

Optimizing Dairy Efficiencies

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Dairy Efficiencies

- Financial
- Feed
- Replacement
- Performance
- Labor
- Repro

What about your dairy?

- Do you know your cost to produce milk?
 - This is fundamental and the most important efficiency metric
- Do you construct monthly financial statements? Are they accrual? When do you close-out a month?
- Do you do physical inventories monthly? This is necessary to track shrink.
- How do you compute replacement costs?

The most efficient **business** in a commodity industry is the one with the lowest cost. Period.

*The most efficient **dairy** is the lowest cost dairy in a given milk shed, as costs are relative to the Milk Market*

Where are we headed?

- If milk is all you derive income from, it will be difficult to remain competitive
- What other sources of income can you strive for?
 - RNG in some form
 - Beef x Dairy Crosses or beef embryos
 - Cattle sales
 - Crops
 - Other?
- Or can create lower costs from the same income stream?

Know your model

- What is your business model?
- Ours is 2x, milk as many cows as we can through our parlors, dilute our fixed costs over more cwts of milk
- Fixed Costs
 - Labor, interest, depreciation, lease, utilities
- Variable Costs
 - Feed, replacement, animal health, supplies

Dairyman vs consultant

- My core philosophies have not changed
 - Top 10 list remains the same
 - The Solution to Pollution is Dilution
- Before I only had to rely on myself, I was solo. Now I rely on a team of dedicated people.
- I've learned more in the past 4 years than any 4-year period in my life
- I learn new lessons on a regular basis. I'm also humbled regularly.

Top 10 Keys to a good P&L

1. The solution to pollution is dilution
 - Ship a lot of Money Corrected Milk™
 - keep a “full” barn (maintain optimal carrying capacity)
 - stay at “100%” every day
2. Healthy fresh cows
3. Minimize Replacement Costs
 - Offer a career change to unprofitable cows
 - Replace broken or inefficient cows with new ones
 - Don't break cows
 - Don't wait until cows are worn out to sell them
4. Realize quality and component premiums

Top 10 Keys to making money in the dairy business

5. Maximize Income Over Feed Cost
 - Per farm per day and Per Cow
6. Procure High Quality Forages
7. Generate Pregnancies (Cow and Heifer)
 - Cow Flow, lactation demographics
8. Cut costs intelligently
9. Control Labor Costs/liter
10. Minimize Shrinkage/wastage

Financial Efficiencies

How to define Cost of Production?

- Total Costs divided by Milk Sold
- Items on Milk Check belong on the Income side
- Replacement Costs (including cull cow income) belong on the Expense side
- Use a form of component correction
 - Energy Corrected Milk (several formulas)
 - Fat Corrected Milk (several formulas)
 - Money Corrected Milk™
- Use market value for forages or home-grown feeds

Money Corrected Milk™

- Compute Total Milk Check income at your current components (A)
- Re-compute with standard components (3.50/2.99/5.70) (B)
- (B) / (A) is the MCM factor
- Multiply factor by milk weight

The most efficient business in a commodity industry is the one with the lowest cost. Period.

Since Low Cost is the best measure of efficiency....

- Monthly accrual financials are a must
- Most important document for a dairy producer
- Most important metrics are on these financials
 - P&L (Cost of Production, cost breakdowns)
 - Borrowing Base (BB excess)

Breakeven Milk Price

- Works when basis and class utilization are consistent.
- Upper Midwest has very consistent basis allowing for accurate Breakeven.
- In the Southwest where we are, basis and class utilization vary greatly, so Breakeven milk price is not useful. This makes hedging more difficult.
- PPD is not the devil that everyone makes it to be. Seek to understand. It's pretty straightforward.

Income	
Milk Income	18.00
Other Income	1.00
Total Income	19.00

What is cost of production?

\$17.00

Expenses	
Feed	8.00
Other	9.00
Total Expense	17.00

What is Breakeven?

\$16.00

Net Income 2.00

What is Class III Breakeven?

\$13.33

Class III	15.00	
Basis	3.00	
Basis %	120%	(\$18.00/\$15.00)
Actual Breakeven	16.00	
Class III breakeven	13.33	(\$16.00 / 120%)

Feed Efficiencies

What is Feed Efficiency?

- Feed:Milk is commonly measured and debated. It means almost nothing and is almost entirely explained by body size, herd demographics, and milk production.
- Small cows that milk decently in a herd with low DIM will have the best Feed:Milk
- If your Feed:Milk is “bad”, what do you do?
- I prefer to look at Residual DMI. Are my cows eating too much?

Residual DMI

Milk and DMI	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21
Residual DMI	2.59	2.48	2.24	2.66	1.00	1.56	0.10	0.85	0.75	0.15	-2.30	-3.18	-2.99
Predicted DMI	48.9	49.8	50.7	50.3	50.8	49.8	50.1	49.9	50.0	49.8	48.2	48.6	48.9
Actual DMI	51.5	52.3	52.9	53.0	51.8	51.4	50.2	50.8	50.7	50.0	45.9	45.5	45.9

- Residual DMI is the difference between *Predicted* DMI and *Actual* DMI
- Must be measured on individual animals. DOES NOT work when using herd averages.

If Residual DMI is too high....

- Why are my cows eating too much?
- Have I defined their biological state properly?
 - Days in milk, BW, ECM
- Are maintenance costs excessive?
 - Long walks, muddy pens
- Could there be nutritional reasons?
 - Excessive lignin
 - Low NDF digestibility
- Cow factors
 - Disease? Johne's?
 - Genetics?

Which Cow Would You Rather have?

- 75 lbs MCM with 42 lbs DMI?
- 95 lbs MCM with 58 lbs DMI?

Which Cow Would You Rather have?

Which is more efficient?

- Assume:
 - MCM = 20 cents/lb
 - TMR = 10 cents/lb DM
- 75 lbs MCM with 42 lbs DMI?
 - Milk:Feed = 1.79
- 95 lbs MCM with 58 lbs DMI?
 - Milk:Feed = 1.63

Which Cow Would You Rather have?

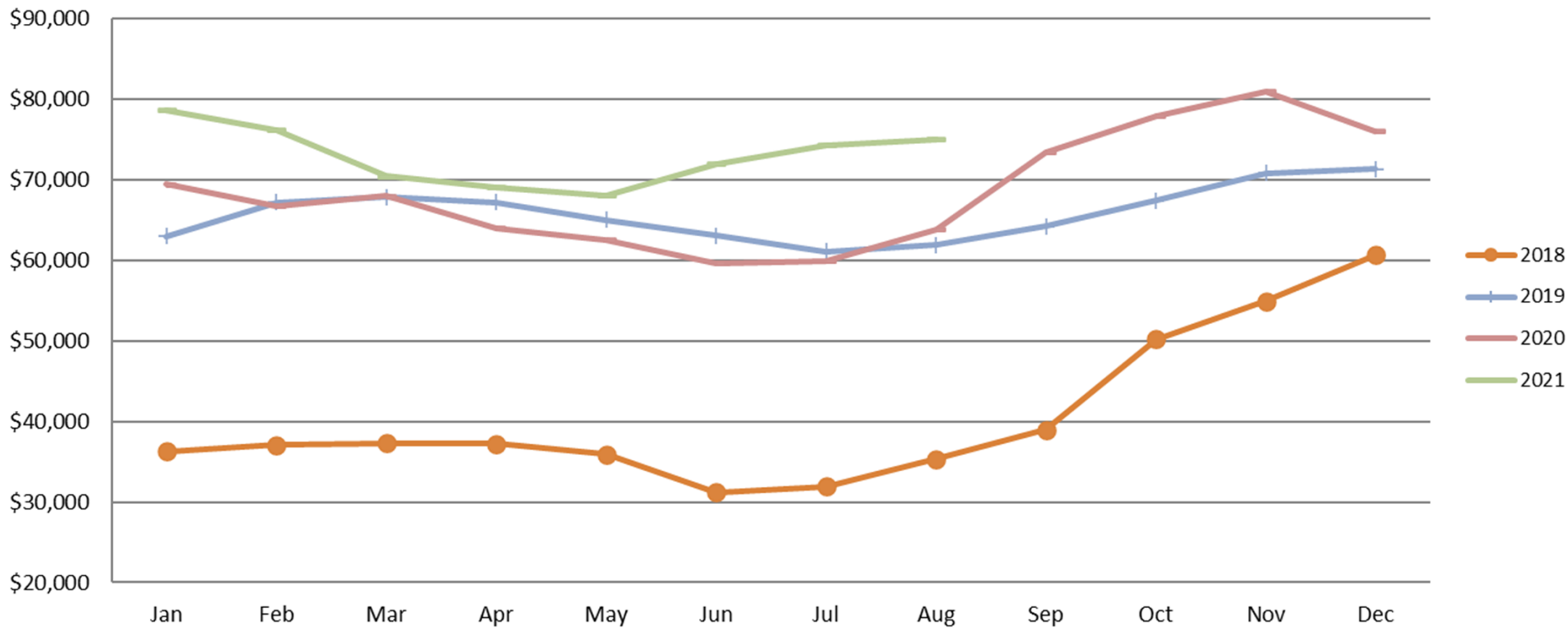
- Assume:
 - MCM = 20 cents/lb
 - TMR = 10 cents/lb DM
- 75 lbs MCM with 42 lbs DMI?
 - \$15.00 - \$4.20 = **\$10.80**
 - Milk:Feed = **1.79**
- 95 lbs MCM with 58 lbs DMI?
 - 19.00 - \$5.80 = **\$13.20**
 - Milk:Feed = **1.63**

The goal in feeding cows is not to achieve a
good Feed:Milk ratio



The goal is to maximize IOFC

High Plains Ponderosa IOFC, Dollars per day



Issues with High Component Milk

- Cost/cwt is skewed
- Feed cost/cwt is skewed
- Hedging is skewed
- Not always sure if balance of components and milk is “right”
- Correct components in some manner...MCM, ECM, etc

Production Efficiencies

What is a High Producing Dairy?

- Milk per Cow is not the best measure
- Milk production functions to help a dairy by diluting costs. This is the nature of commodity businesses.
- By inference, the highest producing dairy is the one with the lowest costs, as they are doing a better job of dilution

The Highest Producing Dairy Has the Lowest Cost

	Dollars	cwt	\$/cwt
Milk Revenue	\$15,000,000	1,000,000	\$15.00
Operating Expense	\$14,000,000	1,000,000	\$14.00
Net	\$1,000,000	1,000,000	\$1.00

+100,000 cwts milk			
Milk Revenue	\$16,500,000	1,100,000	\$15.00
Operating Expense	\$14,400,000	1,100,000	\$13.09
Net	\$2,100,000	1,100,000	\$1.91

Repro Efficiencies

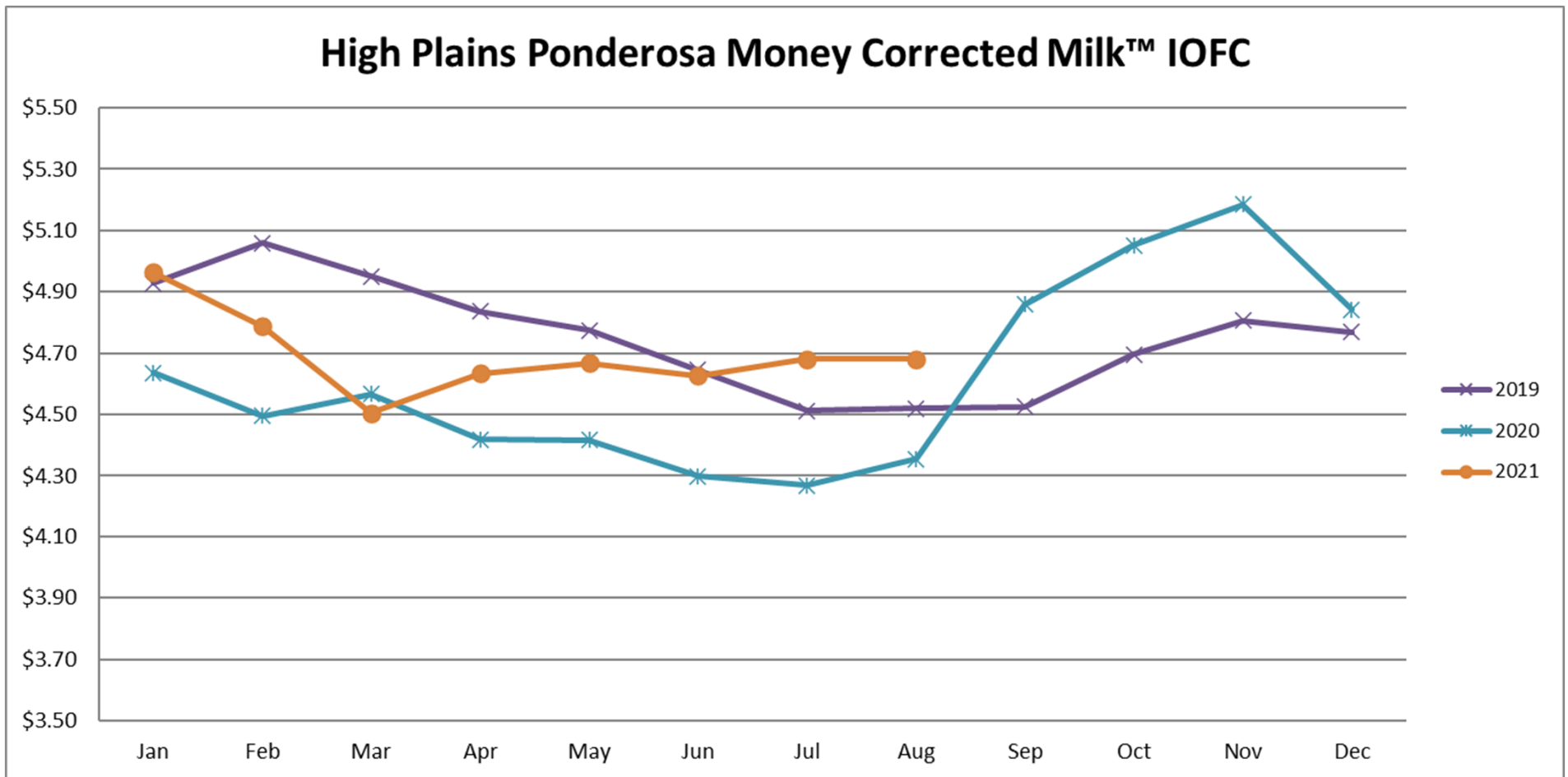
Cow and Heifer Repro efficiencies

- Heifers
 - *Days at First Calving minus VWP should be <305 days*
 - To avoid LAG, use projected calving age for heifers pregnant this month
 - CR and PR are cute but lead to the same end and are much more variable
- How much does it cost in labor and hormones?
- How does Heifer Repro impact P&L?
 - *Less days on feed*
 - 1st lactation milk yield? Higher or lower?
 - Very little else

Cow and Heifer Repro efficiencies

- Milking Cows
 - Service Rate
 - 21-d Preg Rate
- How much do you spend on labor and hormones to achieve results?
- How does milking cow repro impact the P&L?
 - *Income over Feed Cost*
 - Very little else

Static IOFC – where repro shows up



Labor Efficiencies

Definitions of labor efficiency

- Workers or FTE's per cow
- Workers or FTE's per cwt
- What matters:
 - Labor cost per cwt
 - Allocate labor such as preg checking, hoof trimming, breeding, maintenance etc to proper buckets. Work with accountant. Compute accurate labor costs that you can compare to peers

Replacement Efficiencies

How to measure replacement efficiencies

- Cull rate
- % heifers in herd
- Death Loss
- *The only method that counts is Replacement Cost*

Replacement Costs

- GAAP method is not useful to management although it has financial merit
- Cash method is useful to both. GAAP and Cash even out in the end. Cash also works best for growing herds.
- Cash Method (monthly):
 - $[(\text{Number of Cows Sold and Died}) \times \text{Cost of Getting a New Cow}] / \text{cull cow income}$

Replacement Costs

	Herd A	Herd B	Herd C	Herd D
Herd Size	1000	1000	1000	1000
Milking Cows	850	850	850	850
Milk/cow/day	85.0	85.0	75.0	100
cwts/year	263,713	263,713	232,688	310,250
Cull rate	35%	35%	25%	45%
Death loss	5%	10%	5%	5%
\$/cull	\$800	\$500	\$800	\$800
Culls/yr to sell	300	250	200	400
Replacements, \$/head	\$1400	\$1400	\$1400	\$1400
# sold/died	350	350	250	450
Trade-In	\$600	\$900	\$600	\$600
Replacement Cost/cwt	\$0.95	\$1.38	\$0.82	\$1.00

Replacement Costs

	Herd A	Herd B	Herd C	Herd D
Herd Size	1000	1000	1000	1000
Milking Cows	850	850	850	850
Milk/cow/day	85.0	85.0	75.0	100
cwts/year	263,713	263,713	232,688	310,250
Cull rate	35%	35%	25%	45%
Death loss	5%	10%	5%	5%
\$/cull	\$800	\$500	\$800	\$800
Culls/yr to sell	300	250	200	400
Replacements, \$/head	\$2000	\$2000	\$2000	\$2000
# sold/died	350	350	250	450
Trade-In	\$1200	\$1500	\$1200	\$1200
Replacement Cost/cwt	\$1.74	\$1.90	\$1.46	\$1.87

Questions?