



Dairy Pipeline

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Silage, Grain and Hay Prices

I am frequently asked, "What is silage, haylage and high moisture corn worth?" I shudder sometimes at these questions because I don't want to become a price setter in the marketplace. However, I am interested in helping farmers become informed buyers and sellers.

Most people want a simple, single answer, but there is no single right price for feeds; just look at the market reports! And, prices vary for a good reason. Many factors affect the price of feeds, and I'll try to discuss a few of these factors, using corn silage as an example. The following guideline may be helpful. This guideline was developed and designed for corn silage, but portions of it can be applied to the purchase of other feeds as well.

The value of corn silage depends in part upon the cost of other feeds that it can replace in the ration. Corn silage is valuable primarily for its energy and fiber content. On a dry matter basis, one ton of corn silage will provide about the same amount of energy, fiber and protein as 1,000 pounds of DM from average quality grass hay plus 1,000 pounds of DM from ear corn.

If hay was worth \$70 per ton, \$35 per half ton, and ear corn was worth \$50 per ton, \$25 per half ton, on the farm where it was produced, corn silage would be worth a maximum of \$60 per ton at 90 percent DM, on that same farm. These calculations are performed in steps 2 and 3 above.

Keep in mind, the above value is for 90 percent DM. If the silage we are buying has 35 percent DM, 65 percent moisture, it is worth much less because of its lower DM content. We buy feed for the DM and nutrients it contains, not for the water it contains. A word of caution. If ensiled feeds are too dry, quality may be inferior; this is one case where drier feeds would actually be worth less, not more.

Adjusting prices for moisture and for other factors is covered in steps 4 and 5 above. Are getting the quality of silage you need? Check the fineness of chop, check for the presence of molds, and check the odor. You want a product that cows will eat and one that will not upset them.

What facilities do you have for handling silage or for feeding hay? If you are not set up to feed hay, then you can probably justify paying a little extra for silage because of convenience or automation. On the other hand, if the silage forces you into daily hauling and a lot of hand work, it is worth less to you. Make these adjustments in item 5.

The risk factor is one that is frequently overlooked. If you buy silage and transfer it to another storage structure you have some losses as a result of secondary fermentation. These losses are variable and may be in the form of the loss of DM and energy as a result of the heat of fermentation, and a loss of quality due to poor preservation. Perhaps the calculated value in step 4.b. needs to be reduced 10 to 20 percent in step 5.d.

What's Silage Worth in The Field?

If we have already determined the value of harvested silage at the farm where it was grown (steps 4.b. and 5.), then we need to consider the cost of harvesting plus the cost of any risks associated with harvesting.

When you purchase harvested silage, many risks have already been absorbed by the grower. He got the crop harvested on time for optimum quality — before the blight struck, before the arrival of winds and rains, and before the harvester broke down. He also was successful in preserving it well. When you buy a crop in the field, you assume these risks.

Are you purchasing the crop on a per acre basis or on a per ton basis? Either way, you'll need an estimate of tonnage. A word of caution: most people tend to over-estimate yields. Yields can be estimated in several ways.

1. Loads per acre x average weight per load = tons harvested. The challenge here is to keep load size uniform.

2. Tons put into the silo — acres per silo = tonnage per acre. Tonnage in the silo can be estimated by using silo charts.

Be sure to adjust for moisture content of the silage, feeding out and refilling, old silage on the bottom, etc. Some silo capacity charts are based on 70 percent moist silage, but few farmers put up 70 percent moist silage. The factors, discussed earlier in step 9, can help you estimate tonnage more accurately.

If you are buying silage in the field, you'll also need to be concerned about harvesting costs. They can be estimated as follows:

1. Charge per hour — acres per hour = cost per acre.
2. Cost of filling the silo — tons in silo = cost per ton.
3. Cost per ton (from 2, above) x tons per acre = cost per acre.

Negotiable Range

So far, we've been discussing the maximum price a farmer can justify paying for silage. There is another side to the bargaining table, the minimum price the grower must have. The difference between these two values is the negotiable range between buyer and seller.

The grower has the alternative of selling the corn crop as grain, and should expect no less income than this. That income would be yield x net price per bushel. If he has a 125 bushel corn crop and if the net price of corn at the farm is \$1.50 per bushel, then he should expect no less than \$188 per acre. But if he harvests the crop as silage he'll have additional harvesting costs, of, let's say \$15 per acre, plus the value of the fodder removed, which might be worth \$60 per acre (1.5 ton of fodder at \$40 per ton). That brings his total to \$263 per acre. If he gets 18 ton of silage per acre he'll need a minimum of \$15 per ton of silage harvested, at his farm (\$263 — 18T = \$14.61).

Another negotiable figure is the tonnage of silage per foot in the bottom of a silo versus that in a foot at the top of the silo. It's quite different! How different? I'm not sure, but the compaction factors I used in step 10 earlier may be of some help.

Corn Silage Pricing Guide

1. Alternative feeds. On a dry matter basis, one ton of corn silage is equivalent to about 0.5 ton of average quality grass hay plus 0.5 ton of ear corn.
2. Price of alternative feeds at the farm where grown:

	1 Ton	0.5 Ton
a. Grass hay (90% DM)- average quality	—	—
b. Ear corn (90% DM)	—	—
3. Value of 1 ton of 90% DM from corn silage (item 2.a. + 2.b.)
4. Maximum value at actual moisture:

a. DM of purchased silage = 100 - % moisture	—
b. DM of silage in item 4.a. x Value of silage in item 3	() = —
DM of silage in item 3 (90)	—
5. Other price adjustments:

a. Quality (moisture, molds, odor, fineness, additives)	—
b. Transportation (if delivered)	—
c. Convenience (availability and handling)	—
d. Risk (market trends, secondary fermentation if transferred)	—
e. Harvesting (field price. Harvest costs, weather, delays)	—
6. Net maximum value of 1 ton of corn silage to the buyer. Add or subtract the adjustments in item 5 from item 4.b.
7. Minimum price for the grower.

a. Grain yield per acre x net price/bu. =	—
b. Silage harvesting cost per acre — combining cost =	—
c. Value of fodder, stalks and cobs	—
d. Minimum income needed per acre (item 7.a. + 7.b. + 7.c.)	—
e. Minimum price per ton = item 7.d. — tons silage per acre =	—
8. Negotiable range = item 6 — item 7.e. =
9. Silo capacity charts can be useful in estimating tonnage. Tonnage in a silo will depend upon the moisture content of the silage, height of fill and fineness of chop. Some silo capacity charts are based upon 70% moist silage. The following factors, multiplied by the tonnage of 70% moist silage, will approximate the tonnage of silage at the various levels of moisture shown below:

75%-1.2	65%-0.86	55%-0.67	45%-0.55
70%-1.0	60%-0.75	50%-0.60	40%-0.50

10. What's left in the silo? The density of silage (lbs. of silage per foot of height) at the top of a silo is less than the density at the bottom. The density in the bottom (compaction) will be determined in part by how full the silo was originally filled. Thus, when purchasing, or selling silage from the bottom of the silo, it is helpful to know how full the silo was filled originally.

In the absence of a silage compaction chart, the following untested factors are offered as a helpful guideline: they may be more helpful than no guideline at all.

11. Height of fill
12. Tons of 70% moist silage (from silo chart)
13. Tons of 65% moist silage (see item 9)
14. Feet per 1/5 section = height of fill — 5 =
15. Average tons per foot (item 13 — item 11) =

Example	Yours
70	
570	
490	
14	
7	

16. Example:

Section	Silo Footage	Compaction Factor (estimated)	Avg. Tons per Foot (item 15)	Estimated Tons per:		
				Foot	Section	
Top fifth	57-70	0.85 x	7.00	=	5.95	83
2nd fifth	43-56	0.92 x	7.00	=	6.44	90
Mid fifth	29-42	1.00 x	7.00	=	7.00	98
4th fifth	15-28	1.18 x	7.00	=	7.56	106
Bottom fifth	0-14	1.15 x	7.00	=	8.05	113
Total (should equal item 13)						490

7. Yours:

Section	Silo Footage	Compaction Factor (estimated)	Avg. Tons per Foot	Estimated Tons per:		
				Foot	Section	
Top fifth	—	0.85 x	—	=	—	—
2nd fifth	—	0.92 x	—	=	—	—
Mid fifth	—	1.00 x	—	=	—	—
4th fifth	—	1.18 x	—	=	—	—
Bottom fifth	—	1.15 x	—	=	—	—

Let's say that you have a 20x80 silo, which you had completely filled. You fed out all but 20 feet. How much tonnage remains to sell to someone else. You can't simply go to the 20x80 silo chart and use the 20 foot high rate. If it were only filled to the 20 foot height, the chart

would be okay. But you filled it to the 80 feet height, and that really changed the compaction in that bottom section! The factors in step 10 can help compensate for some of these differences.

While these examples were for corn silage, many of these concepts can also be applied to other feed purchases.

Medication Replaces Nutrients Lost In Freshening

MANCHESTER, Pa. — Animal Medic, Inc. recently extended their line of drug-free medications with the introduction of Fresh Charger, nutritional boluses for dairy cows at calving.

This medication is to be administered within four hours of freshening. According to Larry Gladfelter, president of Animal Medic, the levels of vitamins and minerals in Fresh Charger will replace those lost naturally in the process of calving. Post-calving problems, including retained placenta, metritis and milk fever, should be greatly reduced.

Fresh Charger Boluses contain

calcium, magnesium, phosphorus, sodium, potassium, vitamin D₃, vitamin E, cobalt, selenium and iodine.

Since Fresh Charger Boluses contain no drugs or antibiotics, they leave no residue and cause no withdrawal for slaughter or milk. However they are not intended to replace any drug indicated by a veterinarian's diagnosis or a careful evaluation of the animal's condition.

For more information, write to Animal Medic, Inc., P.O. Box 575, Manchester, PA 17345-0575. Telephone 1-800-233-1956 (Pennsylvania: 1-800-632-1831).

