

VALUING OFF FARM INPUTS

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TAKE HOME MESSAGES

- Dairy producers who utilize off-farm services may reduce investment per cow and allow more time to specialize in operating the dairy enterprise.
- Contracting off-farm inputs must be equitable for both buyer and seller.
- Forage contracts require accurate yield measurements or reasonable estimates by weighing some or all of the loads and using moisture tests to determine dry matter yields.

The Illinois dairy industry continues to be a changing and challenging business. The trend of increased cow numbers per farm brings about a change in the mindset of producers on how they manage the operation. The traditional dairy operation usually has enough tillable land to raise all of the forage and grain needs for the milking and replacement herd. However, as herd sizes increase so does the need for additional land to produce the amount of feed required annually. With limited land availability, higher land prices, machinery costs, and the need for extra labor to manage the larger herd, many dairy producers are rethinking their ways of doing business. In order to reduce capital expenditures and cut back on labor requirements, producers are exploring options of contract service arrangements with crop farmers or service providers.

Since feed costs are the single largest cost item on the dairy farm, it is important to find the most profitable solution to acquiring high quality feedstuffs for the herd. This may be growing all of your own forage and grain needs, growing just forages, growing just grains, or not growing any feeds. The latter may be the choice of dairy producers who want to specialize with the milking herd and not want to dedicate time and investments to the cropping enterprise. Approximately 2.5 to 3 acres is needed to provide the annual forage and shelled corn needs for one cow and one replacement heifer. As herd sizes increase, the crop acres per cow decrease. This is shown in the 2001 study of Milk Production Costs on Selected Wisconsin Dairy Farms. The crop acres per cow for herds with 51 to 75 cows was 4.5 acres and declined steadily to 2.1 crop acres per cow for herds greater than 250 cows. One option for the growing herds will be to contract additional feed from area crop producers or other providers. Obviously, the second option would require the dairy producer to purchase or rent additional land to grow the needed feed supply. This latter option may not be viable depending on nearby land availability or capital assets needed.

VALUE OF STANDING FORAGES

Producers who have their own equipment may consider purchasing standing forages out of the field. The common question is “what is a fair price to charge or pay?” Certainly the supply and demand can have an influence on this answer. For hay crops, the market value per ton is lower in

the spring for 1st cutting and may change according to supply and demand during the growing season. The following example determines the current market value per ton of standing alfalfa. .

Example for hay:

	Your Farm
Current market for 1 st cut alfalfa = \$80.00/ton	_____
Less harvest cost per ton (Table 1) = \$30.00/ton	_____
Standing value of hay = \$50/ton	_____

In this example the grower assumes all establishment and growing costs plus land charge. The buyer assumes all harvesting costs. Since values are based on tons, it is important to get accurate weights or yield estimates. When harvesting as haylage, the value per ton is determined by pounds of dry matter, so a lab test or moisture tester will be needed to determine dry matter.

Example for haylage:

	Your Farm
\$50.00/ton value standing hay @ 85% dry matter = \$.0294/lb DM	_____
Haylage @ 45% DM (900 #'s DM x \$.0294/lb DM) = \$26.46/ton	_____

Based on the above example for baled hay, the total cost of alfalfa to the buyer is \$80.00 per ton with the buyer assuming all risks of harvesting a high quality feed. This is a good buy when considering hay prices averaging over \$100 per ton on the open market. It is also a fair price to the grower when calculating the cost of producing alfalfa based on the 2001 Illinois Crop Budget – Alfalfa 6 Tons/Acre. The Illinois budget suggests total cost per acre minus harvesting costs is \$295. Thus, 6 tons @ \$50 per ton value out of the field equals \$300 return.

For corn silage, the fair market value is driven by the price of dry shelled corn minus the shelling and associated cost for handling the grain by the grower. In addition, the fertility value of the added phosphorus and potassium that is removed by chopping (no crop residue left) should be covered by the buyer. Other factors used in the example below include; assuming 7 bushels (range of 6 to 8) of shelled corn per ton of silage and yields are based on 35 percent dry matter.

Example for corn silage:

	Your Farm
Selling price for shelled corn (@ 85% DM) = \$ 2.40/bushel	_____
minus shelling cost (\$28/acre ÷ 140 bu) = - .20/bushel	_____
drying, handling, storage (\$21/acre ÷ 140 bu) = <u>- .15/bushel</u>	_____
Net Value \$ 2.05/bushel	_____
140 bushels corn x \$2.05 = \$ 287.00/acre	_____
Plus P & K removed (30 #'s P ₂ O ₅ + 110 #'s K ₂ O) = <u>\$ 21.00/acre</u>	_____

Value per acre	\$ 308.00/acre	_____
Value per chopped ton @ 20 tons/acre ($\$308 \div 20$) = \$	15.40/ton	_____

If the payment to the grower is based on tons of silage 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 or 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% DM silage equals \$15.40 per ton or \$.022 per pound dry matter. Therefore, silage at 40% DM is valued at \$17.60/ton (800 lbs. DM x \$.022) and silage at 30% DM is valued at \$13.20/ton (600 lbs. DM x \$.022). 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 \$6.00 per wet ton (\$5 to \$7 range), based on University of Illinois cost estimates Therefore, the total 35% corn silage value to the cow would be \$21.40 (\$15.40 + \$6). This does not include the storage costs or shrinkage due to fermentation and feeding losses.

OTHER CONTRACT CONSIDERATIONS

Additional off-farm inputs include custom planting, grain harvesting, forage harvesting, manure hauling, replacement heifer raising and others. When contracting with neighboring crop producers for feed supplies, also consider making arrangements to apply manure, from the dairy herd, back to their land. This could be in the form of an established cash value for the manure paid to the producer or the manure provided to the crop grower in exchange for assuming all hauling and spreading costs. Contracting with neighbors for available land to apply manure will become more and more critical as herd sizes grow and increased environmental emphasis is placed on the phosphorus component of manure nutrient management.

In order to accurately value off-farm inputs, it is best to use actual production costs and yields based on each individual farm or situation. Crop producers who are willing to invest in harvesting equipment and the time to manage the total growing and harvesting of alfalfa or corn silage may reap greater profits per acre versus selling the crop standing in the field. This additional profit is payment for the risk and management skills provided by the grower. Dairy producers who enter into buying contracts with growers will reduce their labor and management needs which can be shifted to other enterprises, such as the milking herd. It is recommended that dairy producers assess the annual feed inventory needs and position themselves to purchase contracts for off-farm feed supplies prior to peak demand times. This will help keep total feed costs in line.

Purchase price of off-farm feedstuffs can be established based on nutrient quality and verified by feed analysis. There are a number of tools available to help establish a fair price based on other feeds and nutrients available. FeedVal, a computer program developed by University of Wisconsin-Madison, uses current prices for shelled corn, soybean meal, limestone, and dicalcium phosphate to establish a break-even value for forages. Other pricing mechanisms include valuing alfalfa based on relative feed value (RFV) points with a base price for 100 RFV and additional value for every point above 100 RFV. The goal for “premium” dairy quality

alfalfa is 150+ RFV. The Milk 2000 software program, developed by Shaver and Schwab, University of Wisconsin-Madison, provides a guide for evaluating corn silages based on milk producing potential per ton. This program can provide valuable information in selecting specific hybrids to be designated as corn silage fields.

The figures used in this report are based on equipment ownership costs and crop budgets established in Illinois. There are several web sites available at University of Illinois and surrounding states providing custom rates, enterprise budgets and related information on pricing off-farm inputs. Following is a partial listing of web site addresses for your reference.

<http://il-traill.outreach.uiuc.edu>
<http://www.farmdoc.uiuc.edu>
<http://www.uwex.edu/ces/ag/facstaff/rateguide.html>
<http://www.uwex.edu/ces/forage>
<http://cdp.wisc.edu>
<http://www.exnet.iastate.edu/pubs>
<http://www.agecon.purdue.edu/ext>

Table 1. Per Acre Costs of Forage Operations – IL April 2000

Operation	Total	= Tractor Overhead	+ Implement Overhead	+ Fuel & Lube	+ Labor
Cutting, conditioning and raking hay					
Sickle Bar Mower	9.20	3.00	2.30	0.80	3.10
Rotary Mower	7.90	2.10	3.00	0.60	2.20
Pull-type Mower/Conditioner	12.80	3.60	4.70	1.40	3.10
Self-propelled Mower/Conditioner	12.70	-----	10.20	1.10	1.40
Rake (Side Delivery)	5.50	1.30	2.60	0.30	1.30
Rake (Wheeled)	3.30	1.30	0.60	0.30	1.10
Tedder	4.00	1.30	1.10	0.30	1.30
Baling hay					
Small Square Baler	16.40	5.00	5.30	1.90	4.20
1,000 lb. Square Baler	14.20	3.30	8.10	1.20	1.60
Round Baler	16.00	4.60	5.80	1.70	3.90
Forage harvesting as silage					
Pull-type forage harvester					
First cut hay	12.40	5.20	3.20	2.00	2.00
Remaining cuts	8.30	3.50	2.20	1.30	1.30
Corn Silage	49.00	18.80	15.70	7.30	7.20
Self-propelled forage harvester					
First cut hay	13.40	-----	10.40	2.00	1.00
Remaining cuts	8.90	-----	6.90	1.30	0.70
Corn Silage	46.60	-----	37.30	6.20	3.10

University of Illinois Farm Business Management, <http://www.farmdoc.uiuc.edu>