

Extension Responds: Feed supplies

Negotiating the Value of Immature Corn Silage

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Due to the cool growing season, frost and late planting date of many fields, I have been receiving many requests for determining the value of immature corn. Unfortunately, no standard method exists for determining value. Arriving at a fair and equitable price for corn silage is difficult due to the number of factors involved that are dynamic and biologically variable. Some factors include production costs, grain price, harvesting costs, costs of handling, hauling and storage, grain drying costs, fertility value of stover, and forage quality (especially starch content and neutral detergent fiber digestibility-NDFD). The amount of moisture has a major influence on its feed value and needs to be considered to accurately determine fair silage prices. Some growers will want to calculate the price based on corn grain yield (as the alternative harvestable crop) and some dairymen will want to calculate the price based on alternative forages (primarily alfalfa as the alternative forage source). In either case the final price is affected by supply and demand within a region. This year Wisconsin has high demand.

Typical calculation methods for pricing normal corn silage include:

1. Relative feed value of a known forage market.
Silage (\$/T) = 1/4 to 1/2 value of hay
Silage (\$/T) = 6 to 8 times the price of a bushel of corn. If already harvested, then 10 times.
2. Feed replacement or substitution costs
3. Use market prices for energy, protein, and digestibility (NE_L of corn, soybean meal, hay)
4. Contracted price above the cost of production (280-320 \$/A).

For most crops, forage quality and value is high prior to flowering and decreases with maturity, that is fiber levels increase and digestible energy decreases. Corn is somewhat unique in that forage quality increases with maturity. Digestible energy of corn silage is found in both stover (NDFD) and grain (starch). Immature corn will have a lower proportion of grain in the silage. Two approaches to consider for calculating the value of immature corn silage are:

1. Reduce the value of immature corn silage by the cost of buying back grain to bring the grain:stover ratio to a more normal proportion.
2. Use MILK2000 to calculate milk per ton potential from immature corn silage.

Tables 1 and 2 describe milk per ton and milk per acre changes of corn hybrids harvested at different stages of development. Original values were calculated from a closed NIR equation developed using wet chemistry (Darby and Lauer, 2002). NIR scans were kept and values recalculated using a global calibration equation (02HBW) in 2003. Negative starch content values early in development were assumed to be 0%.

Milk per acre and milk per ton were calculated using the [Milk2000 spreadsheet](#). For overall means of this data set, see [Wisconsin Crop Manager July 1, 2004 11\(17\):109-111](#).

For all hybrids, milk per acre increased to a maximum sometime during the dent stage (R5) (Ritchie et al., 1993). But, for the purposes of determining corn silage value, overall quality of corn silage is best expressed using milk per ton. Greatest milk per ton was usually measured during the dent stage (R5) of corn development. Average maximums across all hybrids equaled 3334 lb milk per ton. High milk per ton was also measured prior to silking (V14 to V18) and averaged 2970 lb milk per ton. Corn silage at its lowest milk per ton value occurred around the milk stage (R3) and minimums for all hybrids averaged 2529 lb milk per ton. Thus, using milk per ton as a measure of value, corn silage harvested prior to silking would be 89% of the level observed during the dent stage. Corn silage harvested at R3 would be 75% of the level observed during the dent stage.

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