Understanding the Hog Crush Margin

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Overview

- What is a “crush margin”
- How is it calculated
- How to use it
- How has it performed?

- Refer to ISU Crush Margin

http://www.econ.iastate.edu/outreach/agriculture/periodicals/ifo/margins/

Crush Margin

- Comes from soybean processing
- Single measure that captures most of the market volatility and that is hedgeable
- The remaining revenue used to pay all other costs and, hopefully, return a profit
- Manage margin risk by managing the variable input prices

How is it Calculated

- ISU definition of crush margin
- Value of the hog less the cost of the pig, corn and SBM
- $CM_T = 2 \times LHF_{BT} - WP_{T-5}$
  $- 10 \times CF_{BT-5} -.075 \times SBMF_{BT-5}$
- 200# carcass
- 10 bushels corn
- 150# SBM
- 5-month wean-finish

How is it Calculated

- ISU definition of crush margin
- Prior to placement
  - LHF, pig, corn and SBM are variable and based on basis adjusted futures
  - Pig priced at 50% of 5-month out LHF
- At placement
  - Pig, corn and SBM are “bought” at cash price
  - LHF remains variable

Price Series

- ISM hog LM_HG204 Prior Day report
  - 5-Day Rolling Average Market Hog: weigthed by the average base to the base range
- Weaned pig NW_LS255
  - Early Weaned Pigs 10 lb Basis: Estimated 50-54% Lean Value, 750 head or more delivered
- SBM MS_GR850 Iowa SBM mid point
- North Central Iowa Corn

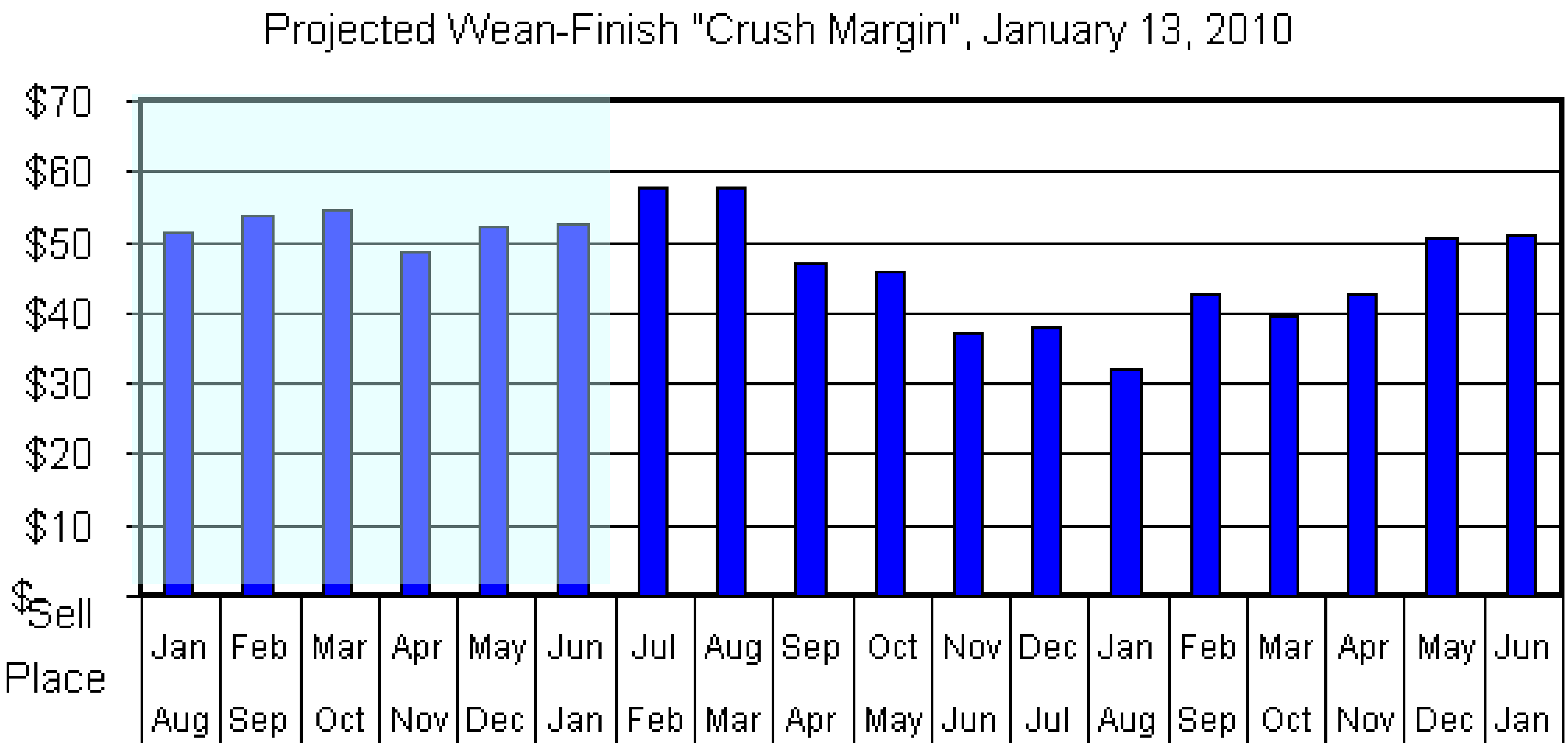
What is not Included?

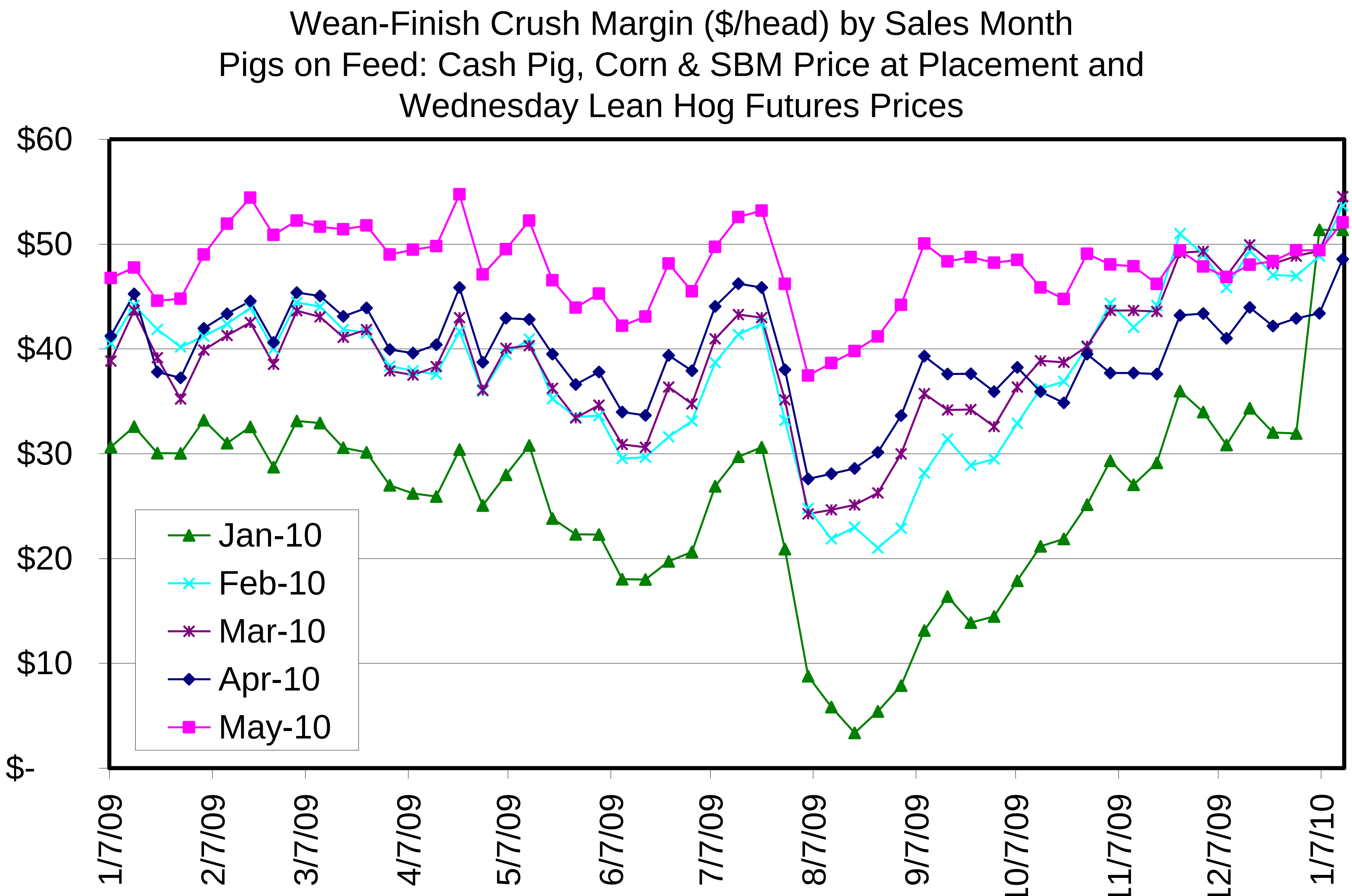
Expense item	$/hd
Vit, min and purchase complete feeds	11.35
Grind, mix, deliver	3.62
Animal health or vet/med	4.15
Labor and administrative	5.67
Operating interest	2.67
Utilities	2.57
Transportation	2.00
Facility fixed cost	8.45
Total cost beyond pig, corn, SBM	40.48

Other Adjustments

- Non-feed costs
- Your bushels and pounds will differ
- DDGS and less corn and SBM
- Basis differences
- Do your own calculations, but use crush margin as an indicator

ISU Hog Crush Margin Report





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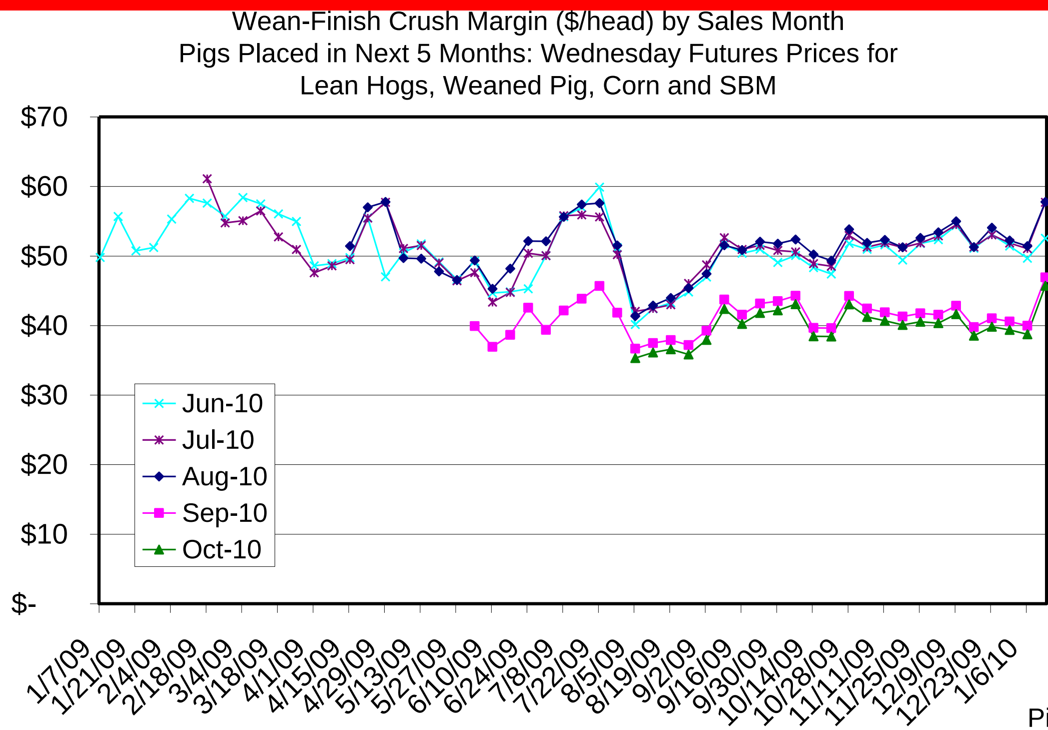
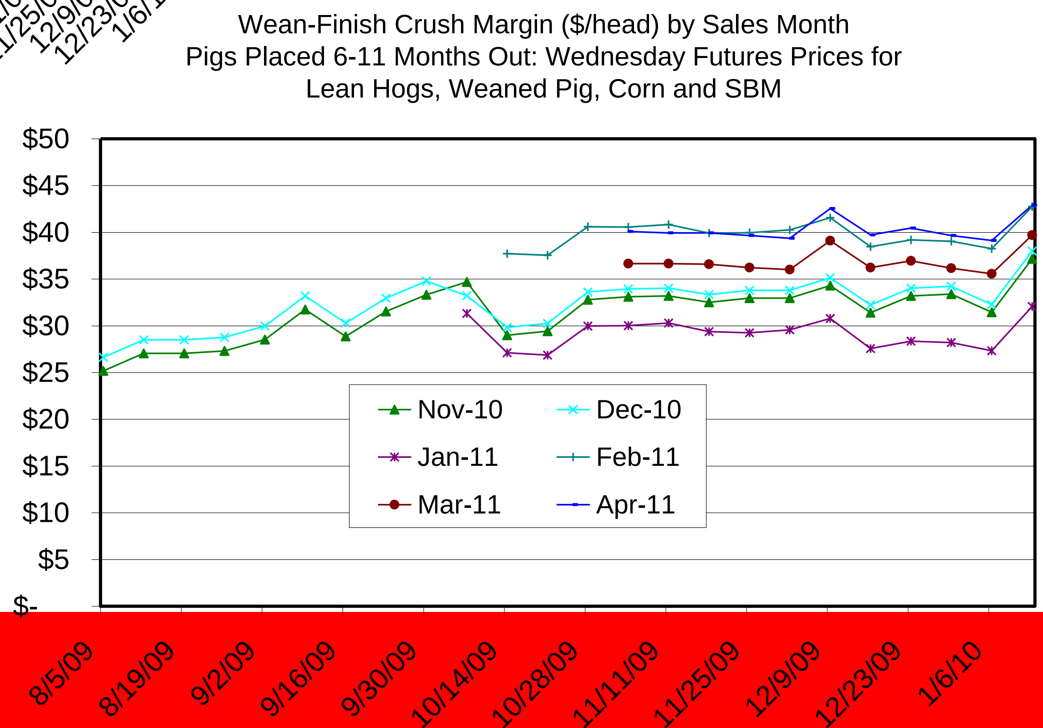

Wean-Finish Crush Margin ($/head) by Sales Month
Pigs Placed in Next 5 Months: Wednesday Futures Prices for
Lean Hogs, Weaned Pig, Corn and SBM
$70
$60
$50
$40
$30
$20
$10
$-
1/7/09
1/21/09
2/4/09
2/18/09
3/4/09
3/18/09
4/1/09
4/15/09
4/29/09
5/13/09
5/27/09
6/10/09
6/24/09
7/8/09
7/22/09
8/5/09
8/19/09
9/2/09
9/16/09
9/30/09
10/14/09
10/28/09
11/11/09
11/25/09
12/9/09
12/23/09
1/6/10
Jun-10
Jul-10
Aug-10
Sep-10
Oct-10


Wean-Finish Crush Margin ($/head) by Sales Month
Pigs Placed 6-11 Months Out: Wednesday Futures Prices for
Lean Hogs, Weaned Pig, Corn and SBM
$50
$45
$40
$35
$30
$25
$20
$15
$10
$5
$-
8/5/09
8/19/09
9/2/09
9/16/09
9/30/09
10/14/09
10/28/09
11/11/09
11/25/09
12/9/09
12/23/09
1/6/10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11

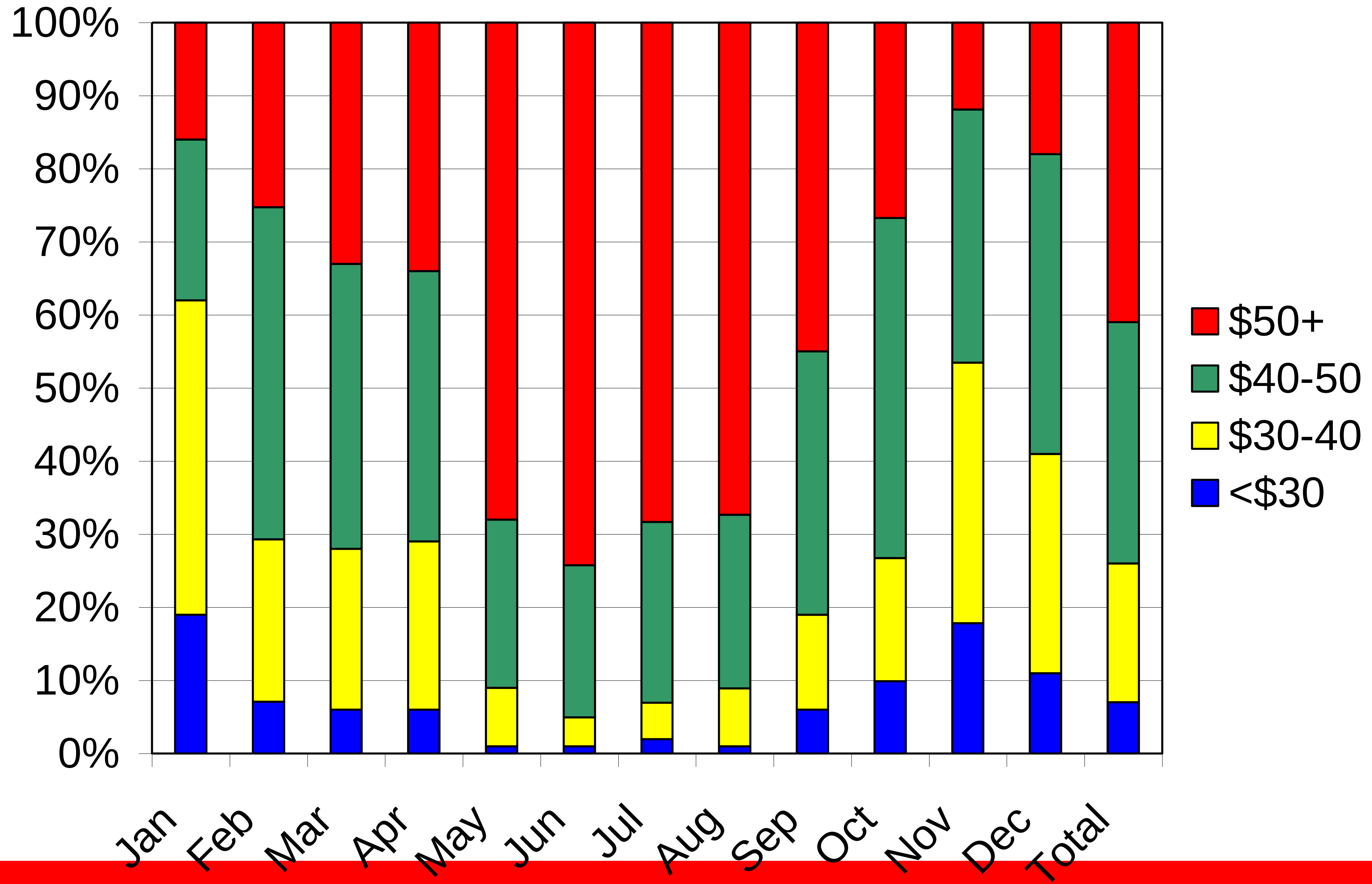
How to use it?

- If opportunity exists before placement
  - Sell 80% of LHF and buy all the SBM and corn futures needed
  - The open 20% matches the pigs to buy
  - At placement, buy corn and SBM and offset their futures contracts. Sell 20% of LHF
  - At slaughter offset all LHF

Wean-Finish Crush Margin, 1999-2008 Averages by Selling Month

Sales	Average	High	Low	Placement	Last
Jan	37.96	55.34	23.21	40.93	42.22
Feb	43.42	60.20	26.99	46.52	48.52
Mar	46.41	63.67	29.56	49.25	52.14
Apr	46.01	63.21	28.64	47.83	47.89
May	53.94	70.70	36.90	57.19	57.43
Jun	57.31	74.30	39.67	57.83	59.96
Jul	56.12	73.79	39.00	59.13	58.37
Aug	54.66	71.31	39.67	56.16	59.03
Sep	50.60	66.36	35.10	50.69	51.93
Oct	44.22	58.63	29.68	46.02	44.65
Nov	38.35	54.02	21.74	40.79	37.00
Dec	38.52	55.76	22.49	39.23	39.37

Percent of Days '99-08 by Selling Month and Size of Margin



Summary

- Crush margin is a way to focus on risky variables that you can manage
- Keeps the focus on margin rather than price
- ISU Crush margin is an indicator calculated each Wednesday
- Always use your own numbers

Hog Outlook 2010 and Beyond
The Good, the Bad & the Ugly

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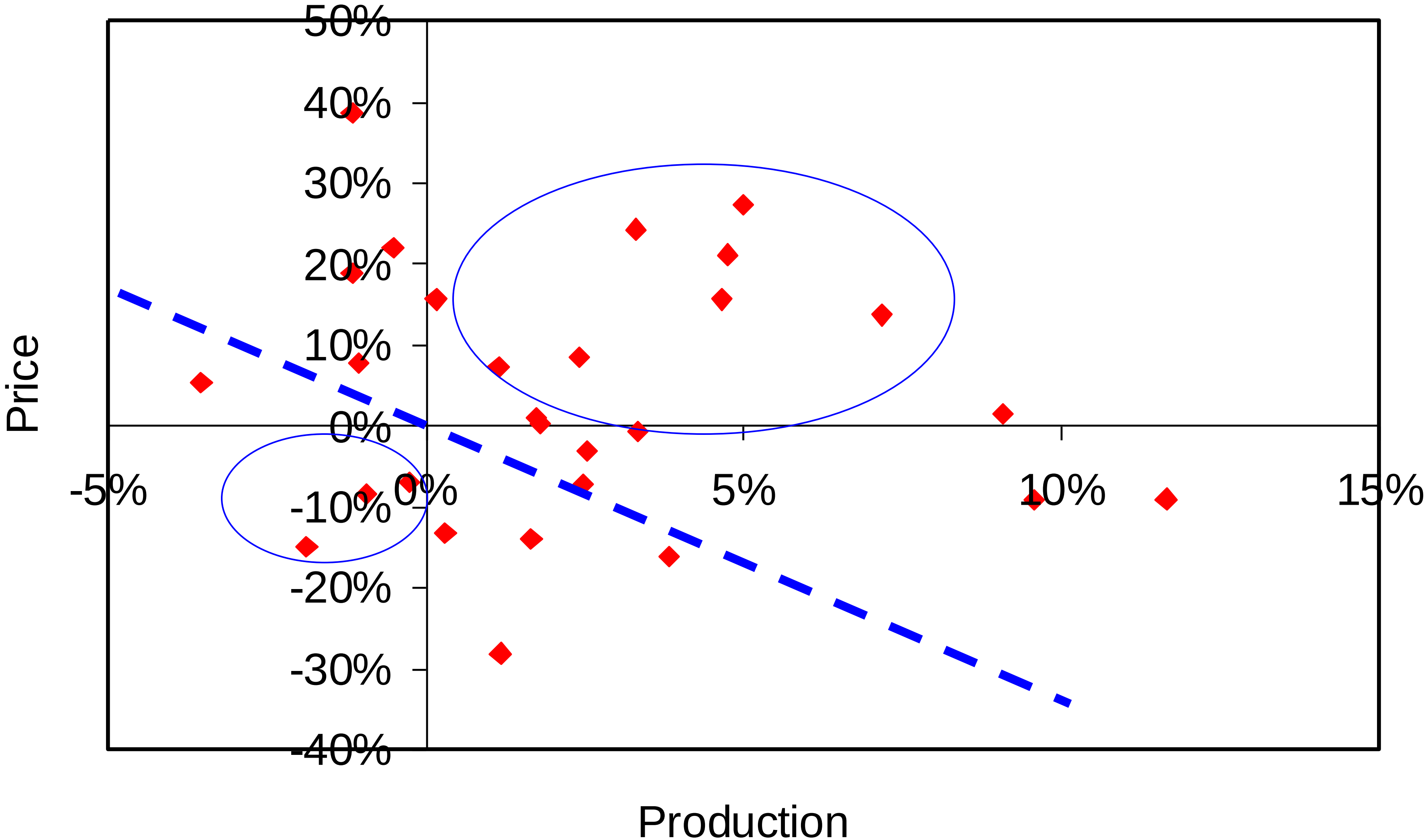
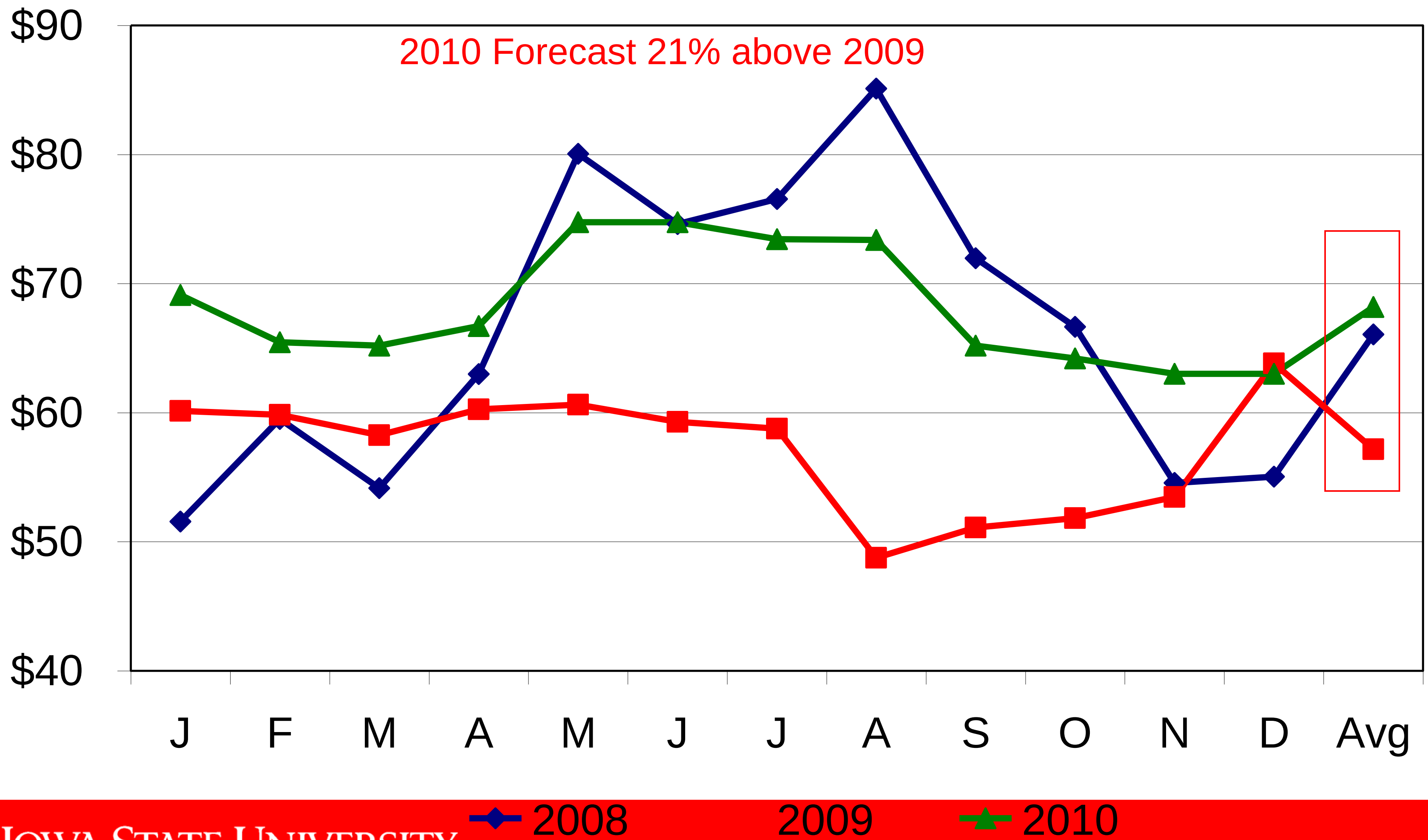
Percentage Change in Pork Production and Percentage Change in Price, 2001-2009

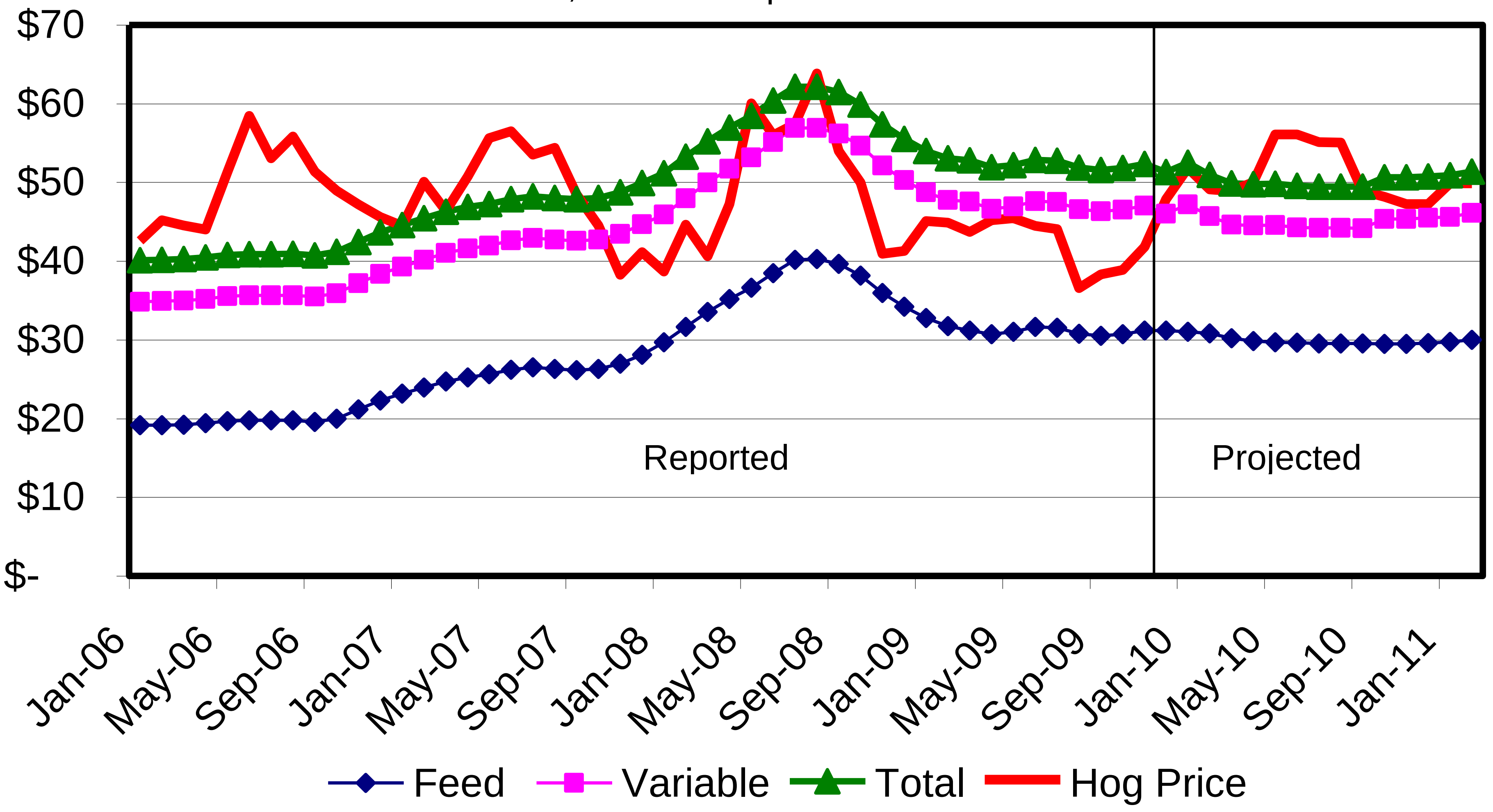


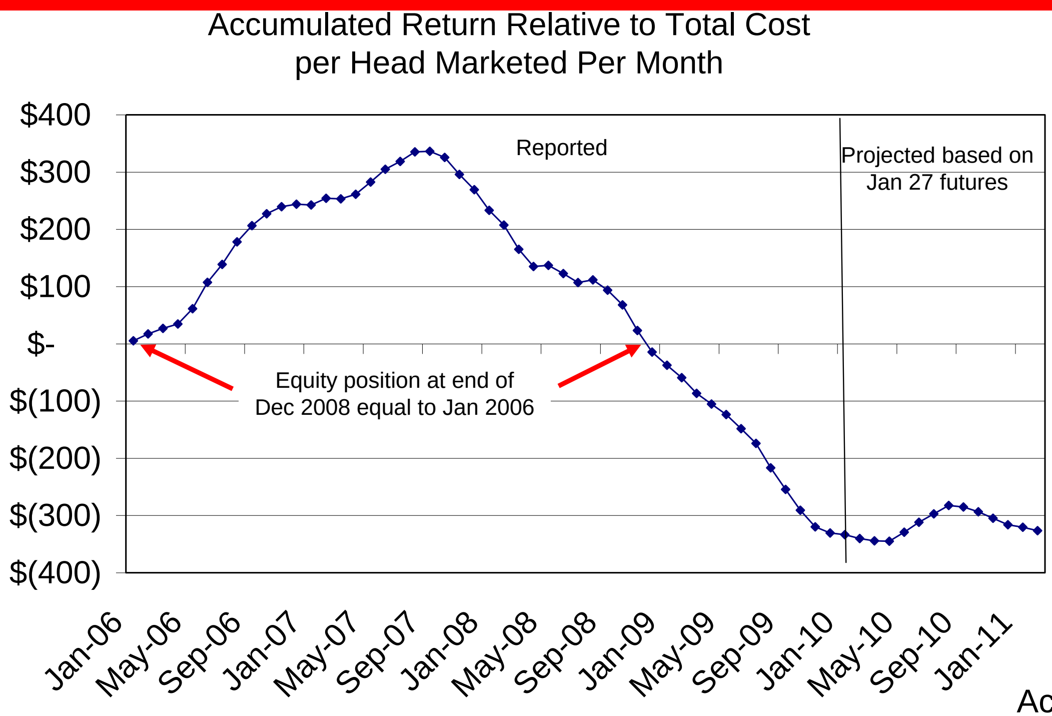
ISM Lean Hog Prices and Futures Based Forecast
Jan 27, 2009 Futures Forecast of 2010



ISU Estimated Cost and Selling Prices, Farrow to Finish ($/cwt Live)

Jan 27, 09 Futures prices and historic basis



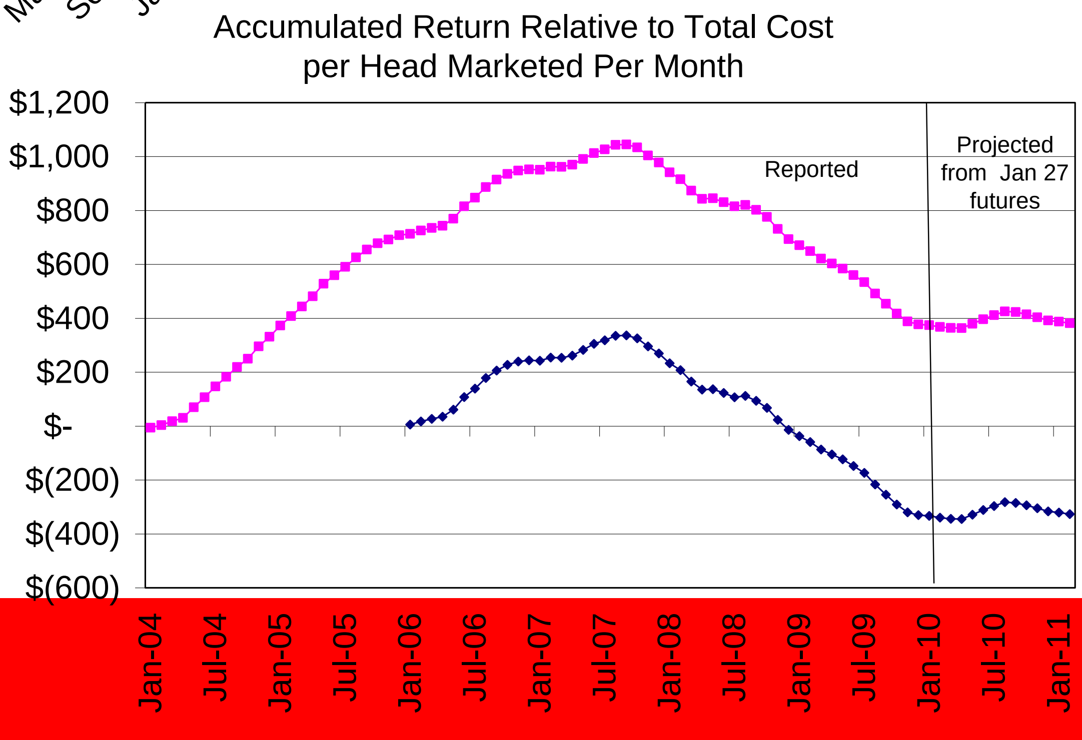


Accumulated Returns
Selling one head a month

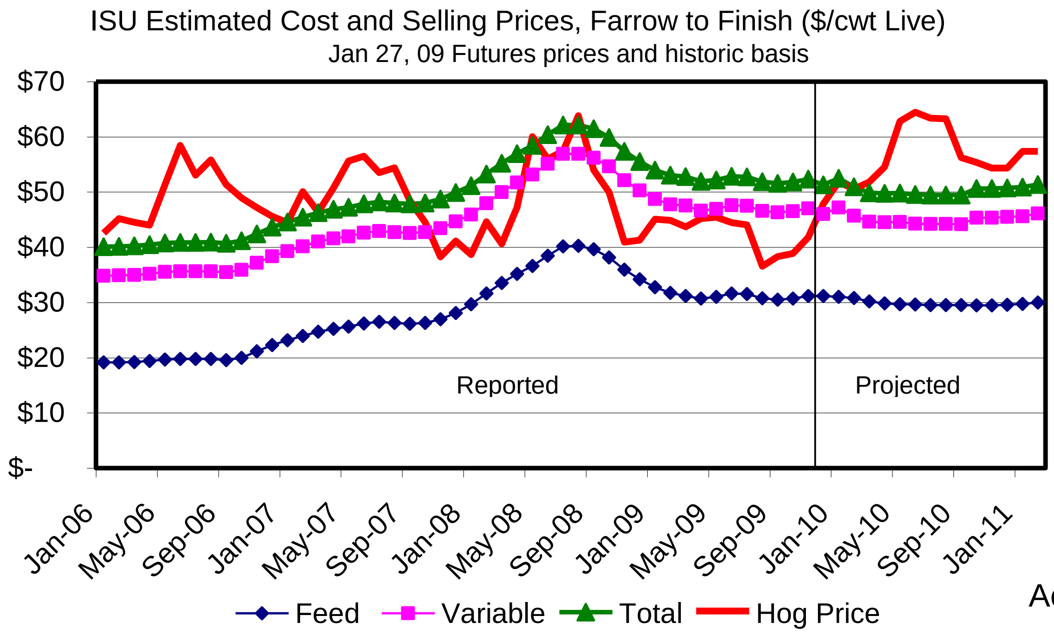
Dec 2008 = Jan 2006

2010 holds its own

Firms financially sound in 2004 and that survived disease problems in 2005-07 still have equity

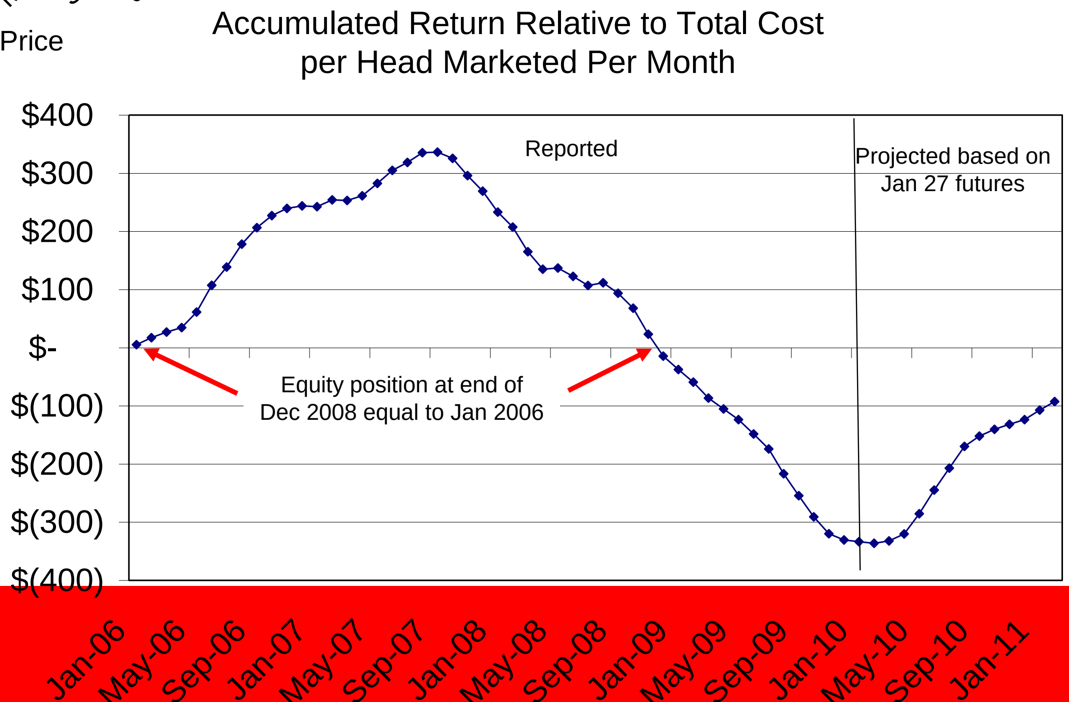


The Good



Hog price increase 3% over Jan 27 Futures each month for 5 months and hold at 15% higher.

2010 33% over 2009

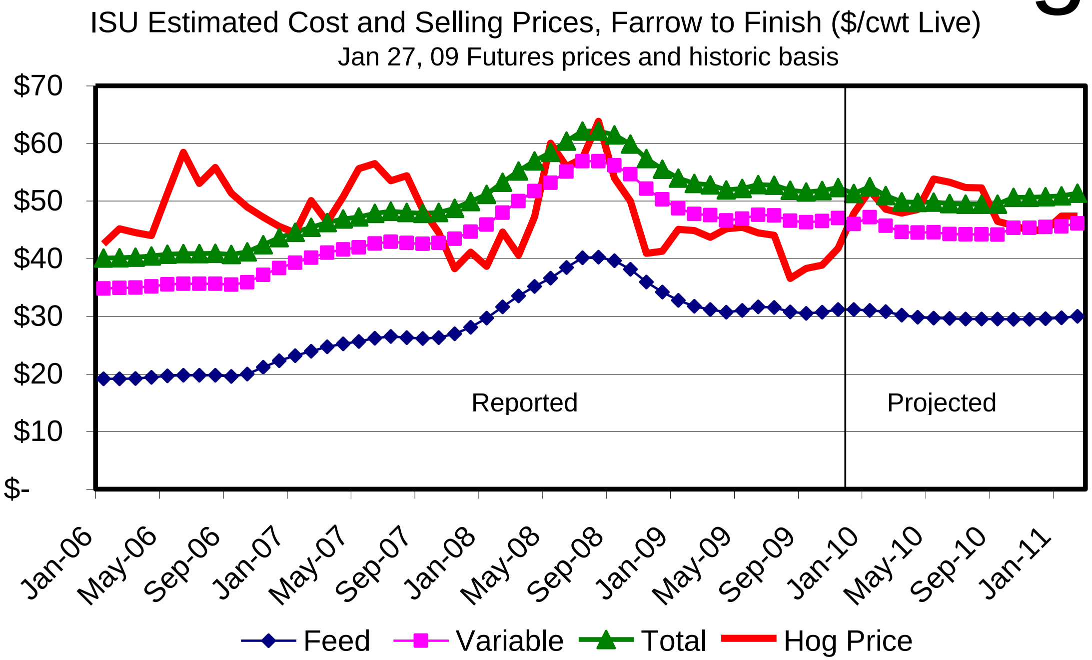


Regain 2/3 of equity lost in 2009

What Changes for Good?

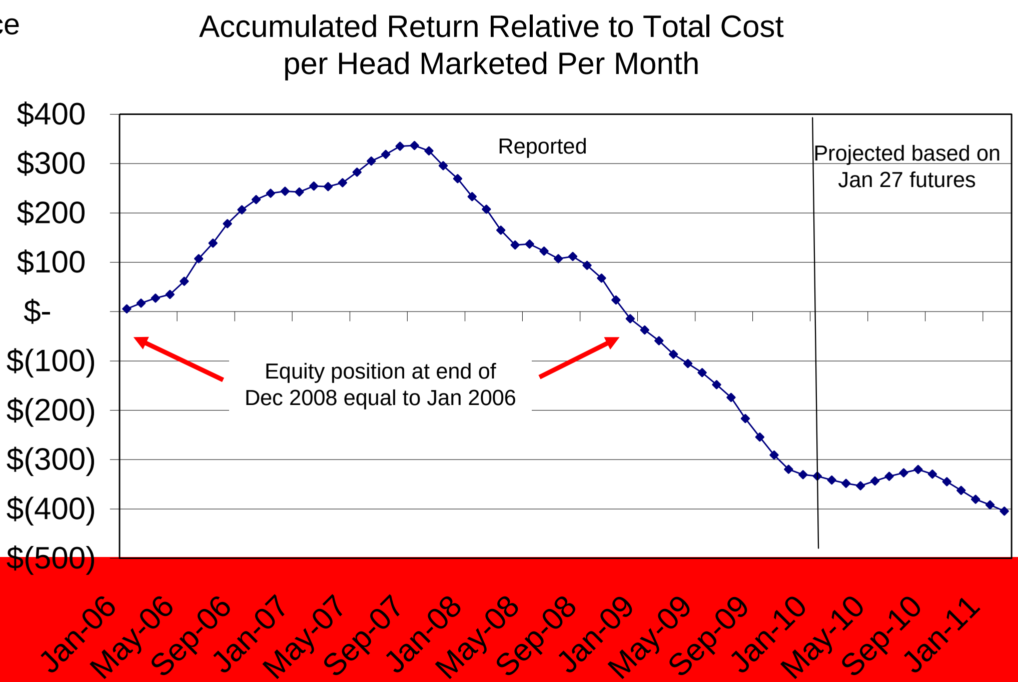
- Compared to Jan 27 market expectations
  - – Exports stronger (Dollar, China, Russia)
  - – Recovery stronger (stimulus, inflation)
  - – Supplies smaller (bankruptcy idles facilities)
  - – Packer margins smaller (battle for volume)
  - – Speculation (hedge against inflation)

The Ugly



Hog prices decrease 1% vs. Jan 27 Futures each month for 5 months and hold at 5% lower.

2010 15% over 2009



Equity position continues to decline throughout 2010

What Changes for Ugly?

- Compared to Dec 31 market expectations
  - Exports weaker (double dip recession)
  - Recovery weaker (double dip recession)
  - Supplies larger (firms ramp up production)
  - Packers close plant(s) on smaller supplies
  - Speculators exit market

Don't Forget Cost Side

- Feed cost volatility continues
- Get the Ugly results with 2% higher feed cost per month than Jan 27 futures for 6 months for a 12% increase.
- Higher interest rates if inflation occurs

Pork Summary

- Supply is a poor predictor of price
- Demand, i.e., exports are fickle
- Current forecast is for 19% higher prices in 2010 on smaller supplies and higher exports
- Record 1-year price increase over 2009 and industry would regain 2/3 of equity lost in ’09
- 5% lower prices than expected would be 15% higher prices than ’09 and the equity drain continues.

It is better to be a mile from Hell headed out than a 100 miles out headed in.

Earl Butz