

Feeding for Milk Components: A Good Return on Investment

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With the improvements in milk component prices in the Federal Milk Marketing Orders (FMMO) over the last few months, adjusting dairy rations to improve milk component yields has a better pay back now than it did six months ago. Table 1 compares a 100-cow Holstein herd producing 75 lb/day of milk at 3.7% milk fat and 3.0% true protein vs. the herd at the same level of production with 3.9% milk fat and 3.1% true protein. Note that the increased nutrient costs of producing the extra fat and protein are taken into account. Nutrient costs are derived from the Sesame III analysis below and NRC 2001 nutrient requirements, and milk components prices are the November FMMO prices. The modest improvement in milk components yields an estimated \$902 monthly return on a \$386 investment for a return on investment (ROI) of 2.3. Potentially, ration adjustments can also increase milk yield, which would further enhance the ROI. Producers will want to work closely with their nutritionists and feed sales representatives to implement ration changes and increase income over feed costs.

Table 1. Income over nutrient costs (IONC) on a monthly basis for a 100-cow herd of Holstein cows at two different milk component production levels.

	<i>Income (milk sales)</i>	<i>Cost (nutrients)</i>	<i>Net (IONC)</i>
<i>3.7% milkfat, 3.0% protein</i>			
Body Weight	\$ -	\$ 2,962.78	\$ (2,962.78)
Fat	\$ 12,438.33	\$ 2,675.24	\$ 9,763.09
Protein	\$ 18,550.02	\$ 7,228.28	\$ 11,321.74
Other Solids	\$ 2,039.26	\$ 1,518.94	\$ 520.32
Water	\$ 801.54	\$ -	\$ 801.54
Total	\$ 33,829.15	\$ 14,385.24	\$ 19,443.91
<i>3.9% milkfat, 3.1% protein</i>			
Body Weight	\$ -	\$ 2,962.78	\$ (2,962.78)
Fat	\$ 13,110.67	\$ 2,819.84	\$ 10,290.82
Protein	\$ 19,168.36	\$ 7,469.23	\$ 11,699.13
Other Solids	\$ 2,039.26	\$ 1,518.94	\$ 520.32
Water	\$ 798.80	\$ -	\$ 798.80
Total	\$ 35,117.08	\$ 14,770.79	\$ 20,346.29

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The cost of the key nutrients was estimated using Sesame III software and break-even prices of commodities and forages used in dairy rations were predicted (Table 2). Net Energy of Lactation per Mcal, increased compared to October's value. Metabolizable Protein (MP) at 59¢/lb is slightly down from October but is still very high. Non-effective neutral detergent fiber (neNDF) and effective NDF (eNDF) are relatively unchanged at -8.7 and 4.6¢/lb, respectively. It is common for neNDF to be negative, as feeds that have high levels of this nutrient such as by-products like distillers' grains, corn gluten feed, etc. are discounted in the market relative to other feeds. Good- to high-quality, home-grown forages continue to be an excellent and inexpensive source of effective NDF. Overall, we have not seen as many changes in feed prices post-harvest as we would in most years.

Based on mid December wholesale prices for central Ohio, feed commodities fall into three groups:

Bargains	At Breakeven	Overpriced
Brewers' grains, wet	Alfalfa hay 44%NDF 20%CP	Bakery byproduct
Corn grain, ground	Cottonseed, whole	Blood meal
Corn silage	Cottonseed meal 41%CP	Canola meal
Distillers' grains w/sol	Gluten meal	Fish meal
Expeller SBM	Hominy	Molasses
Feather meal	Soybeans, whole	Soybean meal 44%CP
Gluten feed	Soybean meal 48%CP	Soyhulls
Meat and bone meal	Wheat midds	Tallow
		Wheat bran

The usual caveats with Sesame III™ results apply. You cannot formulate a balanced diet using only the feeds in the Bargains column. These feeds represent savings opportunities and can be utilized in rations to reduce feed costs within limitations for providing a balanced nutrient supply to the dairy cow. Prices for commodities can vary because of quality differences as well as non-nutritional value added by some suppliers in the form of nutritional services, blending, terms of credit, etc. Feeds may also bring value to a ration in addition to their nutrient value, e.g. tallow as a "carrier" and dust suppressant in vitamin/mineral pre-mixes and molasses as a source of sugars.

The detailed results of the Sesame III™ analysis are given in Table 2. The lower and upper limits give the 75% confidence range for the predicted Break-Even prices. Feeds in the "Appraisal Set" are either those that were completely out of price range (outliers) or had unknown prices, such as the alfalfa hays of different nutritional quality.

Table 2. Prices of dairy nutrients, and actual wholesale, breakeven (predicted) and 75% confidence limits for feed commodities used on Ohio dairy farms.

Price Prediction Reliability | 57.092

Estimate of Nutrient Unit Costs		
Nutrient name	Estimate	
NEI - 3X (2001)	0.070555	**
Metabolizable Protein (MP, g)	0.586601	**
ne-NDF	-0.086600	~
e-NDF	0.045535	

- A blank means that the nutrient unit cost is likely equal to zero
- ~ means that the nutrient unit cost may be close to zero
- * means that the nutrient unit cost is unlikely to be equal to zero
- ** means that the nutrient unit cost is most likely not equal to zero

Calibration set							
Name	Actual [T]	Predicted [T]	Lower limit	Upper limit	Corrected	75.0% CI	75.0% CI
Alfalfa Hay 44NDF 20CP	160.000	165.666	128.943	202.388	169.678	132.956	206.400
Bakery Byproduct Meal	215.000	197.046	166.684	227.408	-	-	-
Blood meal, commodity	825.000	702.099	663.866	740.332	-	-	-
Brewers Grains, wet	35.000	46.862	40.188	53.537	-	-	-
Canola Meal, mech. extract	330.000	235.115	218.992	251.237	-	-	-
Corn Grain, ground, dry	180.000	210.360	182.279	238.442	-	-	-
Corn Silage, 32-38% DM	35.000	65.389	52.982	77.797	65.389	52.982	77.797
Cotton Seed Meal, 41% CP	350.000	341.330	320.208	362.451	-	-	-
Cotton Seed, Whole w lint	267.000	260.895	211.169	310.620	-	-	-
Distillers Dried Grains w Sol	180.000	249.039	223.688	274.390	-	-	-
Feathers Hydrolyzed Meal	525.000	617.347	585.871	648.823	-	-	-
Gluten Feed, dry	152.000	197.447	179.379	215.514	-	-	-
Gluten Meal, dry	649.000	641.849	607.830	675.868	-	-	-
Hominy	165.000	179.196	157.163	201.229	-	-	-
Meat Meal, rendered	370.000	439.742	413.741	465.743	-	-	-
Molasses, Sugarcane	225.000	143.906	118.101	169.711	-	-	-
SBM 44% adj.	387.000	333.970	315.640	352.300	-	-	-
SBM 48% adj.	396.000	402.721	383.192	422.249	-	-	-
Soybean Seeds, whole roa	418.000	411.172	378.636	443.708	-	-	-
Soybean hulls adj.	125.000	105.437	63.393	147.480	-	-	-
Wheat Bran	150.000	113.420	84.493	142.346	-	-	-
Wheat Middlings	133.000	140.943	115.956	165.931	-	-	-
expeller SBM, adj.	431.000	491.242	468.625	513.859	-	-	-

Appraisal set			
Name	Actual [T]	Predicted [T]	Corrected
Alfalfa Hay 38NDF 22CP	0.000	177.848	206.035
Alfalfa Hay 48NDF 17CP	0.000	159.260	134.123
Fish Menhaden Meal, mech.	1200.000	635.201	-
Tallow	485.000	421.405	-

Sesame 3.03: Regression results (Sesame [Administrator])