



Tamilee Nennich,
assistant professor,
and Kern Hendrix,
professor emeritus
Purdue University
Department of
Animal Sciences

Determining a Value for Corn Silage

Pricing silage crops can be much more challenging than pricing grains, since they are not sold as routinely and, therefore, do not have a readily known market price. The following is a brief discussion of some methods for determining prices for various types of silage. Even though arriving at a price for silage may be more difficult, basing the cost of the silage on the market value of grain provides a strategy to arrive at a price for corn silage that can be used by both the crop grower and livestock producer.

Keep in mind that the moisture content of silage is an important factor that needs to be accounted for when determining a pricing strategy. Since silage should contain 50-70 percent moisture (toward the upper end of the range for corn silage and a bit lower for alfalfa or grass silage), the amount of actual feed or dry matter varies greatly and should be taken into account. Determination of the silage dry matter is necessary to arrive at the actual amount of feed that is harvested from a field.

Corn Silage

There are a number of methods and formulas that may be used to determine the value of whole plant corn silage. A “quick and dirty” method to determine the price of corn silage is simply multiplying the price of a bushel of corn grain by a factor of 8-10. However, the use of more detailed methods will provide estimates that more closely reflect the value of the corn silage and result in prices that are more transparent for both the grower and the purchaser.

One approach to calculate the value of corn silage is to take into account the dry matter content of the crop and estimated grain yield, while crediting the grower for the value of organic matter (stover) removed from the field. This method is reflected in Part 1 of the Corn Silage Crop Calculator spreadsheet (<http://www.extension.purdue.edu/dairy/articles/CornSilageValueCalculator.xls>). To use this calculator, the yellow-colored cells should be adjusted to reflect the correct values for the situation being evaluated.

Purdue Animal Sciences
www.ag.purdue.edu/ANSC

Two versions of the calculator are available for use, depending on the inputs that are accessible. If corn silage yields are available, the “Silage Yield Input” spreadsheet should be used. In cases where silage yields are not known but data on historical corn yields are available, use of the “Corn Grain Yield Input” spreadsheet will provide an estimate of corn silage yields and value.

Besides knowing the yields of either corn grain or silage, the dry matter of the silage should be determined. Recommended dry matter (DM) for corn silage ranges from 32-35 percent DM for bunkers and bagged silage, and 33-38 percent DM for silos. Additional information on determining dry matter can be found at http://www.extension.org/pages/Dry_Matter_Determination.

The corn silage calculators are based on the value of the corn grain present in the silage. In these calculators, the grain yield or corn silage yield is determined through an equation developed by Lauer and Undersander (2004). The equation was developed using 426 samples of corn collected between 1997 and 2002. The equation used to determine corn grain yield is:

$$\text{Corn grain yield (bushels/acre)} = (42.3 \times \text{tons of silage DM}) - (1.53 \times (\text{tons of silage DM})^2) - 72.7.$$

After estimating the yield of corn grain, the value of the corn is multiplied by the market value. To arrive at the final price of the corn silage, the cost of harvesting and storing the corn grain — which would be the responsibility of the grower if the crop was sold for grain instead of silage — is subtracted from the market price of the corn. Finally, the grower is credited for the removal of organic matter and nutrients from the field through the removal of the corn stover. The resulting calculations provide a value for wet corn silage on both a per-ton and per-acre basis.

Estimating the cost associated with harvesting and storing corn grain will depend on fuel, equipment, labor and drying expenses. Average harvesting and hauling costs will be in the \$45-\$55 range. Depending on the moisture content of the grain and the drying system, average costs associated with drying will range between \$30 and \$40 per acre.

Arriving at a value for the removal of stover does provide some room for negotiation. One way to arrive at an estimate for the value of stover removed from the field is to determine the net profit that would be expected if the stover were sold as a bedding source. There also are analyses available on estimated costs to remove stover from a field if more detailed information is preferred.

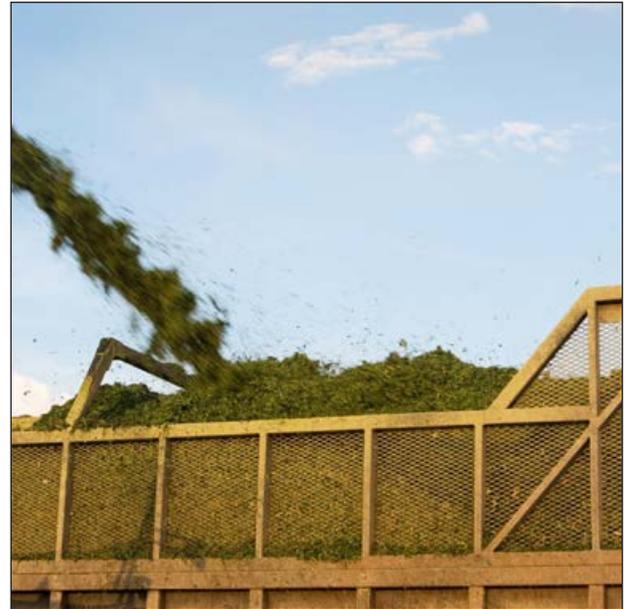
Although the price paid for corn silage in the field often is the main concern of livestock producers at the time of harvest, considering the additional costs of the silage and arriving at the final cost of the silage is important. Part 2 of the Corn Silage Crop Calculator is provided to assist a producer with estimating the total cost of the corn silage at the time of arrival at storage and at the time of feeding.

The additional expenses associated with harvesting, hauling and storage can substantially add to the cost of the silage. Although the costs of harvesting and storage can vary greatly depending on how the silage is harvested and stored, costs for harvesting silage have traditionally been in the \$8-\$10 range. However, these costs can vary depending on fuel costs, equipment costs, labor and other factors.



The “Cost of Silage to Producer” value is reported as a value per ton before shrinkage, and represents the value of the silage that arrives at the silo, bunker or bag. Shrinkage, or dry matter loss, is a factor that often is not accounted for. Shrinkage may include silage lost to spoilage, seepage or birds, or overestimation of dry matter content. Even in well-managed and preserved silage, 10 percent shrink is fairly common. Don’t forget to account for DM losses (shrinkage) when determining the actual feeding value of corn silage.

Although tools are a valuable starting point for determining the value of corn silage, be aware that local factors, such as availability of other feeds, quality of the crop, supply and demand, and traveling distances, can directly affect silage value. Open discussion and transparency in the pricing process will facilitate arriving at a price that both the seller and buyer understand.



Reference

Lauer, J. and D. Undersander. 2004. “Pricing corn silage for sale.” In: *Proceedings and Joint Meeting of the Professional Nutrient Applicators of Wisconsin, Wisconsin Custom Operators, and Wisconsin Forage Council*. Eau Claire, WI. p. 87-91 (invited).

Apr 2013

It is the policy of the Purdue University Cooperative Extension Service that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue University is an Affirmative Action institution. This material may be available in alternative formats.