



Feeding Challenges with Today's Milk Price

Pennsylvania Dairy Seminar

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“Economic Expectations”

- **Bad News:** Milk prices have dropped \$5.00 per cwt
- **Good News:** Feed costs dropped \$1.50 per cwt
- **Good News:** MILC program is available
- **Good News:** Fertilizer and fuel prices are down
- **Bad News:** Potential loss of \$100 per cow per month
- **Bad News:** Cull 300,000+ dairy cows

Milk Prices in 2009

- First quarter 2009 CME: \$10.18
- Second quarter 2009 CME: \$11.24
- Third quarter 2009 CME: \$13.50
- Fourth quarter 2009 CME: \$14.39

Potential MILC Payments

	----- \$ / cwt-----	
• Feb	\$1.69	
• Mar	\$1.89	\$1.64
• Apr	\$1.68	\$1.58
• May	\$1.33	\$1.38
• June	\$1.12	\$1.22
• July	\$0.87	\$0.92
• Aug	\$0.54	\$0.73
• Sept	\$0.21	\$0.37

Today's Program

Finding \$5.00 per cwt!

- Using feeding bench marks
- Three golden rules—do not violate
- Alternatives to consider and to avoid

What Is Happening?

- No purchasing of feeds including protein supplement, fuzzy cottonseed, etc (do not write a check)!
- Remove rumen protected amino acid and rumen protected fat/oil
- Pulling Rumensin, anionic products, and organic trace minerals

Economics of Feeding



Feed Benchmarks

	lb DM	\$/ lb DM	\$ / day
Forages	28	.08	2.24
Grain energy	10	.07	0.70
By-product	6	.10	0.60
Protein supp	5	.10	0.50
Min/vit/additive	1	.40	0.40
Consulting			0.10
Total	50		4.44

Feeding Economics

• Feed costs per cow per day	\$4.44
• Feed cost per lb DM	\$0.088
• Feed cost per cwt (80 lb)	\$5.55 (80 lb)
	\$6.34 (70 lb)
• Income over feed costs (\$15)	\$9.45
	\$ 8.66 (70 lb)
• Feed efficiency (lb milk/lb DM)	1.60 (80 lb)
	1.40 (70 lb)

Economics of Feed Efficiency (70 lb milk, 9 cent lb DM)

Feed efficiency (lb milk/lb DM)	DMI (lb/day)	Difference (savings/day)
1.20	58.3	
		75 cents
1.40	50.0	
		56 cents
1.60	43.8	
		44 cents
1.80	38.9	

2009 Illinois Feed Costs

	Farm A	Farm B	Farm C	Farm D	Farm E	Farm E	Farm F	Farm G	Farm H
					Hi-Group	Lo-Group			
DMI	54.9	57.0	51.3	56.7	52.0	44.0	54.7	55.9	54.0
Feed \$/hd/d	\$ 4.71	\$ 5.38	\$ 5.23	\$ 5.83	\$ 5.52	\$ 3.83	\$ 5.43	\$ 5.32	\$ 5.65
Milk/d	83	90	66	86.5	100	60	89	86	79.7
Fat %	3.7	3.7	4.1	3.67	3.7	4.4	3.4	3.5	3.6
FCM	85	92	72	88	102	69	88	86	80.7
Feed \$/cwt	\$ 5.54	\$ 5.85	\$ 7.26	\$ 6.63	\$ 5.41	\$ 5.55	\$ 6.17	\$ 6.19	\$ 7.00
Feed \$/#DM	\$ 0.086	\$ 0.094	\$ 0.102	\$ 0.103	\$ 0.106	\$ 0.087	\$ 0.099	\$ 0.095	\$ 0.105
Feed Efficacy	1.55	1.61	1.40	1.55	1.96	1.58	1.61	1.54	1.49

A Look at the Bottom Line

(No debt payment, return on assets, or management salary)

- Feed costs \$6.00 to \$7.00
- Non-feed costs \$2.50 to \$3.50
- Labor costs \$2.00 to \$4.00
- **Total** **\$11.50 to \$15.50**

Using the 55-15-30 Rule

- **55%** of the ration is forage dry matter
 - 28 lb of dry matter
- **15%** of the ration is yours call
 - 7.5 lb “swing” dry matter room
 - Forage quality
 - Economics of by-products
 - Cheaper nutrient sources
- **30%** of the ration is concentrate
 - 15 lb of dry matter (energy, protein, VM pack)

Golden Rule #1



“Never Give Up Milk”

- **Dry matter intake vs. milk price**
 - 2 pounds of milk per pound of DMI
 - 24 to 30 cents income vs. 9 cents expense
- **Comparison of forages vs. grain vs. fat**
 - Corn silage (\$40/t) = 8.6 cents per Mcal
 - Corn grain (\$4 /bu) = 9.2 cents per Mcal
 - Oil/fat (30 cents/lb) = 13.3 cents per Mcal

Golden Rule #2



Maintain Milk Components

	2/2009	5/2008
Milk fat (lb)	1.10	1.55
Milk protein (lb)	1.91	4.11
Milk (cwt)	10.20	19.06

Milk Fat and Milk Protein Relationship (Hoard's Dairyman)

	Fat %	Protein %	Protein vs Fat	Fat vs Protein
Ayrshire	3.84	3.12	81%	1.23
Brown Swiss	3.97	3.25	82%	1.22
Guernsey	4.47	3.31	74%	1.35
Holstein	3.66	2.98	81%	1.23
Jersey	4.56	3.55	78%	1.28

**Golden
Rule
#3**



Long Term Impact

- Calving at 23 to 24 months of age
 - \$2 per day per heifer (feed costs only)
- Accelerated calf program
 - 1100 lb more milk in first lactation
- Getting cows pregnant
 - \$2 /day > 120 days open, \$8 / 200 days
- Lower somatic cell count
 - 2 lb more milk per drop in linear score
- Lameness cows
 - 6 lb less milk and 5 X increase culling risk

Cow Responses / Monitoring

- Change in MUN by 3 units (8 to 12)
- Change in manure score by one unit (3.0)
- Change in body condition score by 0.5 (3.0)
- Change > 3 lb of management level milk
- Change > 0.2 % milk fat unit
- Change > 0.1% milk protein unit
- Change 2 lb of dry matter intake

Managing Starch




Modifying Starch Levels

- Recommended levels: 19 to 26%
- Rumen fermentable carbohydrates
 - Forage quality
 - Starch availability in the rumen
 - Role of corn processing
- Addition of Rumensin
- Fecal starch losses

Shelled Corn Energy Values (Dairy NRC 1989)

	<u>Mcal/lb DM</u>
Cracked (2200 micron)	0.84
Ground (1500 micron)	0.89
High moisture (>26%)	0.93
Steam flaked (24/25 lb bu)	0.93
High lysine (floury)	0.94
Finely ground (1100 micron)	0.96



	Corn Source		
	Cracked	50/50	Ground
Milk (lb/d)	69.3	72.2	75.2
Fat (%)	3.59	3.64	3.73
Protein (%)	3.19	3.26	3.29
DMI (lb/d)	49.1	50.6	50.6
Wt (lb/d)	+0.34	+0.60	+0.67

Particle Size Guidelines					
Screen Size	#4	#8	#16	#30	Pan
H.M. Corn (>30%)	75	25	0	0	0
H.M. Corn (23-30)	25	50	25	0	0
H.M. Corn (<23%)	0	<10	30	50	<20
Dry corn	0	<10	30	60	<10
Sample Shakeout	1	20	29	44	6

Processed Corn Silage (Wash State Univ)

- 22 published studies
- 1.1 pounds more milk (-1.1 to 3.7 lb)
- DMI increased 1.1 lb (-3.1 to 3.3 lb)
- Milk fat test was 0.08% higher
- 2 lb increase in 3.5% FCM
- Higher packing density
- Similar aerobic stability
- Higher in situ digestibility

Poor job of processing



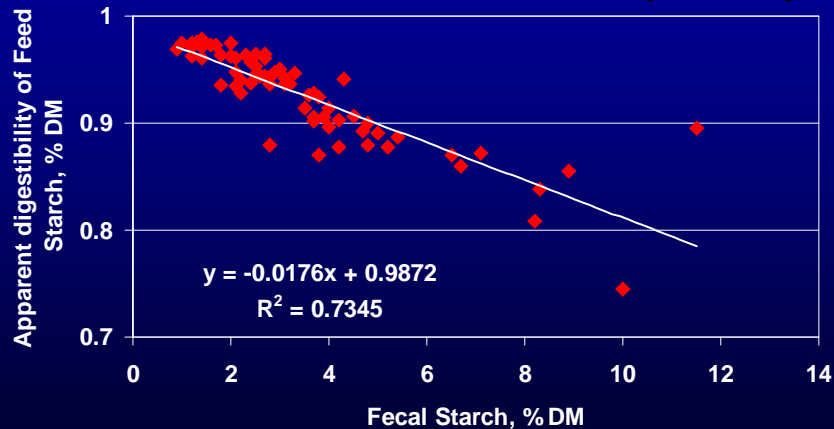
Levels of Rumensin

- TMR allows 5.5 to 11 mg / lb of DM
- Component fed herds allowed to add 115 to 660 mg
- Monitor milk fat test to minimize milk fat drops of < 0.1 point
- 300 mg of Rumensin replaces 1.2 to 1.5 lb of shelled corn

Fecal Starch

- Test for fecal starch levels; can vary from 4 to 10% of fecal dry matter (PA and IL data)
- Washing manure can determine if it is physically unavailable

Apparent digestibility of feed starch and fecal starch (%DM)



Illinois Field Study

- 19 high producing SW IL herds
- 4 to 5 pies were mixed and sampled
- Rock River Lab analyzed for fecal starch, lignin, NDF, and DM
- Rations were evaluated by consultant
- Developed an IL equation based on U of Penn equation

Illinois Herd Results

Variable	Mean	SD	Range
Starch dig (%)	84.6	7.0	70-96
Fecal starch (%)	6.0	1.6	3.9-9.9
Fecal lignin (%)	7.2	4.4	3.7-19.2
Fecal NDF(%)	55.5	4.1	14.0-30.3
Feed starch (%)	22.4	2.0	19.9-26.4
Feed NDF (%)	32.6	1.6	29.8-34.8
Feed lignin (%)	3.4	0.4	2.5 - 4.1

Potential Milk Response

- Fecal starch should be less than 5% at a total tract apparent digestibility of 90%.
- If fecal starch can be reduced 1 unit (absolute decrease 1%, for example a decrease from 10% to 9%), milk production could increase 0.7 lb (dry matter intake remains constant).

Positioning Additives



Additives Recommended

- Rumen buffers
- Yeast culture/yeast products
- Monensin (Rumensin)
- Silage inoculants
- Biotin
- Organic trace minerals (Se, Zn, Cu)

Additives As Needed

- Propylene glycol
- Rumen protected niacin
- Mycotoxin binders
- Acid-based preservatives
- Calcium propionate
- Rumen protected choline

Role of Corn Silage and Forages



Deciding on Forage Use

- Level of corn silage
- Strategic use of forages
 - Heifers vs. dry cows vs. low cows vs. early lactation cows
- Evaluating quality
 - Use NDFD in forage inventory
 - Role of BMR corn silage

Economics of Corn Silage

- 1350 lb Holstein cow body weight
- 80 lb of milk with 3.7% fat and gaining 1 lb BW
- Alfalfa at \$180 a ton hay equiv
- Corn silage at \$45/ ton at 33% DM
- Corn grain at \$4.50 a bushel
- SBM-44% at \$300/ton

Economics of Corn Silage

(Spartan II Least Cost)

	----- lb DM /cow/day-----				
Corn Silage	0	5	15	28	35
Alfalfa	30	25	15	5	0
Corn	18	16	13	7	4
SBM	4.6	4.6	6	9	11.5
DMI	50.5	50.5	50.5	50.5	50.5
	----- \$ /cow /day-----				
Feed cost	5.27	5.08	4.75	4.43	4.28

Role of By-Products



Weigh Back Considerations

- 2-4% of total dry matter offered
- > 5% weigh backs must go to cows
- 50% of feed available at each feeding with 2x feeding system
- Evaluate sorting (+/- 5% each box)
- Remove each day (each feeding?)
- Feed stability (propionate additive)
- Adding water (7 to 15 lb) vs. stability

Feeding To An Empty Bunk

- Feed must be available within 30 minutes prior to milking/next ration
- Read bunks (score 1, 2, or 3 one hour before milking)
- 24 inches of space per cow
- No sorting
- Challenge with 1 lb more DM and monitor

One TMR or Multiple TMR



One Group TMR An Economic Consideration

- 80 lb TMR costs \$6.15 per cow @ 51.9 lb DM results in 11.8 per lb of DM
- 60 lb TMR costs \$4.90 per cow @ 45.2 lb DM results in 10.8 cents per lb of DM

Economics of One TMR

- Savings with normal dry matter reduction is **\$1.25** with two rations
- Savings with lower dry matter intake feeding 80 lb TMR is **\$0.79** (51.9 lb vs. 45.2 lb = 6.7 lb DM @ \$0.118 / lb)
- Milk loss when shifting cows (4 lb @ 13 cents or **\$0.52 = NET SAVINGS OF \$0.27 per day**)
- Use of expensive additives and nutrients
- Relationship to milk yield per cow, age of cows, body condition score, rBST use, and reproductive success

Grouping Strategies

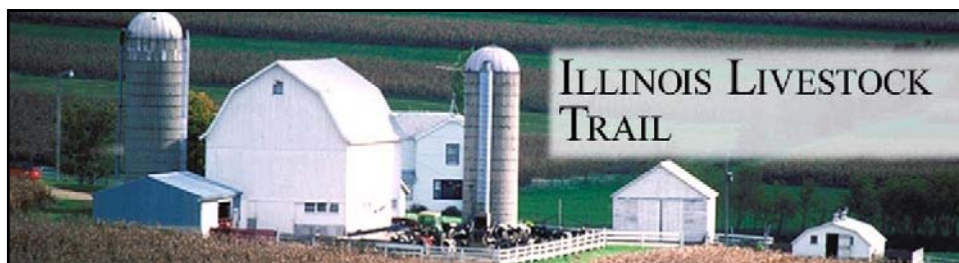
- Young and timid cows vs. other cows (**#1**)
- Early and late lactation mature cows (**3#**)
- Fat cow group (**#2**)
- Expensive ingredients: inert fat, amino acids
- Michigan State: grain and insulin effects
- rBST group
- Staph group
- A.I. vs. bull groups
- Israel approach (group before 60 DIM)

Lead Factors

- **Virginia** lead factors:
 - One group: 30% above group average
 - Two groups: 20% above group average
 - Three groups : 10% above group average
- **Cornell**: One standard deviation of the group (8 to 17 lb)
- **Minnesota**: Add 12 lb of milk plus 6 to 7 lb for growing heifers

In Summary

- High producing cows make the most profit
- Pregnant cows make the most profit
- Healthy cows make the most profit



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