



## Penn State Cooperative Extension Capitol Region Dairy Team

### TRADING CORN SILAGE

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 Capitol 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

- 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 (DM) 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?

- How is quantity to be measured? Weighing an occasional wagonload 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.

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



Roland P. Freund

#### 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

#### 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, visit <http://capitaldairy.cas.psu.edu>.

\$331 per acre or \$16.57 per ton of 35 percent 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 percent DM of silage. Buyers need to realize that if this material were 30 percent DM (70 percent moisture), the value would be \$22.51, while at 40 percent DM 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 percent DM 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 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 percent 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 percent 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.

### Corn Silage Whole-Plant Dry Down Rates\*

Tim Beck, Capital Region Dairy Program Coordinator

Corn silage harvest proceeds at a rapid rate throughout the region as corn dries down quickly. Even the later planted corn tested has progressed past desirable moisture levels for bunker silos.

Sugar levels in the well-eared, later planted corn are in the expected range of 8%--30% for corn. Sugar levels vary with the dry matter content of the corn and are considered sufficient above 4% of DM when the corn is 60% moisture. Wetter corn would be expected to have higher soluble sugar content. The early planted samples are low in sugar content based on this guideline, while the later planted corn shows desirable sugar content.

Low sugar content could result in incomplete fermentation due to poor microbial growth or sugars may be depleted by bacterial growth during fermentation, resulting in low energy silage with reduced feeding value. We'll continue to monitor sugar levels for the planting dates over the coming weeks.

Moisture Test Date	Kernel Milk Line	Whole Plant Moist %	Sugar as % of DM	Plant Firing % <sup>b</sup>	Predicted Days to Harvest <sup>c</sup>	
					Bunker Silo <sup>d</sup>	Tower Silo <sup>e</sup>
<b>110-day corn planted May 1. Well eared and good ear fill:</b>						
Aug 14	1/4	73.3		33	5	13
Aug 21	1/3	69.5	3.9	33	-1	7
Aug 28	1/2	63.8		40	-10	-2
Sep 4	2/3	64.5	2.9	50	-8	0
Sep 11	7/8	38.3		90	Too dry	Too dry
<b>Same hybrid and field, but droughty, small ears, 75% ear fill:</b>						
Aug 14	1/4	72.8		50	4	12
Aug 21	1/4	69.3	4.3	50	-1	7
Aug 28	1/3	65.0		60	-8	0
Sep 4	1/2	59.5	3.6	50	Too dry	-8
Sep 11	3/4	37.8		95	Too dry	Too dry
<b>Same hybrid planted May 25. Well eared and good ear fill:</b>						
Aug 28	None	76		0	9	17
Sep 4	None	76	8.1	0	9	17
Sep 11	1/4	68		10	-3	5

Footnotes:

a-Conducted at the Penn State Field Research Farm at Landisville.

b-Percent of stalk fired from the ground upward.

c-Based on 0.65 drop in % moisture from last test date.

d-Based on a target moisture of 70% for bunker silos at harvest time.

e-Based on a target moisture of 65% for tower silos at harvest time.

## Conservation Districts Host 'Ag Days'

**HARRISBURG** (Dauphin Co.) — In an effort to educate municipal officials about the ever-changing face of agriculture, conservation districts in Pennsylvania have hosted "Ag Days" for municipal officials and their families. The free program included a family dinner and children's activities.

The Chester County Conservation District hosted 100 township officials and their families at the Brandywine Valley Association Myrick Environmental Center on Aug. 21, and the Berks County program took place at Blue Falls Grove, Leesport, Aug. 31.

Entitled "Agricultural Growth In the New Millennium — A Fresh Look At the Changing Family Farm and How it Affects the Local Municipality," the program offered tools to township officials to deal with agriculture in their communities.

At the Ag Day programs, Dr. Christine Kellett, professor of law at Penn State Dickinson Agricultural Law Research and Education Center, spoke on "Agricultural Law — Zoning, Farmland Preservation, Nutrient Management, and Local Ordinances."

Kellett encouraged township officials to consult the agricultural community, the conservation district, and township solicitors when formulating agricultural ordinances to stay within the realm of the law and avoid conflict. She informed officials on a

recent decision by the Supreme Court of Pennsylvania in June 2001: *Kneeler v. Township of Hellam*, determining that a township had no actual or incidental power to impose a moratorium on building approvals. This particular decision could affect townships considering moratoriums on large-scale agriculture.

At the Chester County program, Matthew Hickey, with the Chester County Economic Development Council, spoke about the growth and change of agriculture while farms attempt to stay prosperous; and Kevin Baer, speaking for the County Agricultural Preservation Board, addressed the role of the municipal agriculture security area advisory committee. The event concluded with a panel of officials discussing the role of agriculture in their communities.

At the Berks County program, Donald Reinert, nutrient management specialist, encouraged townships to work with the conservation district on agricultural issues to prompt better understanding of agriculture and its changes. Concluding the program was a panel discussion on water quality led by moderator John Ravert, manager of Berks CD. Panelists were Tom Sweeney, soil scientist, Pennsylvania DEP SCRO; Jineen Boyle, watershed manager, Pennsylvania DEP SCRO; Dr. Christine Kellett; and Donald Reinert.

## LANCASTER FARMING SCHEDULES FAMILY FARM SEMINAR

With holidays approaching, families can take time to discuss farm transition and marketing. *Lancaster Farming* will provide a forum to begin those types of discussion with our "Family Farm Survival Seminar: Management and Marketing," Tuesday, Nov. 13, at the Farm and Home Center in Lancaster. Watch the paper for details, including schedule of events.