



Livestock Gross Margin for Dairy Insurance

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AgroMoney, Servicios Financieros para el Agro

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LGM–Dairy: Overview

- Livestock Gross Margin for Dairy Insurance
 - Protects a farmer defined EIOFC floor
 - First contracts offered in August 2008
 - Administered by USDA RMA and sold by crop insurance agencies
- Similar to use bundled options, except
 - No minimum size limit
 - Max 240,000 cwt milk in 10 months or fiscal year
 - Premium not due until contract matures



LGM–Dairy: Characteristics

- LGM–Dairy customizable with respect to:
 - Number of months insured
 - 1 to 10 months
 - Farm specific production and feeding profiles
 - Monthly IOFC covered
 - 0 to 100% each month
 - Percentage could vary across months
- Direct subsidy of premiums
 - Premium = long run expected indemnity + 3%



LGM–Dairy: Estimates

- **Gross Margin = EIOFC =**
 - Expected Milk Value – Expected Feed Cost
- **Gross Margin Guarantee = GIOFC =**
 - IOFC – Deductible
 - Same deductible for entire contract
- **Actual Gross Margin = AIOFC =**
 - Actual Milk Value – Actual Feed Cost
- **Indemnity = Payout when $EIOFC < AIOFC$**

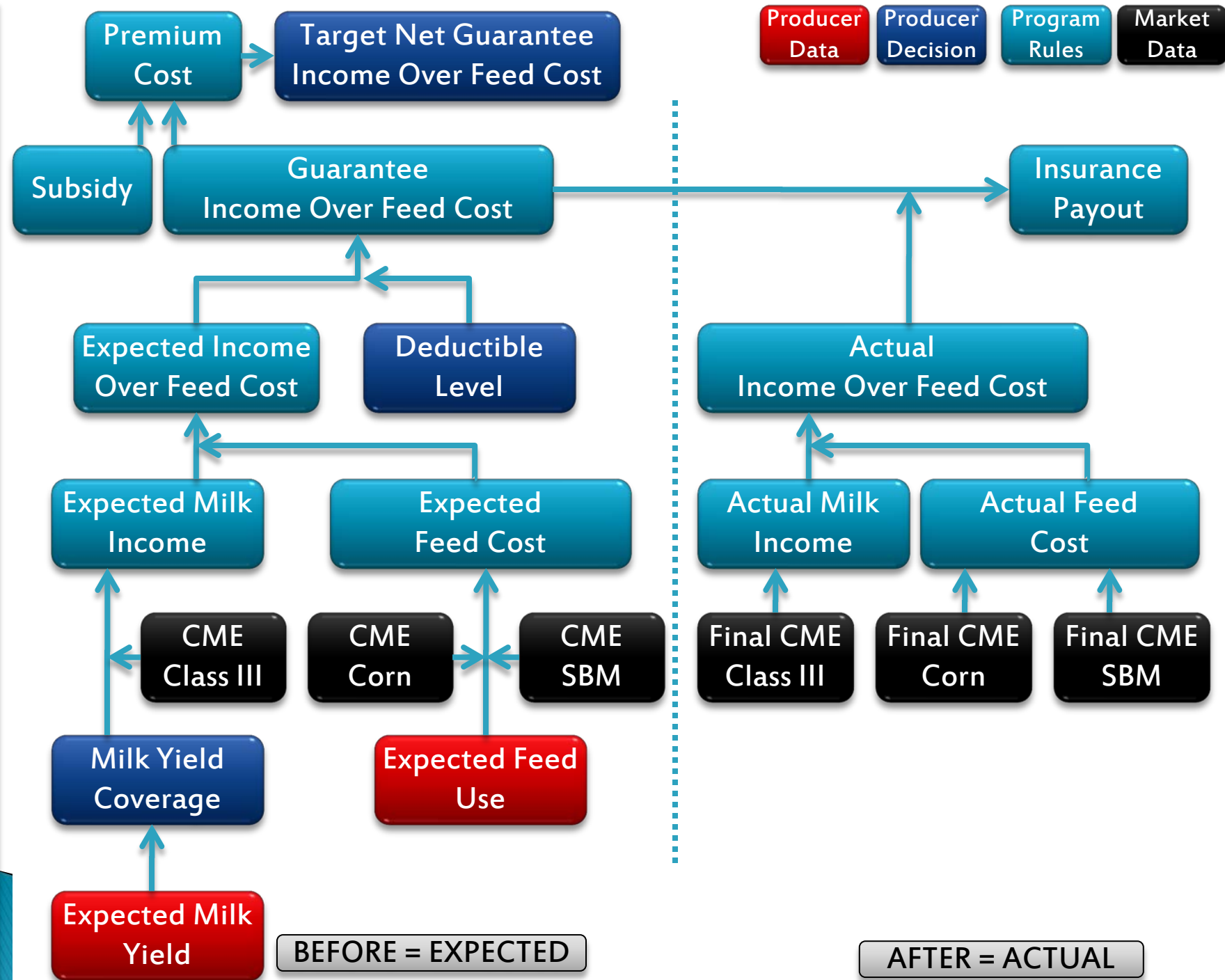


LGM–Dairy: Prices

- Class III, corn, and soybean meal futures markets (CME) determine expected and actual prices
 - Milk = Class III futures on milk insured
 - Corn = corn futures on corn equivalents insured
 - SBM = SBM futures on SBM equivalents insured
- Once LGM–Dairy contract purchased
 - EIOFC floor established
 - EIOFC applies to the entire contract

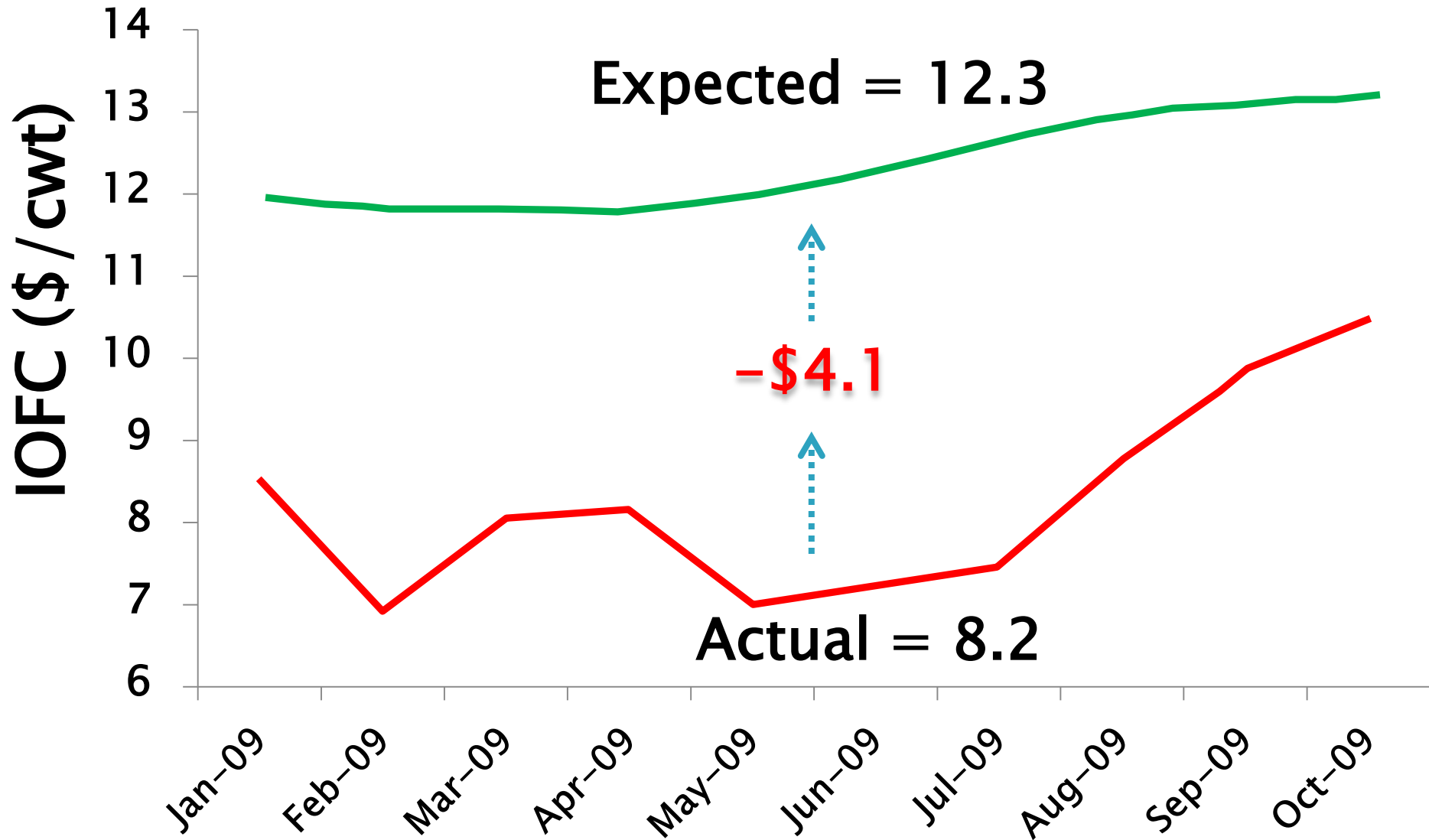


LGM-Dairy: Complete Overview

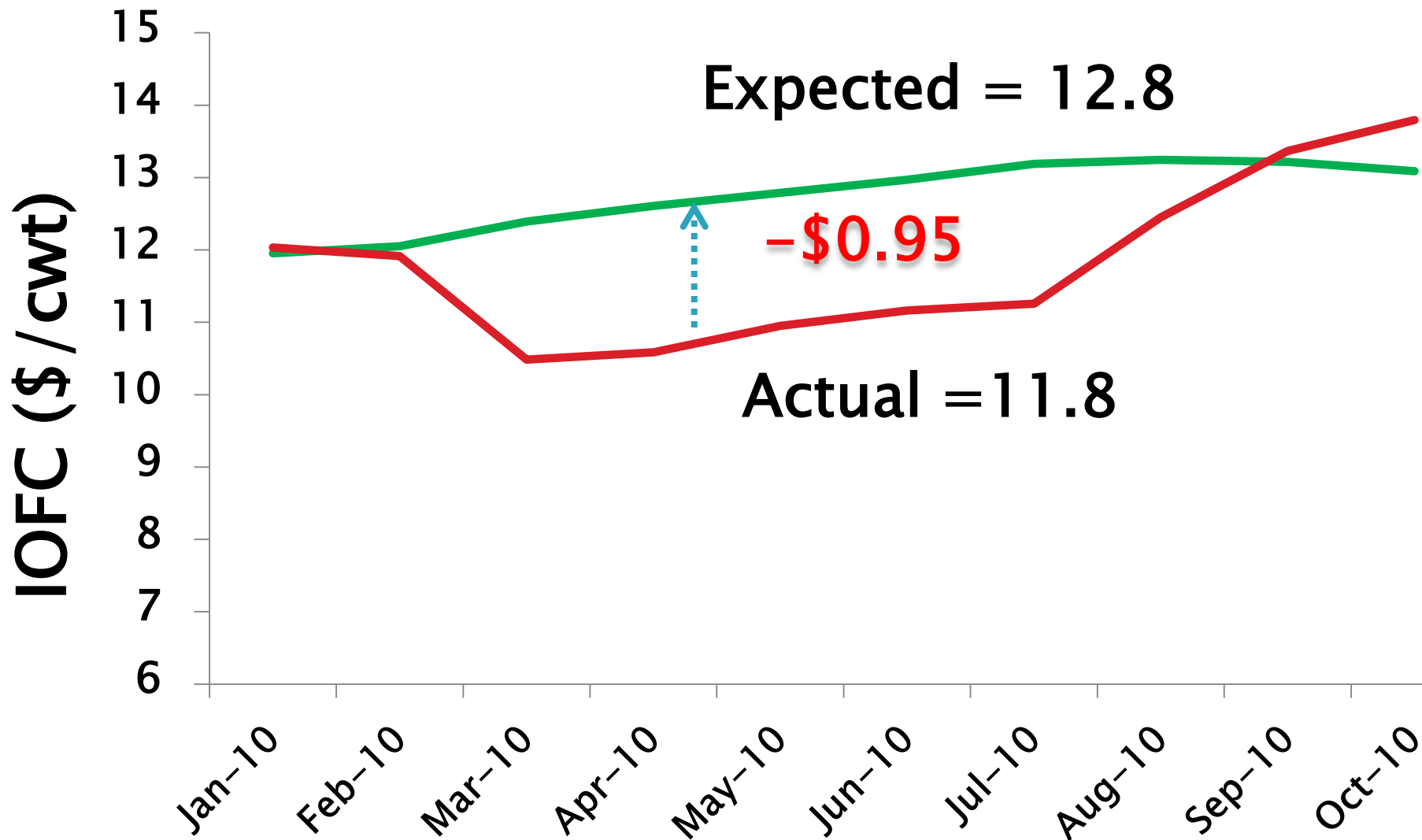


Nov-08

Did you know...?



Nov-09



Mar-11

Expected = 12.7

IOFC (\$ / cwt)

14
13
12
11
10
9
8
7
6

May-11

Jun-11

Jul-11

Aug-11

Sep-11

Oct-11

Nov-11

Dec-11

Jan-12

Feb-12

	Class III	Corn	SBM
May-11	17.48	7.29	368.87
Jun-11	16.98	7.31	370.43
Jul-11	17.04	7.33	371.99
Aug-11	17.05	6.96	368.98
Sep-11	17.09	6.59	362.28
Oct-11	16.94	6.43	351.68
Nov-11	16.74	6.26	351.44
Dec-11	16.60	6.10	351.20
Jan-12	16.15	6.13	351.20
Feb-12	15.90	6.16	350.58

Actual?

LGM–Dairy Incentives Since Dec 2010

Premium
Cost

Up to 50% SUBSIDY !

Premium
Payment

Due at the END of Contract !

Deductible
Level

Up to \$2/cwt milk !



LGM–Dairy: Determining Prices

➤ Expected Prices

- Average of last 3 trading days (CME futures) including last business Friday of sign up month



CME Prices Used



LGM–Dairy: Determining Prices

➤ Actual Prices

- Expiration futures contracts over contract life
- Average settle prices from 1st, 2nd, and 3rd days prior to the futures contract last trading day

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
March 2011		1	2	3	4	5
6	7	8	9	10	11	12
13	14 Corn/SBM	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31 Class III		

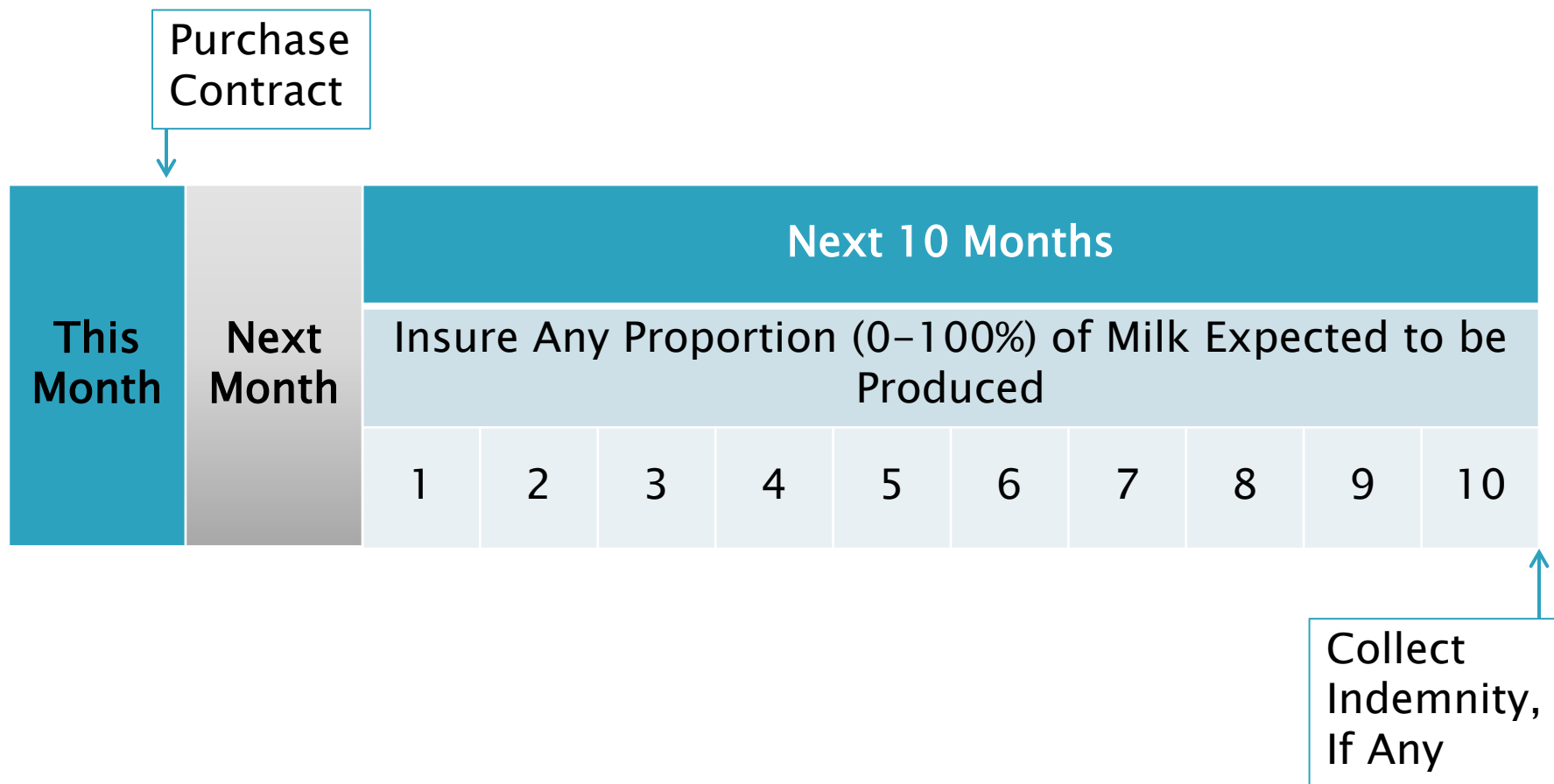


LGM–Dairy: Purchasing

- When to purchase
 - Every last business Friday (to Saturday) of a month
 - ~ 5pm Friday to 8 pm Saturday (27 hours)
 - 12 contracts offered each year
- Monthly data needed to buy a contract
 - Milk production
 - Feed Equivalents
 - Corn (7.28–76.16 lb/cwt milk, default = 28)
 - SBM (1.61–26 lb/cwt milk, default = 4)
 - Percentage of production to be covered (0–100%)



LGM-Dairy: Contract timeline



LGM–Dairy: Deductible

- Producer chooses EIOFC not covered by the insurance
 - Portion of EIOFC not protected by insurance
 - Deductible selected between \$0.0 to \$2.0/cwt milk
 - ↑Deductible → ↓Premium
 - Producer assumes more risk
 - Subsidy increases with higher deductible



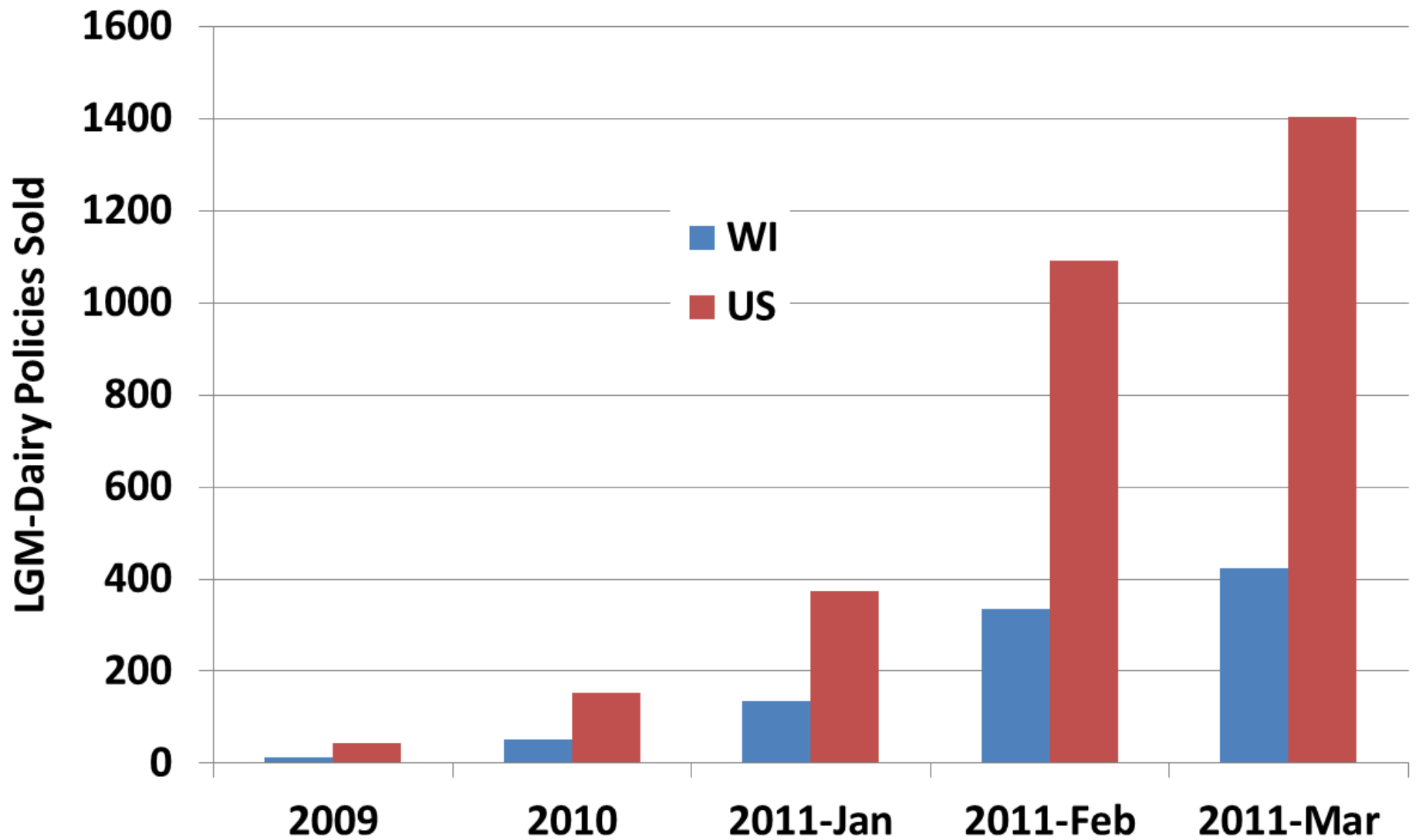
LGM–Dairy: Premium Subsidy¹

Deductible (\$ /cwt)	Subsidy (%)	Deductible (\$ /cwt)	Subsidy (%)
0.00	18	0.60	31
0.10	19	0.70	34
0.20	21	0.80	38
0.30	23	0.90	43
0.40	25	1.00	48
0.50	28	1.10 – 2.00	50

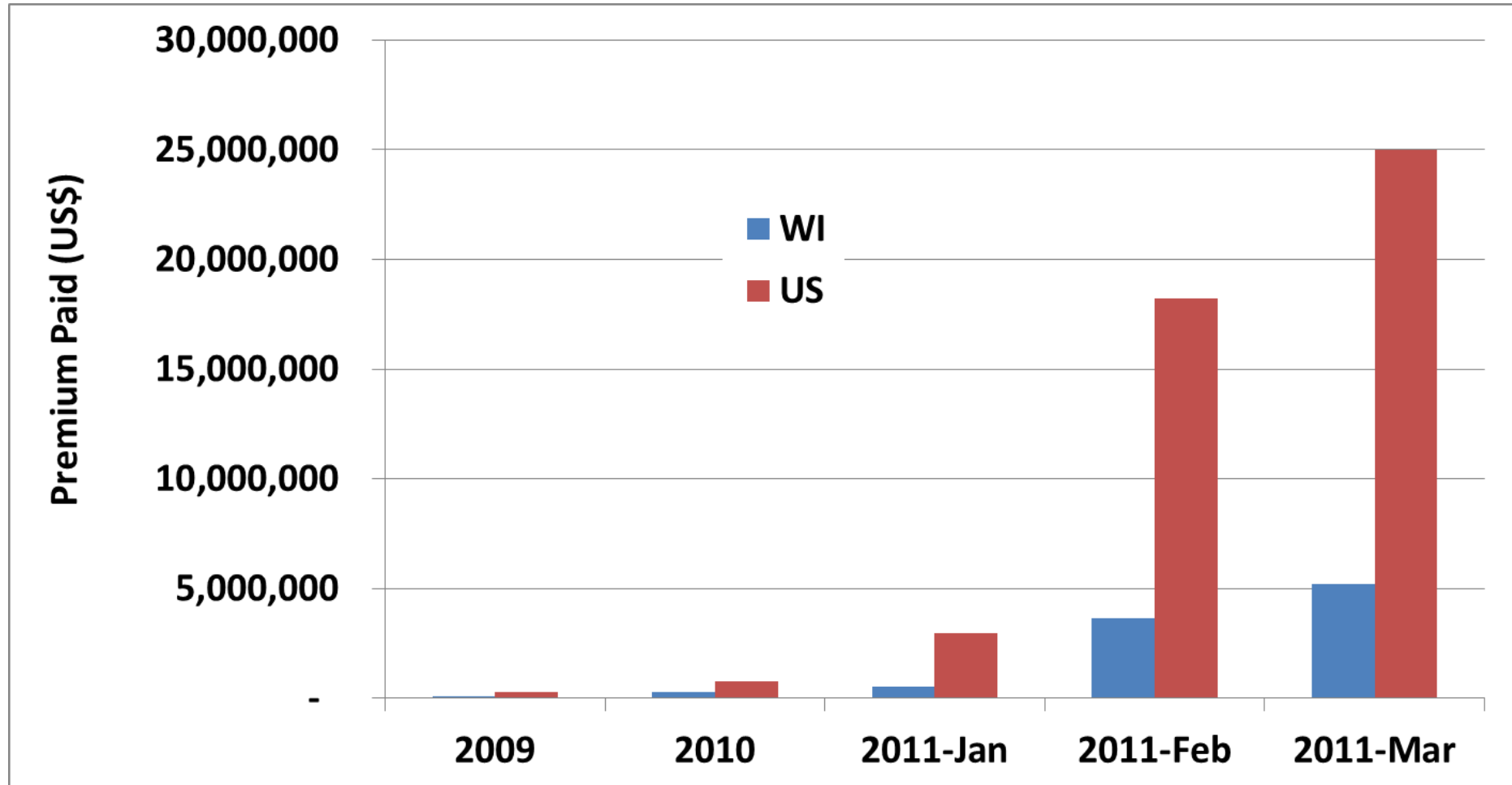
¹When contract includes 2 months or more out of the 10 months



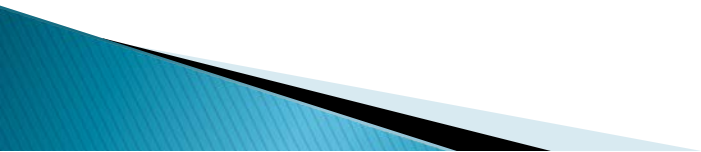
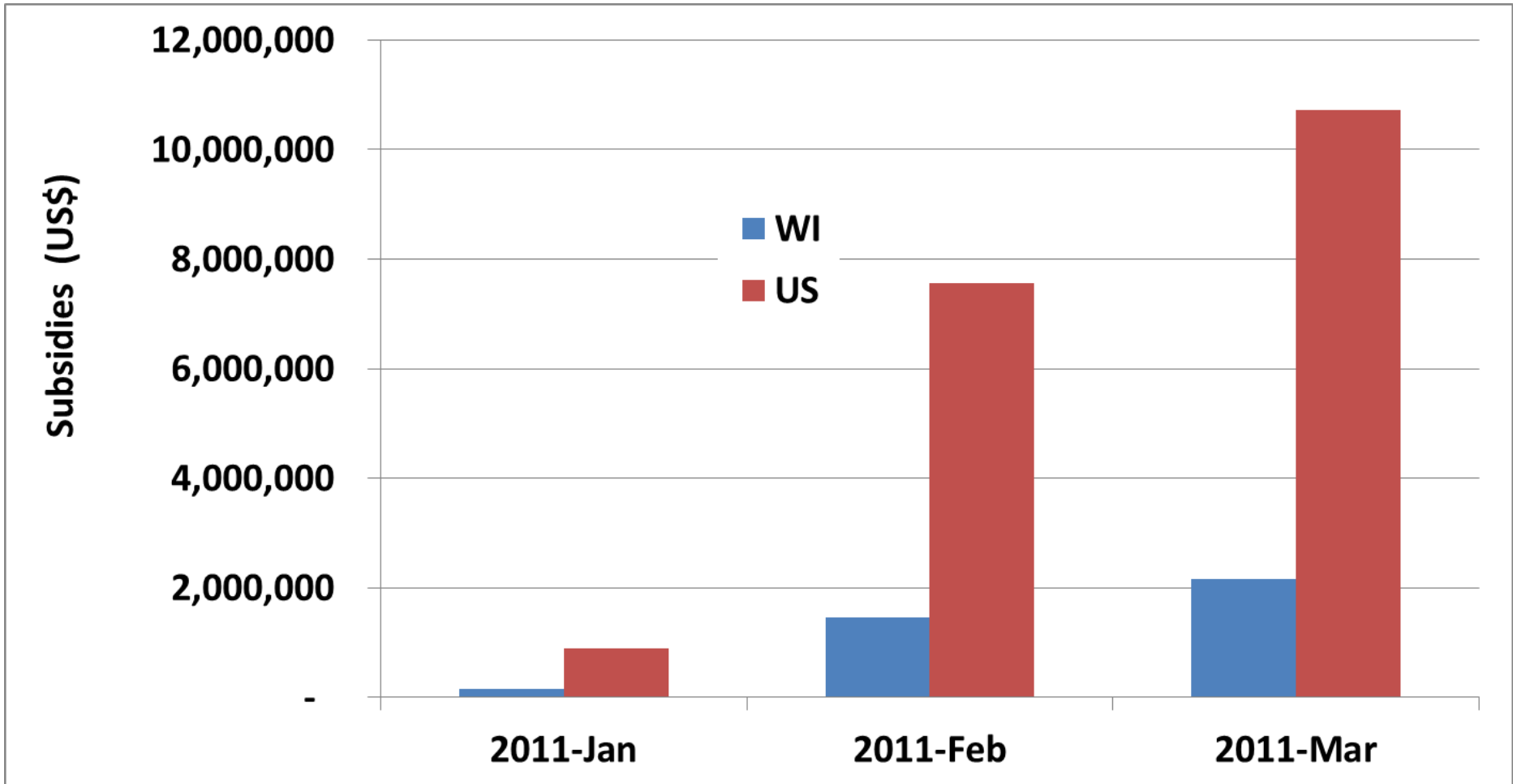
LGM-Dairy: Policies Sold



LGM-Dairy: Premium Paid



LGM-Dairy: Subsidies Received



LGM–Dairy: Contract Status (May 11)

- Between July 2010 and March 2011, 46.1 million cwt insured (2.4% US milk)
- Margin protected: \$768.2 Million
- RMA has HIT its Underwriting Capacity Limit Capacity
- Unless additional funds are available, offerings will not resume until October 2011



LGM Analyzer

Documentation

Premium Estimator

Least Cost Optimizer

Bundled Options (Beta)

If you have saved CSV data from a previous run, you can upload it instead of typing in your farm's data again

Upload a file

<http://dairymgt.info/lgm.php>
http://future.aae.wisc.edu/lgm_analyzer/

Input

Insurance contract month: 2011 Mar

Choose your deductible level \$ 2.0 /cwt

Feed Values: Enter Manually Lowest Allowed Default Highest Allowed

The prices we use for the Gross Margin Calculation correspond to future and option prices retrieved on the trade dates: 2011-03-02, 2011-03-03, 2011-03-04

Video Demonstration
Web Analysis

✓ Coverage Month	Production (cwt)		Corn Equiv (tons)		Soybean Meal Equiv (tons)		% covered	Monthly Gross Margin		
Month Year	Milk Qty.	Covered Milk × Expected Price = Milk Revenue	Corn Qty.	Covered Corn × Expected Price = Corn Cost	SBM Qty.	Covered SBM × Expected Price = SBM Cost		Milk Revenue - Corn Cost - SBM Cost - (Deductible × Milk Qty.)	\$/cwt of Farm Milk	\$/cwt of Covered Milk
✓ May 2011	2000	2,000 cwt × \$17.48/cwt = \$34,959	36.0	36 tons × \$7.29/bu = \$9,373	9.7	9.7 tons × \$368.87/ton = \$3,578	100	20,009	10.00	10.00
✓ Jun 2011	2000	4,340 cwt × \$16.98/cwt = \$73,691	36.0	101.1 tons × \$7.31/bu = \$26,393	9.7	22.3 tons × \$370.43/ton = \$8,261	100	34,697	7.99	7.99
✓ Jul 2011	2000	4,188 cwt × \$17.04/cwt = \$71,361	36.0	97.6 tons × \$7.33/bu = \$25,548	9.7	21.5 tons × \$371.99/ton = \$7,998	100	33,627	8.03	8.03
✓ Aug 2011	2000	2,000 cwt × \$17.05/cwt = \$34,098	36.0	36 tons × \$6.96/bu = \$8,948	9.7	9.7 tons × \$368.98/ton = \$3,579	100	19,572	9.79	9.79
✓ Sep 2011	2000	2,000 cwt × \$17.09/cwt = \$34,178	36.0	36 tons × \$6.59/bu = \$8,472	9.7	9.7 tons × \$362.28/ton = \$3,514	100	20,192	10.10	10.10
✓ Oct 2011	2000	2,000 cwt × \$16.94/cwt = \$33,878	36.0	36 tons × \$6.43/bu = \$8,262	9.7	9.7 tons × \$351.68/ton = \$3,411	100	20,205	10.10	10.10
✓ Nov 2011	2000	2,000 cwt × \$16.74/cwt = \$33,478	36.0	36 tons × \$6.26/bu = \$8,052	9.7	9.7 tons × \$351.44/ton = \$3,409	100	20,017	10.01	10.01
✓ Dec 2011	2000	2,000 cwt × \$16.60/cwt = \$33,198	36.0	36 tons × \$6.10/bu = \$7,842	9.7	9.7 tons × \$351.20/ton = \$3,407	100	19,949	9.97	9.97
✓ Jan 2012	2000	4,063 cwt × \$16.15/cwt = \$65,613	36.0	94.7 tons × \$6.13/bu = \$20,729	9.7	20.9 tons × \$351.20/ton = \$7,340	100	33,481	8.24	8.24
✓ Feb 2012	2000	2,000 cwt × \$15.90/cwt = \$31,798	36.0	36 tons × \$6.16/bu = \$7,919	9.7	9.7 tons × \$350.58/ton = \$3,401	100	18,478	9.24	9.24
Total	Farm	26,591 cwt	545 tons	133 tons	100.00%	GMG 240,227	9.03	9.03		
	Covered	26,591 cwt	545 tons	133 tons						

Save Input

Calculate LGM Premium

Calculate Options Cost

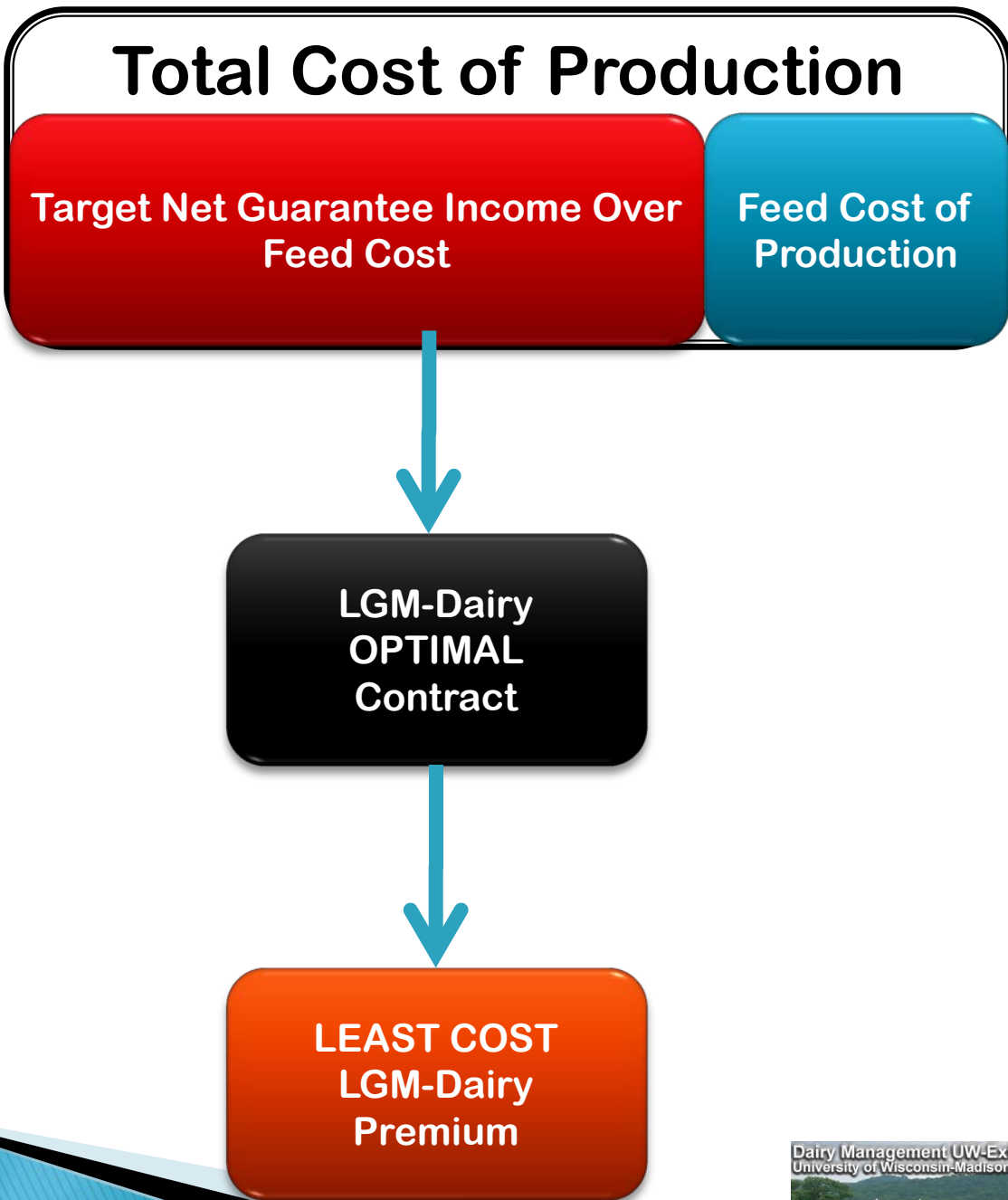
Save GMG Calculations



How much to insure?

- Difficult to know
 - More coverage: ↑Premium ↓Risk
 - Less coverage: ↓Premium ↑Risk
- Try to hit “good” market conditions does not work as it could be anticipated
- Much better option: Use our “optimizer”
 - Least cost premium for a
 TARGET NET GUARANTEE IOFC





Farm Specific Calculation (Spreadsheet Or Web-based)

LGM-Dairy Least Cost Premium Calculator



Target Net Guarantee IOFC

Corn Price (\$/bu) 6.5

SBM Price (\$/ton) 380

Total Cost of Production

Milk produced (all cow) (lb/cow/d) 70

Total cost of production (\$/cwt milk) 14.206

[More Details](#)

Schedule F

Expenses		
Total Expenses	(\$)	120000
Change in Accounts Payable	(\$)	1500
Change in Prepaid Expenses	(\$)	1200
Total Allocated Costs	(\$)	120300
Total Interest Paid	(\$)	8500
Wages and Benefits Paid	(\$)	12500
Depreciation Claimed	(\$)	15000
Other Costs	(\$)	40000
Total Basic Costs	(\$)	124300
Cwt Eq. Milk Produced	(cwt)	12500
Total Cost of Production	(\$/cwt)	14.206

Feed Cost Production

Feed Consumption (lb/cow/d) **56**

Feed Price (\$/cwt feed) **10.732**

Feed Cost (\$/cow/d) **6.01**

Feed Cost (\$/cwt milk) **8.586**

Web Demonstration and Analysis

[More Details](#)

Feed Equivalent

Feed Ingredient	DM (lb/cow/d)	Corn Eq	SBM Eq
ALFALFA Meal, 17% CP	15	0.2248	0.3424
LEGUMES, FORAGE Silage, mid maturity 40-46% NDF	6	0.1754	0.4058
CORN, YELLOW Grain, cracked, dry	20	0.9361	0.012
WHEAT Grain, rolled	15	0.8596	0.1226
ALFALFA Meal, 17% CP		0.2248	0.3424
ALFALFA Meal, 17% CP		0.2248	0.3424
ALFALFA Meal, 17% CP		0.2248	0.3424
ALFALFA Meal, 17% CP		0.2248	0.3424
Total feed	56		
Total feed cost (\$/cow/d)	6.01		
Total feed price (\$/cwt/feed)	10.732		
Feed Equivalents for LGM-Dairy Contract ((lb/cwt milk)	36.04	Corn Equivalents	
	9.65	SBM Equivalents	

Target Net Guarantee IOFC : **5.62**

LGM Analyzer

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Input

Insurance contract month: 2011 Mar

Choose your deductible level \$ 2.0 /cwt

Feed Values: Enter Manually Lowest Allowed Default Highest Allowed

Target NIOFC: \$ 5.62 /cwt

The prices we use for the Gross Margin Calculation correspond to future and option prices retrieved on the trade dates: 2011-03-02, 2011-03-03, 2011-03-04

<input checked="" type="checkbox"/> Coverage Month	Production (cwt)	Corn Equiv (tons)	Soybean Meal Equiv (tons)
Month Year	Milk Qty.	Corn Qty.	SBM Qty.
<input checked="" type="checkbox"/> May 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Jun 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Jul 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Aug 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Sep 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Oct 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Nov 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Dec 2011	2000	36.0	9.7
<input checked="" type="checkbox"/> Jan 2012	2000	36.0	9.7
<input checked="" type="checkbox"/> Feb 2012	2000	36.0	9.7
Total	26,591 cwt	545 tons	133 tons

Save Input

Optimize Coverages for Least Cost Premium

Video Demonstration Web Analysis



LGM Analyzer

Documentation Premium Estimator **Least Cost Optimizer** Bundled Options (Beta)

If you have saved CSV data from a previous run, you can upload it instead of typing in your farm's data again

Upload a file

Input

Insurance contract month: 2011 Mar

Choose your deductible level \$ 2.0 /cwt

Feed Values: Enter Manually Lowest Allowed Default Highest Allowed

Target NIOFC: \$ 5.62 /cwt

The prices we use for the Gross Margin Calculation correspond to future and option prices retrieved on the trade dates: 2011-03-02, 2011-03-03, 2011-03-04

Suggested Coverage (%/month)



✓ Coverage Month	Production (cwt)		Corn Equiv (tons)		Soybean Meal Equiv (tons)		% covered	Monthly Gross Margin		
Month Year	Milk Qty.	Covered Milk × Expected Price = Milk Revenue	Corn Qty.	Covered Corn × Expected Price = Corn Cost	SBM Qty.	Covered SBM × Expected Price = SBM Cost		Milk Revenue - Corn Cost - SBM Cost - (Deductible × Milk Qty.)	\$/cwt of Farm Milk	\$/cwt of Covered Milk
✓ May 2011	2000	2,000 cwt × \$17.48/cwt = \$34,959	36.0	36 tons × \$7.29/bu = \$9,373	9.7	9.7 tons × \$368.87/ton = \$3,578	100	18,009	9.00	9.00
✓ Jun 2011	2000	2,000 cwt × \$16.98/cwt = \$33,959	36.0	36 tons × \$7.31/bu = \$9,409	9.7	9.7 tons × \$370.43/ton = \$3,575	100	16,976	8.49	8.49
✓ Jul 2011	2000	2,000 cwt × \$17.04/cwt = \$34,079	36.0	36 tons × \$7.33/bu = \$9,434	9.7	9.7 tons × \$371.99/ton = \$3,590	100	17,055	8.53	8.53
✓ Aug 2011	2000	2,000 cwt × \$17.05/cwt = \$34,098	36.0	36 tons × \$6.96/bu = \$8,958	9.7	9.7 tons × \$368.98/ton = \$3,561	100	17,580	8.79	8.79
✓ Sep 2011	2000	486 cwt × \$17.09/cwt = \$8,305	36.0	8.8 tons × \$6.59/bu = \$2,061	9.7	2.3 tons × \$362.28/ton = \$850	24.3	4,423	2.21	9.10
✓ Oct 2011	2000	132 cwt × \$16.94/cwt = \$2,236	36.0	2.4 tons × \$6.43/bu = \$546	9.7	0.6 tons × \$351.68/ton = \$224	6.6	1,202	0.60	9.11
✓ Nov 2011	2000	308 cwt × \$16.74/cwt = \$5,156	36.0	5.6 tons × \$6.26/bu = \$1,241	9.7	1.5 tons × \$351.44/ton = \$522	15.4	2,776	1.39	9.01
✓ Dec 2011	2000	444 cwt × \$16.60/cwt = \$7,370	36.0	8 tons × \$6.10/bu = \$1,743	9.7	2.1 tons × \$351.20/ton = \$752	22.2	3,987	1.99	8.98
✓ Jan 2012	2000	1,856 cwt × \$16.15/cwt = \$29,972	36.0	33.4 tons × \$6.13/bu = \$7,321	9.7	9 tons × \$351.20/ton = \$3,145	92.8	15,794	7.90	8.51
✓ Feb 2012	2000	2,000 cwt × \$15.90/cwt = \$31,798	36.0	36 tons × \$6.16/bu = \$7,927	9.7	9.7 tons × \$350.58/ton = \$3,383	100	16,487	8.24	8.24
Total	Farm	20,000 cwt	360 tons	97 tons						
	Covered	13,226 cwt	238 tons	64 tons	66.13%	GMG 114,289	5.71	8.64		

Save Input Calculate LGM Premium Calculate Options Cost Save GMG Calculations Optimize Coverages for Least Cost Premium



TNGIOFC

GIOFC



Optimized

Unit	Premium	GIOFC GMG	TNGIOFC Net GMG
Total (\$)	1,823	114,223	112,400
Per cwt of Farm Milk (\$/cwt)	0.09	5.71	5.62
Per cwt of Covered Milk (\$/cwt)	0.14	8.64	8.50

22% Lower!

Naïve

Unit	Premium	GIOFC GMG	TNGIOFC Net GMG
Total (\$)	2,207	114,041	111,834
Per cwt of Farm Milk (\$/cwt)	0.11	5.70	5.59
Per cwt of Covered Milk (\$/cwt)	0.17	8.77	8.60



LGM–Dairy: Conclusions

- Flexible price risk management tool to control price volatility (bundled options)
- Effective to protect net guarantee income over feed cost (Net GIOFC)
- Important incentives available since December 2010
- Least cost approach gives the most protection to the lowest premium price



Thanks

Additional Info

UW Dairy Management Website <http://DairyMGT.info>

