

Contracting Corn Silage for Your Dairy

The dairy industry continues to change as cow numbers relative to tillable crop acres continues to increase. This precipitates a need for off-farm forages such as corn silage to be purchased and a need for dairy manure to be exported off the farm in many cases.

Corn silage buy-sell contracts are becoming more popular. The corn silage buyer benefits with the purchase of high volume of energy-rich feed that can be harvested and stored in a very timely fashion for a cost per ton of dry matter that is competitive with other forage alternatives, including raising their own corn silage. It may also give an avenue to apply excess manure nutrients for dairies needing additional land for manure spreading if team cropping with a neighbor.

The corn silage seller benefits by attaining a local market price with less labor and without harvest, dry down, transportation or storage costs. In addition, if the dairy is looking to apply manure, the cash crop producer can increase soil nutrient values over time in trading the value of the corn stalks for dairy manure. As Table 1 shows, cash crop producers can gain by teaming up with neighboring dairy producers to engage in a win-win situation for improving profitability for both.

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Table 1. Comparison of Returns: Grain versus Forage (per acre)¹

	Corn for Grain² for Cash Sale	Adjustment for Corn Silage⁴
Gross Income		
Crop Sales (160 bu.x \$2.35)	\$376	
Farm Program payments ³	\$80	
Total Gross Income	\$456	
Cash Production Costs		
Seed	\$33	\$36
Fertilizer	\$65	\$75
Chemicals	\$44	\$44
Machinery Costs	\$88	\$63
Drying Costs	\$25	none
Gross Returns	\$201	\$238
Returns after land charge (\$150/acre)	\$51	\$88
Return after labor charge (\$10/hour)	\$25 ⁵	\$68 ⁶

Accordingly, a cash crop producer can increase net profits by \$43 per acre or \$0.27 per bushel in this example by selling to a dairy producer. In addition, machinery and labor costs are saved by not needing to harvest, transport, store and/or dry the corn. The only issue needing attention is the lessened amount of residue left in the field from an environmental perspective. However, timely application of dairy manure bartered in the transaction could and should reduce this issue to a negligible level.

The trading of the corn stalk for dairy manure is also a win-win situation. Twenty tons of dairy manure would put back up to 240 pounds of nitrogen per acre, 120 pounds of P₂O₅ and 240 pounds of K₂O (each ton of dairy manure contains approximately 8-12 lbs Nitrogen, 4-6 lbs P₂O₅ and 8-12 lbs of K₂O). Twenty two tons of corn silage removes an estimated 77 pounds of P₂O₅ and 143 pounds K₂O, about half which would have been removed already just by harvesting the grain. Thus, the replacement of dairy manure is more than enough to replace the nutrient values contained in the corn stalks. In fact, a rate of 10-12 tons of dairy manure per acre would probably suffice for the replacement value of both the stalk and grain.

Corn silage contracts must be equitable for both buyer and seller.

¹ Table 1 prepared by Robert Tigner, Dale Thoreson and Larry Tranel, Iowa State University Extension.

² 160 bushel yields

³ maximum payments possible for 2002 farm bill

⁴ 22 tons per acre actual corn silage yield

⁵ 2.6 hours

⁶ 2 hours

Sample Dairy Corn Silage Contract

This buy-sell agreement is between _____, buyer and _____, seller. Buyer agrees to purchase approximately _____ tons or _____ acres of corn silage from the field located at/near _____. The buyer agrees to purchase the corn estimated at _____ bushels per acre multiplied by a market price of _____ per bushel (or the local market price on day of harvest) less a custom combine harvest cost per acre of \$_____ (usually \$22-\$30 per acre). The buyer agrees to purchase the silage as is with no other harvesting, drying, transportation or storage costs to the seller. The buyer agrees to harvest the silage and pay for all costs incurred in the harvesting and storage of the silage. In addition, the buyer agrees to return approximately _____ tons per acre of dairy manure (6000 gallons liquid manure would supply nitrogen needs for 160 bushel yield) to compensate the seller for the nutrient content of the stalk. The buyer and seller would need to sign and date the contract.

Example Form Calculating Net Values to Seller per bushel and per acre

		Yours
Selling Price for shelled corn (@ 85% dry matter)	= \$2.35/bushel	_____
Minus harvesting cost (\$28/acre / 160 bushel)	= - \$.16/bushel	_____
Drying, handling, storage (\$25/acre / 160 bushel)	= - \$.16/bushel	_____
Net Value to Seller	= \$2.03/bushel	_____
160 bushels corn @ \$2.03 bushel	Net Value to Seller = \$325.00 / acre	_____ with manure
*Plus P & K removed	= +\$21.00/acre	_____
*only if manure is not to be returned to the land.	Net Value to Seller = \$346.00/acre	_____ w/o manure

Example Form Calculating Net Values to Buyer per ton

Number of tons of corn silage harvested at <u>35</u> % dry matter (20)	= \$16.25/ton	_____ with manure
Cost for harvesting, transporting and bagging	= + \$9.00/ton	_____
(this \$25.25 per ton equals \$72 per ton dry matter)	Net Value to Buyer = \$25.25/ton	_____ with manure

Payment to the Seller can be based on either a per bushel basis or per ton of silage harvested basis. The per bushel of corn harvested would require a pre-harvest yield check. If the payment is based per ton harvested, it is critical to have accurate dry matter tests and yield estimates. This will require moisture testing representative samples daily or by field and weighing all representative loads of silage across a scale. Price adjustments will be needed for corn silage at varying moisture levels. For example, in the value above on 35% dry matter silage equals \$16.25 per ton or \$0.023 per pound of dry matter. Therefore, silage at 40% dry matter is valued at \$18.57 (800 lbs. dry matter x \$.023) and silage at 30% dry matter is valued at \$13.80 (600 lbs. dry matter x \$.023). This assures that the grower will receive the same gross payment regardless if the buyer harvests at varying moisture levels.

The buyers cost of chopping, hauling and ensiling the corn silage is estimated at \$6 per wet ton (\$5-\$7 range), based on cost estimates. Another \$3 per ton is typical for storage costs. Therefore, the total 35% corn silage value to the cow would be \$25.25 (\$16.25 + \$9.00). This does not include the shrinkage due to fermentation and feeding losses.