



What Tools Are Available to Price Corn Silage?

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Corn silage is the primary forage fed on many New York dairy and livestock farms. There are continual questions and debates about methods that can be used to price corn silage. It is difficult to use current market prices since corn silage is not usually traded on the open market in New York. In 2016, the pricing question is even more challenging since there will be variation in the maturity of corn silage at harvest. There will most likely be some corn silage harvested with small or no ears.

Two main methods have been used to price corn silage. One is based on the quantity of corn grain (bushels/acre) in the crop. The second approach is based on the economic value of corn silage based on nutritional content. A third method that can be used would be based on the enterprise budget for growing corn grain or corn silage. On most dairy farms, there is not adequate data to use this method.

Pricing corn silage based on corn grain content

This is an attractive method due to simplicity. This method uses the relationship between grain yield and silage yield. As you would expect, this is not a perfect relationship and can be altered by many factors. The calculation used is:

$$\text{Corn silage price, \$/ton} = \text{Corn grain, \$/bushel} * \text{Corn yield (bushels/ton)}$$

If corn grain is \$8/bushel and the yield is 7 bushels/ton, then the price for corn silage (35% DM) standing in the field would be \$56/ton. Dr. Bill Cox in the Department of Crop and Soil Science conducts corn silage test plot trials each year at a number of locations in New York. The average bushels of corn grain per ton of silage for the Aurora test plots was 6.36 in 2009, 7.32 in 2010 and 5.35 in 2011. These values indicate the changes that can occur between years due to weather and other factors. Bushel yields were calculated using the plot yield data, plant dry matter content and plant starch content of the hybrids used in these trials.

The bushels of corn grain per ton of corn silage (35% DM) can be calculated as follows:

Starch yield/acre (dry matter basis) =

Tons wet silage yield*% DM*% starch

Example:

- Yield = 20 tons/acre
- DM, % = 35
- Starch, % = 30

$$= (20 * 2,000 \text{ lbs/ton}) * 0.35 * 0.3 = 4,200 \text{ lbs.}$$

starch/acre Bushels of grain/acre = lbs. of starch

$$* 0.0293 = 123 \text{ Bushels of corn grain/ton of wet silage} =$$

$$123/20 = 6.15$$

Source: <http://fyi.uwex.edu/forage/files/2014/01/GrainYieldfromCornSilagell.pdf>

For corn silage yields ranging from 15 to 25 tons/acre (35% DM basis), the estimated bushels of corn grain/ton of corn silage are:

<u>Starch, %</u>	<u>Bushels corn grain/ton silage</u>
20	4.1
25	5.1
30	6.1
35	7.2
40	8.2

The price determined by this method should be considered a starting point. This value does not consider harvest, storage or feeding losses. It also does not consider any variations in forage quality or feeding value. An adjustment of this price would also be needed if plant dry matter is different from 35%.

Pricing Corn Silage Based on Nutrient Content

This approach is based on using forage analysis data and the market cost of other feeds to determine the price of corn silage. The value determined by this method is the value of the corn silage when it is fed to the cow. A number of tools are available to assist with these calculations. These include:

- Feed Value Calculator – Penn State
 - o <http://extension.psu.edu/animals/dairy/nutrition/forages>
 - o Scroll down to Feed Value Calculator spreadsheet
- FeedVal2012 – University of Wisconsin
 - o http://dairymgt.info/tools/feedval_12/index.php

Corn Silage Pricing Spreadsheets

There are also spreadsheet tools available that utilize more information and account for additional factors that can be used to determine the price of corn silage. These assist in doing these evaluations from both the seller and buyer viewpoints. For the seller, an evaluation of selling the crop as grain versus silage can be done. The buyer can make adjustments for harvesting and storage losses as part of the pricing and decision making process. Examples of the available spreadsheets include:

- Pricing Standing Corn for Silage
 - o <http://extension.psu.edu/business/farm/management/financial-management/calculators/corn-silage/CornSilage.xls/view>
 - o Scroll down to: Pricing Standing Corn for Silage

- Corn silage pricing decision aid
 - o <http://fyi.uwec.edu/forage/economics/#CS>
 - o Both a worksheet and spreadsheet are available.

- Corn silage value calculator
 - o Purdue University
 - o www.extension.purdue.edu/dairy/forage/drought.htm
 - o Scroll down to: Corn Silage Value Calculator

The results of all of these approaches provide a starting value that can be used in the decision making process for establishing a price for corn silage. Most of these methods assume “normal” maturity and grain fill. Additional considerations are needed for immature or poorly eared corn silage as ear fill, grain development or crop yields may be greatly reduced in some growing seasons.