Trading Corn Silage

Roland P. Freund, Regional Farm Management Agent, Pa.

September 1, 2001

Traditionally farmers traded corn as dry shelled or dry ear and priced it by the bushel, either 56 or 70 pounds. This is simple when the commodities are in these stable and uniform forms. But in the Capital Region of Pennsylvania now more than half of all corn acres are harvested as corn silage and high moisture grain. This creates some pricing challenges.

Some Questions to be Answered

1. How do growers and feeders arrive at a price which is fair? If there were an auction where willing buyers could meet willing sellers of silage and high moisture corn, then that market could establish a "going price" at that location. But these commodities are unstable and subject to rapid spoilage, so they cannot practically be run through an auction. This characteristic reduces the market options and value for corn in these forms. Then there is the transport cost of all that water. Also, there is no standard or required moisture content for these products, so they need to be reduced to a dry matter (D.M.) basis and traded accordingly. But there is also an ideal moisture range outside of which feed quality suffers.

The "market price" for dry shelled corn should be an important component of any silage pricing calculations. But which "corn price" to use can also be debated. Should it be the local mill price on the day of harvest or should it be the contract price for grain delivery to the mill in November or December? Then this raises the question of how the added value of cob and or stem in the product will be valued? Also, how will price be adjusted for droughted silage or long-stem, low-energy silage?

2. How is quantity to be measured? Weighing an occasional wagon-load and doing one moisture test can be very misleading when applied to the entire harvest. Using reliable dry matter capacity tables for silo or bag storages are usually more accurate over the normal ranges in moisture.

3. How are adjustments to value to be computed? If the buyer pays for harvest and delivery to storage how much less should grower get than if grower harvests and delivers?

Corn Silage Spreadsheet

We can do the complex calculations to answer many of these questions quickly using a spreadsheet to arrive at values for corn silage. To illustrate here are some expected figures for 2001 based upon the following input assumptions:

	Normal	Droughted
Shelled Corn yield (Bu./ac.)	120	20
Corn Silage yield (Tons / acre)	20	7
Corn Silage Moisture %	65	58.0
Corn Silage NEL	0.74	0.68
Shelled corn harv. cont. $/Bu	$2.20	$2.20
Grass hay price / Ton	$80	$80
Field to Grain Mill - miles	5	5
Field to Silage Silo - miles	3	3
Grower harvests and delivers	Yes	Yes

Normal Silage

Grower's viewpoint. After harvesting, hauling and drying the shelled, the corn grower could be left with $211 per acre. But his silage harvest and hauling costs, plus his stover losses add up to $120 an acre. To break-even with shelled corn the grower needs $331 per acre or $16.57 per Ton of 35%DM corn silage.

Buyer's viewpoint. It would cost the buyer $608 for ear corn and hay to furnish the feed equivalents from one acre of corn silage. But buyer has ensiling costs and losses estimated at $83 which makes an acre of the delivered silage worth $525. This calculates to $26.26 per ton for the 35%D.M. of silage. Buyers need to realize that if this material were 30% D.M. (70% moisture) the value would be $22.51, while at 40% D.M. it would be worth $30.

Price negotiation. In this case the parties have a range between $16.57 and $26.26. This suggests that a price of $21 per ton green delivered 35%D.M. silage would be a good deal for both. If the buyer absorbs the cost of harvesting and hauling he/she should get it for $4.00 per ton less or $17 in this example.

Droughted Silage

In a droughty situation the field might return $16 per acre for shelled corn after costs. To break even on corn silage the grower should get $78 per acre or $11.11 per ton. However, the buyer gets silage which has only 77% of normal feed value. This is based on NEL and DM according to the latest Penn State adjustment tables. After ensiling costs and losses this calculates to a maximum price for the buyer of $24.23 for 58% moisture silage. The range for negotiation is now wider. The supply and demand for such silage will determine what the price will be. If buyers have the option to buy good silage, they should do so. Otherwise seek to get droughted silage for $14 rather than $24.

Need Help with Calculations?

If you would like to have a specific situation computed, please call your extension agent. For a copy of this simple Excel spreadsheet please visit: http://capitaldairy.cas.psu.edu/