

# Forecasting Dairy Security Act Farm Bill Margins

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- A new safety-net is proposed to address excessive volatility in dairy commodity and feed grain prices.
- New programs will likely address income-over-feed-cost (IOFC) margin risk.

$$\text{IOFC} = \text{AMP} - (1.0728 \times \text{Corn} + 0.00735 \times \text{SBM} + 0.0137 \times \text{HAY})$$

# Farm Bill Defined Dairy IOFC Margins

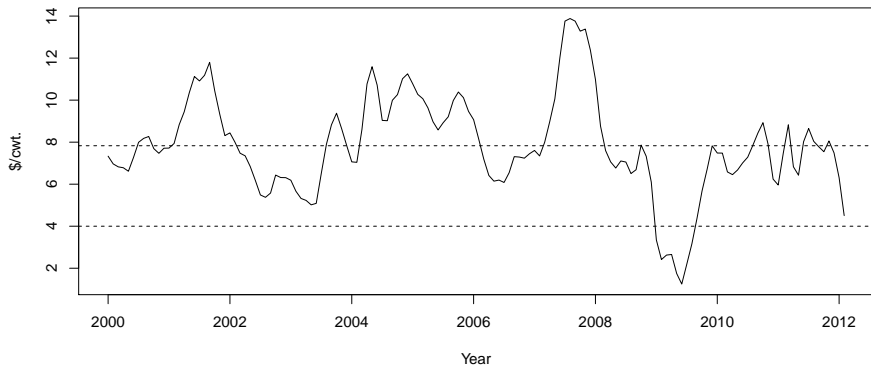


Figure: Estimated DSA IOFC Margin, 2000 - 2012

# Dairy Security Act

- The dairy security act offers a variety of farm insurance options.
- Coverage levels go from \$4.00  $\Rightarrow$  \$8.00 per cwt in \$0.50 increments and premiums vary based on coverage selected.
- A farm make choose a **new** insurance coverage level **each year**, but how does a farm decide?
- A variety of factors should be considered during the insurance period. Examples include: expected milk marketings and milk component levels (for mailbox price).

# Coverage Options Are Important

- Insurance coverage decisions made annually include: 1) supplemental coverage level, 2) supplemental coverage percentage, & 3) stabilization base.
- These decisions can **impact the performance** of the insurance program for individual farmers (e.g. DMSP after spring flush).
- A reliable IOFC forecast provides an assessment of the risk environment.
- If we understand (forecast) the risk environment we can make more informed coverage decisions.

# Forecasting Techniques

There are many forecasting techniques to predict milk prices, but the most common are:

- Econometric analysis (regression)
- Time series modeling
- Informed opinion and judgment
- Dart board
- **Futures markets**

All of these approaches are appropriate.

# Forecasting using CME Futures

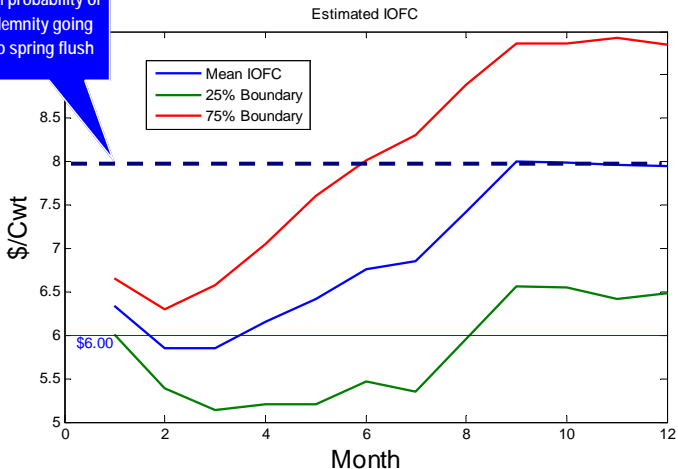
- Futures prices represent the market's expectation of the price of a commodity in the future, thus I am not imposing any assumptions about price behavior.
- The Chicago Mercantile Exchange lists futures contracts for Class III and Class IV milk, corn, and soybean meal (no alfalfa hay contract).
- Using CME futures and option prices I derive the commodity price probabilities.



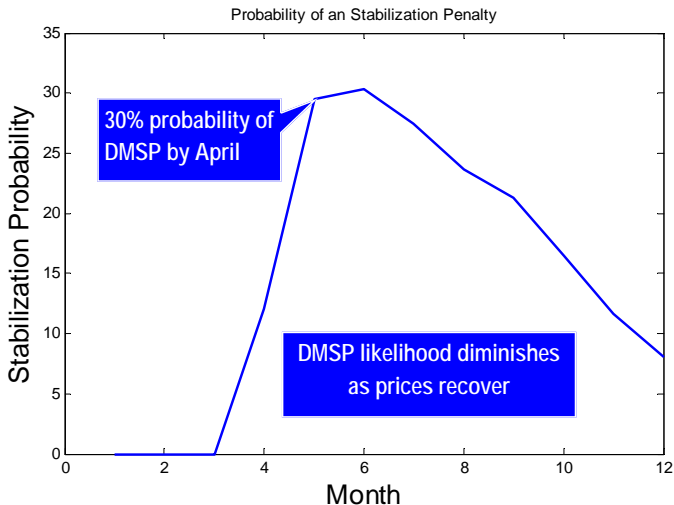
- Using futures and options prices for Jan 15, 2013 a farm could anticipate indemnity payments and DMSP announcements for the year.
- Model results include: IOFC margin trajectories, probability of DMSP, and estimated net benefits of risk management.
- We model the results for a **unique** farm operation and create a **personalized insurance decision-tool**.

# Income-Over-Feed-Cost Forecast (Jan 15, 2013)

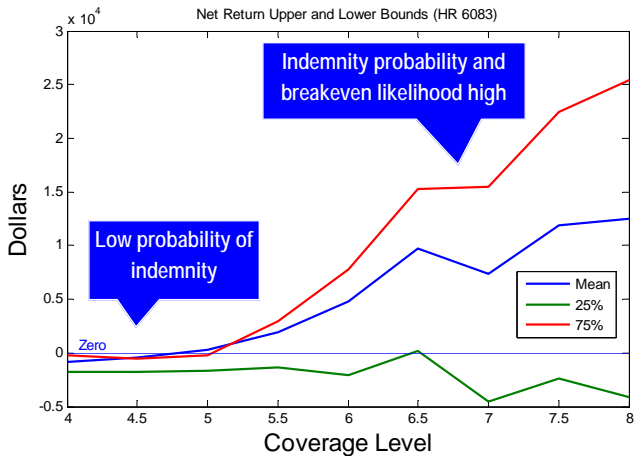
High probability of indemnity going into spring flush



# Probability of Stabilization Program (Jan 15, 2013)

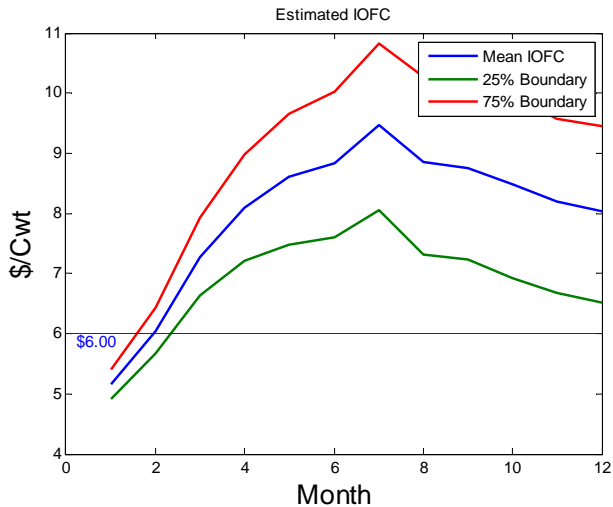


# Net Benefits for H.R. 6083



- Model provides:
  - Forecast of IOFC margin *w/ confidence intervals*
  - Possible insurance payments under *all* coverage options
  - Probability and severity of DMSP (plan ahead to reduce marketings if necessary)
  - How will each stabilization base change the farm marketings in the event of DMSP announcement?
  - Expectations of net farm returns from participation
- The model can help farmers and industry participants better anticipate and manage IOFC margin risks in a new policy environment.

# Bonus: 12-Month IOFC Forecast (April 2, 2013)



- The research/extension effort includes:
  - John Newton & Dr. Cameron Thraen (OSU)
  - Dr. Marin Bozic (UM)
  - Dr. Mark Stephenson & Dr. Brian Gould (UW)
  - Dr. Chris Wolf (MSU)

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