably increase the feeding value or energy content of corn silage. Ears and husks have approximately the same energy content as good whole plant silage.

Nonprotein nitrogen (NPN) additives such as urea and liquid anhydrous ammonia may be added to whole plant corn silage to increase protein content. While some recommend that NPN be added to attain levels of crude protein as high as 15 - 17 percent on a dry matter basis, Adams advises that NPN additions increase protein levels to only 12 -13 percent to avoid possible abnormal fermentation or excessive amounts of soluble nitrogen in rations.

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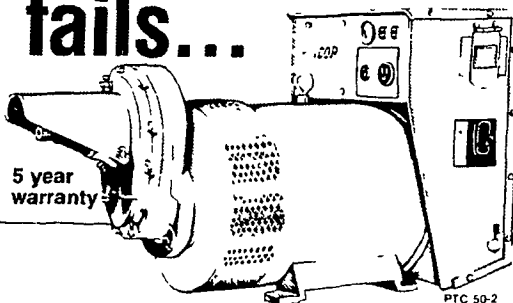
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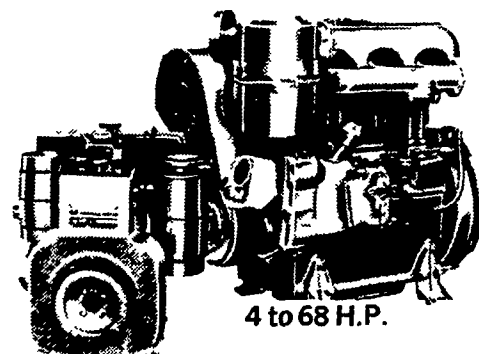
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