



Watts and Associates Inc.
Crop Insurance Division

Michigan White Wheat Quality Adjustment Update

Presented to:
Michigan Wheat Program

Presented by:
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March 09, 2016

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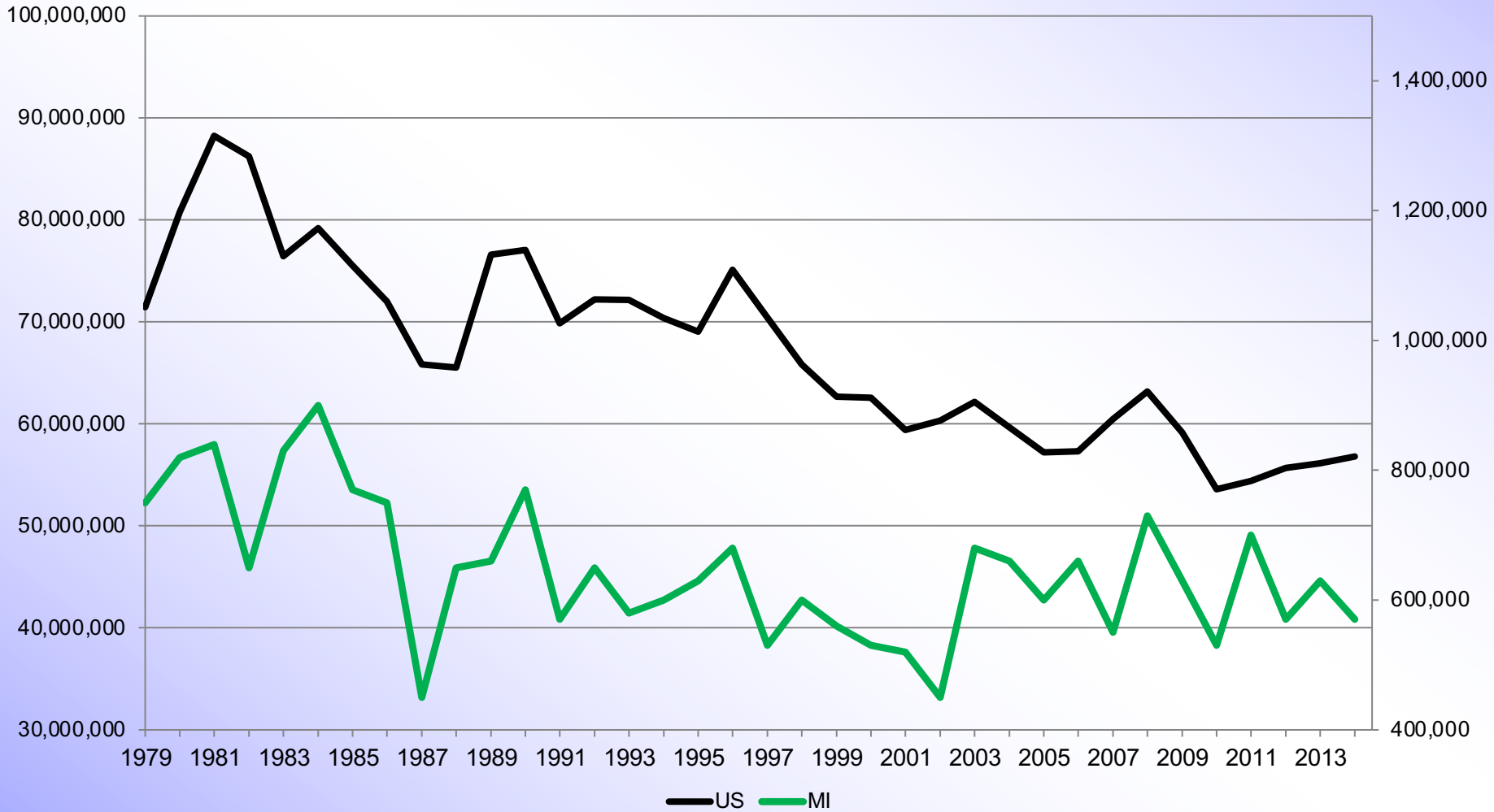
Introduction

- Watts and Associates is an Agricultural Economics consulting firm based in Billings, MT
- We are the leading developer of new crop insurance products, including both Federal Crop insurance and private products.
- In Michigan growers have felt the coverage offered by the Federal Crop Insurance Program does not offer adequate or appropriate protection, particularly for quality loss
- We were engaged by the Michigan Wheat Program to develop a study on the relationship between price discount and falling number scores.
- We were also asked to work with the program to assist in working with the agency to change the way quality adjustment is handled for falling numbers.



Michigan Wheat and Crop Insurance

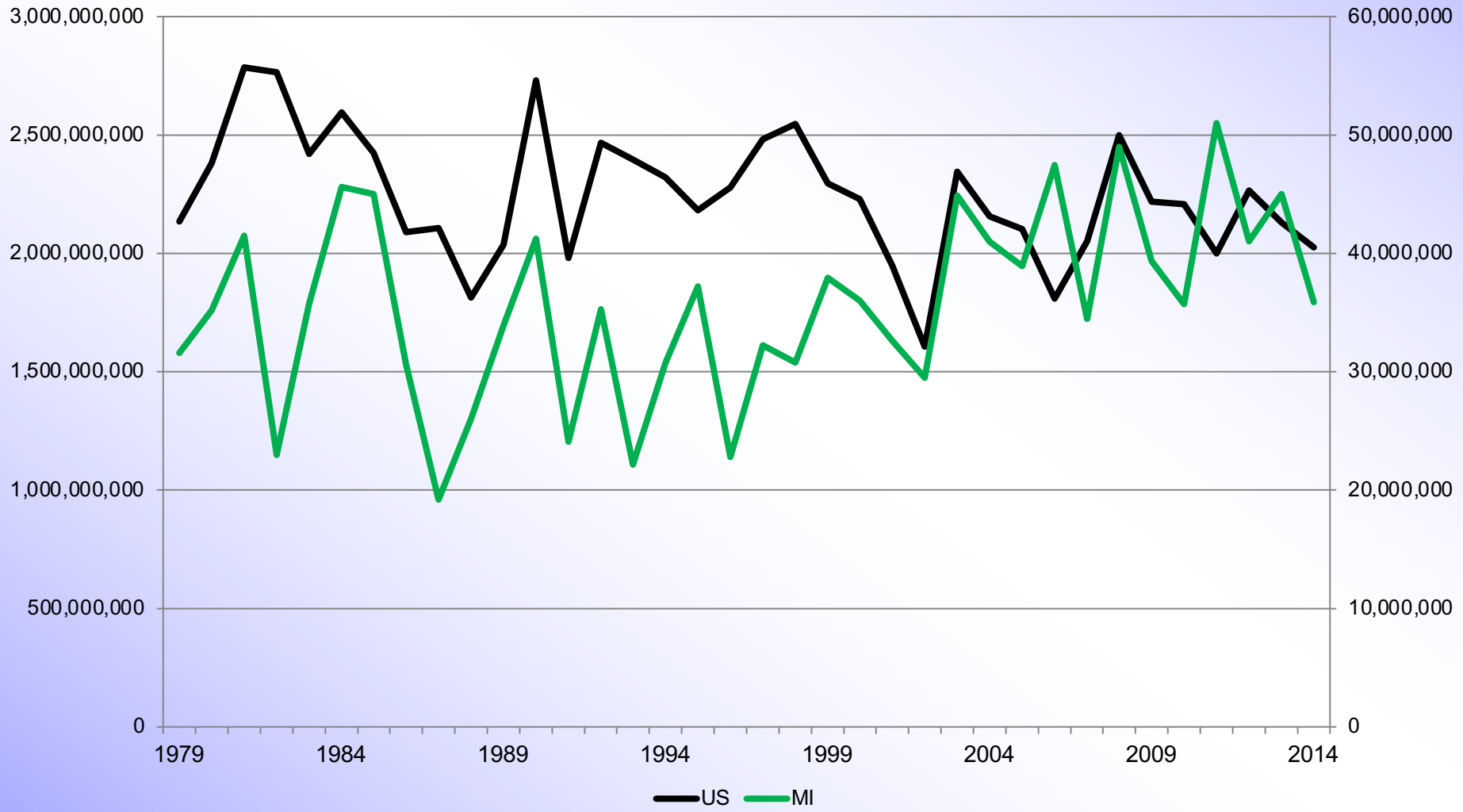
Wheat Planted Acres





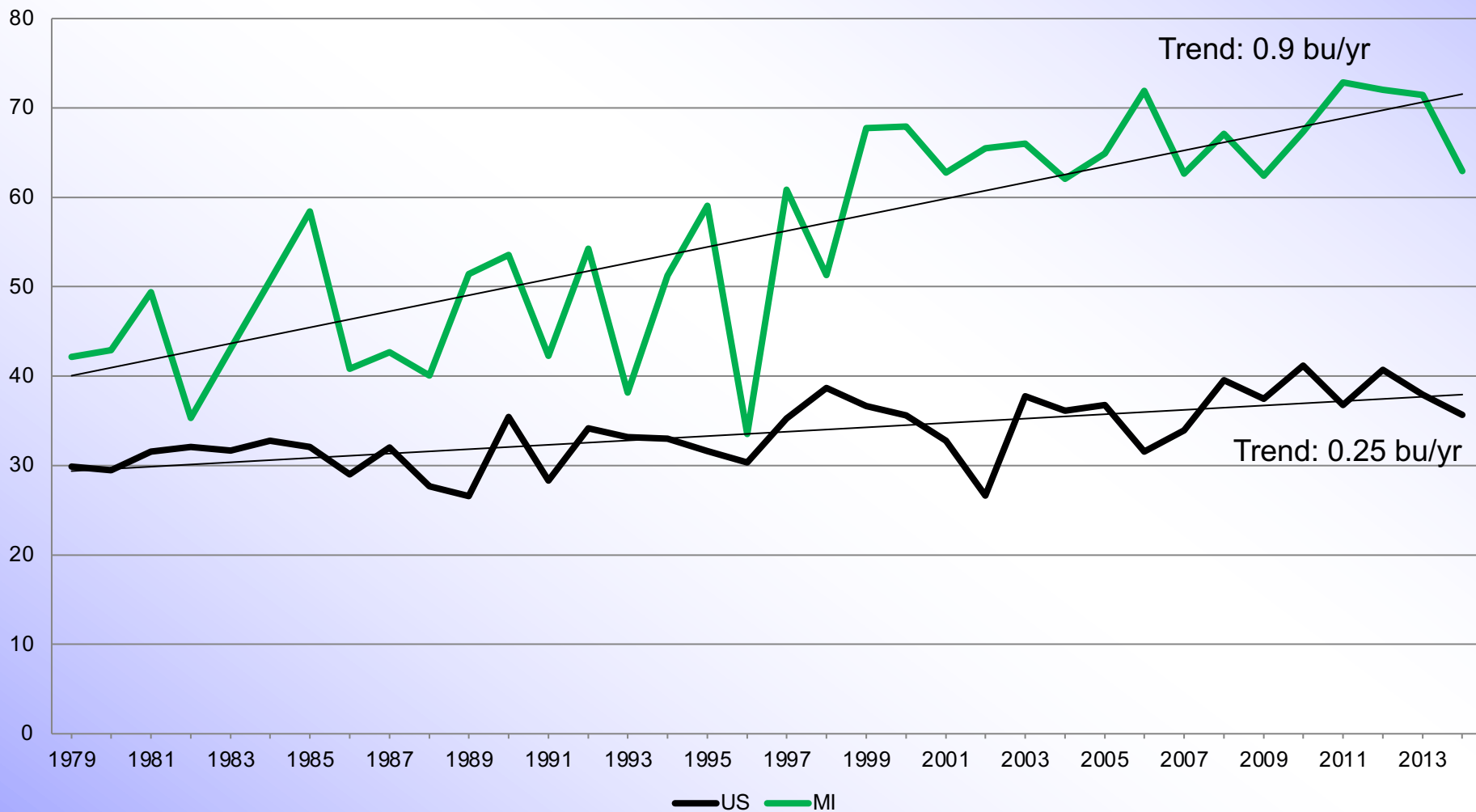
Michigan Wheat and Crop Insurance

Wheat Production (Bu)



Michigan Wheat and Crop Insurance

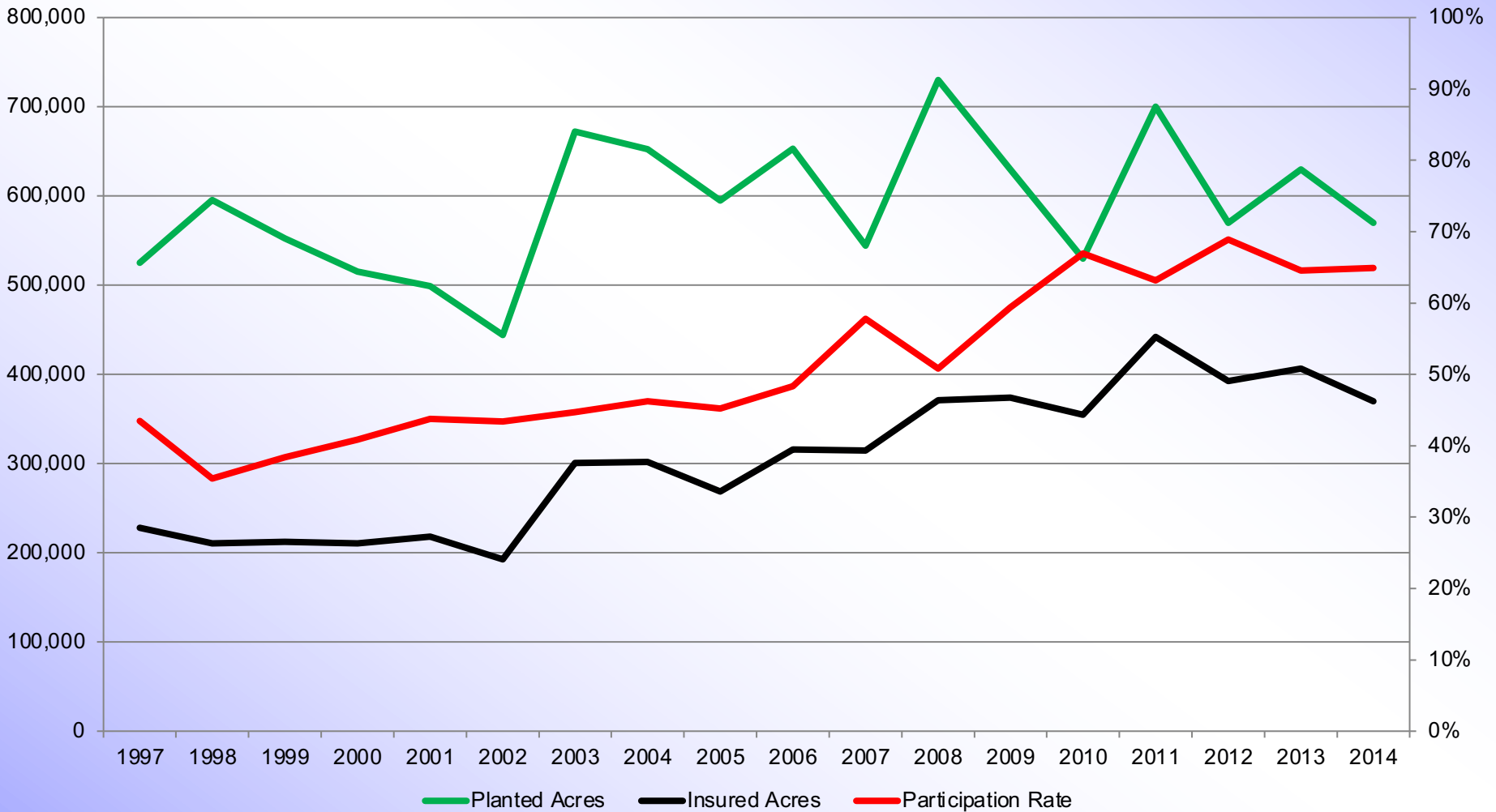
Wheat Yield (bu/ac)





Michigan Wheat and Crop Insurance

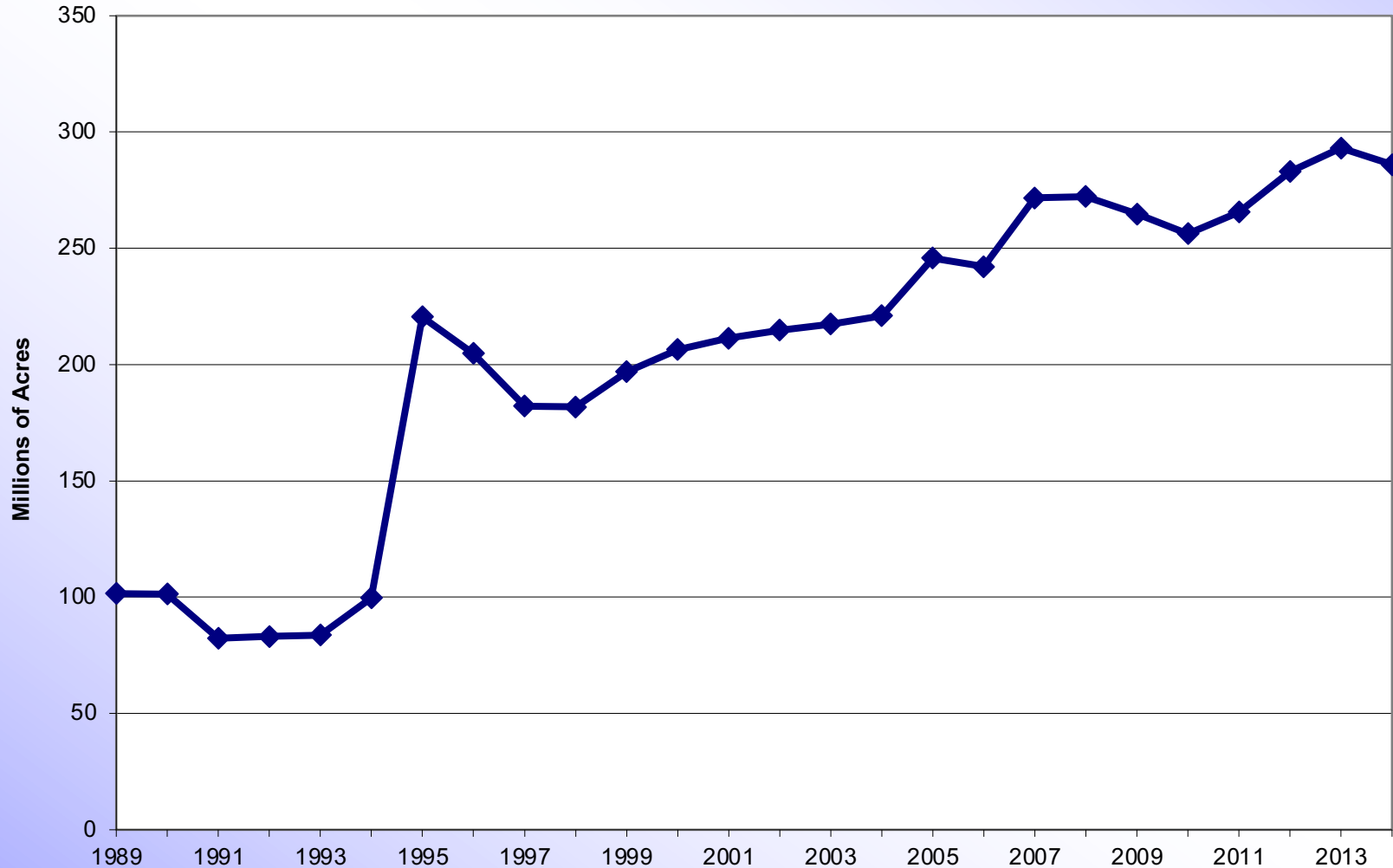
MI Wheat Insurance Participation





National Crop Insurance Participation

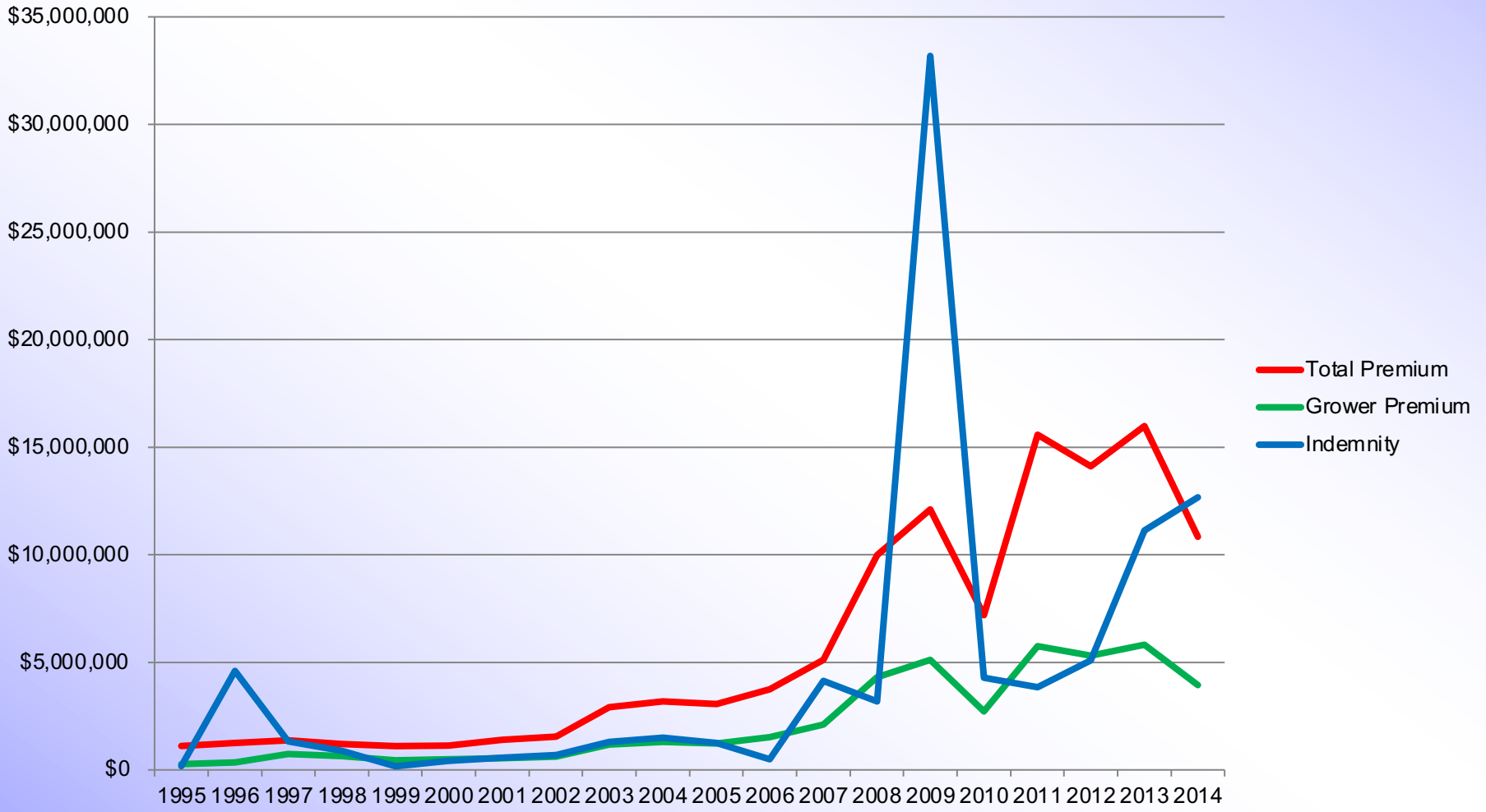
Insured Acres





Michigan Wheat and Crop Insurance

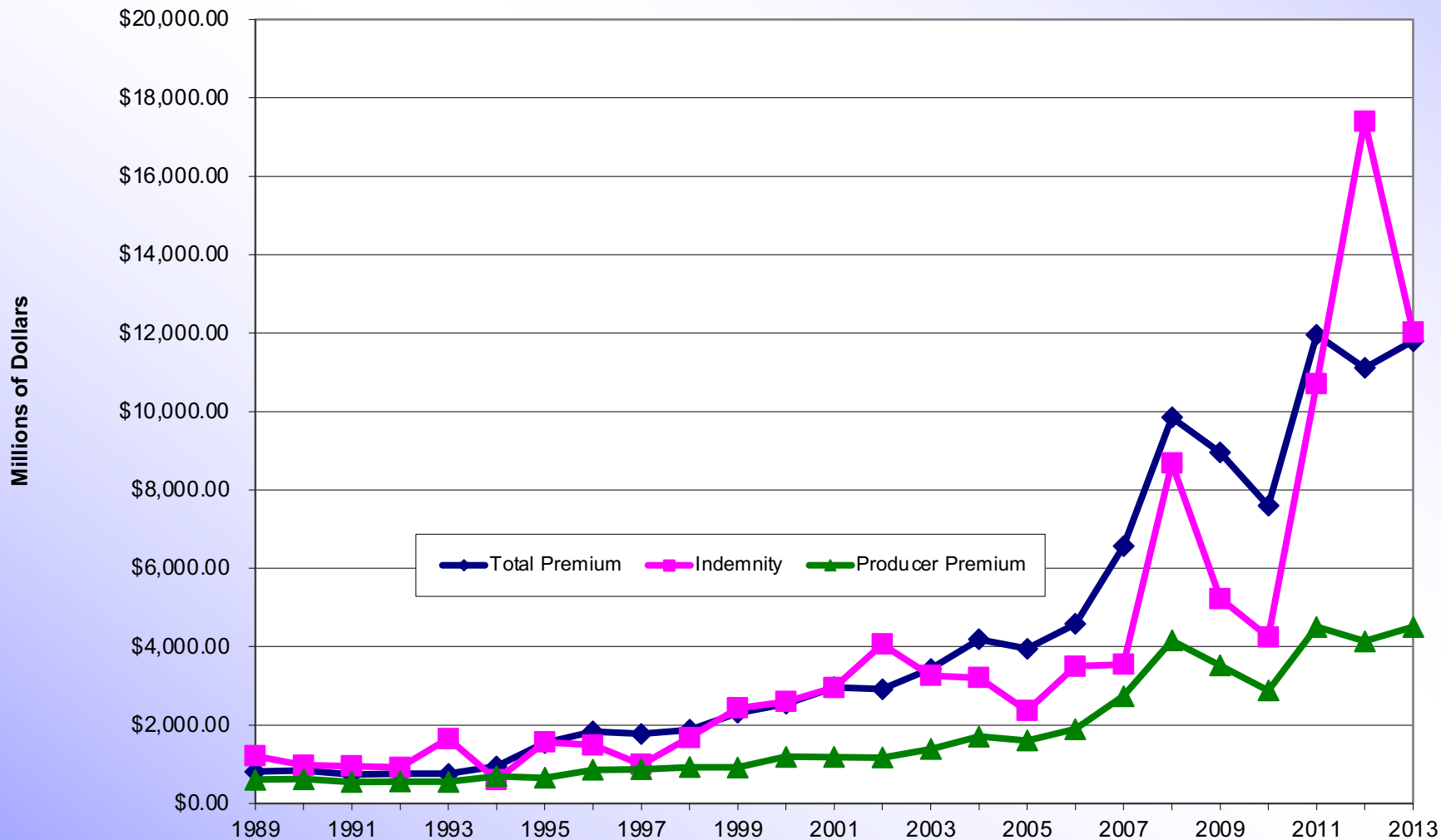
MI Wheat Insurance Experience





National Insurance Performance

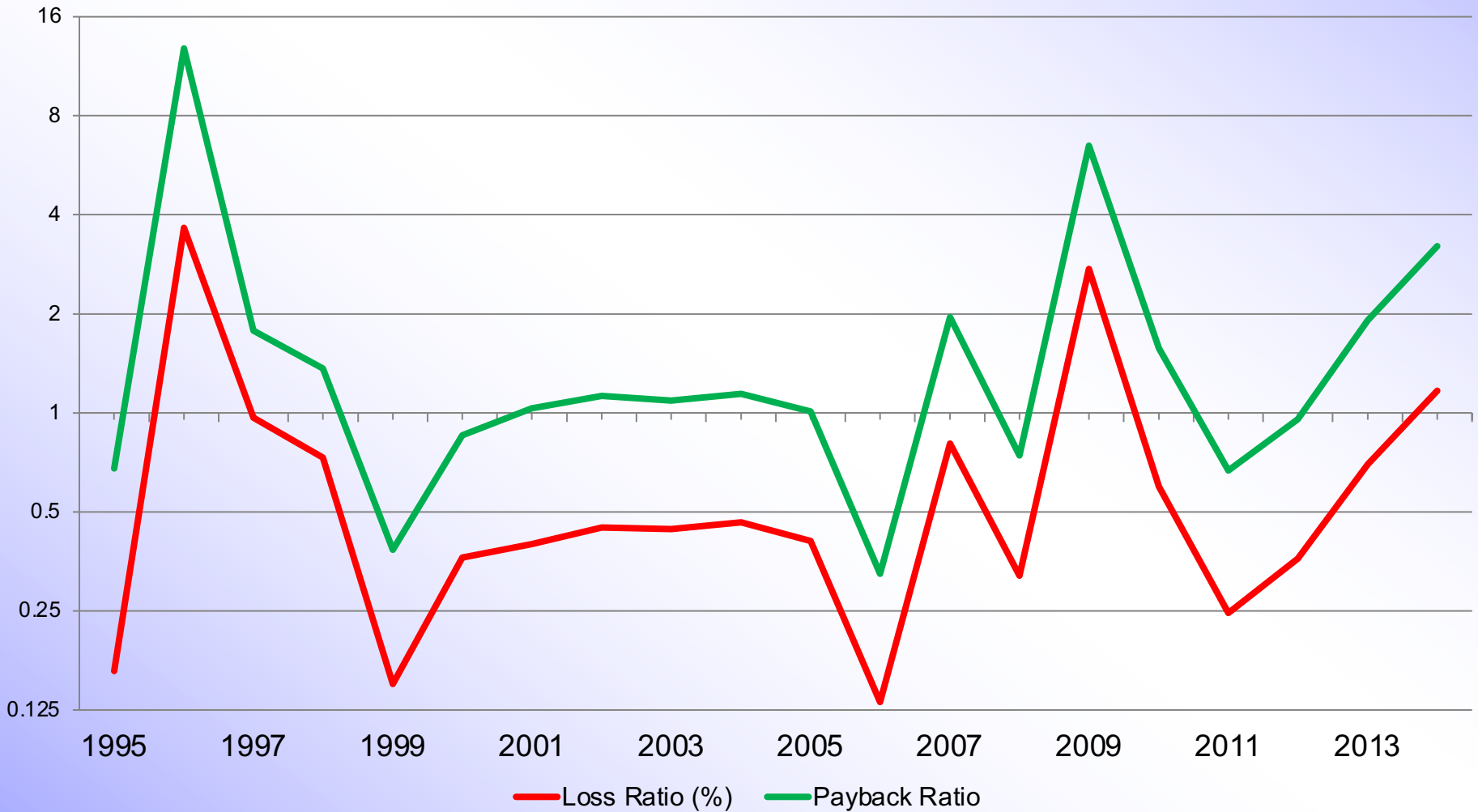
Aggregate Crop Insurance Loss History





Michigan Wheat and Crop Insurance

MI Wheat Loss and Payback Ratios





Quality Adjustment in MI White Wheat

- **Falling Numbers**
 - A test for cereal chemical effects of sprout damage
 - Technically a test for the effects of an enzyme “Alpha Amylase”, which breaks down starch
 - Industry standard value is 300, with lower values subject to (often variable) discounts



Quality Adjustment in MI White Wheat

2011 SPOI:

Soft White Wheat will be discounted for falling numbers, regardless of U.S. grade designation as follows:

299-200	0.055
199-0	0.183



Quality Adjustment in MI White Wheat

2012 SPOI:

Soft White Wheat will be discounted for falling numbers, regardless of U.S. grade designation as follows:

299-200	0.054
199-0	0.181



Quality Adjustment in MI White Wheat

2013 SPOI:

Soft White Wheat will be discounted for falling numbers, regardless of U.S. grade designation as follows:

299-200	0.054
199-0	0.179



Quality Adjustment in MI White Wheat

2014 SPOI:

Soft White Wheat will be discounted for falling numbers, regardless of U.S. grade designation as follows:

299-275	0.053
274-250	0.071
249-225	0.089
224-200	0.107
199-0	0.196



Quality Adjustment in MI White Wheat

Discount Translation:

Cash price for soft white wheat in Breckenridge, MI on 3/04 (Michigan Ag Commodities online posted cash bid price): \$5.90/bu

FN Value	RMA Discount	Implied Discount
299-275	0.053	\$0.31
274-250	0.071	\$0.42
249-225	0.089	\$0.53
224-200	0.107	\$0.63
199-0	0.196	\$1.16



Quality Adjustment Example

- **Quality Adjustment in MI White Wheat**
 - A grower has an APH of 80 bu/ac and selects a 75% coverage level. RMA reports a projected price of \$5.00/bu. (actual projected price for MI for 2016 is \$5.13)
 - Guarantee = $80 \text{ bu/ac} \times \$5.00 \times 75\% = \$300/\text{ac}$
 - Grower harvests 50 bu/ac and has a Falling Number score of 245 (Reduction in Value factor of 0.122). Yield is adjusted
 - $50 \text{ bu/ac} \times (1.00 - 0.122) = 43.9 \text{ bu/ac}$
 - Revenue to Count

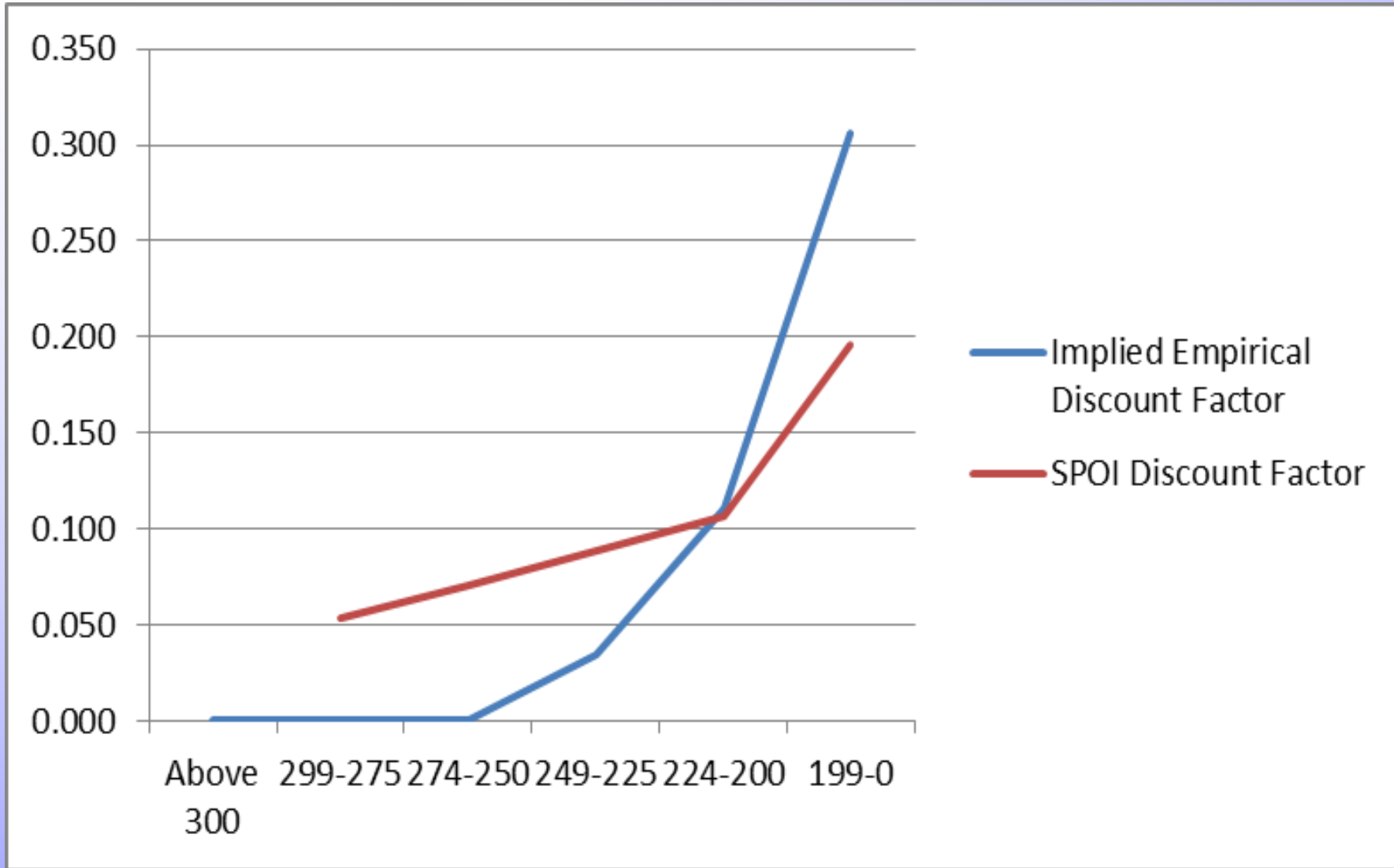


Quality Adjustment Example

- Quality Adjustment in MI White Wheat
 - Harvest price is also \$5.00/bu.
 - Revenue to Count
 - $43.9 \text{ bu/ac} \times \$5.00/\text{bu} = \$219.50/\text{ac}$
 - Indemnity
 - $\$300 - 219.5 = \$81.50/\text{ac}$
 - Without Quality Adjustment, indemnity would have been \$50.00/ac.



Our Study





Our Study

Falling Number	Implied Empirical Discount Factor	SPOI Discount Factor
Above 300	0.000	
299-275	0.000	0.052
274-250	0.000	0.087
249-225	0.035	0.122
224-200	0.111	0.157
199-0	0.306	RIV



Quality Adjustment in MI White Wheat

RMA's Proposed Approach:

RMA is working to implement an alternative approach to severe falling number situations

FN Value	2014 Discount	2016 (and future)
299-275	0.053	0.052
274-250	0.071	0.087
249-225	0.089	0.122
224-200	0.107	0.157
199-0	0.196	RIV



Reduction in Value

- Reduction in Value (RIV) is used in place of discount factors in certain crop insurance situations. It is a term used in the Special Provisions and Loss Adjustment Stand Handbooks (LASH). Typically it is used for discounts for which there are no discount schedule to account for it, i.e. discounts that “fall off the chart”. To establish an RIV a “Local Market Price” (LMP) must be established.



Example: RIV Vs. Current Discount Schedule approach

- A grower has an APH of 80 bu/ac and purchased a 75 % coverage Level for Revenue Protection. The Projected Price was \$5.00/bu. His Guarantee is \$300/ac
- A grower harvests 50 bu/ac with a falling number score of 185. The product is subject to quality adjustment, which will reduce the grower's production to count based on its reduced value.
- The two approaches both calculate Quality Adjustment Factors, which are then applied to determine production to count, and then indemnities



Discount Schedule Approach

- The SPOI display a schedule of falling numbers values and attendant discount factors. Based on a score of 185, the grower's production to count was historically discounted by a factor 0.196.
 - $1.000 - \text{Discount Factor} = \text{Quality Adjustment Factor}$
 $1.000 - \mathbf{0.196} = 0.804$
 - $\text{Gross Production} \times \text{Quality Adjustment Factor} = \text{Production to Count}$
 $50 \text{ bu} \times 0.804 = \mathbf{40.2 \text{ bu}}$

Falling Number	SPOI Discount Factor
Above 300	
299-275	0.053
274-250	0.071
249-225	0.089
224-200	0.107
199-0	0.196



Reduction in Value Approach

- The SPOI still display discount factors for values of 200 or above, but for lower values, specify a Reduction in Value approach. At 185, RIV is applied. The grower is discounted \$2.00/bu by the local elevator for his/her damaged production.
 $1.000 - \text{Discount Factor} = \text{Quality Adjustment Factor}$
 - Determine Local Market Price.
Based on calls to local elevators, a LMP of \$5.00/bu is established by the Approved Insurance Provider (the loss adjuster).
 - Reduction in Value / Local Market Price = Discount Factor
 $\$2.00/\text{bu RIV} \div \$5.00 = \mathbf{0.400}$
 - $1.000 - \text{Discount Factor} = \text{Quality Adjustment Factor}$
 $1.000 - 0.4000 = 0.600$
 - Gross Production x Quality Adjustment Factor = Production to Count
 $50 \text{ bu/ac} \times 0.600 = \mathbf{30 \text{ bu/ac}}$



Comparison

	Discount Factor	RIV
Guarantee	\$300/ac	\$300/ac
Gross Production	50 bu/ac	50 bu/ac
Discount Factor	0.196	0.400
Production to Count	40.2 bu/ac	30.0 bu/ac
Revenue to Count	\$201/ac	\$150/ac
Indemnity	\$99/ac	\$150/ac



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Crop Insurance Division

Questions?

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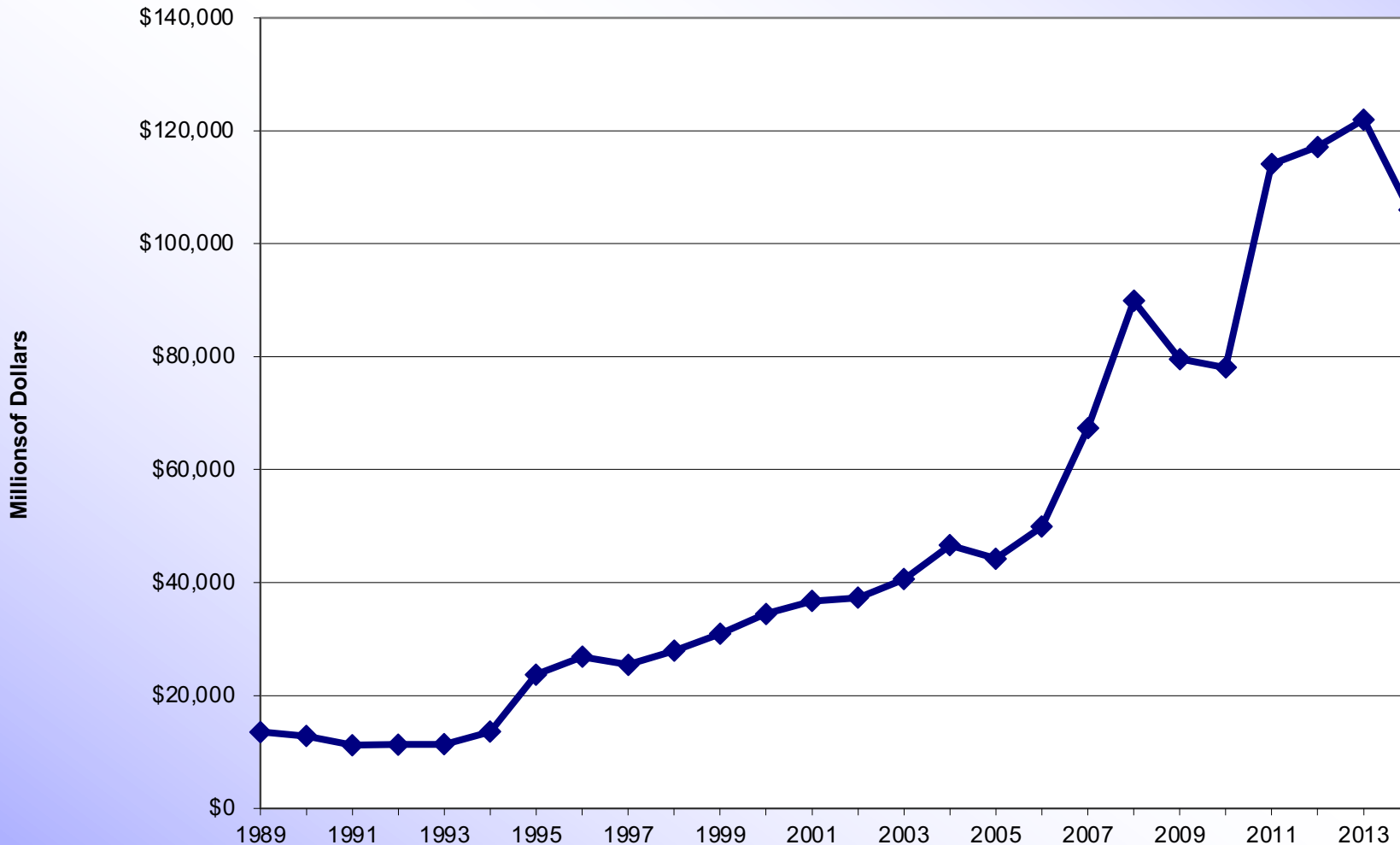
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National Liability

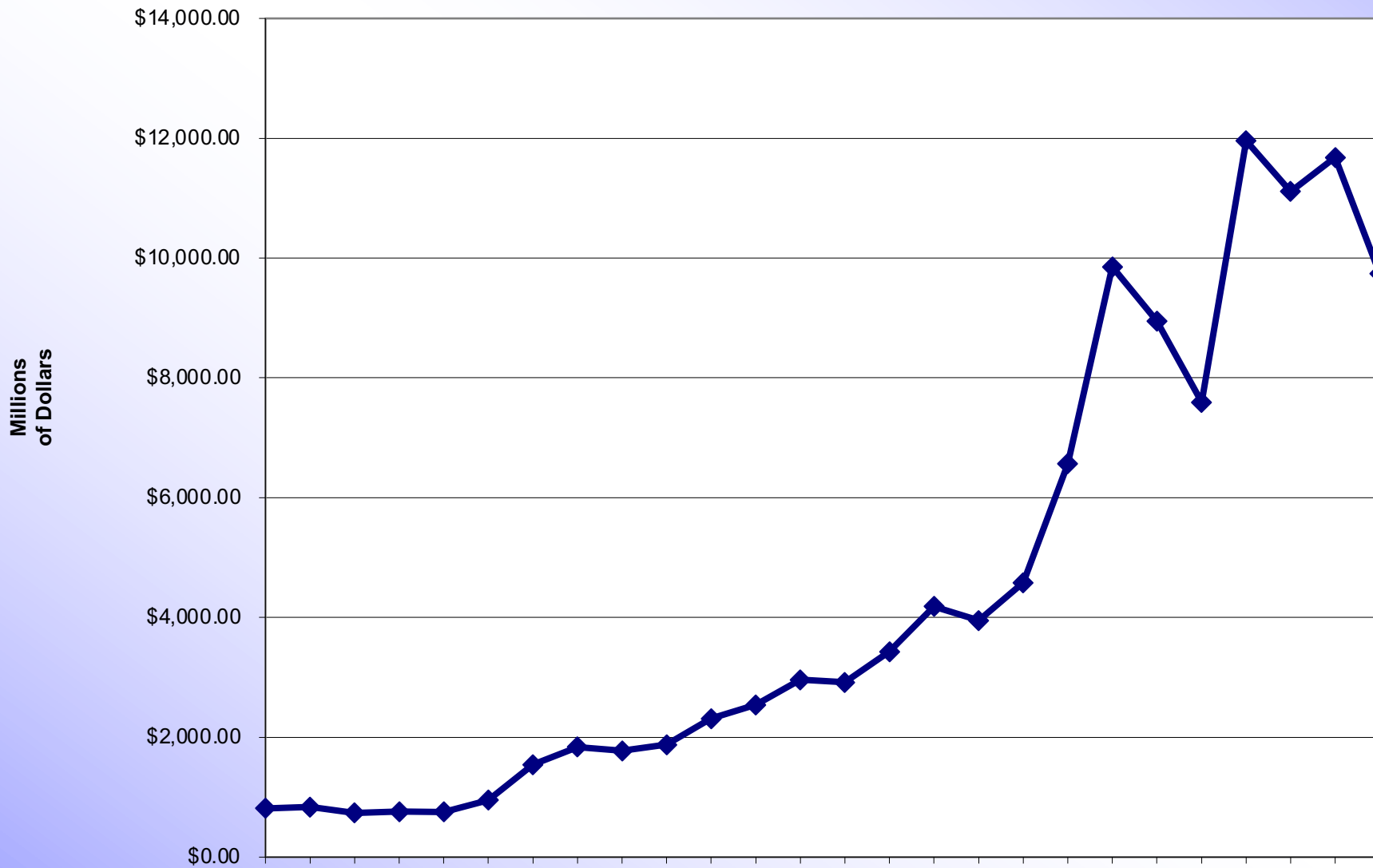
Liability





National Premium

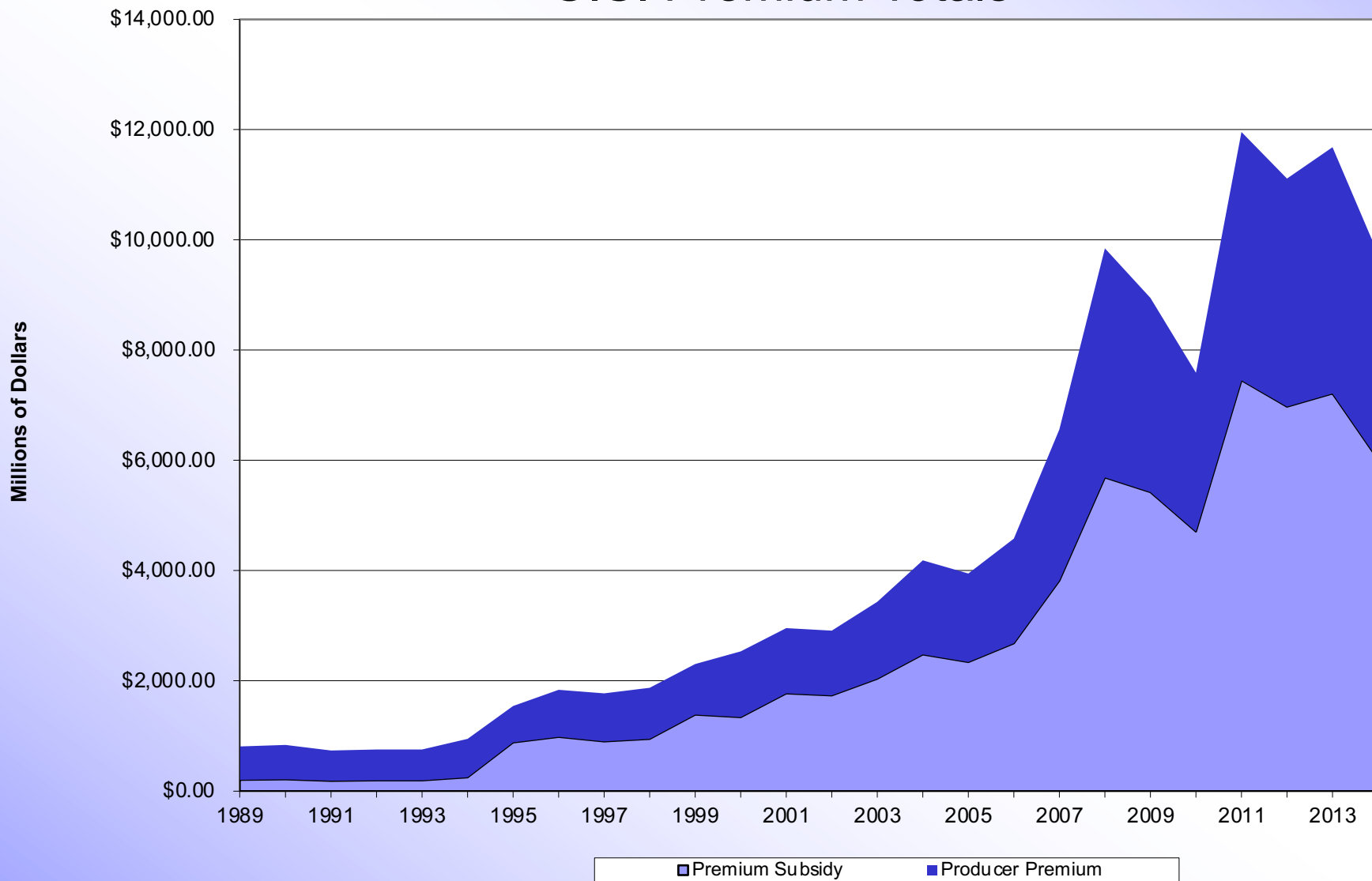
Total Premium





National Premium and Subsidy

U.S. Premium Totals





Innocuous Statistics

2015 USDA Budget Summary			
		FSA	RMA
	Employees	14,200	440
Millions of Dollars	Staff Budget	\$ 1,449	\$ 71
	Delivery Expenses		\$ 1,334
	Total Program Overhead	\$ 1,449	\$ 1,405
	Commodity Program Budget	\$ 2,455	
	Premium Subsidies		\$ 8,668
	Subsidy/Delivery Cost	1.69	6.17

<http://www.obpa.usda.gov/budsum/FY15budsum.pdf>