

Dairy Economics

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Concepts

- Dairy is a commodity manufacturing business
 - The lowest **cost/liter** typically wins
 - A Cow is an income-generating asset
- Most Dairies have 3 enterprises
 - **Replacement, Farming, Milking Cows**
- Benchmarking is dangerous
 - **Goal Setting** and tracking makes a lot of sense

Concepts

- Economics **trumps** Biology
- Margins matter, ratios don't
- Marginality works
- Cull Rate doesn't matter
- Milk per cow is an outdated measure of cow performance

Land, People, Water

	US	EU	China	India	Africa
Population (2013)	300 mil	500 mil	1,357 mil	1,276 mil	1,100 mil
% < Age 15	19%	16%	16%	30%	41%
2025 estimate	346 mil	517 mil	1,406 mil	1,443 mil	1,464 mil
2050 estimate	400 mil	517 mil	1,314 mil	1,651 mil	2,431 mil
Arable land, ha (2011)	160 mil	108 mil	110 mil	157 mil	226 mil
Water, km ³ /yr	2,800	1,500	2,800	1,450	3,931

Sources:
Population: fao.org
Arable Land: fao.org
Water = FAO 2013 AQUASTAT database

Terminology...

- **Interest** - cost of obtaining capital
- **Depreciation** - cost of owning capital
- **Principle** - capital **investment**
- **Accrual** - as you use it, not as you buy it
- **Profit** - Accrual income over accrual expenses including depreciation
- **Opportunity Cost** - the best use of resources
- **Marginal** - the last cow, the last liter of milk, the last kg of dry matter intake

Accounting necessities...

- Monthly P&L constructed properly
 - Accrual on the big items (feed and milk)
 - Separate Big 3
 - Cash method for Replacement Cost
- Consider value of milk (components); use MCM™
- Monthly feed and cattle inventories
 - Shrink on feeds
- Weigh all feed in and out

Do You Know...

- Cost to Raise a Heifer?
- Margin/liter?
- Accrual Feed cost/cwt each month?
- Feed Shrinkage?
- Cost to raise a ton of corn silage?
- Breakeven Milk Price?
- Projected margin for next 6 months?

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
 - 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 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/cwt
10. Minimize Shrink (impact of 10% shrink?)

Goal - Make Low Cost Milk!!

What are the 3 Financial Statements?

- **Cash Flow:** Cash in, Cash Out
- **Profit Loss**
 - no principle
 - depreciation and interest included
 - accrual
- **Net Worth**
 - Snapshot
 - Assets and liabilities
- **Borrowing Base**

Cash Flow: Questions answered

- Can I pay my bills?
- Do I need a seasonal operating loan for planting, harvest, etc?

What is P&L?

- A look at **Operations**
- Purpose is to look at the dairy, and not confuse with other businesses (heifers, farming).
- Is the dairy efficient?
- Can the dairy survive as a stand-alone business?

Profit & Loss: Questions Answered

- Is my business profitable?
- How much profit did I make?
- What was the margin?
- What is the breakeven milk price?
- Which expenses are too high?

Balance Sheet: Questions Answered

- Is my business liquid?
- Is my business solvent?
- How much is it worth?
- How much do I owe?
- Am I growing equity in my business?
- What is my return on equity?

If you have no debt, you have lower returns..

- **\$10,000,000** in assets
- P&L Net Income = \$1,000,000
- **Example 1:** \$5,000,000 equity
- ROI = **20%**
- **Example 2:** \$8,000,000 equity
- ROI = **12.5%**

How do you prepare for a downturn?

- Build a cushion:
 - Have enough equity to absorb a 6 cents/liter for 12 months?

What are the Three Enterprises on most Dairies?

- Selling Milk (Milking Cows)
- Supplying Feed (Farming)
- Supplying Replacements

Top Three Costs of Producing Milk

1. Feed cost/liter
2. Replacement Cost/liter
3. Labor cost/liter

Do you know your cost per liter??
Does your accounting system put expenses in the proper buckets?

Problem with Cost/liter (or cow or hectare)

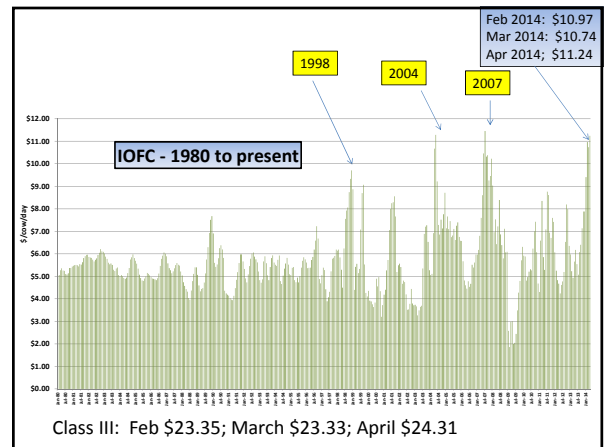
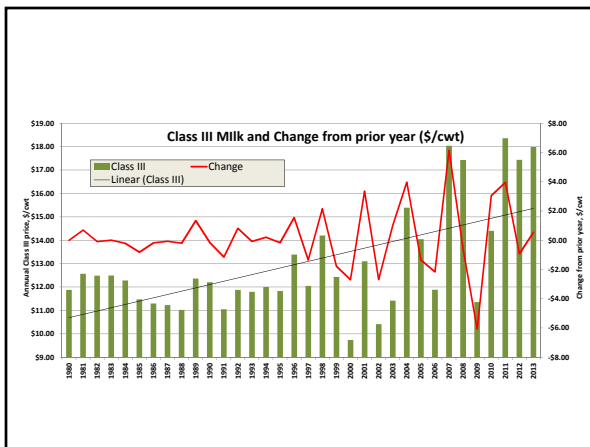
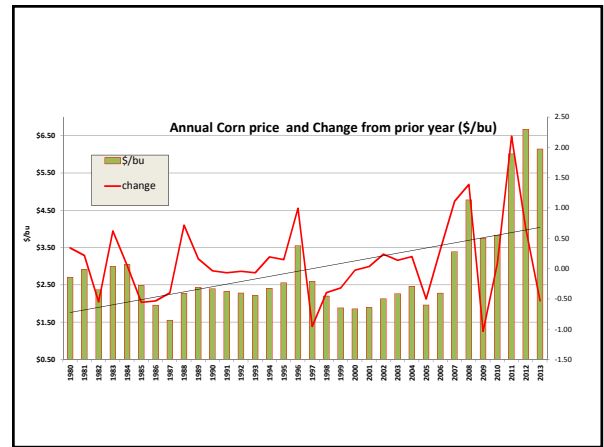
- Ignores income
 - Holstein versus Jersey
 - Premiums
- Is cull cow income part of income?
 - should be part of replacement cost
- Is milk hauling a cost?
- **Best Single Number?** Breakeven milk price

Financial Goals

- Grow IOFC and Total Margin
- These can be confused when focusing too heavily on cost/liter or cost/cow or cost/hectare

Volume of Milk Shipped

- What is the barrier to selling more milk on your dairy?
- More cows?
 - Is it parlor?
 - Is it the yard?
 - Is it land (utilized tons/hectare)?
- More milk/cow
 - Is it grain? Is it forage quality?
 - Is it the ration?
- How much milk can you sell from the land you own?



Were we better off with cheaper feed?

- **Old days**
 - Ration: 12 cents/kg DM
 - Milk: 20 cents/liter
 - 28 liter milk, 20 kg DMI
 - IOFC = \$3.20
- **Today**
 - Ration: 28 cents/kg DM
 - Milk: 42 cents/liter
 - 28 liter milk, 20 kg DMI
 - IOFC = \$6.16

Were we better off with cheaper feed?

- **Old days**
 - Ration: 12 cents/kg DM
 - Milk: 20 cents/liter
 - 28 liter milk, 20 kg DMI
 - IOFC = \$3.20
 - Feed Cost/liter = 8.6 cents/liter
- **Today**
 - Ration: 28 cents/kg DM
 - Milk: 42 cents/liter
 - 28 liter milk, 20 kg DMI
 - IOFC = \$6.16
 - Feed Cost/liter = 20 cents/liter

Were we better off with cheaper feed?

- **Old days**
 - Ration: 12 cents/kg DM
 - Milk: 20 cents/liter
 - 28 liter milk, 20 kg DMI
 - IOFC = \$3.20
 - Feed Cost/liter = 8.6 cents/liter
 - Feed Cost/cow/d = \$2.40
- **Today**
 - Ration: 28 cents/kg DM
 - Milk: 42 cents/liter
 - 28 liter milk, 20 kg DMI
 - IOFC = \$6.16
 - Feed Cost/liter = 20 cents/liter
 - Feed Cost/cow/d = \$5.60

How do we express Feed Costs?

- Feed Cost/cow
- Feed Cost/kg DM
- Feed Cost/liter
- Financial Statement Feed Cost/liter
- *None of these mean much of anything unless we consider the dollars of revenue generated*

Feed Cost/liter on the P&L

- Definition: Milking and dry **accrual** consumption using **market values** for forages
- Consider all sources of feed costs, not just purchased
- Limitations
 - Ignores milk income
 - It may cost more to produce milk of higher value
- *Don't benchmark to other herds!*