

The Volatility of Individual Farm Marketings

Mark Stephenson, PhD

Director of Dairy Policy Analysis
University of Wisconsin, Madison

Milk-Feed Ratio

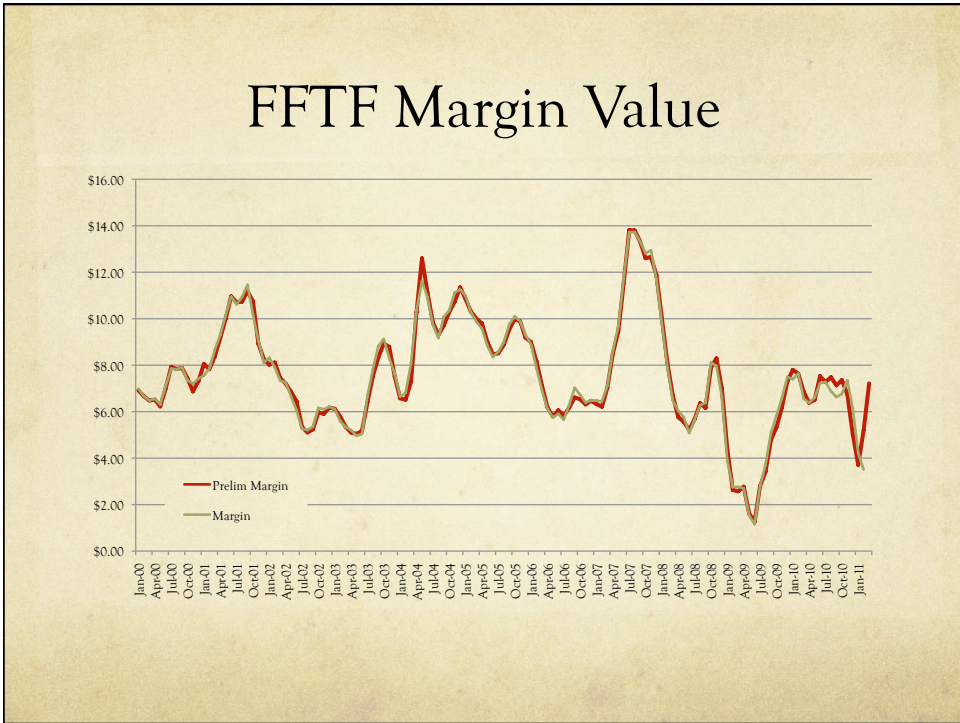
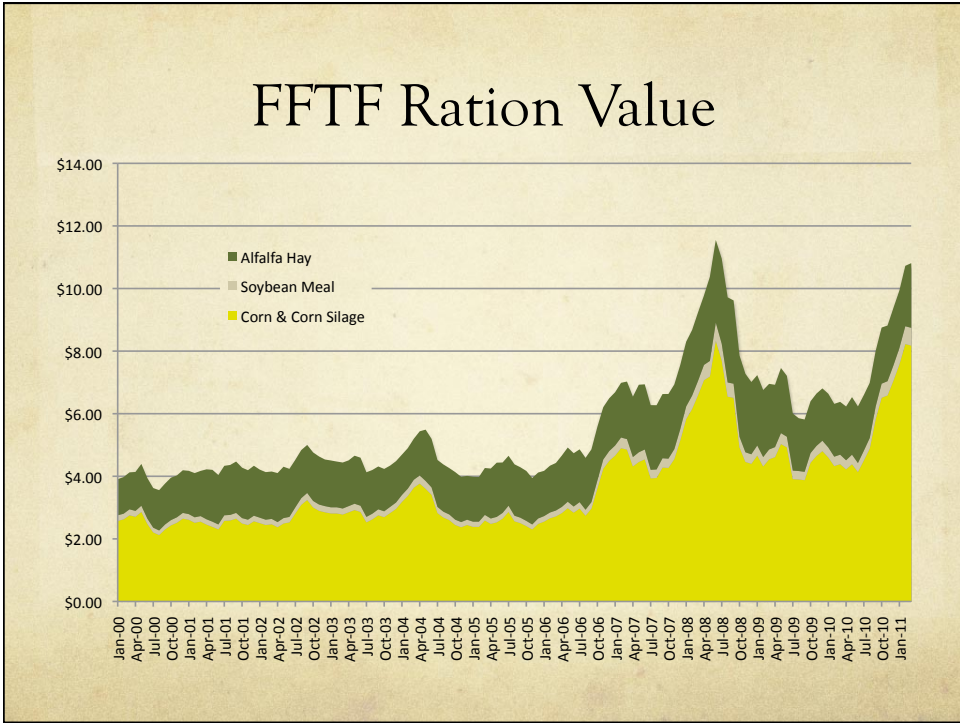
- Volatility in milk and feed prices has become extreme.
- The ratio of these prices was long reported by NASS as a measure of farm wellbeing.
- Ratios are a reasonable indicator of profitability over some relevant range in prices but can be problematic over time.
- Consider:
 - \$12 milk and \$7 feed, ratio = $12/7 = 1.7$
 - \$15 milk and \$10 feed, ratio = $15/10 = 1.5$
 - Suggests considerable erosion in farm profitability but margin over feed costs is the same.

Milk-Feed Margin

- A milk-feed margin is probably a better indicator of farm profitability if both milk and feed prices are volatile.
- FFTF proposes using a margin in both their
 - Dairy Producer Margin Protection Program (insurance safety net)
 - Dairy Market Stabilization Program (growth management)

FFTF Milk-Feed Margin

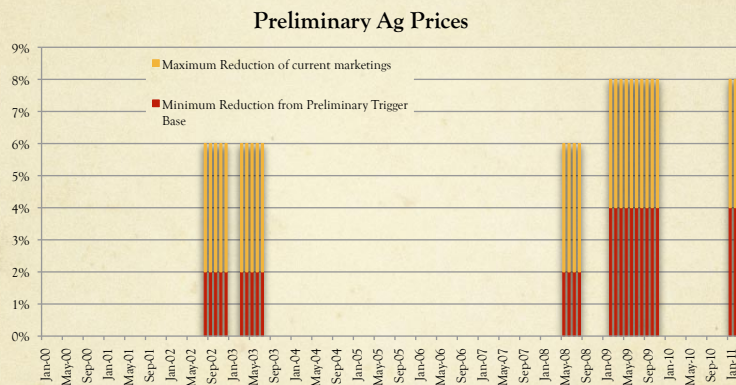
- Milk price is the monthly NASS All-Milk price
- Feed price is ration calculated to support a cwt of milk production including the cow and heifer, dry cow, and hospital cow complement.
- Ration is composed of alfalfa hay, corn silage, shelled corn and soybean meal.
- Ration value is estimated using NASS prices received for All-Milk and alfalfa hay. And, nearby month's average futures price for corn and soybean meal.



Stabilization Trigger Events

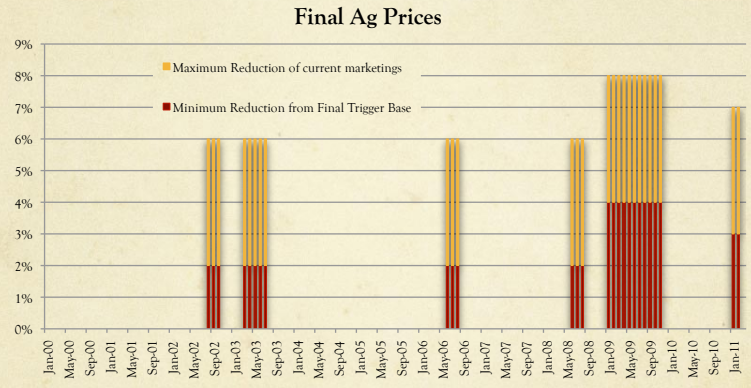
- < \$6 for 2 consecutive months
 - Paid for 98% of production base or 94% of marketings
- < \$5 for 2 consecutive months
 - Paid for 97% of production base or 93% of marketings
- < \$4 for any **one** month
 - Paid for 96% of production base or 92% of marketings

Trigger Events



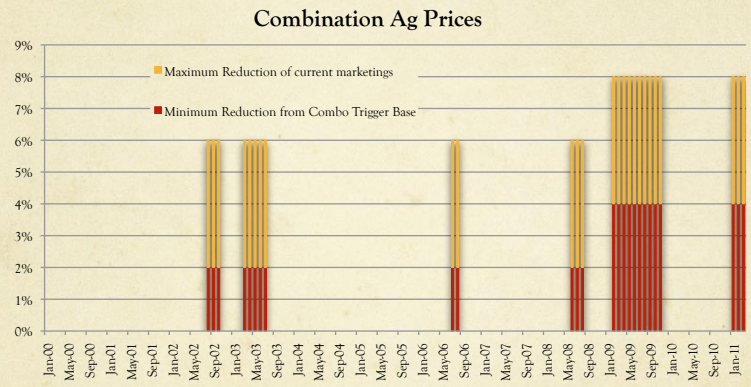
24 trigger events—20% of all months

Trigger Events



25 trigger events—21% of all months

Trigger Events



23 trigger events—19% of all months

Preliminary NASS Trigger from Jan-2000 to Present

- Trigger can constrict but will not loosen
- Once triggered, will not go away until 2 consecutive months above \$6 margin
- 27 trigger events
 - 14 events were \$6 margin trigger
 - 13 events were \$4 margin trigger
 - 0 events were \$5 margin trigger

It Would be a National Program, but It Works on Individuals.

- FAPRI and Nicholson/Stephenson have looked at program efficacy and national impacts.
- FAPRI and Informa have estimated state-level impacts.
- Need to look at individual level impacts
- Used individual marketings from Federal Orders 2, 30 and 126 from Jan-2000 through Jan-2009
- Only farms with continuous marketings over that time

Individual Producer Marketings

- 13,324 total farms with continuous marketings over the 10 year time period
 - More than 4,000 from the Northeast
 - More than 8,500 from the Upper Midwest
 - More than 600 from the Southwest
- Represent 20% of U.S. milk production and 30% of FMMO marketings
- More than 1.5 million records



Analyzed with Custom Computer Program

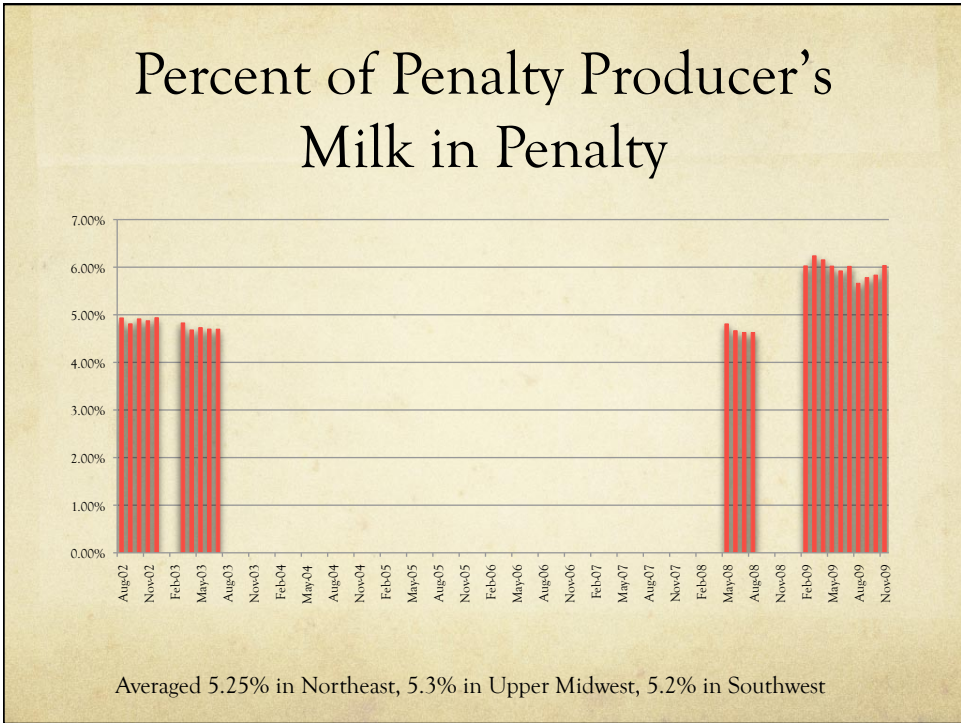
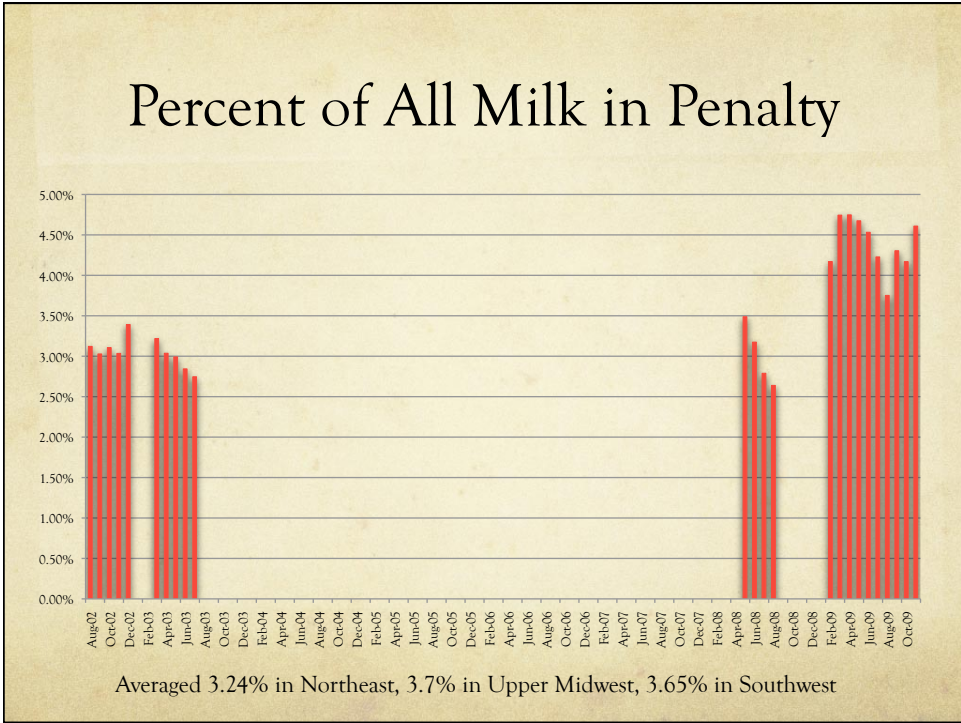
- Each year in early January, farms can choose whether to use the most recent 3 months as a rolling base period
- Or
- Same month in previous year.
 - Program made naïve assumption
 - Which base would have been better in the past calendar year?
 - More than half of the time previous year was used
 - Once a trigger event has occurred, your base level doesn't change until the trigger event is over.

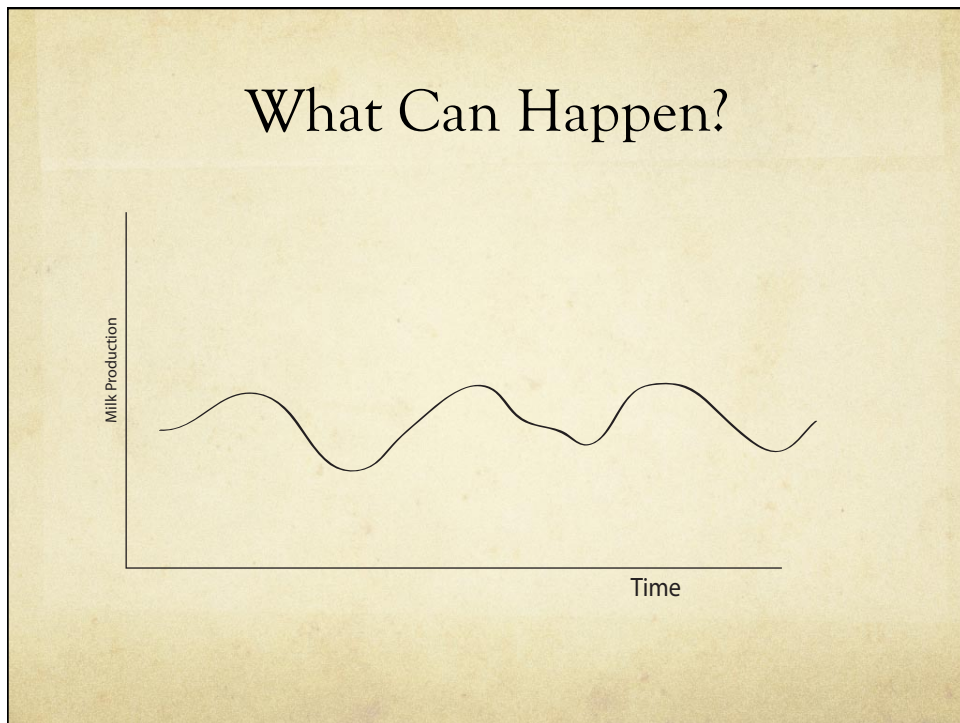
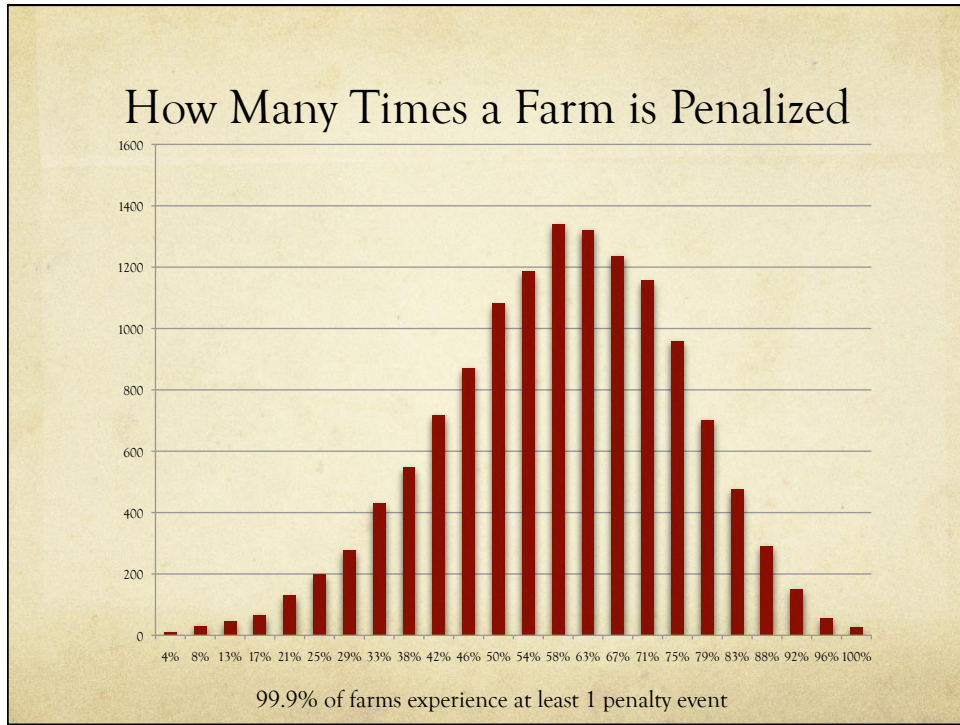
% of Producers in \$6 Trigger Months

Month	Northeast	Upper Midwest	Southwest
Aug-02	48.22%	64.07%	61.47%
Sep-02	55.87%	57.94%	63.70%
Oct-02	54.73%	56.66%	64.49%
Nov-02	53.38%	56.54%	65.20%
Dec-02	53.83%	60.17%	69.34%
Mar-03	52.96%	56.72%	70.14%
Apr-03	54.18%	56.70%	69.59%
May-03	54.18%	59.30%	61.52%
Jun-03	44.50%	64.35%	52.90%
Jul-03	43.40%	64.13%	46.99%
May-08	66.72%	59.87%	62.07%
Jun-08	57.12%	59.99%	58.67%
Jul-08	48.29%	51.22%	56.96%
Aug-08	50.46%	51.70%	56.91%

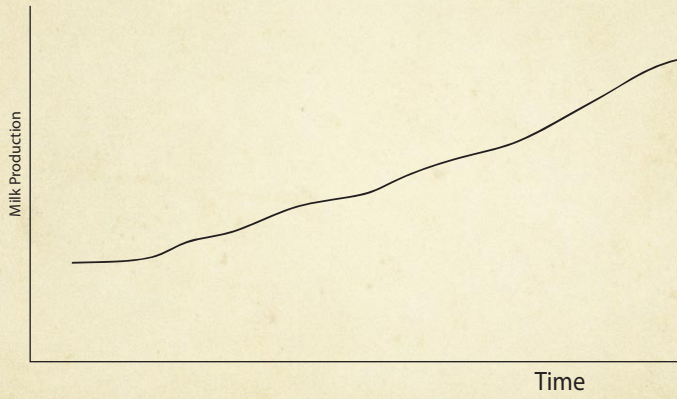
% of Producers in \$4 Trigger Months

Month	Northeast	Upper Midwest	Southwest
Feb-09	45.45%	49.52%	74.46%
Mar-09	56.92%	59.55%	77.57%
Apr-09	59.67%	64.95%	76.57%
May-09	62.19%	68.94%	67.33%
Jun-09	65.50%	72.75%	56.86%
Jul-09	62.53%	73.52%	43.96%
Aug-09	52.43%	67.46%	50.45%
Sep-09	57.37%	66.19%	62.72%
Oct-09	52.13%	58.60%	63.93%
Nov-09	55.75%	62.23%	69.39%

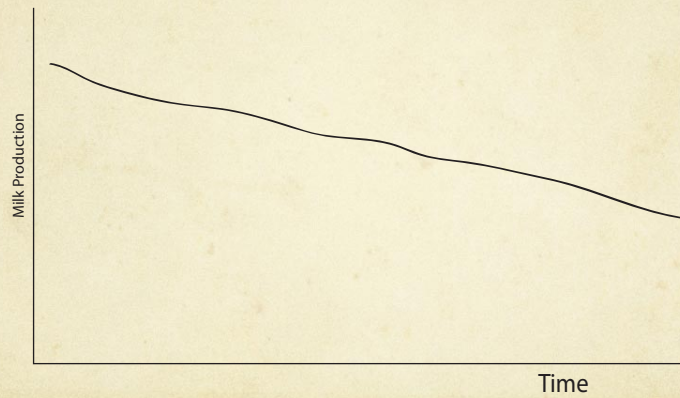




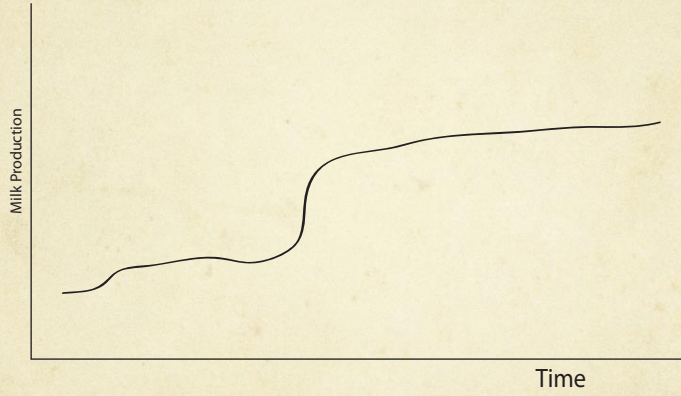
What Can Happen?



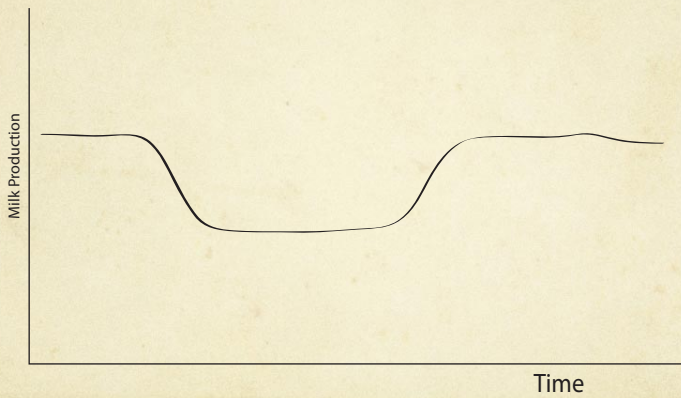
What Can Happen?



What Can Happen?



What Can Happen?



How Variable is Milk Production?

- Calculate rolling 12 month production to take out effect of seasonal production
- Calculate slope over time for every farm
 - Is it trending up, down or not changing
- Calculate coefficient of variation for every farm
 - How much change in milk production over time
- Select only farms with no discernable trend in production and more than $\pm 15\%$ variation in production

Significant Production Risk

- Nearly 40% of farms have more than 15% variation in milk production from year-to-year. (production events)
 - These farms tend to be smaller in size and trending even smaller. (probably in decline)
 - These farms have as much revenue risk from production events as they do from milk and feed price volatility
 - Many of them will be caught by trigger events with a small base just at the time they are recovering from a production event
- Larger farms appear to have much better control over their production

Conclusions

- National or regional modeling of policy provides many insights into aggregate impacts but isn't granular enough to see where the impacts really occur.
- State or federal order level reporting of milk production also tends to obscure the variability of individual farm milk production.
- Individual farm marketings, particularly on smaller farms, is surprisingly irregular.
- There is still a strong seasonal component to production.