

# Impact of the 2016 RMA Rates on the U.S. Crop Insurance Industry

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*Katie Ward, ARe, CCM*



# Agenda

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Overview of RMA Rate Changes

Impact of RMA Rate Changes on CATRADER Results

Updating CATRADER for the 2016 Crop Renewal Season

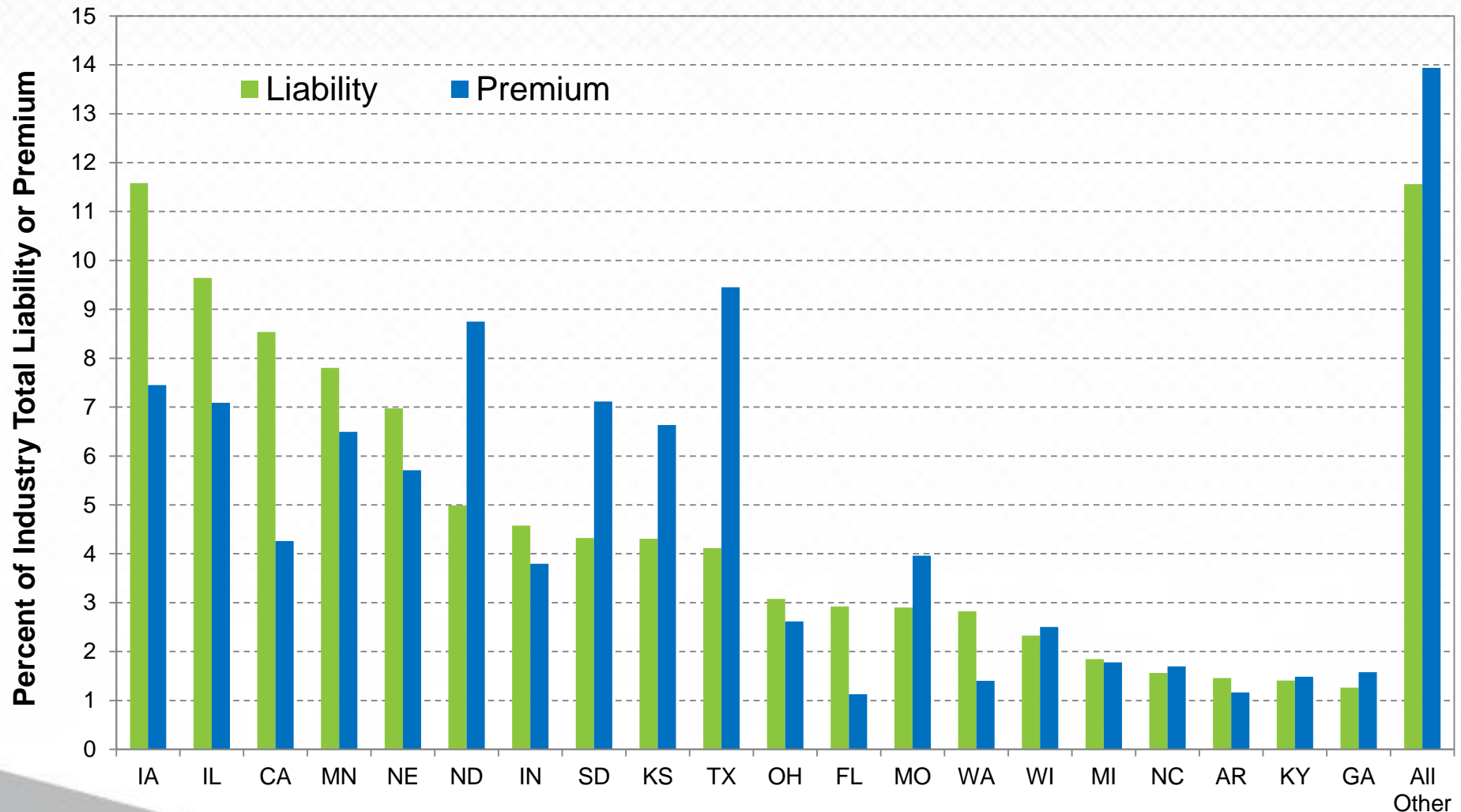
# Overview of RMA Rate Changes



# 2015 Breakdown of Industry Liability and Premium Reveals Overall Crop Risk by State

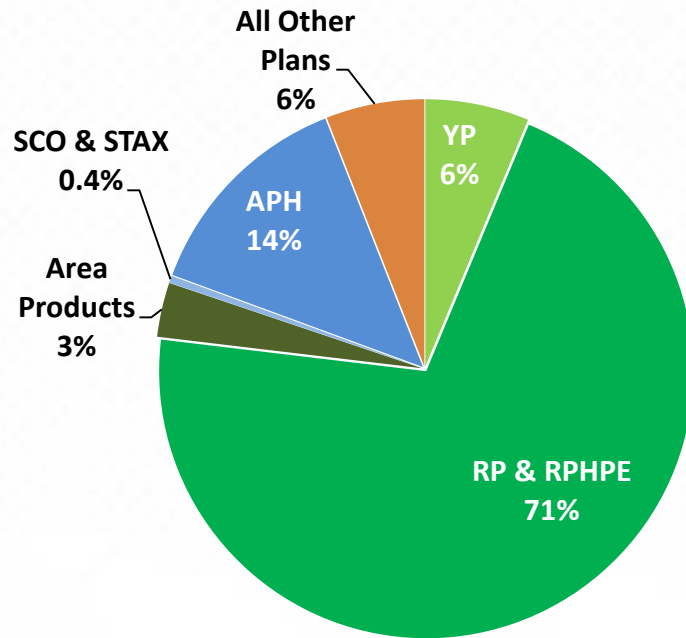
Total Industry Liability: \$102.08 B

Total Industry Premium: \$9.71 B

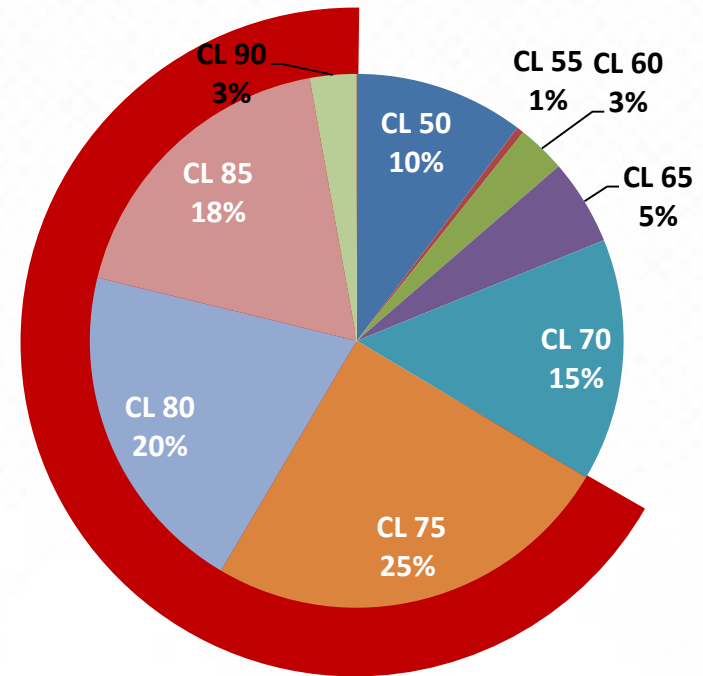


# Revenue Products with Coverage Levels 75% and Greater Are the Majority of Industry Premium in 2015

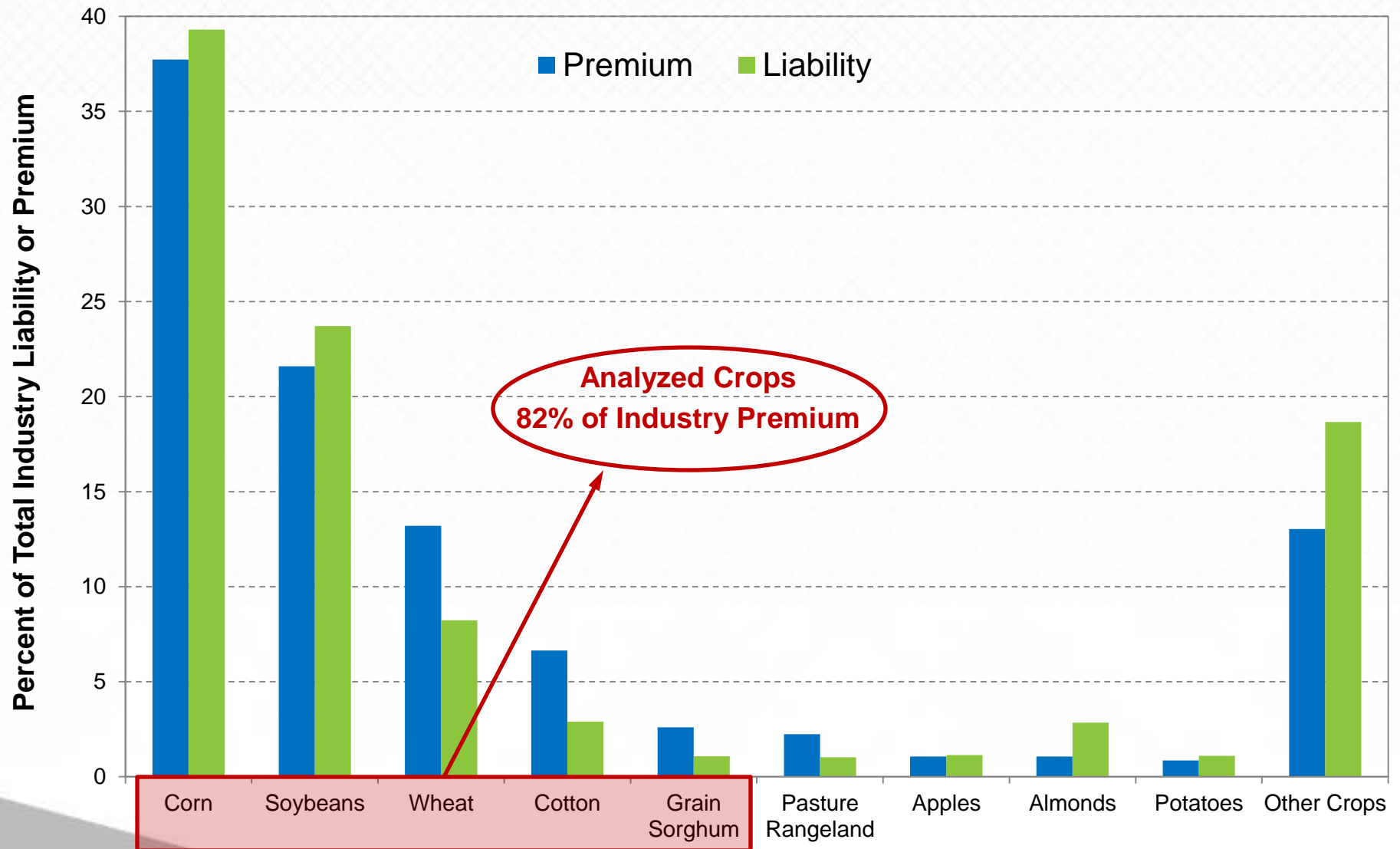
By Insurance Plan



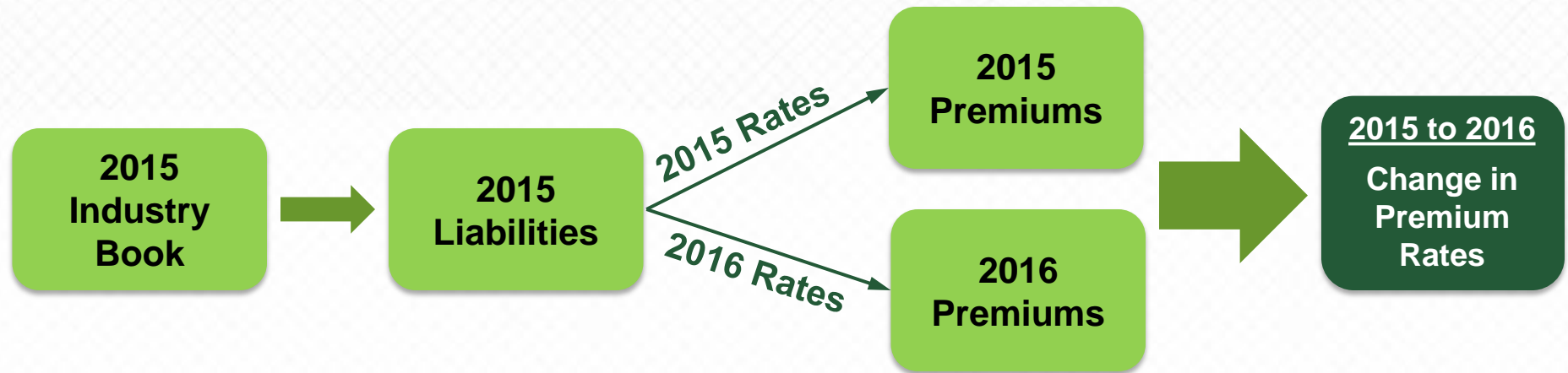
By Coverage Level



# Rate Study Performed on Top Five Crops Covers More than 80% of Total Industry Premium



# Keeping Liabilities, Prices, and Volatility Constant Allows Pure Rate Change Analysis



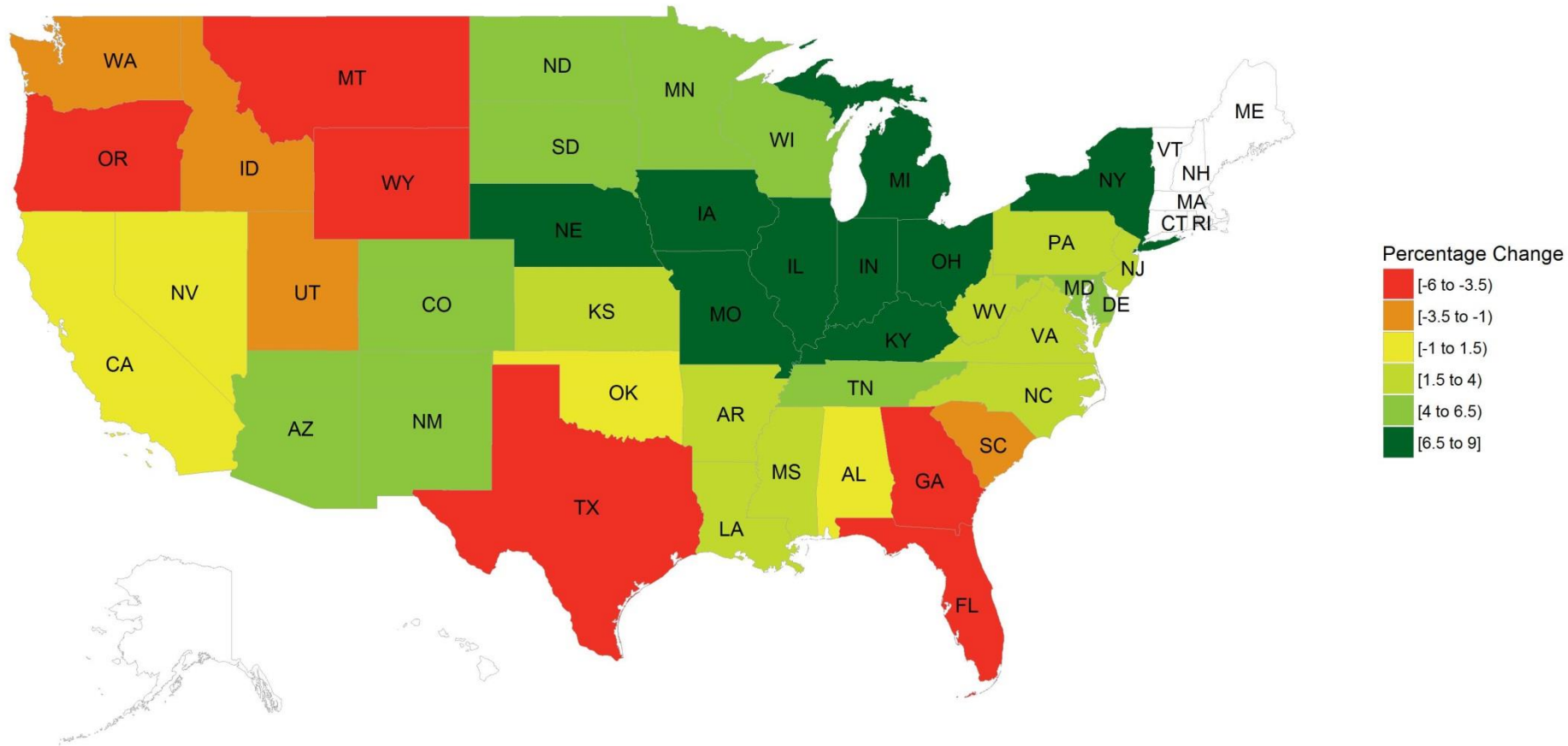
## Methodology:

- Five major crops → corn, soybeans, wheat, cotton, grain sorghum
- Hypothetical industry book of business → All insurance policies that were written in 2015
- Constant “price” and “volatility” → Focus on pure change in “premium rates”
- Assumptions were made about “type,” “practice,” “unit structure,” and “insurance option” to build the industry book → The actual result for a specific company could be different
- “Unit structure” and “insurance option” → assumed based on available historical experience



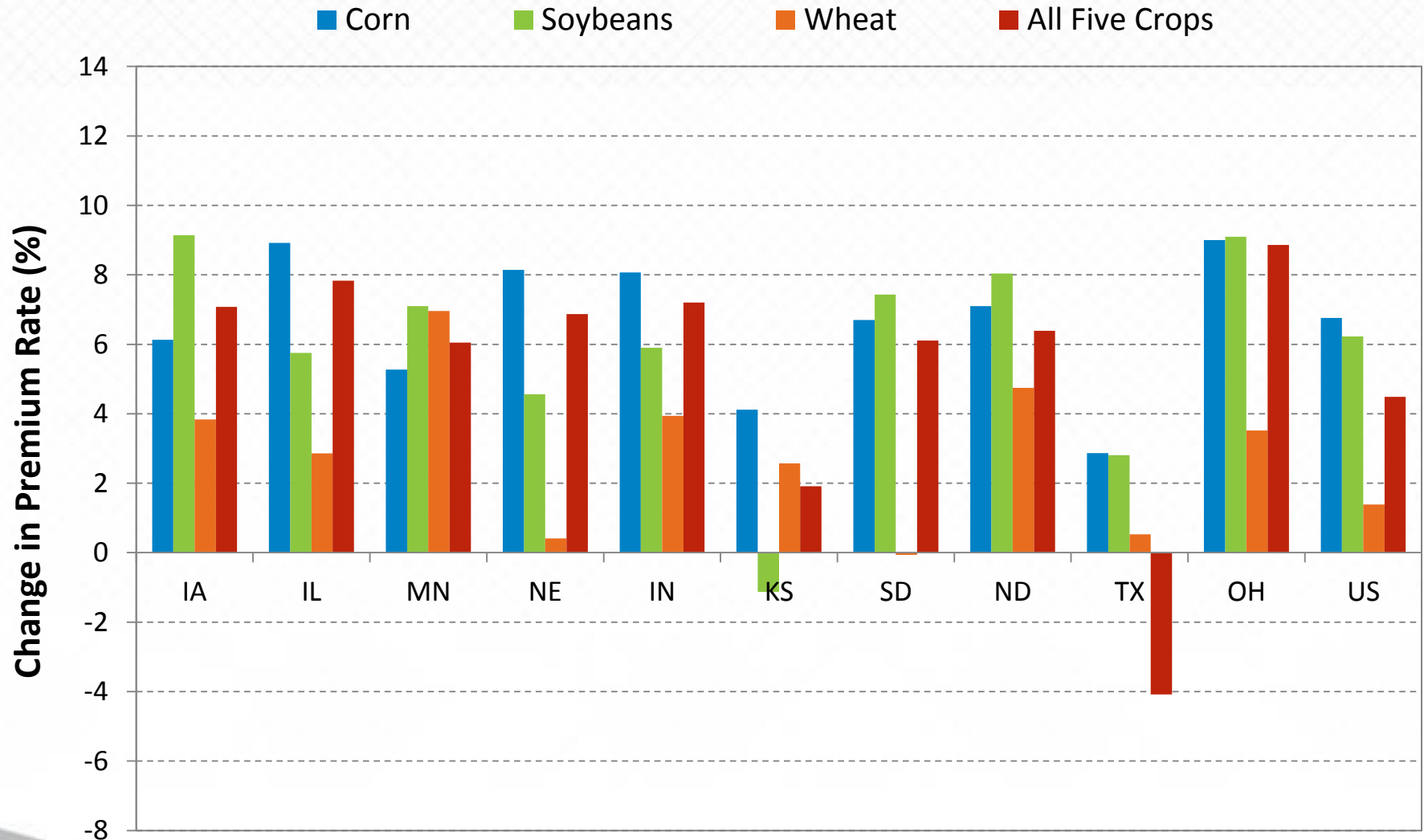
# Premium Rate Change by State, from 2015 to 2016, Reveals Geographic Pattern

Premium Rate Change Percentage, by State

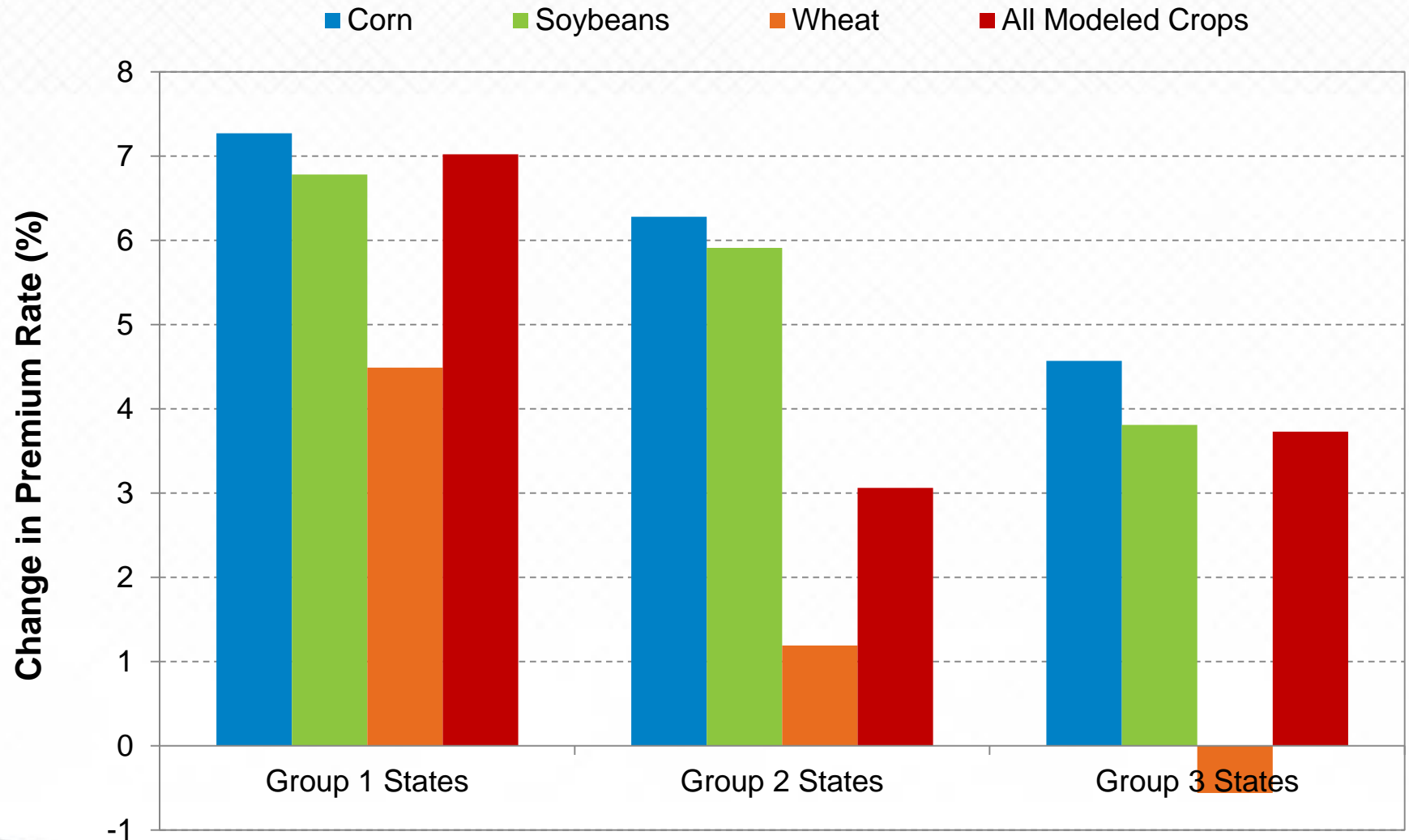




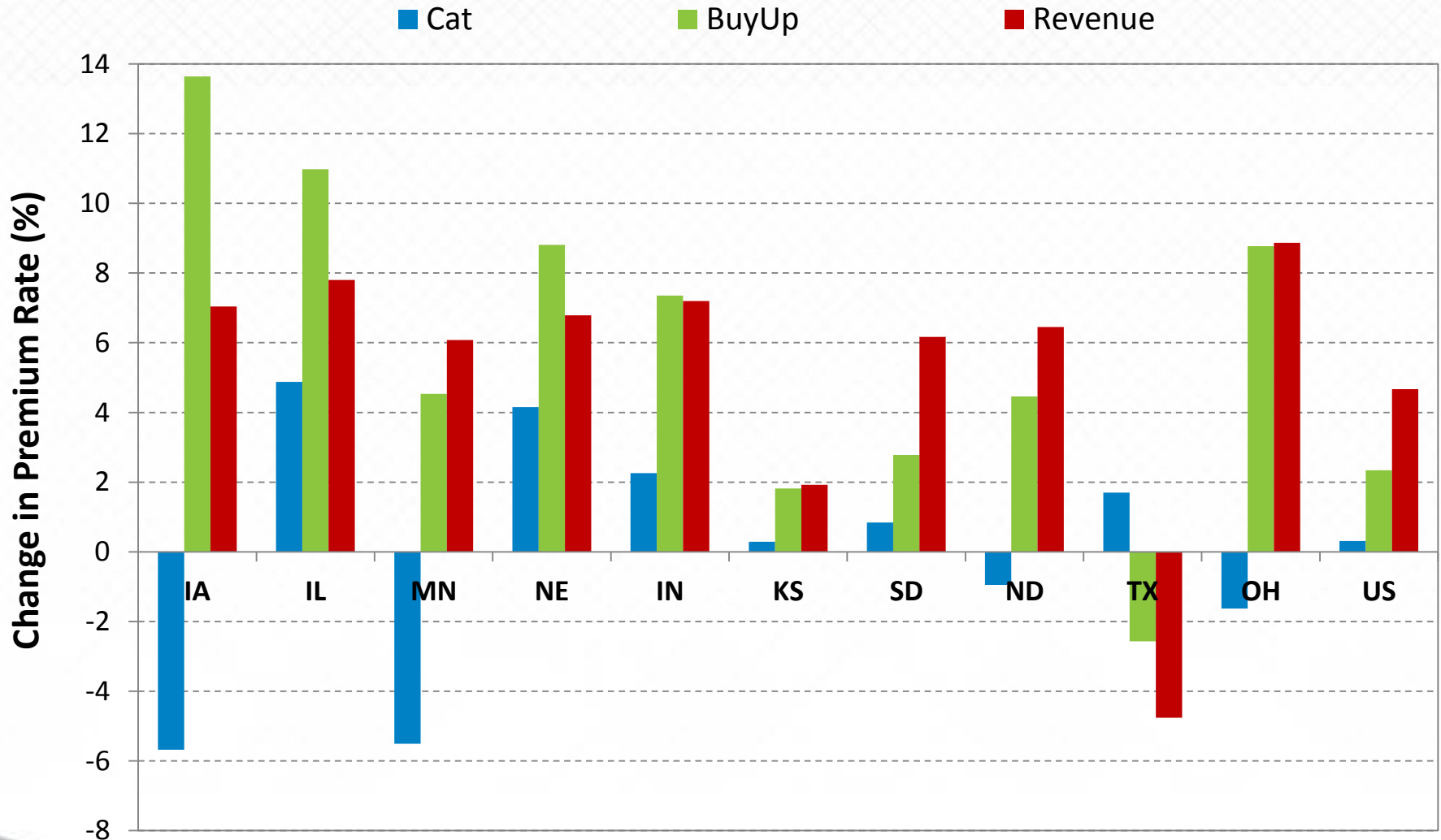
# Premium Rate Change by State, from 2015 to 2016, Reveals Crop Specific Pattern



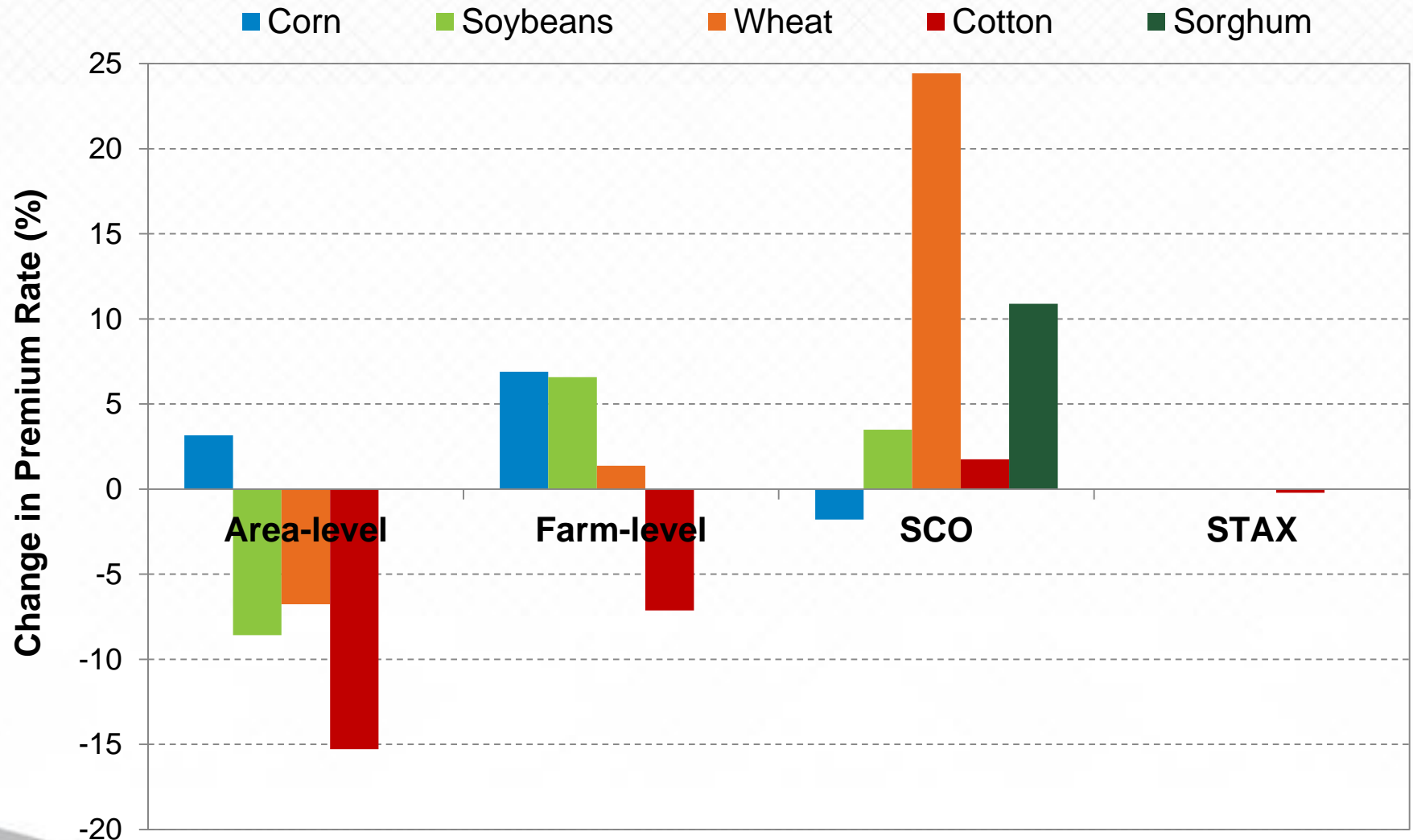
# Group 1 States Have The Highest Increase in Rates; Group 2 States the Lowest



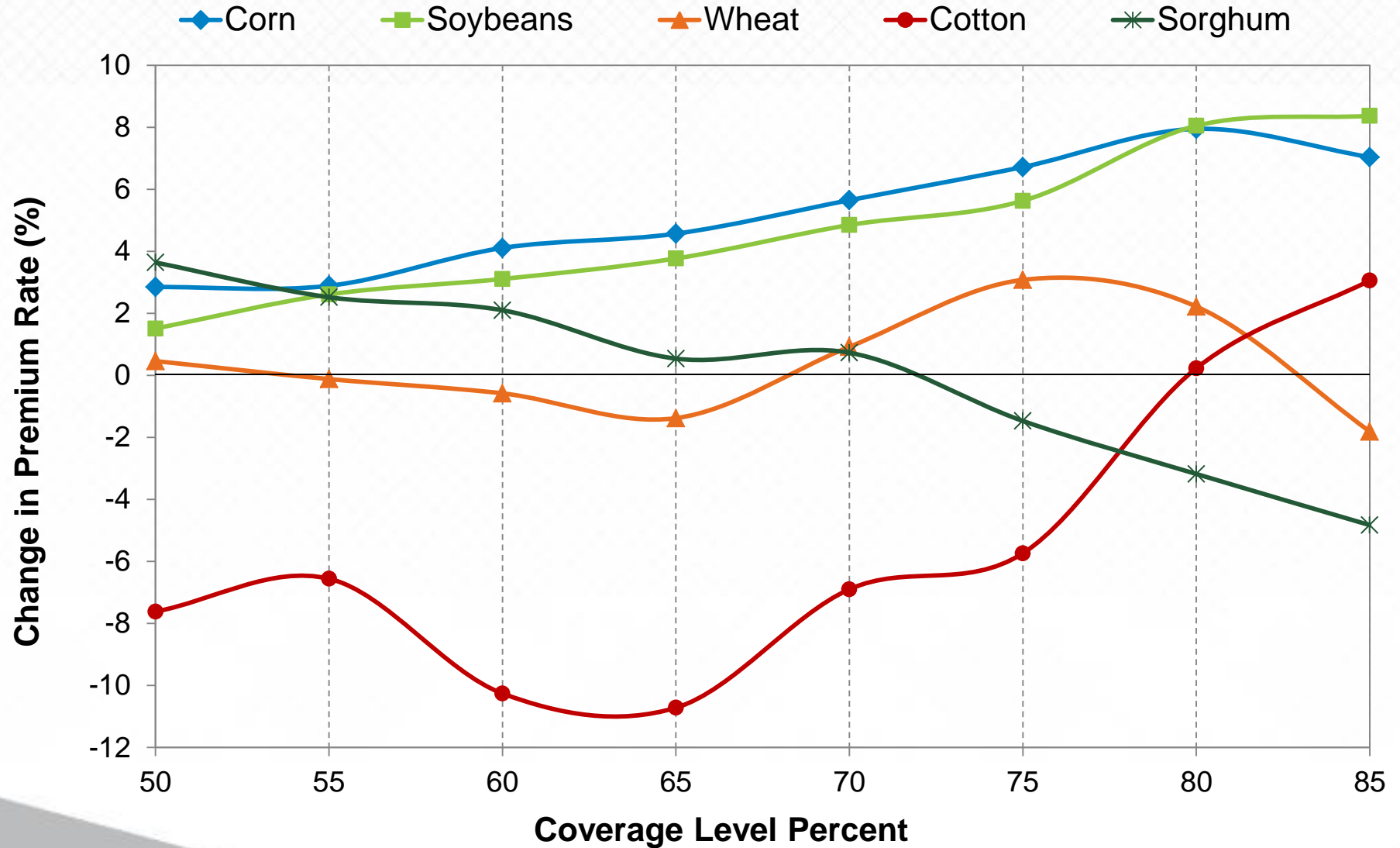
# Premium Rate Change for Revenue Policies Is Most Significant and Is Associated with a Large Liability



# Premium Rates Have Mostly Decreased for Area Products and Increased for Farm-level Products



# Premium Rates Increase by Coverage Level, but Not for All Crops

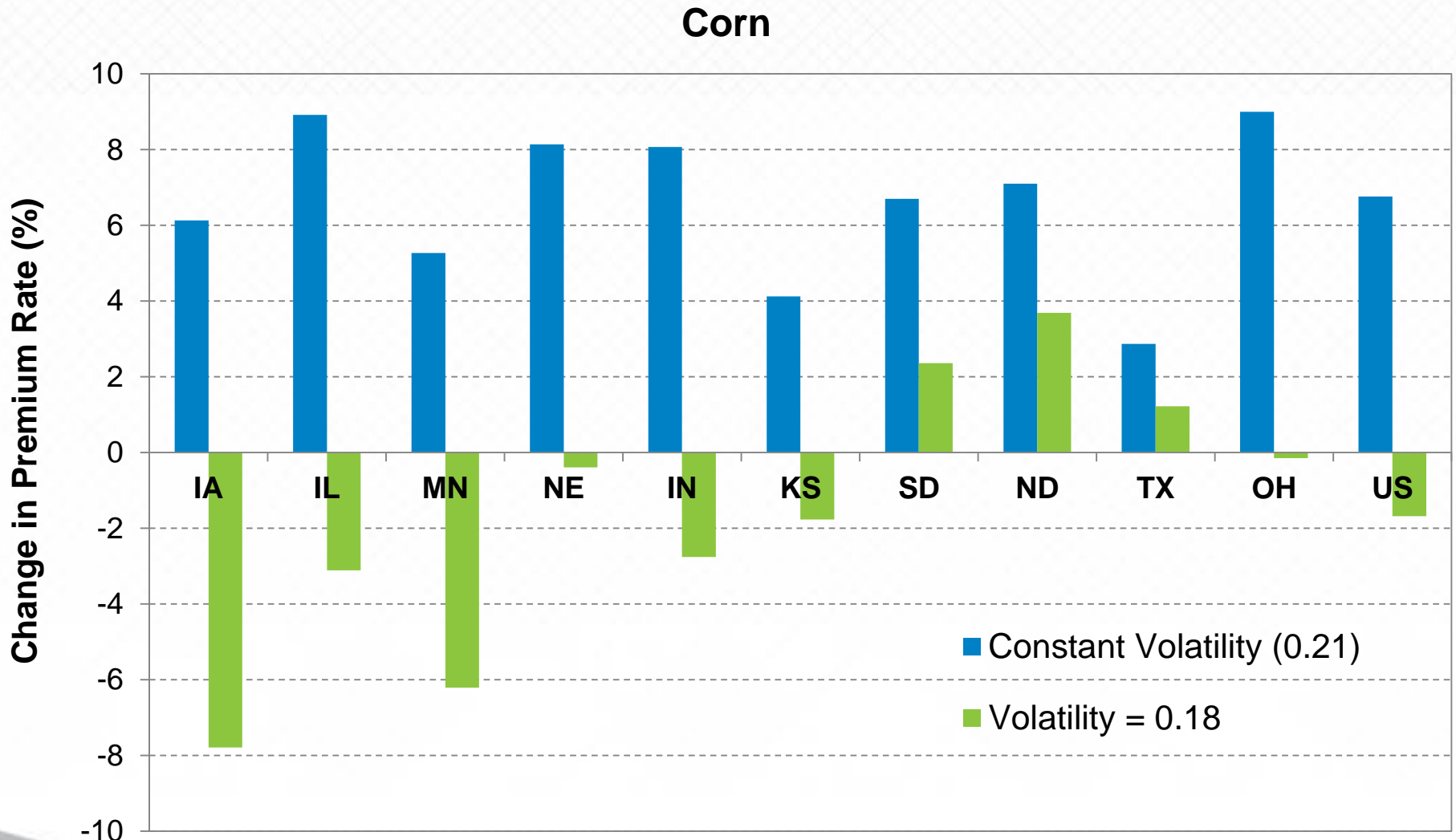


# Other External Factors Affect the Change in Final Premium Rates

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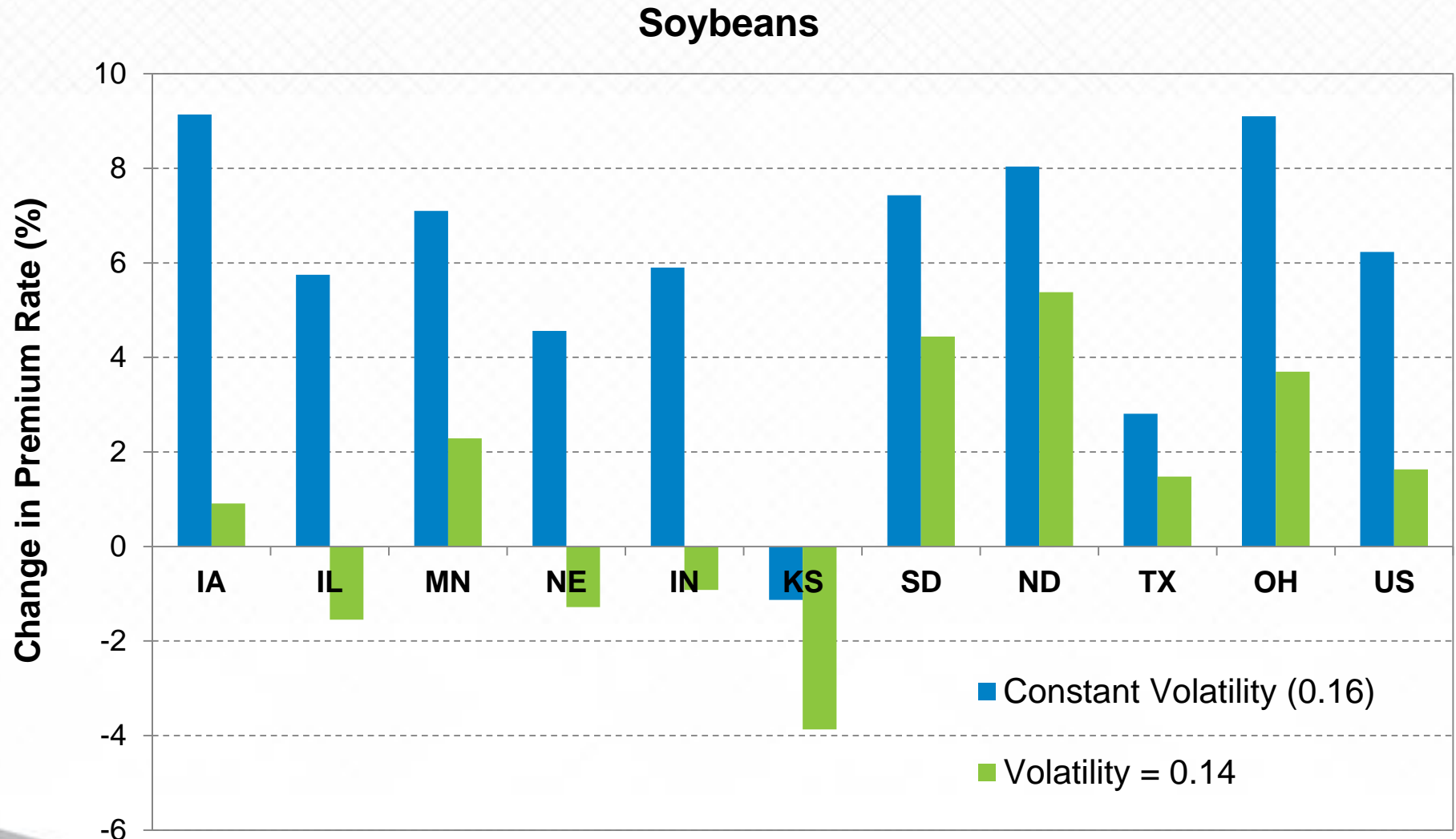
- Price volatility
- Change in producers' choice of coverage level
- TA and YE options → higher “effective” coverage levels
- Unit structure → EU vs. OU/BU
- Crop rotation and varying acreage over time

# Premium Rates for Corn Would Slightly Decrease with Reduced Price Volatility



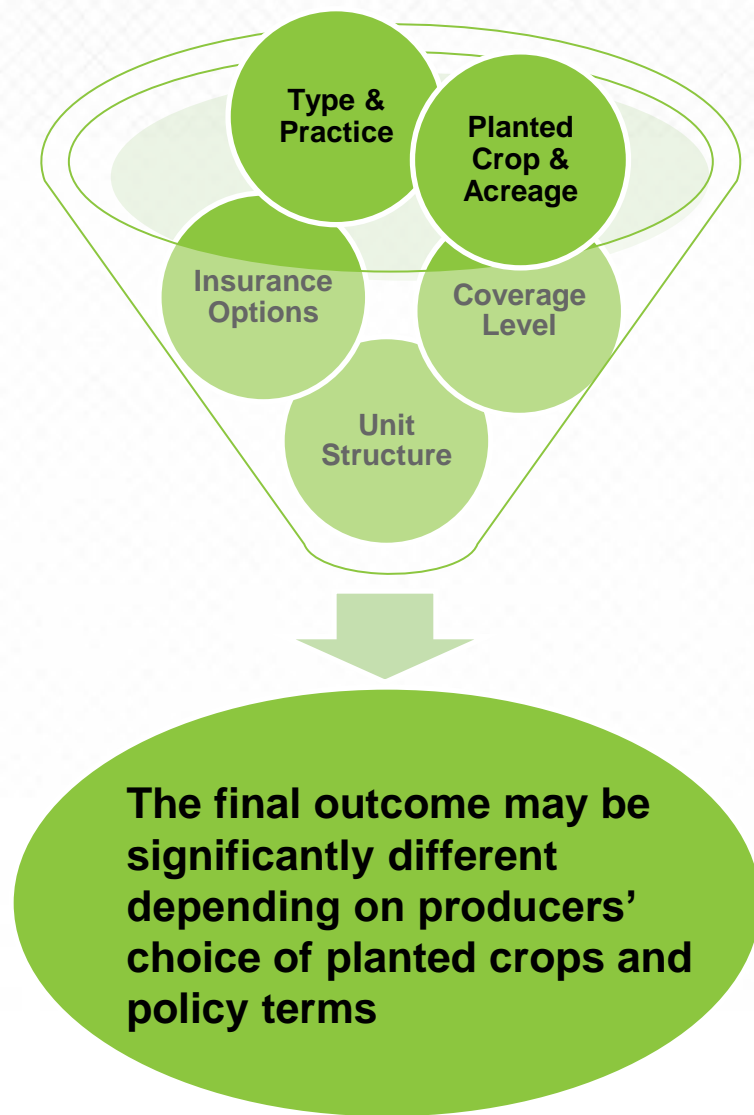


# Premium Rates for Soybeans Would Slightly Increase with Reduced Price Volatility



# Summary

- The analysis assumed no change in exposure, price, and volatility from one year to another
- The results of this analysis can be used to estimate changes in profitability
- Everything else remaining the same, the rate changes are expected to reduce the overall industry gross loss ratio (improve profitability) for the selected crops by about 4.3%
- RMA premium rates are substantially affected by potential changes in volatility; Reduction in price volatility this year could negatively affect U.S.-average premium rates by about 8.4%, and corn and soybeans rates by about 4.6%, respectively



# Average Percent Change in Premium Rates by Policy Type for the Five Major Crops from 2015 to 2016

State	Cat	Buy Up	Revenue	All Five Crops
AL	-4.34	-2.51	-0.52	<b>-0.21</b>
AZ	1.82	11.74	6.35	<b>4.49</b>
AR	2.81	3.99	4.23	<b>3.95</b>
CA	1.45	5.34	-3.29	<b>0.51</b>
CO	1.13	5.56	4.02	<b>4.1</b>
DE	-2.15	4.04	4.48	<b>4.41</b>
FL	0.19	-6.19	-4.48	<b>-4.14</b>
GA	2.72	1.53	-2.77	<b>-3.53</b>
ID	-5.64	0.73	-1.52	<b>-1.32</b>
IL	4.88	10.98	7.8	<b>7.83</b>
IN	2.26	7.35	7.2	<b>7.2</b>
IA	-5.68	13.64	7.04	<b>7.08</b>
KS	0.29	1.82	1.92	<b>1.91</b>
KY	2.98	5.73	7.63	<b>7.6</b>
LA	-2.07	1.76	2.09	<b>1.85</b>
MD	0.92	4.1	4.85	<b>4.73</b>
MI	-2.54	5.15	6.96	<b>6.8</b>
MN	-5.51	4.53	6.08	<b>6.05</b>
MS	0.99	2.41	3.55	<b>3.76</b>
MO	0.25	5.25	7.37	<b>7.22</b>
MT	-9.01	-6.51	-4.62	<b>-5.03</b>

State	Cat	Buy Up	Revenue	All Five Crops
NE	4.15	8.81	6.79	<b>6.87</b>
NV	2.24	-0.21	0.96	<b>0.94</b>
NJ	0.52	2.33	4.12	<b>3.94</b>
NM	2.88	3.68	6.1	<b>5.9</b>
NY	-0.75	5.07	8.42	<b>7.57</b>
NC	-0.71	2.11	2.65	<b>2.06</b>
ND	-0.95	4.46	6.45	<b>6.39</b>
OH	-1.63	8.77	8.87	<b>8.86</b>
OK	0.19	-2.5	-0.59	<b>-0.53</b>
OR	-3.2	5.25	-4.71	<b>-3.81</b>
PA	0.02	2.77	2.92	<b>2.89</b>
SC	-3.04	-1.52	-0.37	<b>-1.38</b>
SD	0.84	2.78	6.17	<b>6.11</b>
TN	-0.11	3.97	5.91	<b>5.79</b>
TX	1.7	-2.57	-4.76	<b>-4.08</b>
UT	0.99	-0.85	-3	<b>-1.8</b>
VA	2.63	2.36	2.61	<b>3.27</b>
WA	2.21	-3.34	-2.96	<b>-2.95</b>
WV	0.74	2.63	3.46	<b>3.33</b>
WI	-1.93	3	5.08	<b>4.98</b>
WY	2.43	-3.24	-4.16	<b>-3.94</b>
US	0.31	2.34	4.67	<b>4.49</b>

# AIR's Distributed Rate Change Table for CATRADER Differs from the Results We Presented Here

State	Cat	Buy Up	Revenue	All Five Crops
AL	-4.34	-2.51	-0.52	<b>-0.21</b>
AZ	1.82	11.74	6.35	<b>4.49</b>
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MO	0.25	5.25	7.37	<b>7.22</b>
MT	-9.01	-6.51	-4.62	<b>-5.03</b>

## AIR CATRADER® Rate Update

## Results of this Study

Gives cumulative rate changes from 2013 to 2016

Gives rate changes from 2015 to 2016

Considers all crops

Considers corn, soybeans, wheat, cotton, and sorghum

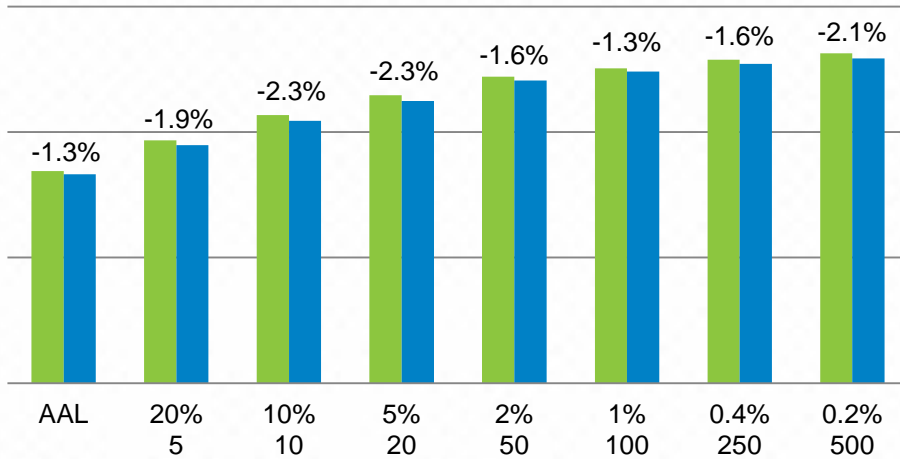
WI	-1.93	3	5.08	<b>4.98</b>
WY	2.43	-3.24	-4.16	<b>-3.94</b>
US	0.31	2.34	4.67	<b>4.49</b>

# **Impact of RMA Rates on CATRADER Results**

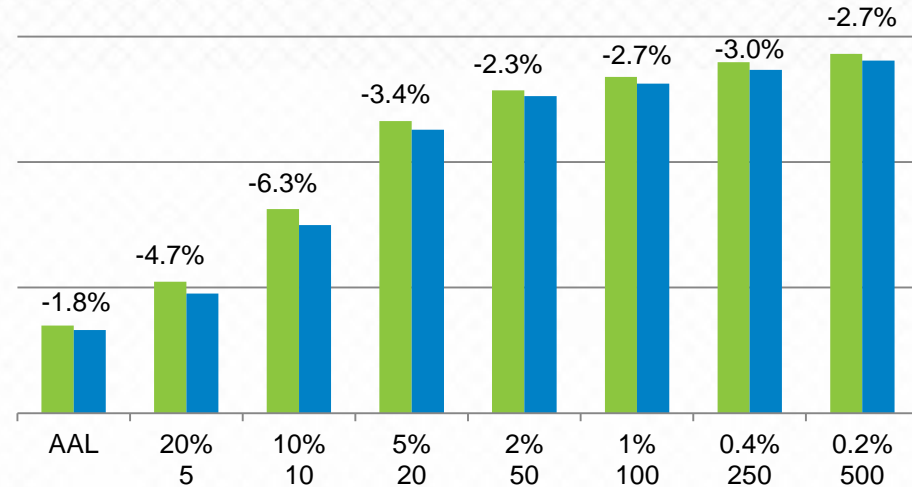


# Rate Change Has a Minor Impact on the Post-SRA Exceedance Probability Curve

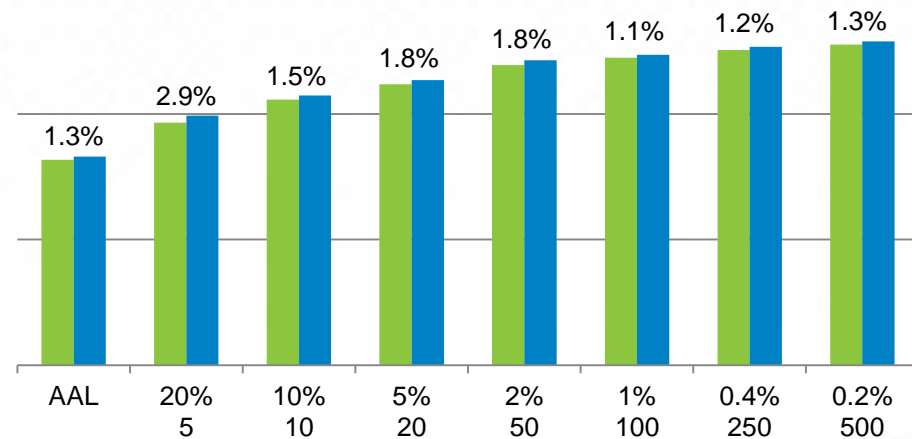
■ US 2015 ■ US 2016



■ IA 2015 ■ IA 2016



■ TX 2015 ■ TX 2016



# Overall Increase in Premium Rates, from 2015 to 2016, Decreases Loss Costs in Reinsurance Layers

## Volatility Catalog

Company A 20 xs 125	2015 Rates	2016 Rates
Low	4.2%	3.3%
Medium	5.1%	4.1%
High	6.3%	5.3%

## Volatility Catalog

Company B 20 xs 125	2015 Rates	2016 Rates
Low	0.2%	0.1%
Medium	0.6%	0.5%
High	1.7%	1.4%



# **How to Incorporate Premium Change Table Into CATRADER**



# Step 1: Log-In to Client Site

The screenshot displays the AIR Worldwide website. At the top left is the AIR WORLDWIDE logo. To the right, a navigation bar includes links for BLOG, MY PROFILE, CLIENT PORTAL, CONTACT, and SIGN OUT. A green message above the CLIENT PORTAL link reads "Welcome, Kathleen Ward - Update Profile". Below the navigation bar is a search bar containing the text "RMA" and a magnifying glass icon, which is highlighted with a red rectangle. Further down, a secondary navigation bar lists SOLUTIONS, WHO WE SERVE, MODELS, TRAINING & SUPPORT, RESEARCH & IDEAS, NEWS & EVENTS, and ABOUT US, followed by an orange ALERT button. The main content area features a large banner for "envision '16" with the text "See what we have in store for you next April" and "Registration is now open >>". Below the banner is a section titled "In the News:" with a link to an article about John Eibl. At the bottom, there are four promotional tiles: "View the Cyber Risk Data Standard Preparer's Guide >>", "2015 Global Modeled Catastrophe Losses Read the white paper >>", "What's New in Touchstone® 3.0: Dynamic Ring Analysis Watch video >>", and "AIR Partners with PBS's Nova on 'Next Outbreak' Series Read more >>". The footer contains links for SITE MAP, PRIVACY POLICY, CONDITION OF USE, and TRADEMARKS, along with social media icons for LinkedIn, Twitter, YouTube, and RSS. It also states "AIR Worldwide is a Verisk Analytics business." with the Verisk Analytics logo, and a copyright notice: "© 2000-2016 AIR Worldwide | All rights reserved. 3.7.0.1 (P-3-1)".

**AIR WORLDWIDE**

Welcome, Kathleen Ward - Update Profile

BLOG | MY PROFILE | CLIENT PORTAL | CONTACT | SIGN OUT

SOLUTIONS | WHO WE SERVE | MODELS | TRAINING & SUPPORT | RESEARCH & IDEAS | NEWS & EVENTS | ABOUT US | **ALERT**

# envision '16

See what we have in store for you next April

Registration is now open >>

**In the News:** John Eibl, AIR's Vice President, talks to *Carrier Management* about the changing state of flood insurance in the U.S. [Read the article.](#)

**View the Cyber Risk Data Standard Preparer's Guide >>**

**2015 Global Modeled Catastrophe Losses**  
Read the white paper >>

**What's New in Touchstone® 3.0: Dynamic Ring Analysis**  
Watch video >>


**AIR Partners with PBS's Nova on "Next Outbreak" Series**  
Read more >>

SITE MAP | PRIVACY POLICY | CONDITION OF USE | TRADEMARKS |

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# Step 2: Retrieve Excel Table from AIR Website

 **AIR WORLDWIDE®**

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## Search Results

**You've Selected:**  
Your search can be refined using the categories below.

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Your search has returned 20 results. Sort by: [Relevancy](#) | [Date](#)

**Narrow Results By:**

**Type**  
[Articles \(4\)](#)  
[Software Documentation \(4\)](#)  
[Blog \(3\)](#)  
[more...](#)

**Peril**  
[Crop \(13\)](#)

**Region**  
[North America \(10\)](#)  
[Asia-Pacific \(1\)](#)

**Software**  
[CATRADER \(4\)](#)

**Topic**  
[No Results](#)

**Webinar: Impact of 2016 RMA Rerating on the U.S. Crop Insurance Industry**  
*Events | Webinars*  
**Wednesday, February 10, 2016 - Registration is now open!**  
Join us for the webinar *Impact of 2016 RMA Rerating on the U.S. Crop Insurance Industry* on Wednesday, February 10th from 11:00 a.m. to 12:00 p.m. EST.

**Analysis of Changes in RMA Premium Rates from 2014 to 2015**  
*Presentations*  
February 05, 2015  
Annual **RMA** premium rate changes affect the underlying risk of insurance policies in the U.S. MPCl program. As a result, AIR is providing an update to the U.S. MPCl premium rates included in the CATRADER® Version 16.0 release of the model (version 02.00.01), reflecting information for 2015. Our researchers will explain why you need to update these rates in CATRADER and show you how to do so.

**U.S. MPCl Premium Rates 2016**  
*Software Documentation*  
February 01, 2016  
AIR is providing an update to the U.S. **MPCl** premium rates that were included in the CATRADER Version 17.0 release of the model (version 02.00.01). Clients licensing the US **MPCl** model are encouraged to update their rate settings.

# Step 3: Download Excel Table



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## U.S. MPCl Premium Rates 2016

Annual RMA premium rate changes affect the underlying risk of insurance policies in the US-MPCI program. AIR has conducted an analysis to estimate the pure change in premium rates and is providing an update to the U.S. MPCl premium rates that were included in the CATRADER Version 17.0 release of the model (version 02.00.01). The updated rates reflect information for 2016. A reference spreadsheet containing the rate change factors by state and policy type (e.g. Buy Up, Cat, and Revenue) is attached. CATRADER gives users the option to manually change premium rates. The new rates can be readily implemented for 2016 risk analysis, by copying and pasting the rate factors from the spreadsheet into the "Modify Industry Premium" tab of the US-MPCI Settings dialog box. **Clients licensing the US MPCl model are encouraged to update their rate settings.**

### Update Instructions

The US MPCl premium rate settings can be updated from any CATRADER workstation. It is not necessary to update the settings from all workstations.

1. Open the attached zip file; this contains the **US\_MPCl\_PremiumRates\_2016.xlsx** spreadsheet.
2. In the spreadsheet; copy the premium rate values in cells B2-D52.
3. In CATRADER:
  - a. Select **Tools | U.S. MPCl Settings** from the top menu bar.
  - b. In the U.S. MPCl Settings dialog click the tab "Modify Industry Premium".
  - c. Click in the Alabama Buy Up cell to make this the active cell.
  - d. Right click and select **Paste** from the drop-down menu.
  - e. Click **Save** then **Close** to apply your updates.

Refer to the document [Using the AIR MPCl Model for the U.S.](#) for more information.

If you have questions or need assistance with running the update, please contact the AIR Software Service group via email at [CATRADERSupport@air-worldwide.com](mailto:CATRADERSupport@air-worldwide.com).

[Notify me](#) when more content like this is available.



U.S. MPCl Premium Rates

# Step 4: Open File and Log-In to CATRADER

US\_MPCL\_PremiumRates\_2016.xlsx [Read-Only] - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	United States	BuyUp	Cat	Revenue															
2	Alabama	99.65	87.89	97.82															
3	Alaska																		
4	Arizona	108.26	88.67	110.24															
5	Arkansas	102.84	69.78	105.1															
6	California	100.06	98.66	99.25															
7	Colorado	102.43	89.01	104.3															
8	Connecticut																		
9	Delaware	102.19	70.5	107.79															
10	Dist of Columbia																		
11	Florida	100	99.82	101.3															
12	Georgia	101.93	85.96	105.23															
13	Hawaii																		
14	Idaho	97.1	86.42	87.58															
15	Illinois	101.46	75.92	109.34															
16	Indiana	97.81	73.37	110.73															
17	Iowa	91.61	61.15	101.87															
18	Kansas	96.71	62.92	97.04															
19	Kentucky	100.81	73.56	112.19															
20	Louisiana	98.89	83.12	98.51															
21	Maine																		
22	Maryland	103.78	89.14	108.03															
23	Massachusetts																		
24	Michigan	99.71	80.22	107.69															
25	Minnesota	99.08	87.18	100.46															
26	Mississippi	103.13	59.18	103.48															
27	Missouri	114.61	68.43	116.93															

CATRADER®  
Version 17.1.0

User Name:

Password:

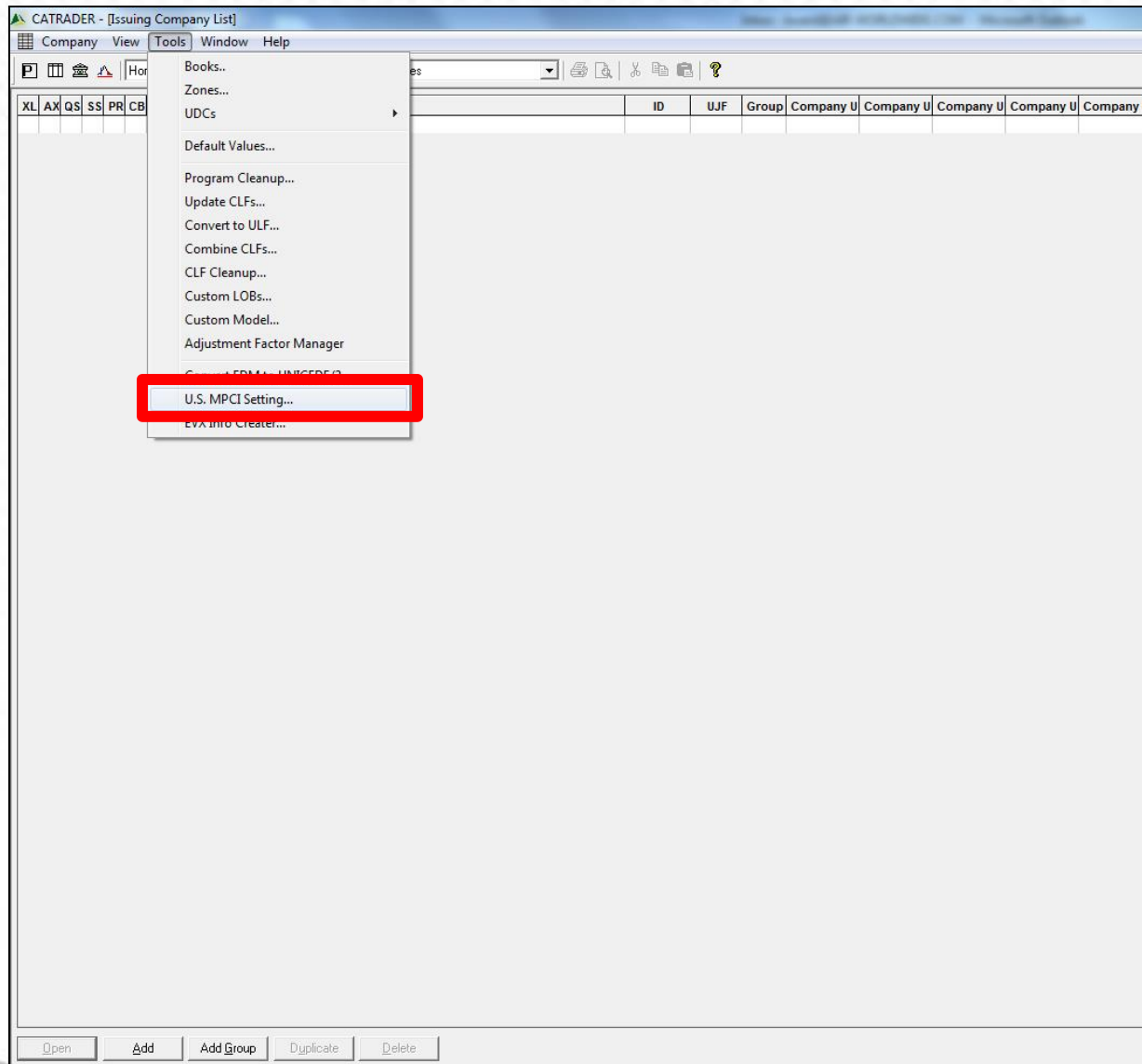
OK Cancel

AIR WORLDWIDE

2016 USMPCL PremiumRates

Ready

# Step 5: Select **Tools** | **U.S. MPCl Settings** from the Top Menu Bar





## Step 6: Click in the Alabama BuyUp Cell to Make This the Active Cell

U.S. MPC Settings

**Modify Industry Premium** | SRA Sharing Ratios | SRA State Groups

Percentage of original premium:

U.S. MPC Model Version: 02.00.01

	UNITED STATES	BuyUp	at	Revenue
1	Alabama	100.26	87.08	97.81
2	Alaska			
3	Arizona	102.70	86.52	104.51
4	Arkansas	101.89	70.39	101.73
5	California	100.03	98.00	99.35
6	Colorado	101.49	88.18	100.41
7	Connecticut			
8	Delaware	100.90	67.54	103.19
9	Dist of Columbia			
10	Florida	100.05	99.78	107.73
11	Georgia	101.28	83.29	110.44
12	Hawaii			
13	Idaho	96.81	85.79	89.05
14	Illinois	93.46	73.87	101.44
15	Indiana	92.75	71.81	103.35
16	Iowa	83.87	67.78	95.17
17	Kansas	95.09	61.40	95.22
18	Kentucky	100.48	72.04	104.26
19	Louisiana	98.07	85.16	97.08
20	Maine			
21	Maryland	101.29	87.37	103.04
22	Massachusetts			
23	Michigan	98.18	76.43	101.17

Save

Close Help



# Step 7: Copy Data from Excel Spreadsheet

US\_MPCI\_PremiumRates\_2016.xlsx [Read-Only] - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	United States	BuyUp	Cat	Revenue													
2	Alabama	99.65	87.89	97.82													
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17	Iowa	91.61	61.15	101.87													
18	Kansas	96.71	62.92	97.04													
19	Kentucky	100.81	73.56	112.10													

Ready | Average: 95.44547619 | Count: 126 | Min: 59.18 | Max: 116.93 | Sum: 12026.13 | 100%

## Step 8: Right Click and Select Paste from the Drop-Down Menu

U.S. MPC Settings

**Modify Industry Premium** | SRA Sharing Ratios | SRA State Groups

Percentage of original premium:

U.S. MPC Model Version: 02.00.01

	UNITED STATES	BuyUp	Cat	Revenue
1	Alabama	99.65	87.89	97.82
2	Alaska	0.00	0.00	0.00
3	Arizona	108.26	88.67	110.24
4	Arkansas	102.84	69.78	105.10
5	California	100.06	98.66	99.25
6	Colorado	102.43	89.01	104.30
7	Connecticut	0.00	0.00	0.00
8	Delaware	102.19	70.50	107.79
9	Dist of Columbia	0.00	0.00	0.00
10	Florida	100.00	99.82	101.30
11	Georgia	101.93	85.96	105.23
12	Hawaii	0.00	0.00	0.00
13	Idaho	97.10	86.42	87.58
14	Illinois	101.46	75.92	109.34
15	Indiana	97.81	73.37	110.73
16	Iowa	91.61	61.15	101.87
17	Kansas	96.71	62.92	97.04
18	Kentucky	100.81	73.56	112.19
19	Louisiana	98.89	83.12	98.51
20	Maine	0.00	0.00	0.00
21	Maryland	103.78	89.14	108.03
22	Massachusetts	0.00	0.00	0.00
23	Michigan	99.71	80.22	107.69

Save

Close Help

# Summary: How to Incorporate Into CATRADER

- Open Excel file; this contains the **US\_MPCI\_PremiumRates\_2016.xlsx** spreadsheet
- In the spreadsheet; copy the premium rate values in cells B2-D52
- In CATRADER:
  - Select **Tools | U.S. MPCI Settings** from the top menu bar.
  - In the U.S. MPCI Settings dialog click the tab "Modify Industry Premium"
  - Click in the Alabama BuyUp cell to make this the active cell
  - Right click and select **Paste** from the drop-down menu
  - Click **Save** then **Close** to apply your updates

## Note:

**Users are advised to apply CATRADER 17.0.1/17.1.1 Crop Update, also available on our client website, to ensure accurate results.**



# AIR CROP INSURANCE SYMPOSIUM

Explore the current and future state of crop risk modeling!

**Please join us for AIR's Crop Insurance Symposium, May 12-13, 2016, in Boston.**

This 1½-day event will bring together an international audience and distinguished presenters from the insurance industry, academia, and the U.S. government.

AIR experts will present technical sessions on our product offerings: the U.S. and China Multi-Peril Crop Insurance (MPCI) models, the U.S. crop hail model, and our Fund Designation Service.

Our guest speakers will discuss updates from the U.S. Department of Agriculture, utilization of big data in agricultural applications, and analyses of the new products. We will also host an open discussion on opportunities and trends in agricultural (re)insurance around the world.

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# End of Webinar

