## **Feeding Immature Corn**

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The forage quality of immature corn harvested for silage or grain in the four-state area has been a matter of concern. This is particularly due to late planting and cool growing conditions during the summer, exacerbated by frost damage that occurred in August. Corn that fails to reach adequate maturity can not be sold at normal prevailing market values without steep price discounts. Consequently, drought stressed, heat unit deficient, water logged, or frost damaged corn meet this definition.

Frost damaged corn is generally lower in test weight than normal corn. However, feeding value is generally not markedly reduced. University of Nebraska, G74-100 publication on Feeding High Moisture Corn shows nutrient content of corn harvested at various stages of maturity (Table 1).

Immature corn silage is a unique feed. While yield is certainly compromised, the overall energy content is similar to mature corn silage. Poor starch fill can cause photosynthetic energy to remain as sugar in the stover and leaves, thus diluting the fiber content. The slight decline in energy in immature corn is not as great as expected because the cell wall fraction (ADF, NDF) is more available due to reduced complexity of the bonding within the cell wall carbohydrate complex, in cells that are still alive. Another offsetting factor to early harvest is that even with reduced starch fill, kernels with high moisture are likely to be broken from mechanical action for easier rumen microbial access. In general, immature corn has higher crude protein concentration than more mature corn (Table 1).

Research elsewhere has shown that frosted corn that has experienced two frosts but was allowed to dry to 65-70% moisture had similar nutrient content, feed intake, and milk production response as fully mature dented corn put up as silage. If corn was left for six frosts, there was a drop in the silage protein and energy levels. The researchers attributed this to shattering and loss of the corn leaves at harvest.

Frost damaged corn has some potential to accumulate nitrate although the risk is low since nitrates are liberated during ensiling.

Nutrient	Early	Early	Mid	Mature
	Milk	Dough	Dent	Corn
Crude Protein, %	16.6	12.5	10.7	10.9
Starch, %	47.4	55.0	58.7	63.7
Gross Energy,	2073	2064	2086	2081
Kcal/lb				
Bushel Weight, lb	35	47	55	58

## Table 1. Nutrient content of corn harvested at various stages of maturity

Source: NebGuide 74-100-A (1983)