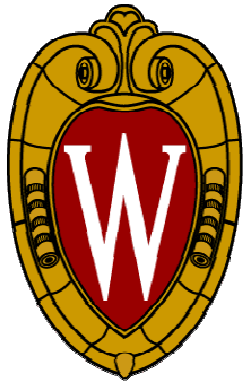


Dairy Price Risk Management Livestock Gross Margin for Dairy (LGM-Dairy)



THE UNIVERSITY
of
WISCONSIN
MADISON



Victor E. Cabrera
Assistant Professor
Extension Dairy Specialist
Dairy Science Department



Brian W. Gould
Associate Professor
Agriculture and Applied
Economics



Quality Milk Conference
February 3-4, 2009. Crowne Plaza Hotel, Madison, Wisconsin

LGM-Dairy: What is it?

- New Livestock Gross Margin for Dairy Insurance
 - Federally reinsured dairy insurance program
 - Purchased from crop insurance providers
 - Approved July 2007, available August 2008
- Protects Dairy Business against Unexpected declines in Gross Margins
 - $\text{Gross Margin} = \text{Milk Revenue} - \text{Feed Costs}$
- Revenue neutral (No subsidies)
 - $\text{Premium} = \text{Expected Indemnity}$

LGM-Dairy: What it covers?

Prices of:

- Any milk volume of producer's target marketing for a 10-month period (up to 240,000 cwt)
- Amount of corn and soybean meal equivalents to be fed during insurance period restricted to be in range:
 - 0.00364 – 0.02912 tons corn/cwt milk
 - 0.13 – 1.04 bu corn/cwt milk
 - 0.000805 – 0.006425 tons SBM/cwt milk
 - 1.61 – 12.85 lb SBM/cwt milk

LGM-Dairy: What it does not cover/protect?

- Production losses
- Risk of dairy cattle death
- Unexpected decrease in milk production or increase in feed use
- Multiple years of declines in milk prices or increases in feed costs
- Anticipated declines in milk prices or increases in feed costs

LGM-Dairy: What is the insurance Period?

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		1	2	3	4	5	6	7	8	9	10
LGM-Dairy	No Coverage	Insurance Coverage									
Selected Covered Months		100%	0%	50%	50%	0%	0%	75%	100%	0%	50%

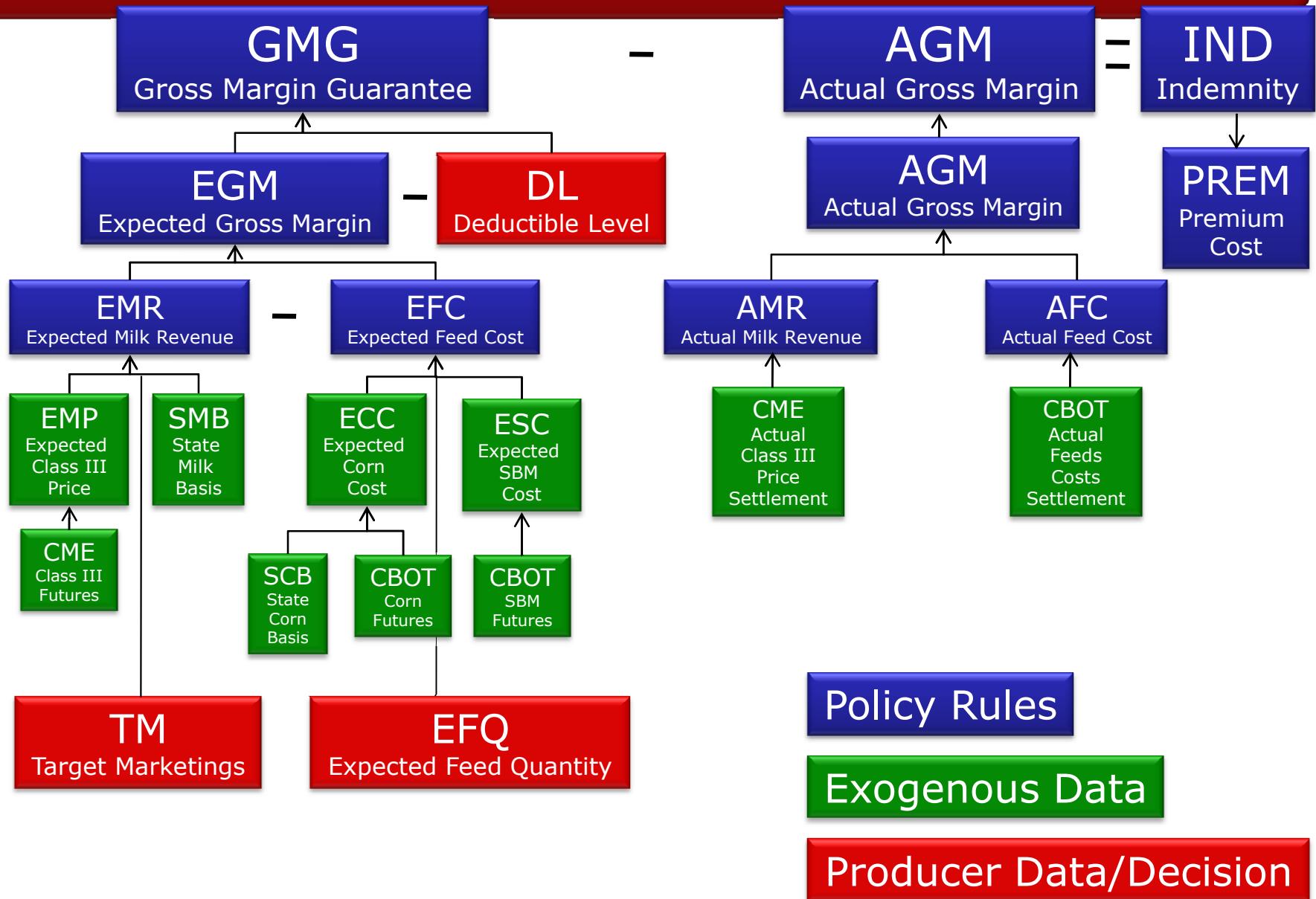
→ From 4 pm on 3rd to last business day to to 9 am following day (17-hour period)

LGM-Dairy: What farmer needs to decide?

Three main things to consider:

- Percentage (%) of target marketings to be insured (0% to 100%)
- Level of Gross Margin Deductible or risk assumed
 - \$0 to \$1.50/cwt in \$0.1 increments
- Months to insure

LGM-Dairy: How it works?



LGM-Dairy: What is the premium?

Premium is the average of expected indemnities in the long-run:

- Proportional to the insured milk and insured feed
- Increases with price volatility
- Decreases with elected deductible (\$0 to \$1.5/cwt in \$0.1 increments)
- Decreases when all months insured together
- Estimates available in RMA website

LGM-Dairy: Overview

Advantages:

- Unique bundled insurance protects the margin: milk price less feed cost
- Very flexible and customizable
- Offered every month of the year

Drawbacks:

- Very short enrollment period
- Total premium due at sign-up
- No farmer subsidies available
- Limited capacity

LGM-Dairy: More Information



UW Extension



Understanding Dairy
Your Source for Market Information

Home | Pub/Software | Dairy Data | Dairy Situation | Graphs | Links | PAFRI All

Livestock Gross Margin Insurance for Dairy

This section of our website provides information concerning the LGM-Dairy program made available by the Risk Management Agency of USDA. The site is updated as new information becomes available and related new materials are added.

As with other sections of this website by clicking on an active link, you may generate an expanded menu. To make this menu disappear, click on the link again. If you have material that you think you would find useful please contact [Prof. Brian W. Gould](#) with your suggestions.

The material contained within this site is for informational and research purposes only. The official website concerning material related to the *Livestock Gross Margin for Dairy* program is the USDA Risk Management Agency website (<http://www.rma.usda.gov>).

- **[Background Material Made Available by the RMA](#)**
This is a collection of information provided by USDA as to introduce the LGM-Dairy program
- **[Supporting Software](#)**
This is a collection of spreadsheet and other software used to exemplify the use of LGM-Dairy
- **[Underlying Data](#)**
This is a collection of data used in the implementation of LGM-Dairy
- **[Additional Material Explaining LGM-Dairy](#)**
Background Material Related to LGM-Dairy

Cooperative Extension



Dairy Management UW-Extension

Extension



Home About Contact Search

LGM - Dairy

Feeding & Grazing

Presentations

Publications

Management Tools

Related Links

Student Resources

Staff Resources

Download a copy of the free Adobe Acrobat Reader to view and print information provided as PDF files.



Livestock Gross Margin for Dairy: LGM - Dairy

- [Livestock Gross Margin for Dairy](#), a poster presented at the ANRE 2008 UW-Extension meeting
- [Livestock Gross Margin for Dairy](#), a two-page/three-fold brochure, Sept. 2008
- [Livestock Gross Margin Insurance for Dairy: A New Risk Management Tool Available for Dairy Producers](#), by M. Valvekar, V. Cabrera and B.W. Gould, Univ. of Wisconsin, July 2008
- [USDA's Gross Margin Insurance Program for Dairy: What is it and Can it be Used for Risk Management](#) by B.W. Gould, P. Mitchell and V. Cabrera, Univ. of Wisconsin, Aug. 2008
- [Managing the Newly Created LGM-Dairy Insurance Under Seasonal Climate Variability](#), by V.E Cabrera and Daniel Solis, University of Wisconsin-Madison, June 2008
- [LGM-Dairy: Livestock Gross Margin for Dairy](#), a Powerpoint Presentation presented at the Eastern Wisconsin Farm Management Update Seminar, Sept. 12, 2008
- [LGM-Dairy: A Wisconsin Example](#), a Powerpoint Presentation presented at the Eastern Wisconsin Farm Management Update Seminar, Sept. 12, 2008
- [Premium Calculator](#) from RMA's
- [LGM for Cattle RMA Website](#)
- [Understanding Dairy Markets - LGM-Dairy](#)

Victor E. Cabrera, PhD, Assistant Professor and Extension Specialist in Dairy Management, is available to [contact for more information](#).

© 2008 Board of Regents of the University of Wisconsin System, doing business as the Division of Cooperative Extension of the University of Wisconsin-Extension. If you have any questions regarding this site's contents, trouble accessing any information on this site, require this information in an alternative format or would like to request a reasonable accommodation because of a disability email: vcabrera@wise.edu

The screenshot shows the USDA Risk Management Agency website. The main heading is 'Livestock'. Below it, there is a section for '2008 Livestock Gross Margin (LGM) PDF Files' which provides information on how to use the LGM program. A list of links is provided, including '2008 Policy', '2008 Underwriting Guide', '2008 Handbook', 'Premium Calculation Substitutions', '2008 LGM Commodity Exchange Enforcement', and 'Frequently Asked Questions: PDF | HTML'. There is also a section for 'LGM Dairy' with links for '2008 Policy', '2008 Underwriting Guide', '2008 Handbook', 'Premium Calculation Substitutions', and '2008 LGM Commodity Exchange Enforcement'.

LGM-Dairy: A Wisconsin Example (Nov 08)

Contract

- Purchased Nov 26th 08
- Coverage period: Jan-Oct 09
- Feed expected to be used:
 - 39.2 lb corn/cwt milk (68% max allowable)
 - 5.05 lb of SBM/cwt milk (39% max allowable)
- Similar Example in Policy Briefing Paper of Gould, Mitchell and Cabrera Using May 2008 Data (Aug, 2008)

LGM-Dairy: A Wisconsin Example (Nov 08)

Month	Class III Settle Price (\$/cwt)				Milk Basis (\$/cwt)	Local Price (\$/cwt)
	21-Nov	24-Nov	25-Nov	Avg.		
Jan `09	14.15	14.26	14.20	14.20	1.94	16.14
Feb `09	14.10	14.11	14.15	14.12	1.79	15.91
Mar `09	14.10	14.18	14.18	14.15	1.94	16.09
Apr `09	14.17	14.25	14.27	14.23	1.40	15.63
May `09	14.65	14.53	14.49	14.56	1.23	15.79
Jun `09	15.00	14.92	14.88	14.93	1.11	16.04
Jul `09	15.32	15.30	15.27	15.30	1.11	16.41
Aug `09	15.65	15.64	15.60	15.63	1.16	16.79
Sep `09	15.84	15.83	15.76	15.81	1.37	17.18
Oct `09	15.85	15.85	15.80	15.83	1.77	17.60

LGM-Dairy: A Wisconsin Example (Nov 08)

Month	Corn Settle Prices (\$/bu)				Imputed Price (\$/bu)	Basis (\$/bu)	Local Price (\$/bu)
	21-Nov	24-Nov	25-Nov	Avg			
Dec `08	3.385	3.545	3.535	3.488	3.49	-0.22	3.27
Jan `09	-----	-----	-----	-----	3.54	-0.14	3.40
Feb `09	-----	-----	-----	-----	3.6	-0.13	3.47
Mar `09	3.5425	3.71	3.705	3.653	3.65	-0.17	3.48
Apr `09	-----	-----	-----	-----	3.71	-0.11	3.60
May `09	3.655	3.8225	3.8175	3.765	3.77	-0.12	3.65
Jun `09	-----	-----	-----	-----	3.82	-0.12	3.70
Jul `09	3.7625	3.935	3.93	3.876	3.88	-0.12	3.76
Aug `09	-----	-----	-----	-----	3.93	-0.15	3.78
Sep `09	3.8675	4.04	4.04	3.983	3.98	-0.11	3.87
Oct `09	-----	-----	-----	-----	4.05	-0.15	3.90
Dec `09	4.0075	4.1775	4.175	4.12	4.12	-0.18	3.94

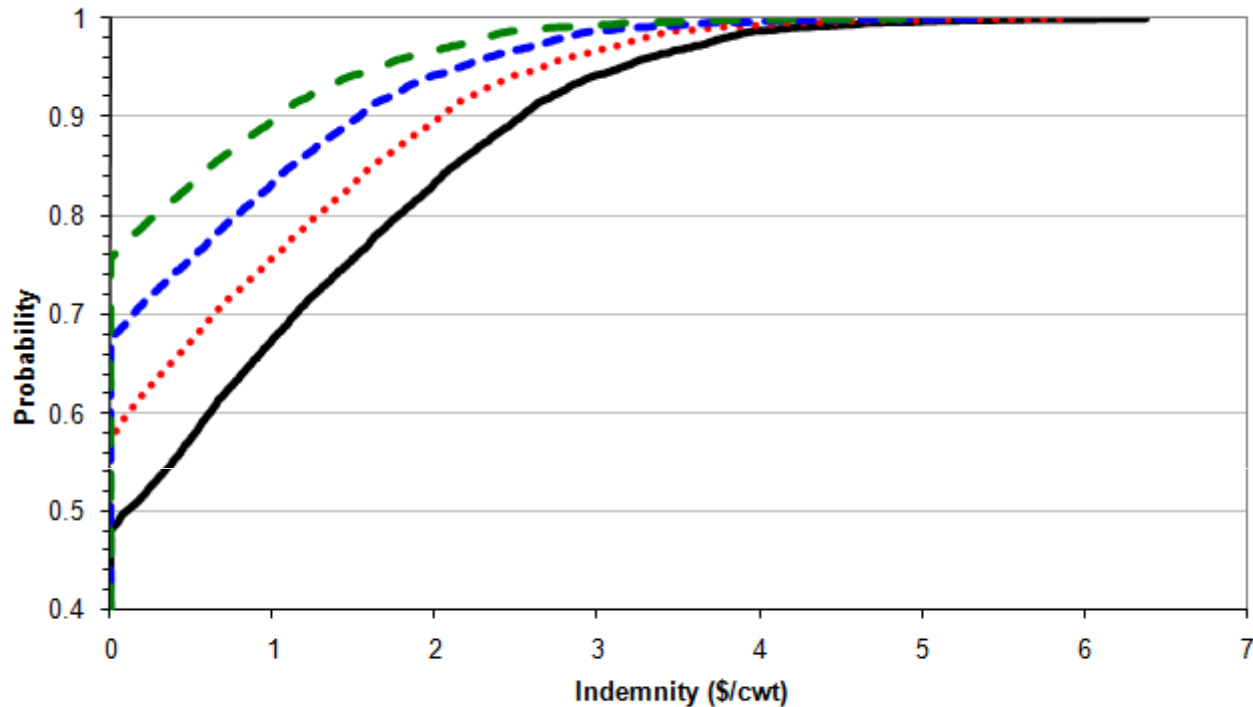
LGM-Dairy: A Wisconsin Example (Nov 08)

Month	Soybean Meal Settle Prices (\$/Ton)				Local Price (\$/ton)
	21-Nov	24-Nov	25-Nov	Avg.	
Jan `09	250.5	257.4	262	256.63	256.63
Feb `09	-----	-----	-----	-----	257.67
Mar `09	252.9	259.4	263.8	258.7	258.70
Apr `09	-----	-----	-----	-----	260.10
May `09	255.4	262.3	266.8	261.5	261.50
Jun `09	-----	-----	-----	-----	262,95
Jul `09	257.7	265.3	270.2	264.4	264.40
Aug `09	259.2	266.8	271.7	265.9	265.90
Sep `09	258.5	266	271	265.17	265.17
Oct `09	253.9	260.8	265.9	260.2	260.20

LGM-Dairy: A Wisconsin Example (Nov 08)

Deductible (\$/cwt)	GMG Total (\$)	Premium	
		(\$/cwt)	% of GMG
0.0	13.13	0.855	6.51
0.1	13.03	0.803	6.16
0.2	12.93	0.752	5.82
0.3	12.83	0.703	5.48
0.4	12.73	0.656	5.16
0.5	12.63	0.612	4.84
0.6	12.53	0.569	4.54
0.7	12.43	0.529	4.26
0.8	12.33	0.491	3.98
0.9	12.23	0.454	3.71
1.0	12.13	0.420	3.46
1.1	12.03	0.387	3.22
1.2	11.93	0.356	2.98
1.3	11.83	0.327	2.76
1.4	11.73	0.299	2.55
1.5	11.63	0.273	2.35

Simulated Indemnities (Nov 08)

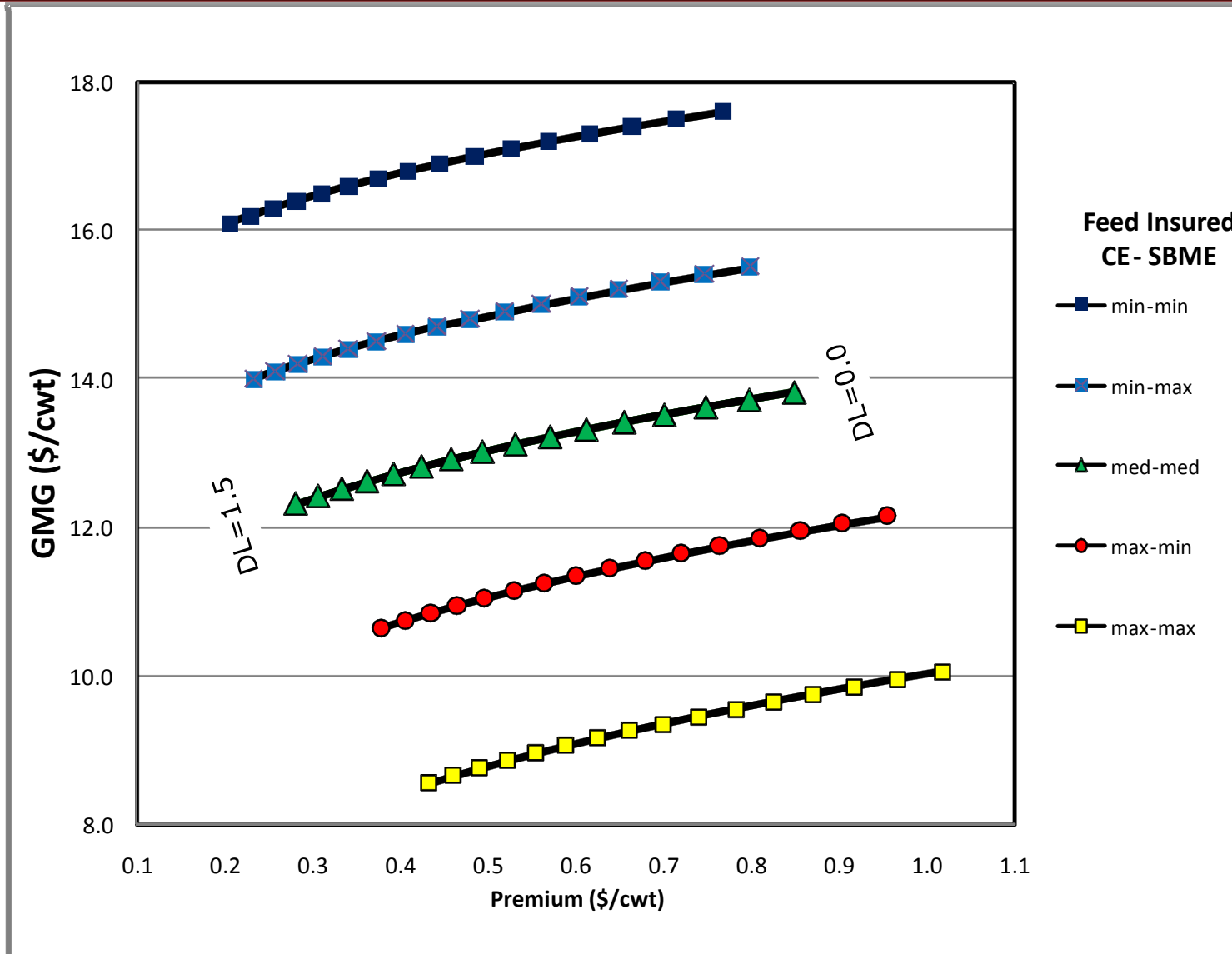


DL (\$/cwt):	— 0.00	···· 0.5	- - - 1	- - - 1.5
Premium (\$/cwt):	0.86	0.61	0.42	0.27
GMG (\$/cwt):	13.1	12.6	12.1	11.6

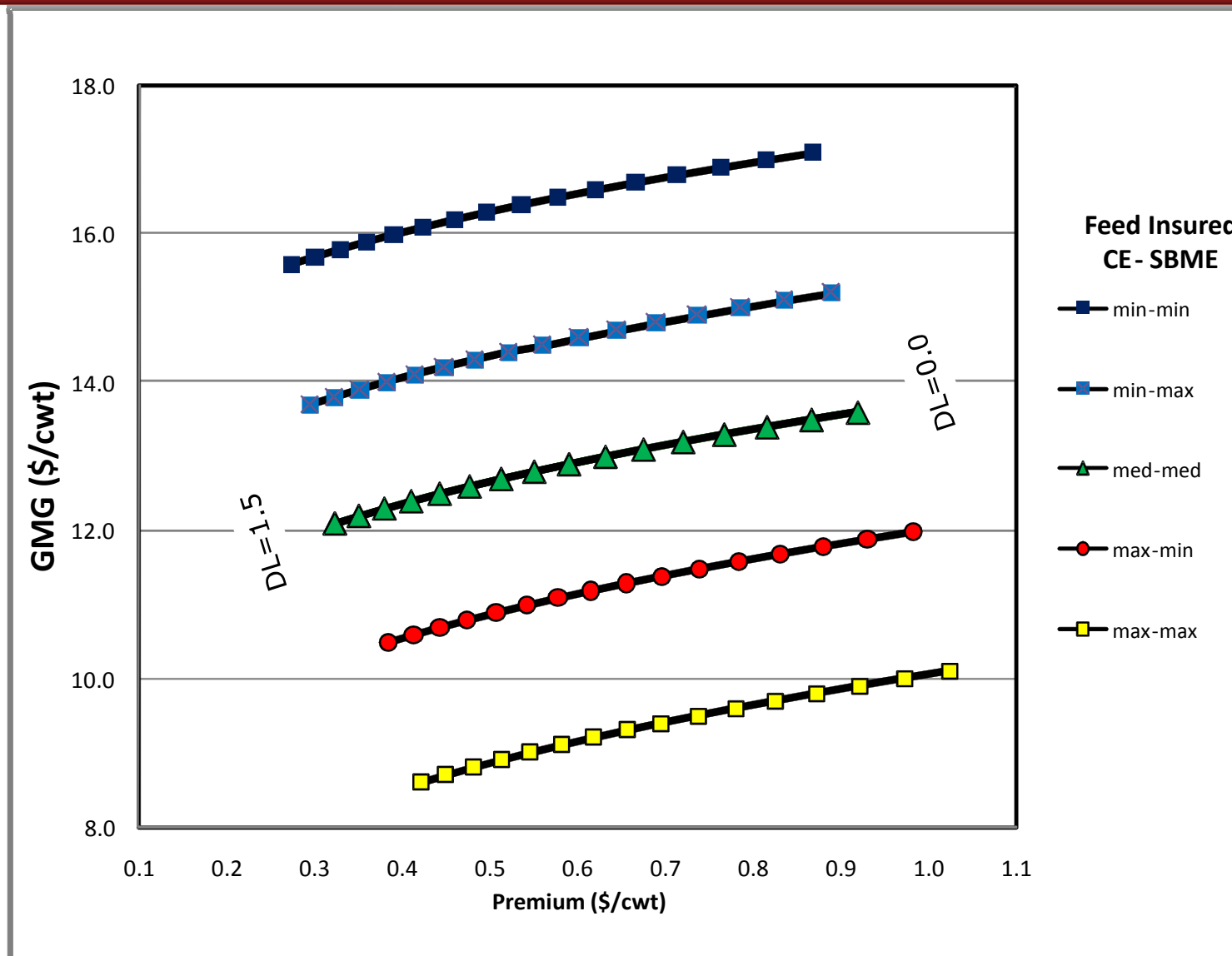
LGM-Dairy: A Wisconsin Example (Dec 08)

Deductible (\$/cwt)	GMG Total (\$)	Premium	
		(\$/cwt)	% of GMG
0	11.88	0.761	6.41%
0.1	11.78	0.708	6.01%
0.2	11.68	0.658	5.63%
0.3	11.58	0.610	5.27%
0.4	11.48	0.564	4.91%
0.5	11.38	0.520	4.57%
0.6	11.28	0.479	4.25%
0.7	11.18	0.440	3.94%
0.8	11.08	0.403	3.64%
0.9	10.98	0.369	3.36%
1	10.88	0.337	3.10%
1.1	10.78	0.306	2.84%
1.2	10.68	0.278	2.60%
1.3	10.58	0.251	2.37%
1.4	10.48	0.226	2.16%
1.5	10.38	0.203	1.95%

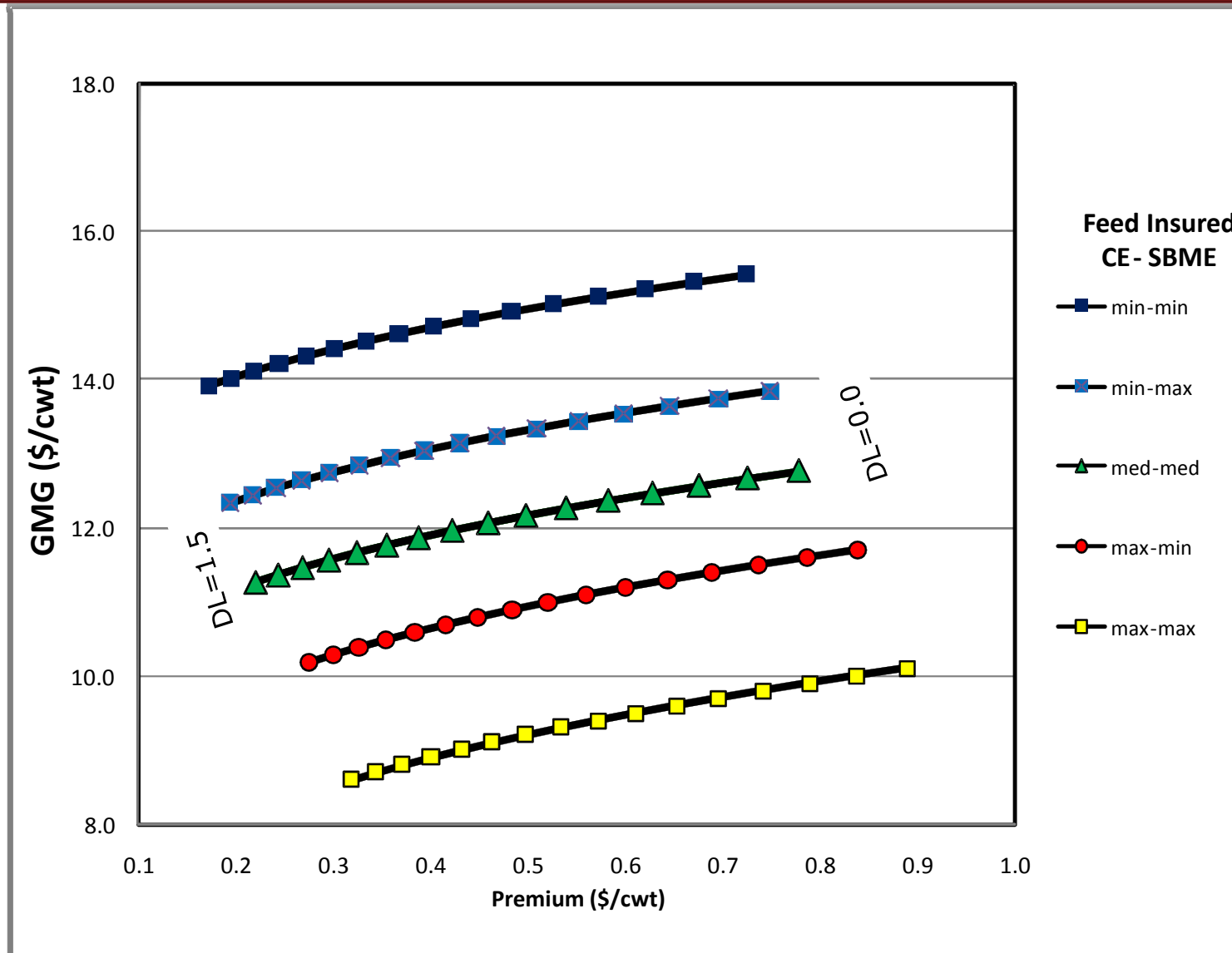
LGM-Dairy: GMG and Premium (Aug 2008)



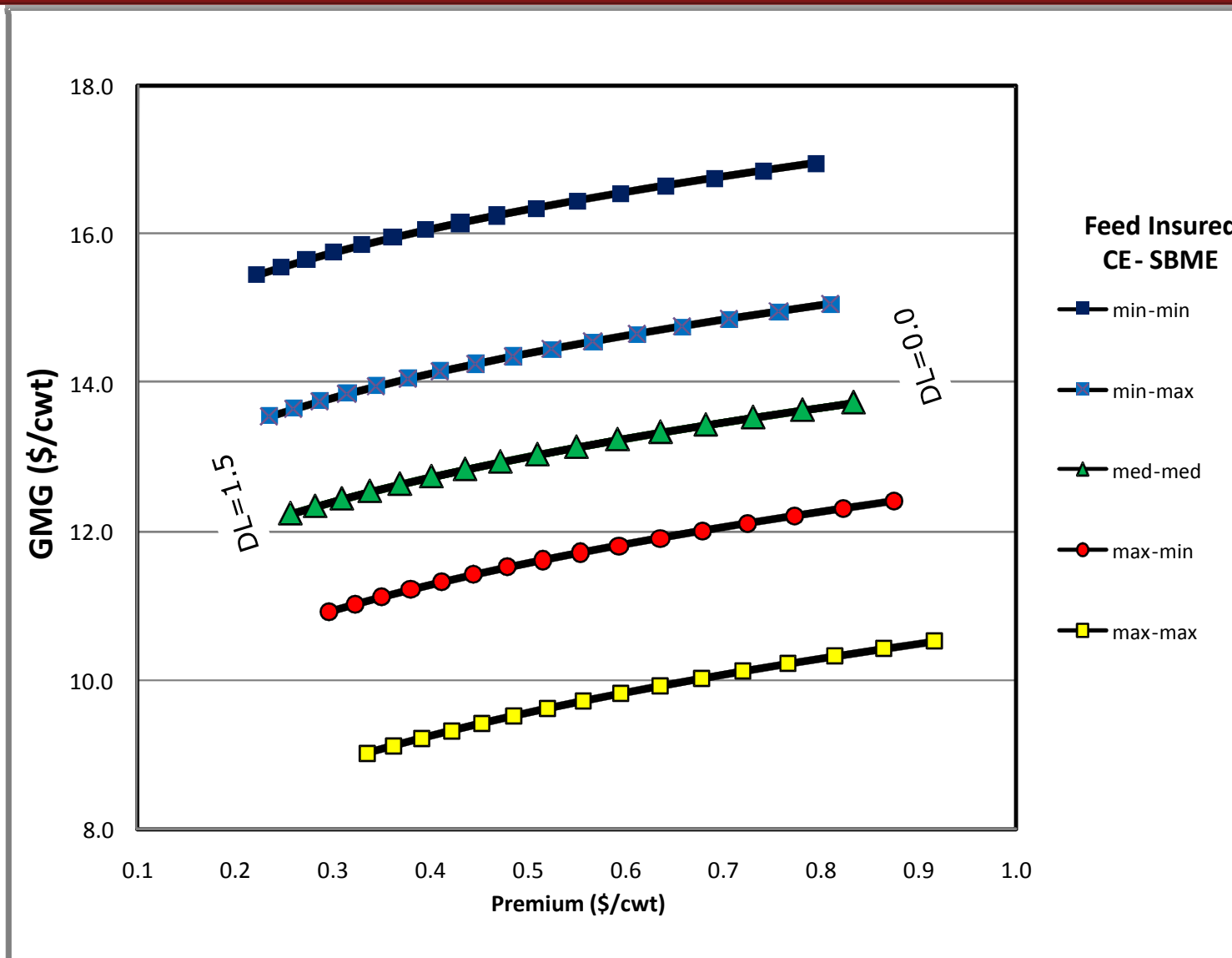
LGM-Dairy: GMG and Premium (Sep 2008)



LGM-Dairy: GMG and Premium (Oct 2008)

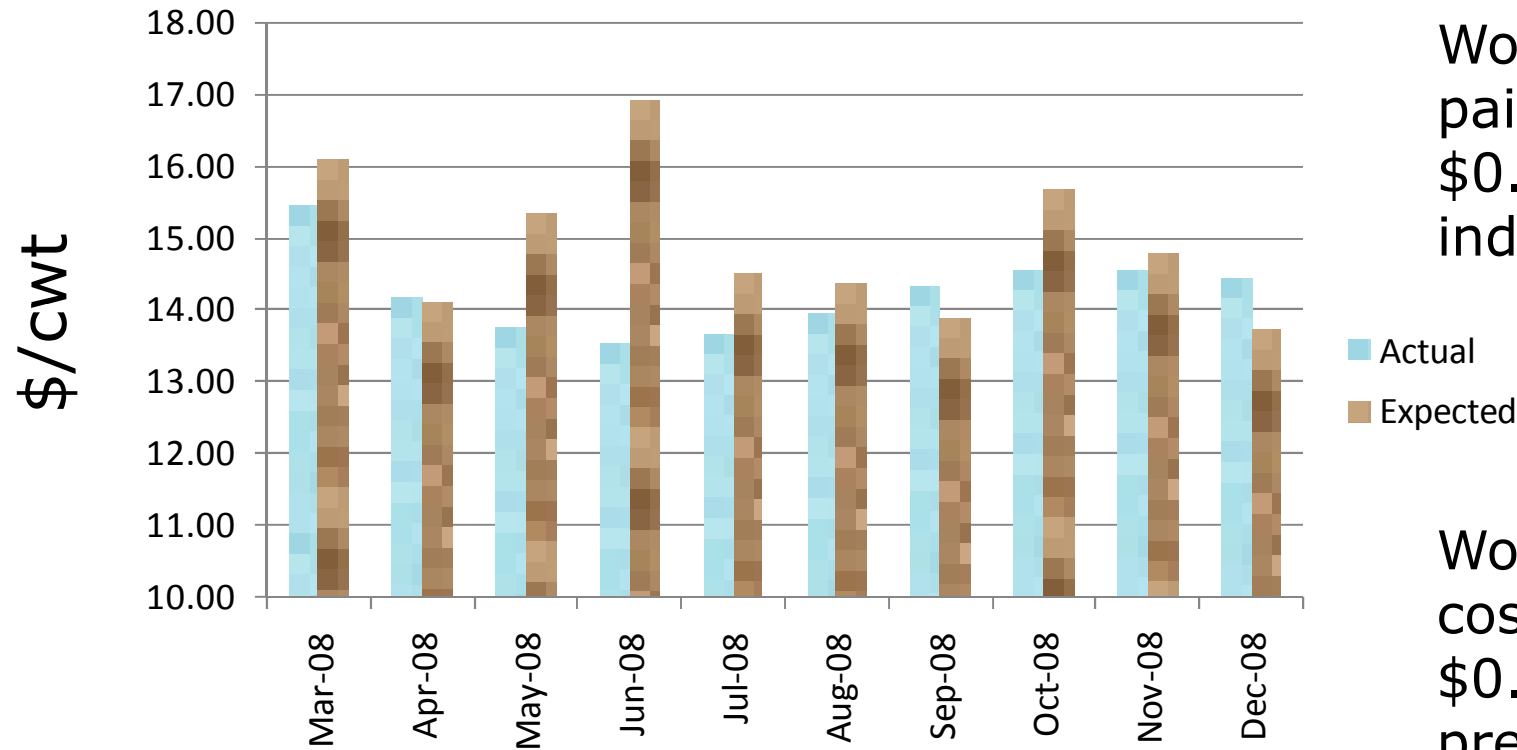


LGM-Dairy: GMG and Premium (Jan 2008)



Wisconsin Expected and Actual (Jan 2008)

Gross Margin



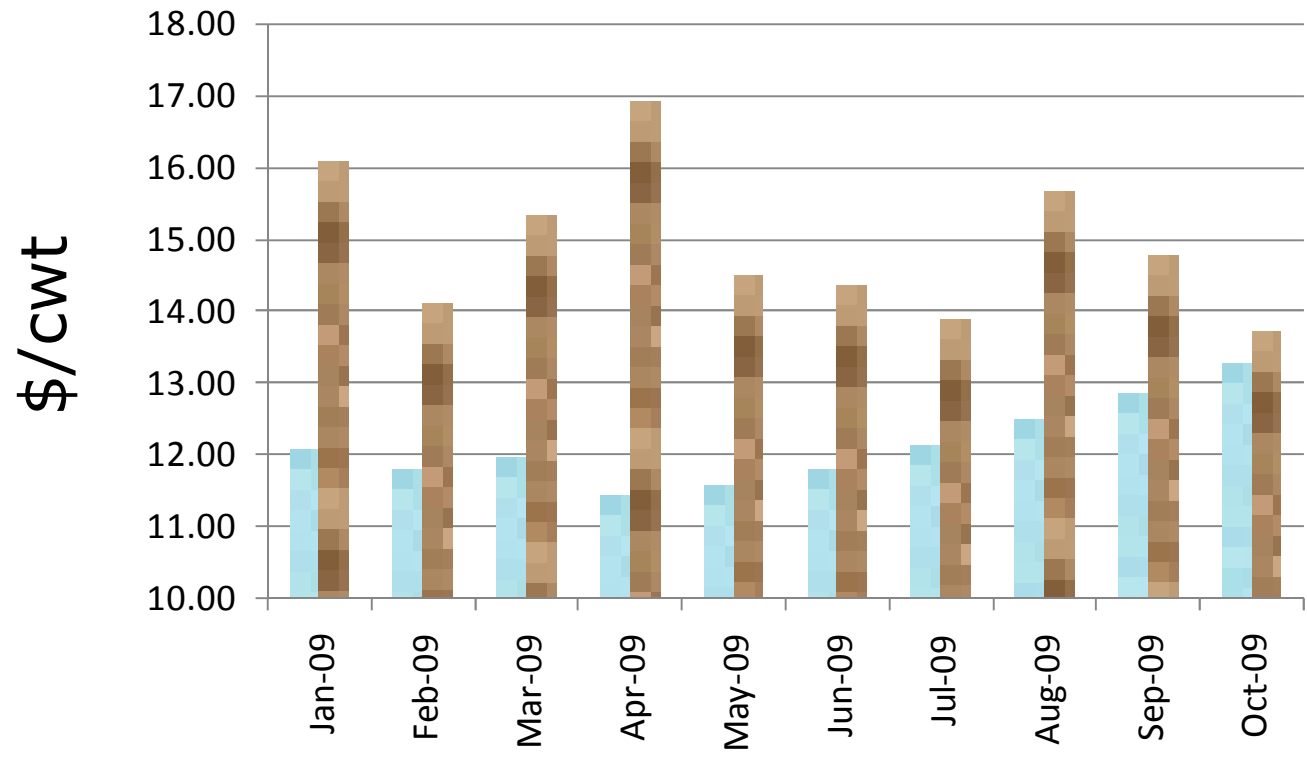
Deductible:
\$0/cwt

Would have
paid:
\$0.00/cwt in
indemnities

Would have
cost:
\$0.82/cwt in
premium

Wisconsin Expected and Actual (Jan 2008)

Gross Margin



Deductible:
\$1.5/cwt

Would have
paid:
\$0.00/cwt in
indemnities

Would have
cost:
\$0.24/cwt in
premium

A Cost Comparison of LGM-Dairy With Options-Based Revenue Management

- As noted above, LGM-Dairy similar to a bundled option
- How do LGM-Dairy costs compare to the costs of setting a similar revenue *floor* via use of Class III puts and Corn/SBM calls?
- Difficult to compare given lumpiness of options
 - Assume options perfectly divisible
 - Compare costs under alternative deductible levels
 - Use data for January 2008 LGM-Dairy contract given availability of actual price data

A Cost Comparison of LGM-Dairy With Options-Based Revenue Management

- Farm Characteristics
 - 250 Milk Cows
 - Average Cow Productivity: 19,815 lbs
 - ✓ 2007 WI 200-499+ Herd Size Category Average
 - 41,481 cwt produced over 10 months
- Insurance Contract Purchased on January 29th
 - 10-Month Insurance Period: Mar `08 – Dec `08
 - Amount of Feed Expected to be Used
 - ✓ 966 Tons Corn Equivalent
 - ✓ 213 Tons Soybean Meal Equivalent
 - Insure 100% of Production

A Cost Comparison of LGM-Dairy With Options-Based Revenue Management

- Expected Prices for Jan. 2008 LGM-Dairy purchase

Month	Expected Prices		
	Class III (\$/cwt)	Corn (\$/bu)	SBM (\$/Ton)
Mar `08	17.08	5.01	337.07
Apr `08	16.40	5.07	340.09
May `08	16.17	5.13	343.10
Jun `08	16.11	5.17	345.45
Jul `08	16.28	5.21	347.80
Aug `08	16.46	5.18	344.57
Sep `08	16.62	5.15	339.37
Oct `08	16.38	5.13	325.10
Nov `08	16.21	5.12	324.80
Dec `08	16.20	5.10	324.50

A Cost Comparison of LGM-Dairy With Options-Based Revenue Management

- Puts and Calls on January 29, 2008

Month	Class III Put (\$/cwt)	Class III Premium (\$/cwt)	Corn Call (\$/bu)	Corn Call Premium (\$/bu)	SBM Call (\$/Ton)	SBM Call Premium (\$/Ton)
Mar `08	17.00	0.65	5.00	0.1775	340	11.60
Apr `08	16.50	0.84	5.10	0.3275	340	23.10
May `08	16.25	0.92	5.10	0.3275	340	23.10
Jun `08	16.00	0.90	5.20	0.4137	350	25.25
Jul `08	16.25	1.00	5.20	0.4137	350	25.25
Aug `08	16.50	1.14	5.20	0.4912	340	27.25
Sep `08	16.50	1.14	5.20	0.4912	340	27.25
Oct `08	16.25	1.18	5.10	0.5537	330	26.75
Nov `08	16.25	1.30	5.10	0.5537	320	30.40
Dec `08	16.25	1.35	5.10	0.5537	320	30.40

Note: The values in red correspond to the following months options given that options are not available for these months

A Cost Comparison of LGM-Dairy With Options-Based Revenue Management

- We can compare the *net costs* of the two programs

Month	Class III Put (\$/cwt)			Corn Call (\$/bu)			SBM Call (\$/Ton)		
	Put	Actual Class III	Put Value	Corn Call	Actual Corn	Corn Call Value	SBM Call	Actual SBM	SBM Call Value
Mar `08	17.00	18.00	0	5.00	5.4550	0.4550	340	336.50	0
Apr `08	16.50	16.76	0	5.10	6.0025	0.9025	340	336.60	0
May `08	16.25	18.18	0	5.10	5.8975	0.7975	340	348.00	8.00
Jun `08	16.00	20.25	0	5.20	7.2460	2.0460	350	434.00	84.00
Jul `08	16.25	18.24	0	5.20	6.5700	1.3700	350	452.00	102.00
Aug `08	16.50	17.32	0	5.20	5.6820	0.4820	340	350.00	10.00
Sep `08	16.50	16.28	0.22	5.20	5.4740	0.2740	340	359.00	19.00
Oct `08	16.25	17.06	0	5.10	4.1125	0	330	254.50	0
Nov `08	16.25	15.51	0.74	5.10	3.8025	0	320	265.50	0
Dec `08	16.25	15.28	0.97	5.10	3.5950	0	320	258.50	0

Note: The values in red correspond to the following months options given that options are not available for these months

A Cost Comparison of LGM-Dairy With Options-Based Revenue Management

- We can compare the *net costs* of the two programs

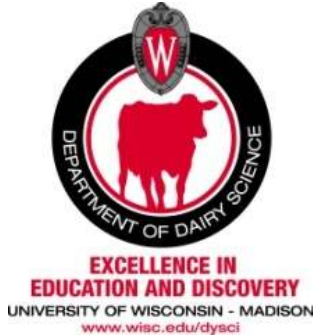
	Gross Cost	Gross Cost/Cwt	Net Cost	Net Cost/Cwt
Put/Call Options				
\$0 Deductible	\$63,216	\$1.524	\$28,461	\$0.686
\$0.80 Deductible	\$58,993	\$1.422	\$26,560	\$0.640
\$1.50 Deductible	\$55,301	\$1.333	\$24,898	\$0.600
LGM-Dairy				
\$0 Deductible	\$36,107	\$0.870	\$36,107	\$0.870
\$0.80 Deductible	\$21,147	\$0.510	\$21,147	\$0.510
\$1.50 Deductible	\$12,144	\$0.293	\$12,144	\$0.293

Note: Under the options based strategy we reduce the options costs by the % reduction in GMG observed under the LGM-Dairy scenarios.

LGM-Dairy: Livestock Gross Margin for Dairy



THE UNIVERSITY
of
WISCONSIN
MADISON



UW
Extension

Victor E. Cabrera
Assistant Professor
Extension Dairy Specialist
Dairy Science Department

Brian W. Gould
Associate Professor
Ag and Applied Economics

<http://www.uwex.edu/ces/dairymgt/dairy.cfm>

http://future.aae.wisc.edu/lgm_dairy.html