

Beyond Feed Conversions: a Different Look at Feed Costs

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Concepts

- Benchmarking is a bad idea
 - **Goal Setting** and tracking makes a lot of sense
- The lowest **cost/cwt** typically wins
- Most Dairies have 3 enterprises
 - **Replacement, Farming, Milking Cows**
- **Economics trumps** Biology
- **Margins matter**, ratios don't

What are the Three Enterprises on most Dairies?

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

- Is the Farm subsidizing the dairy?
- Need to use accrual adjusted consumption using market values for forages

Top Three Costs of Producing Milk

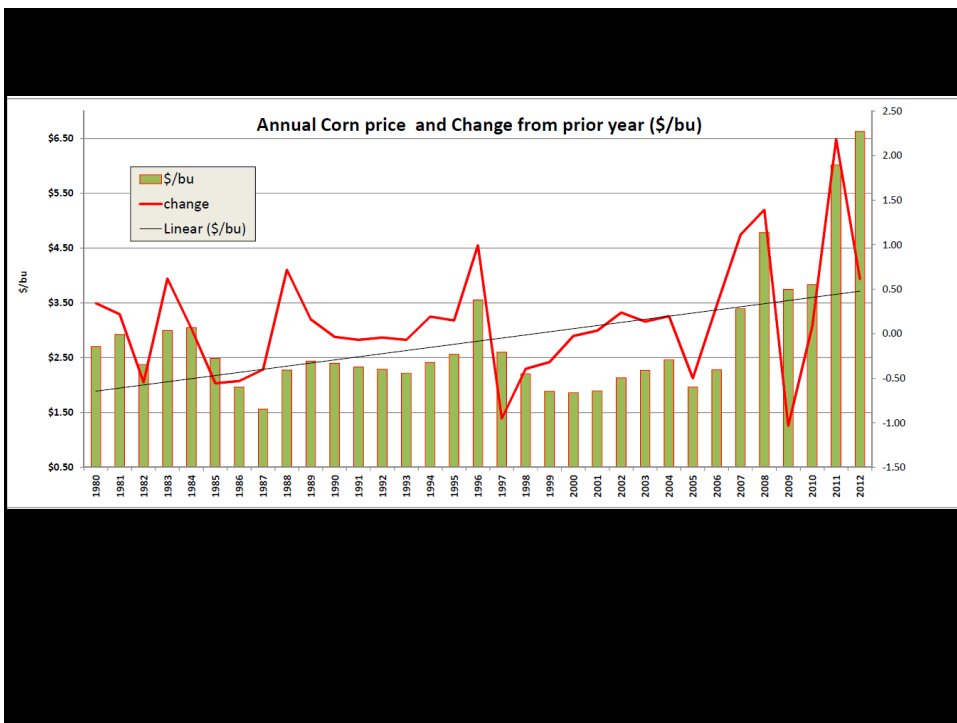
1. Feed cost/cwt
2. Replacement Cost/cwt
3. Labor cost/cwt

Do you know your cost per cwt??

Does your accounting system put expenses in the proper buckets?

The Big 3 Costs on the P&L

- **Feed:** \$11-13 (forages market value)
- **Labor:** \$1.50
- **Replacement:** \$1.25
- Total costs around \$20
 - Feed 60-65%
 - Labor: 7-8%
 - Replacement: 6-7%
 - Total: **75-80%**



Are Feed Costs too High?

Can we Survive \$8 corn?

Were we better off with cheaper feed?

- **Old days**
 - Ration: \$0.08/lb DM
 - Milk: \$14
 - 75 lbs milk, 50 lbs DMI
 - IOFC = \$6.50
- **Today**
 - Ration: \$0.14/lb DM
 - Milk: \$20
 - 75 lbs milk, 50 lbs DMI
 - IOFC = \$8.00

Were we better off with cheaper feed?

- **Old days**
 - Ration: \$.08/lb DM
 - Milk: \$14
 - 75 lbs milk, 50 lbs DMI
 - IOFC = \$6.50
 - Feed Cost/cwt: \$5.93
- **Today**
 - Ration: \$0.14/lb DM
 - Milk: \$20
 - 75 lbs milk, 50 lbs DMI
 - IOFC = \$8.00
 - Feed Cost/cwt: \$9.93

15% dry cows,
\$3.00/d dry cow feed cost

Limitations with Feed Cost/cwt

- Ignores milk income
- It may cost more to produce milk of higher value
 - Higher components
 - Quality premiums (low SCC)
- Don't benchmark to other herds!
- Not useful for day to day decisions

Lowering Milking Cow Feed Costs...

1. Minimize **Shrinkage** and **Waste** in storage
2. Avoid excessive **Weighback** and wasted feed at bunk
3. Avoid **Overfeeding** minerals, vitamins, protein, additives
4. Develop rations that maximize **IOFC**
5. Get cows **pregnant** (low DIM)
6. **Cull** aggressively (few sick cows, low hospital, more milk)
7. Avoid long **dry periods** (\uparrow % in milk)
8. Minimize **Maintenance** costs

USDA Milk:Feed Ratio

- Pounds of 16% protein ration equal to 1 lb of milk
 - 51% corn, 8% soybeans, 41% alfalfa hay
- If ratio is ≥ 3.0 , it is supposedly profitable to purchase feed to produce milk

USDA Milk:Feed Ratio

- If milk is \$0.20/lb and feed is \$0.10/lb, then the ratio is **2.0**
 - Feed goes down to \$0.08/lb, then ratio is **2.5**
 - Feed goes up to \$0.12/lb then ratio is **1.67**
- Higher ratio is supposedly better

Margins matter, ratios don't

Milk, \$/lb	16% Dairy	Feed \$/cwt ¹	Milk-Feed	margin ² , \$/cwt
\$0.15	\$0.054	\$3.86	2.78	\$11.14
\$0.18	\$0.09	\$6.44	2.00	\$11.56
\$0.21	\$0.11	\$7.87	1.91	\$13.13
\$0.24	\$0.13	\$9.30	1.85	\$14.72
\$0.25	\$0.14	\$10.02	1.79	\$14.99

¹70 lbs milk, 50 lbs DMI, 15% dry cows

²milk price/cwt – feed cost/cwt

Measuring Feed Economics: financial statement

- Big-picture 10,000 feet
- **Feed Cost/cwt**
- Answers this question:
 - Is the dairy doing a good job converting feed dollars into saleable milk

Feed Cost/cwt

- Includes milking and dry cows
- **No heifers**
- Calculated from financial statements
- Impacted by:
 - Factors impacting IOFC
 - Number of dry cows and dry cow ration
 - Hospital
 - Shrinkage
 - Refusals

Income Over Feed Cost (IOFC)

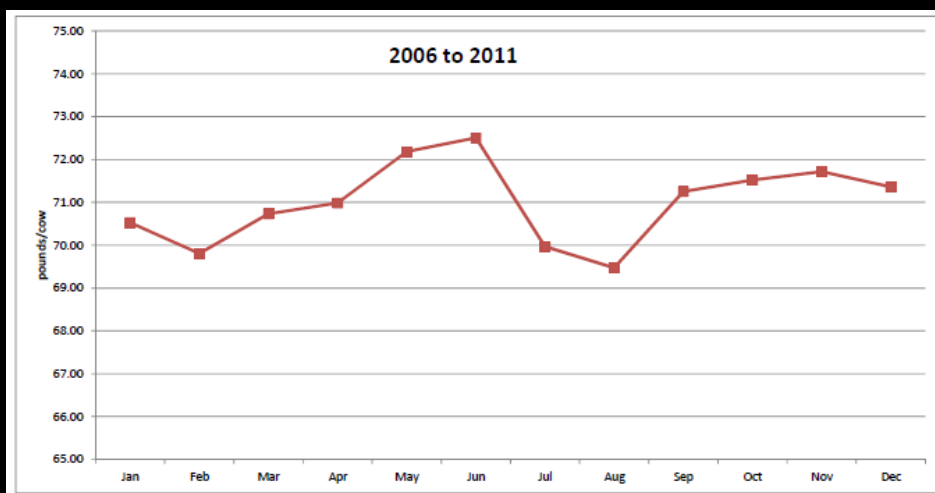
- Cow produces 70 lbs/d
- Milk price is \$18
- Feed Cost is \$5.00/d
- IOFC calculation
 - Milk revenue = $70 \times 0.18 = \$12.60/\text{cow/d}$
 - IOFC = $\$12.60 - \$5.00 = \$7.60/\text{d}$
- Increasing the \$7.60/d good, provided cow health not impacted

IOFC or \$/cwt?

Milk, \$/lb	\$/lb DM	lbs Milk	Lbs DMI	Feed \$/cwt	IOFC, \$/day
\$0.20	\$0.10	70	46.7	\$6.67	\$9.33
\$0.20	\$0.10	75	50.0	\$6.67	\$10.00
\$0.20	\$0.10	80	53.3	\$6.67	\$10.67
\$0.20	\$0.10	85	56.7	\$6.67	\$11.33
\$0.20	\$0.10	90	60.0	\$6.67	\$12.00

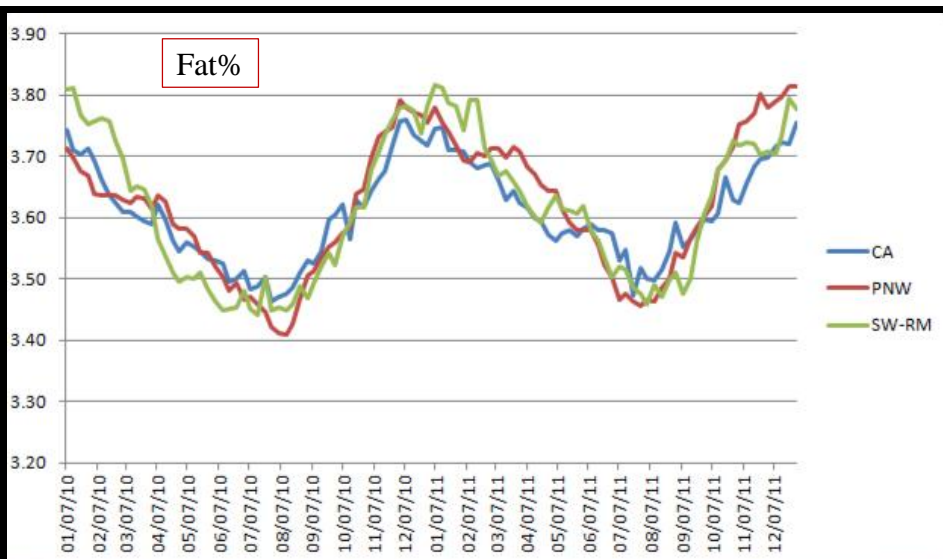
What About Components?

Tank average: Southwest dry lot dairy

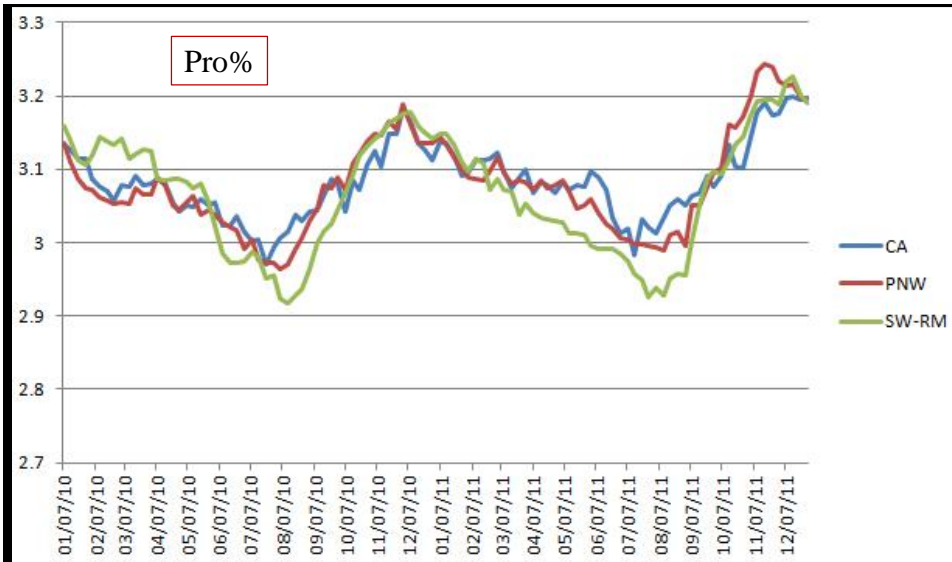


Components drop in summer....

- Is it Heat Stress?
- Or is it Seasonal?



DV Monitors
Diamond V Mills, Cedar Rapids, IA



DV Monitors
 Diamond V Mills, Cedar Rapids, IA

*How can the component drag
 be economically quantified?*



Biological measure of efficiency vs economics

- **Biology**
 - **3.5% Fat corrected Milk**
 - $(0.515 \times \text{milk lbs}) + (13.86 * \text{fat lbs})$
 - **4.0% Fat corrected Milk**
 - $(0.40 \times \text{milk lbs}) + (15.00 * \text{fat lbs})$
 - **Energy Corrected Milk**
 - $(0.323 \times \text{milk lbs}) + (12.82 * \text{fat lbs}) + (7.13 \times \text{prot lbs})$
 - **Feed efficiency (milk:feed ratio)**
 - $(\text{FCM lbs}) / (\text{dry matter intake lbs})$

Biological measure of efficiency vs economics

- **Economics**
 - **Income Over Feed Cost**
 - Value of milk generated relative to cost of feed
 - Value of milk and feed vary with markets
 - Units: **\$/cow/day**
 - **Money Corrected Milk™ IOFC**
 - Value of milk generated relative to cost of feed
 - Value of milk and feed held constant over time
 - Units: **\$/cow/day**
 - **Money Corrected Milk™**
 - Value of milk produced relative to 3.5% fat, 3.0% protein and static component values
 - Units: **pounds per day**

Example

Herd A

- 71 lbs milk
- 3.95% fat
- 3.26% protein
- 5.70% other solids

Herd B

- 80 lbs milk
- 3.40% fat
- 2.90% protein
- 5.70% other solids

Who is better?

Example

- Component Prices
 - Fat: \$2.50/lb
 - Protein: \$3.00/lb
 - Other Solids: \$0.15/lb

Example

- Milk check adjustments
 - Quality: \$0.50/cwt
 - Hauling: -\$1.00/cwt
 - Promotion: -\$0.15/cwt
 - Basis: \$2.00/cwt

Which herd is better?

Herd A

- 71 lbs milk
- 3.95% fat
- 3.26% protein
- 5.70% other solids

Herd B

- 80 lbs milk
- 3.40% fat
- 2.90% protein
- 5.70% other solids

Which herd is better?

Herd A

- 71 lbs milk
- 3.95% fat
- 3.26% protein
- 5.70% other solids
- **FCM: 75.4 lbs**

Herd B

- 80 lbs milk
- 3.40% fat
- 2.90% protein
- 5.70% other solids
- **FCM: 78.9 lbs**

FCM = 3.5% Fat Corrected Milk

Which herd is better?

Herd A

- 71 lbs milk
- 3.95% fat
- 3.26% protein
- 5.70% other solids
- **FCM: 75.4 lbs**
- **ECM: 75.4 lbs**

Herd B

- 80 lbs milk
- 3.40% fat
- 2.90% protein
- 5.70% other solids
- **FCM: 78.9 lbs**
- **ECM: 77.3 lbs**

ECM = Energy Corrected Milk

Which herd is better?

Herd A

- 71 lbs milk
- 3.95% fat
- 3.26% protein
- 5.70% other solids
- FCM: 75.4 lbs
- ECM: 75.4 lbs
- **MCM: 77.8 lbs**

Herd B

- 80 lbs milk
- 3.40% fat
- 2.90% protein
- 5.70% other solids
- FCM: 78.9 lbs
- ECM: 77.3 lbs
- **MCM: 77.8 lbs**

MCM = Money Corrected Milk

Which herd is better?

Herd A

- 71 lbs milk
- 3.95% fat
- 3.26% protein
- 5.70% other solids
- FCM: 75.4 lbs
- ECM: 75.4 lbs
- **MCM: 77.8 lbs**
- Income/day = **\$15.52**

Herd B

- 80 lbs milk
- 3.40% fat
- 2.90% protein
- 5.70% other solids
- FCM: 78.9 lbs
- ECM: 77.3 lbs
- **MCM: 77.8 lbs**
- Income/day = **\$15.52**

Which Cow is better?

Cow A

- 90 lbs milk
- 4.20% fat
- 3.40% protein
- 5.65% other solids

Cow B

- 113 lbs milk
- 3.30% fat
- 2.60% protein
- 5.65% other solids

Which Cow is better?

Cow A

- 90 lbs milk
- 4.20% fat
- 3.40% protein
- 5.65% other solids
- FCM: 98.7 lbs
- ECM: 99.3 lbs
- **MCM: 103.3 lbs**
- Income/day = **\$20.61**

Cow B

- 113 lbs milk
- 3.30% fat
- 2.60% protein
- 5.65% other solids
- FCM: 109.8 lbs
- ECM: 105.2 lbs
- **MCM: 103.3 lbs**
- Income/day = **\$20.61**

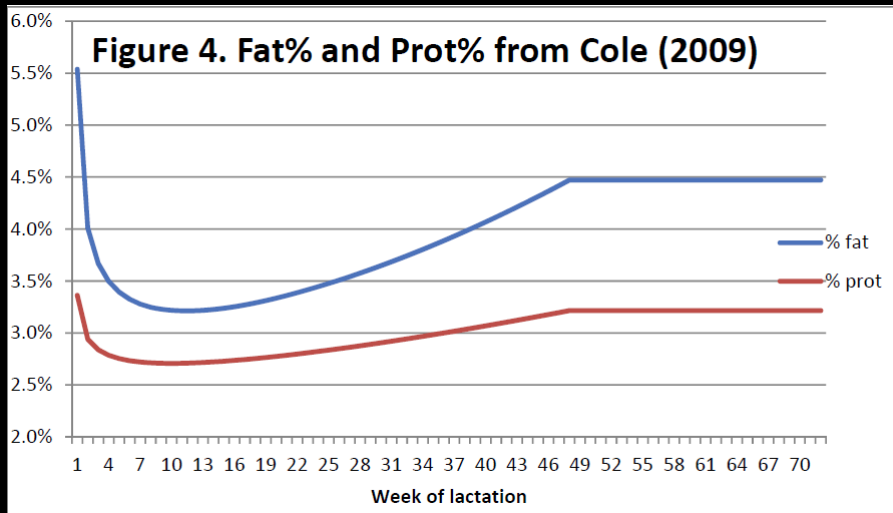
Which cow should be culled?

Cow A

- 40 lbs milk
- 4.50% fat
- 3.40% protein
- 5.65% other solids

Cow B

- 40 lbs milk
- 3.30% fat
- 2.60% protein
- 5.65% other solids



Which cow should be culled?

Cow A

- 40 lbs milk
- 4.50% fat
- 3.40% protein
- 5.65% other solids
- FCM: 45.5 lbs
- ECM: 45.7 lbs
- **MCM: 47.4 lbs**
- Income/day = **\$9.46**

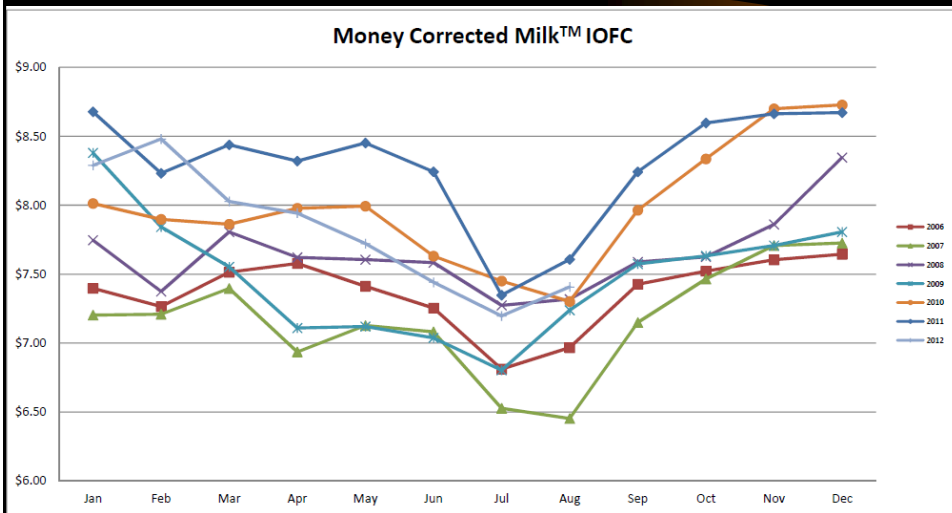
Cow B

- 40 lbs milk
- 3.30% fat
- 2.60% protein
- 5.65% other solids
- FCM: 38.9 lbs
- ECM: 37.3 lbs
- **MCM: 36.6 lbs**
- Income/day = **\$7.30**

Money Corrected Milk™ IOFC

- Milk-check based income
- Uses constant feed and milk prices over time.
 - Variables include **milk, components, dry matter intake**
- Good barometer as to how the herd is performing
 - Despite poor market conditions, are my cows performing better or worse than in the past?

Money Corrected Milk™ IOFC



Which Breed is better?

Feed = \$0.10/lb DM

fat=\$2.50; prot=\$3.00, OS = \$0.25

Holstein

- 80 lbs milk
- 3.50% fat
- 2.90% protein
- 5.70% other solids
- DMI = 52 lbs

Jersey

- 60 lbs milk
- 4.90% fat
- 3.50% protein
- 5.70% other solids
- DMI = 45 lbs

Which Breed is better?

Feed = \$0.10/lb DM

fat=\$2.50; prot=\$3.00, OS = \$0.25

Holstein

- 80 lbs milk
- 3.50% fat
- 2.90% protein
- 5.70% other solids
- DMI = 52 lbs
- **MCM = 78.9**

Jersey

- 60 lbs milk
- 4.90% fat
- 3.50% protein
- 5.70% other solids
- DMI = 45 lbs
- **MCM = 74.7**

Which Breed is better?

Feed = \$0.10/lb DM

fat=\$2.50; prot=\$3.00, OS = \$0.25

Holstein

- 80 lbs milk
- 3.50% fat
- 2.90% protein
- 5.70% other solids
- DMI = 52 lbs
- MCM = 78.9
- **MCM Conversion: 1.52**

Jersey

- 60 lbs milk
- 4.90% fat
- 3.50% protein
- 5.70% other solids
- DMI = 45 lbs
- MCM = 74.7
- **MCM Conversion: 1.66**

Which Breed is better?

Feed = \$0.10/lb DM

fat=\$2.50; prot=\$3.00, OS = \$0.25

Holstein

- 80 lbs milk
- 3.50% fat
- 2.90% protein
- 5.70% other solids
- DMI = 52 lbs
- MCM = 78.9
- MCM Conversion: 1.52
- MCM IOFC = \$10.98

Jersey

- 60 lbs milk
- 4.90% fat
- 3.50% protein
- 5.70% other solids
- DMI = 45 lbs
- MCM = 74.7
- MCM Conversion: 1.66
- MCM IOFC = \$10.82

Which Breed is better?

Feed = ~~\$0.10/lb DM~~ \$0.15/lb DM

fat=\$2.50; prot=\$3.00, OS = \$0.25

Holstein

- 80 lbs milk
- 3.50% fat
- 2.90% protein
- 5.70% other solids
- DMI = 52 lbs
- MCM = 78.9
- MCM Conversion: 1.52
- ~~MCM IOFC = \$10.98~~
- MCM IOFC = \$8.38

Jersey

- 60 lbs milk
- 4.90% fat
- 3.50% protein
- 5.70% other solids
- DMI = 45 lbs
- MCM = 74.7
- MCM Conversion: 1.66
- ~~MCM IOFC = \$10.82~~
- MCM IOFC = \$8.57

Which Breed is better?
Feed = \$0.10/lb DM \$0.15/lb DM
fat=\$2.50; prot=\$3.00 \$4.00; OS = \$0.25

Holstein

- 80 lbs milk
- 3.50% fat
- 2.90% protein
- 5.70% other solids
- DMI = 52 lbs
- MCM = 78.9
- MCM Conversion: 1.52
- ~~MCM IOFC = \$10.98~~
- ~~MCM IOFC = \$8.38~~
- MCM IOFC = **\$10.70**

Jersey

- 60 lbs milk
- 4.90% fat
- 3.50% protein
- 5.70% other solids
- DMI = 45 lbs
- MCM = 74.7
- MCM Conversion: 1.66
- ~~MCM IOFC = \$10.82~~
- ~~MCM IOFC = \$8.57~~
- MCM IOFC = **\$10.67**

Conclusions

- Economics trumps biology
- Components have huge value
- Margins matter, ratios don't
- Manage and monitor the Big 3 costs

Questions?

