



Valuing Corn Silage...

How much is it worth?



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A Perennially Challenging Question!

Different values to:

The cow



The dairyman

The grain market




The crop producer

How to price corn silage is a perennially challenging question...and the optimal answer will vary depending on your point of view. Realistically, there is a range within which a reasonable price can be negotiated between the buyer and the seller. We will take a look at pricing and other considerations from each party's point of view.

Value to...the cow



Just one more ingredient in
a balanced ration...

 Dry Matter
Protein
Energy
Fiber



Cows do not have to have corn silage to make milk. They *must* have the proper balance of protein, energy, vitamins, minerals, fiber and dry matter to be healthy and productive. As long as this happens, it is not important to the cow what feedstuffs are providing the nutrients. If other feedstuffs are available at a better price that will accomplish the same objectives, then the other feedstuff should be used rather than corn silage.

How the dairyman wants to price:

Buy as
cheap
as
possible!



Value to the dairyman

Quality feed

- Balanced ration
- Optimize intake
- Maintain health

- Productivity

Quantity

Price



While the dairyman certainly would like to minimize the price he/she has to pay for corn silage, especially in 2003 - a year of pitiful milk prices - there are additional considerations. The dairyman wants a feed that will work into a well-balanced ration that optimizes dry matter intake, promotes herd health and productivity. The feed must be available in sufficient quantity to avoid frequent ration changes and at a reasonable price.

Good corn silage is a quality feed for dairy cattle and usually a very good value for the money. To gain the highest return on their dollars, dairies that raise crops should grow their own corn for silage before growing corn for grain.

Value on...the grain market

Income: Bushels of shell corn x price

Harvest costs:

Combine (\$23.50 per acre)

Haul and store (1 month) 6.5¢ /bu.

Drying 20% to 14% (15¢ /bu.)

Storage (per month) (3¢ /bu.)

This corn silage pricing discussion is based on a corn crop standing in the field. While what it costs to grow the corn crop is important to the profitability of the crop farmer, it does not impact the final decision on a price for the standing crop. Presumably, the crop farmer wants to maximize income from his crop.

The grain market puts a value on the standing corn based on either the current market price, the anticipated market if the grain is stored for later sale, or the price at which the crop is contracted with a buyer of grain. In order to get that price, the grain farmer has to harvest and deliver the corn. Therefore, those costs must be deducted to calculate the net income for the crop sold as grain.

Example: the grain market



Per acre of standing corn

Income:

120 bu corn @ \$2.75/bu	\$330.00
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Expenses:

Combine @ \$23.50/acre	\$ 23.50
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Haul and store @ 6.5¢/bu	\$ 7.80
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Drying @ 15¢/bu	\$ 18.00
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Per acre income less harvest costs	\$280.70
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For example, if a farm can get \$2.75 per bushel out of the field and the crop will yield 120 bushels per acre, income per acre is \$280.70 after harvest costs. Harvest costs from Extension publication ESO-2354-96 “Farm Custom Rates Paid in Ohio, 1995”.

At a market price of \$2.30 per bushel, that same 120 bushels per acre will net approximately \$227 per acre after harvest costs

If the dairyman is not willing to pay at least the equivalent amount for the crop as silage, the crop farmer will be better off to sell the crop as grain rather than silage.

Value to...the grain producer

Net income over harvest costs

+ Value of fodder

+ Control over harvest



Possible perks:

Manure nutrients & organic matter

To the grain farmer, the corn crop may have more value than just the income from the sale of grain. If the crop is sold as silage, the corn fodder is no longer available as ground cover and/or as a source of some nutrients and organic matter. This creates a potential opportunity for the dairy to provide some nutrients and organic matter to the corn fields from manure.

The crop farmer may also have concerns about a different method of harvest (chopping vs. combining) and the potential impacts on his soils and access roads into the corn fields. What if soil conditions are wet when the corn crop is at its' optimum moisture level for harvest as silage? How is a decision reached to proceed with harvest?

Back to the cows...



1. Need estimates of nutrient composition
- DM, NEL, CP, NDF
2. Need estimates of nutrient values

Nutrient values used for today...

Nutrient	"Normal" Corn Silage	"Immature" Corn Silage	August '03 Value ¢/lb. ¹	"Historic" Value ¢/lb. ²
DM	35.1	Adjustment needed	-	-
NEI-3X	.66Mcal/lb	.66Mcal/lb	.050097	.045
RDP	5.69%	6.38%	.081595	.0734
Dig RUP	2.17%	2.48%	.240217	.2162
ne-NDF	13.05%	14.5%	(.03084)	(.03084)
e-NDF	31.95%	35.5%	.078065	.05

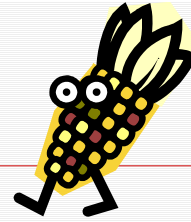
¹Calculated using "SESAME" software and 8/2003 commodity prices.

²Calculated using "SESAME" software and estimated "historic" feed values.

To value the silage based on nutrients provided, we need to estimate the dry matter (DM), energy (NEL), protein (CP) and fiber (NDF) provided by the silage. NRC 2001 nutrient values are used for "normal" silage with estimates of the nutrients that might be found in immature corn silage also included in the above table.

The SESAME computer program was used to value each nutrient based on the August 2003 or estimated "historic" values of alternative feedstuffs that could be used in Ohio. Several commodity feeds were overpriced (outliers) for various reasons in the August 2003 price list. The estimated "historic" prices give a slightly lower value for the nutrients, but represent a more realistic longer-term value to price a feed that will be used over an extended time in the coming year.

Pricing Standing Corn



Based on:

Assumed composition using NRC 2001 data
"Normal" corn silage (35% DM)

Today's prices = \$44.81/ton *to the cow
at feeding*

"Historic" prices = \$35.46/ton *to the cow
at feeding*

Based on the nutrient values calculated with the SESAME program, silage would be valued at \$44.81/ton at August 2003 prices, or \$35.46/ton at "Historic" prices sitting in the feed bunk in front of the cow *at feeding*.

These are not the prices that a dairyman should pay for the crop standing in the field, because that crop has not been harvested, fermented or stored. Costs for these must be deducted from the value at feeding to arrive at an "in the field" price.

Pricing Standing Corn: Adjustments



- Harvest costs:
 - Normal yield \$4 to \$5/ton
 - Low yields \$5 to \$7/ton
- Storage costs (\$3-\$4/ton)
- Shrink (10%)
- Risk



Adjustments to the nutrient value at feeding include costs of harvesting, storage, shrink (seepage and DM loss) and finally, risk.

For example:

Pricing Standing Corn



Nutrient Value at feeding: \$35.46/ton

Less:

- Chopping = \$5.00
- Storage = \$3.50
- Shrink @ 10% = $\$35.46 \times 0.1 = \3.55

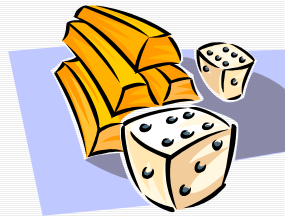
**Estimated Nutrient Value of Standing
corn:**

= \$23.41/ton - RISK

After deducting harvest costs, the value of the corn silage is \$23.41/ton before any adjustment for risk.

Pricing standing Corn: Risk

- Actual nutrient values?
- Successful fermentation?
- Nitrate levels?
- ?
- ?



There are a number of factors for which the dairy farmer is assuming risk when he/she purchases a standing crop. What will the actual nutrient value of the silage be? Can it be harvested properly and on time so that a successful fermentation takes place?

The price for the standing crop should be discounted to recognize these risks. What is the right amount to discount? This is not an easy question and is one of the factors to consider when buyer and seller are negotiating a final price.

Simple dry matter adjustments

\$35 in-bunk value per ton at 35% DM

$$2000 \text{ lb} \times .35 = 700 \text{ lbs DM}$$

$$\$35/700 = \$0.05 \text{ per lb DM}$$

-or-

$$\underline{\$35/.35 = \$100 \text{ per ton of dry matter}}$$

Adjusting the price for DM

At 30% DM:

$$\$100/\text{T DM} \times .30 = \$30/\text{T}$$

At 38% DM

$$\$100/\text{T DM} \times .38 = \$38/\text{T}$$

Still need to adjust for chop, store, shrink, risk.

Beware too wet or too dry!

While any given silo will have some variations in dry matter, if silage dry matter varies significantly from 35%, it is reasonable to adjust the price based on DM content. If DM levels are quite low or high, resulting in poor fermentation, not only should the price be adjusted based on DM, but also discounted as the cows' DM intake will likely be impacted.

Hidden costs of “wet” silage

- Decreased dry matter intake
 - Decreased feed costs
- Decreased milk production

Need a price adjustment

Many farms may have the opportunity to purchase corn that will not mature sufficiently to make a dry grain crop due to 2003's cool, wet weather conditions that led to late planting in many areas.

In a review of previous research, Bill Weiss, OSU Dairy Nutritionist, (see “Immature Corn Silage” also available on this web site) indicates that DM intake is highly likely to be depressed when animals are fed silage made from immature corn plants, even though the actual nutrient analysis appears to be better than that of “normal” silage. Decreased dry matter intakes will result in lower feed costs, but also result in greater lost milk income. Therefore, the price for immature or “wet” corn should be discounted beyond the harvest, storage, shrink and risk components. Discounting the value of DM by 15% is a reasonable estimate.

Calculating price per ton of dry matter and adjusting (15% discount) for immature silage:

The cost of wet silage

Nutrient value at feeding: \$35.46

Determined for "normal" silage at 35% DM

1) Calculate value per ton of DM:

$$\$35.46 / .35 = \$101.40 \text{ per ton of DM}$$

2) Discount value by 15% for "wet" silage:

$$\$101.40 \times .85 = \$86.19 \text{ per ton of DM}$$

Valuing wet silage...

3) Calculate as-fed value for silage's moisture
(our example silage is 26% DM)

$$\$86.19 / \text{T DM} \times .26 = \$22.40 \text{ per ton of DM as fed}$$

4) Adjust for costs		\$22.40/T as fed
Less: Chopping	5.00	
Storage	3.50	
Shrink	2.40	
		<hr/>
		\$11.50/ton



Considerations in the field

- Buyer:
- Quality
 - Moisture
 - Feed value
 - Harvest
 - Timely
 - Processing
 - Restrictions
 - Measurement
 - Price/Payment
 - Agreement
-

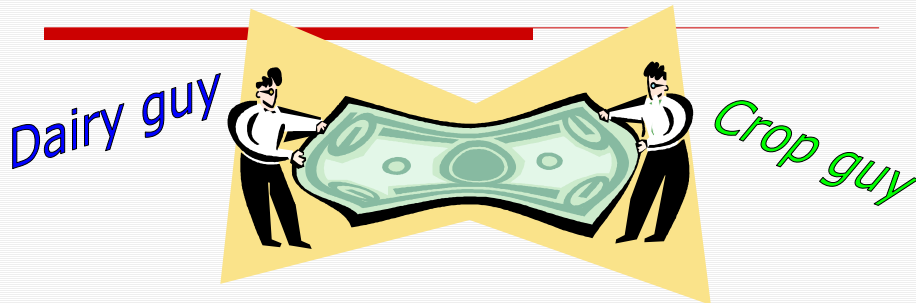


Considerations in the field

- Seller:
- Quality
 - Moisture
 - Feed value
 - Harvest
 - Timely
 - Restrictions
 - Measurement
 - Price & Payment
 - Agreement
-

During the negotiating process, it is helpful if each party recognizes the interests and concerns of the other. In many cases, considerations may be very similar. Both parties are interested in a quality product, minimal adverse affects to fields and equipment, and potentially developing a long term relationship that contributes to the profitability of each farm.

Striking the best balance



Nutrient Value:
~\$23.41/T
("normal corn")
Less risk

Grain Value:
~ \$17.54/T
(16T/ac ≈ 120 bu)

Setting the final, fair price for corn silage rests on an understanding of the needs of both the buyer and the seller and negotiating a price that ensures a reasonable profit for both.

The crop farmer should know his break even price. In other words, if he were to sell his crop for grain, he would make \$280 per acre after harvest costs in our earlier example. If that 120 bushel/acre crop yields ~16 T of corn silage per acre, then his lowest price should be $\$280 \div 16 = \17.54 per ton. Each crop farmer should review his/her grain harvest costs and yield potential to calculate the value that best represents their farm.

The dairy guy doesn't want to pay more than about \$20 to \$22 per ton (\$23.41 per ton based on "historic" nutrient values less harvest, etc. costs and a discount for risk). Between these values, the crop guy and dairy guy can settle on a price that is favorable for both.

Finally, to avoid future headaches...

Get it in writing...



Before you chop!

Finally, it is critical that both parties agree on price, restrictions, payment method and timing, crop measurement and all the details included in the considerations for buyer and seller discussed earlier ***before the crop is harvested!*** Ideally, the agreement should be in writing and signed by both parties. This is especially important when large quantities of crops are involved. While this type of contracting may be uncomfortable for some producers, mainly because they aren't used to conducting business on more than a handshake, it forces the parties to discuss issues up front and can minimize troubling misunderstandings after harvest.

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