

Recap of Recent Crop Insurance Industry Changes and Gains and Losses

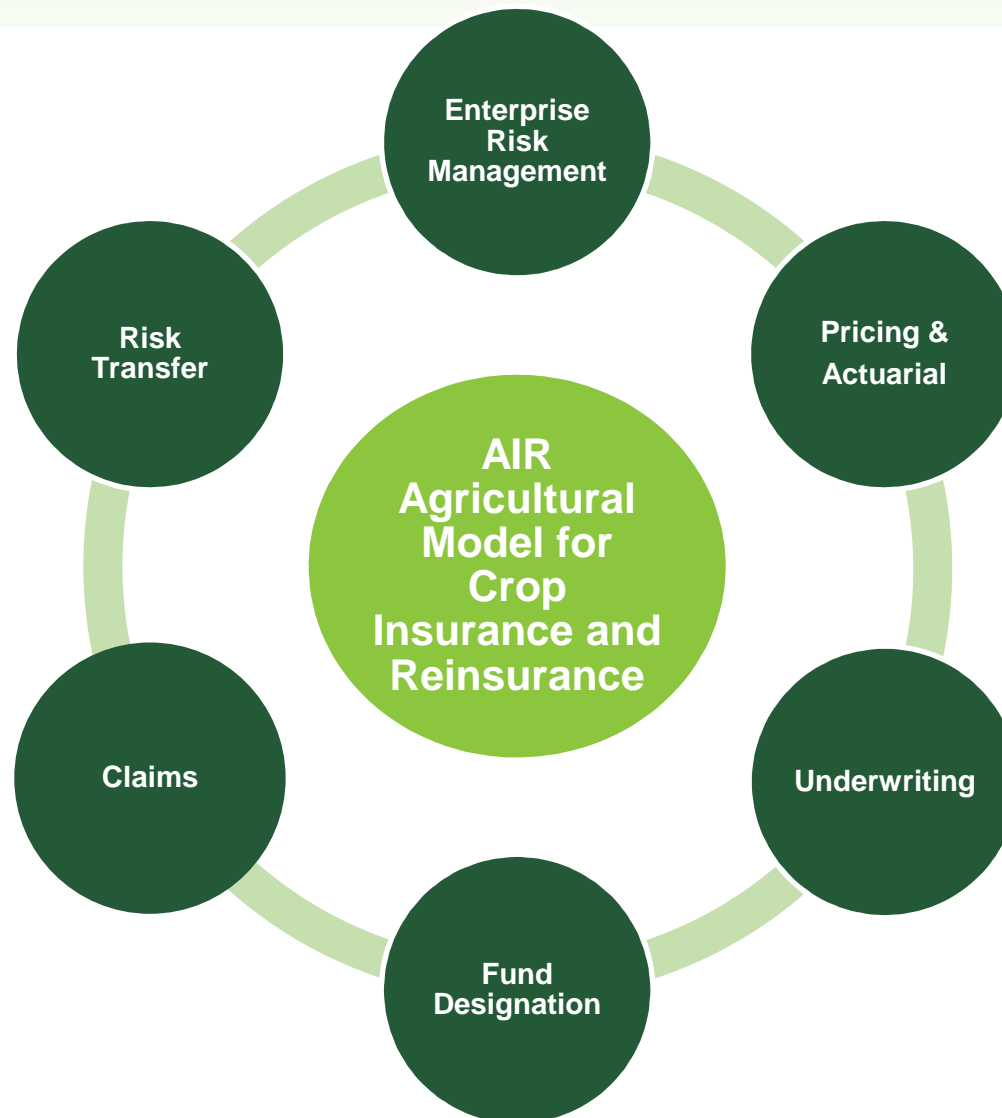
Casualty Actuarial Society Reinsurance Seminar

Heidi Wang, Gerhard Zuba, Sid Sasanian and Oscar Vergara

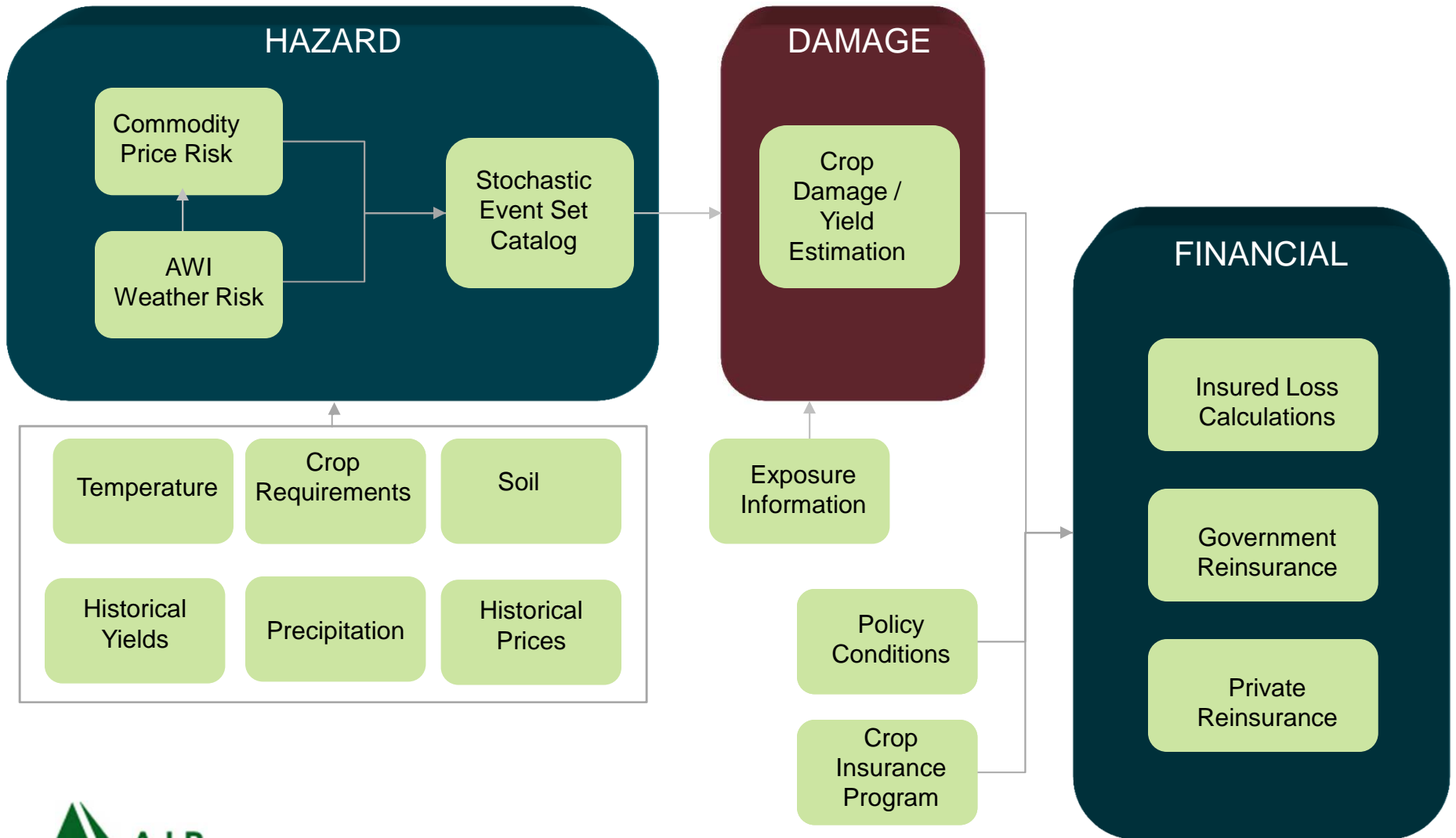


www.air-worldwide.com

AIR Agricultural Model Applications in CATRADER®

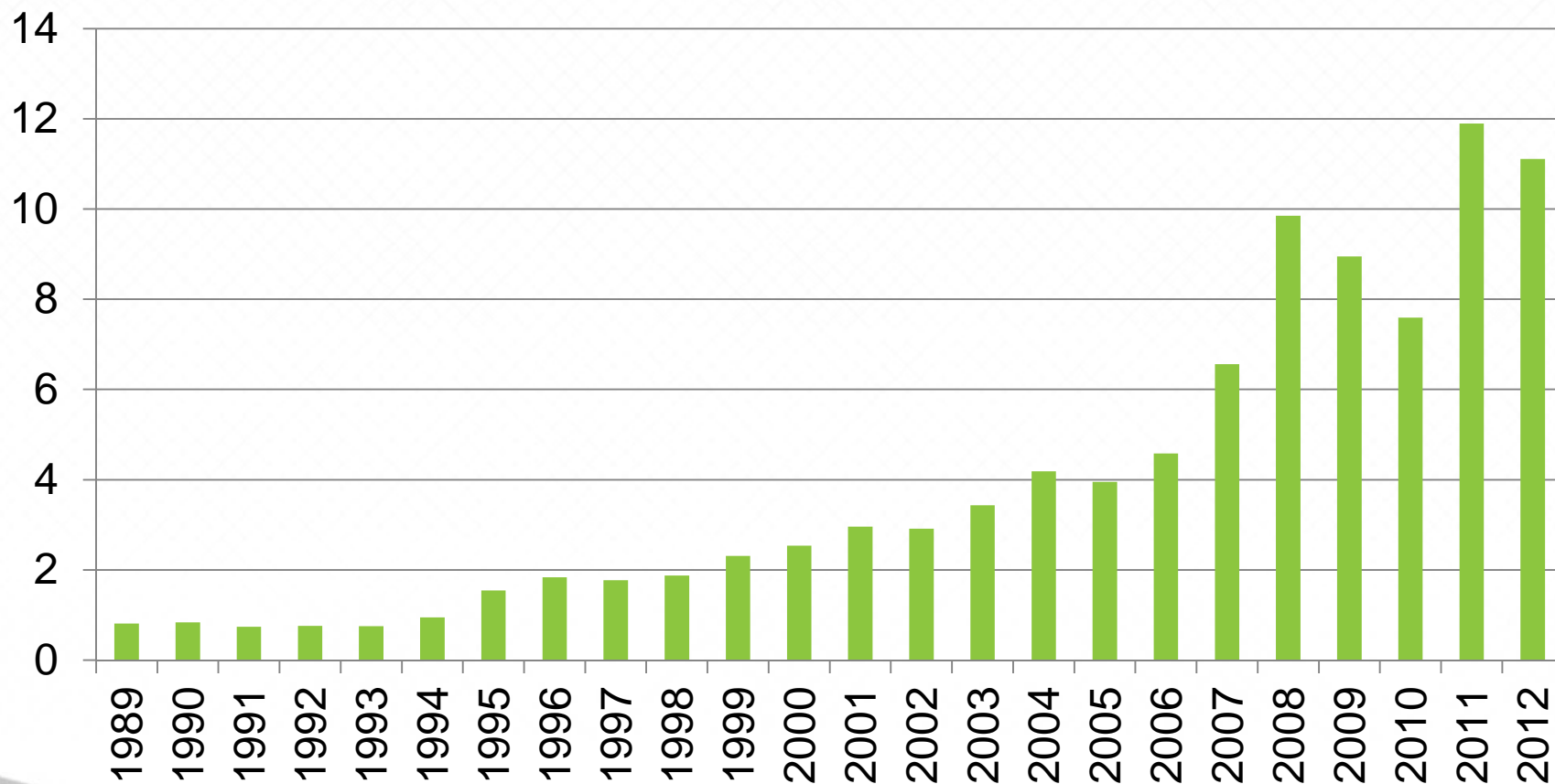


Probabilistic Agricultural Model Components



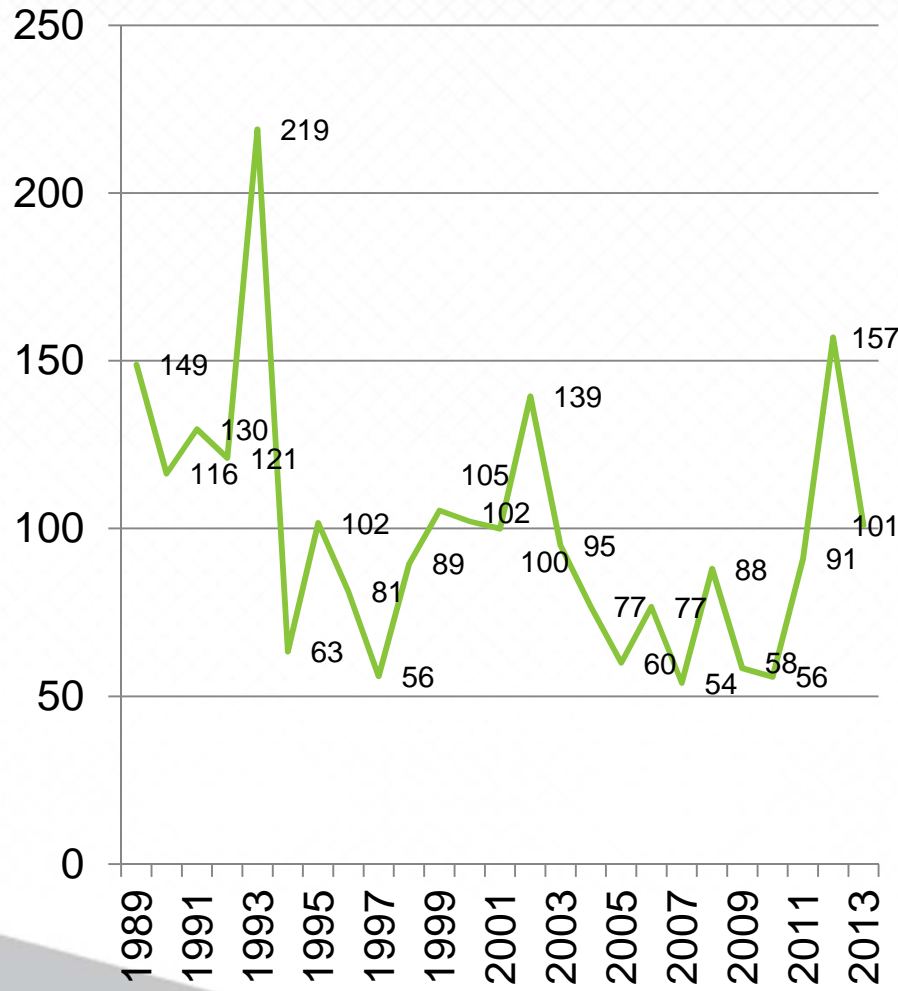
INSURANCE PREMIUMS HAVE INCREASE DUE TO INCREASE MARKET PENETRATION AND CHANGES IN INSURANCE PRODUCTS

U.S. Premium (Billion USD)



US MPCI LOSS RATIO

Gross Loss Ratio – U.S.

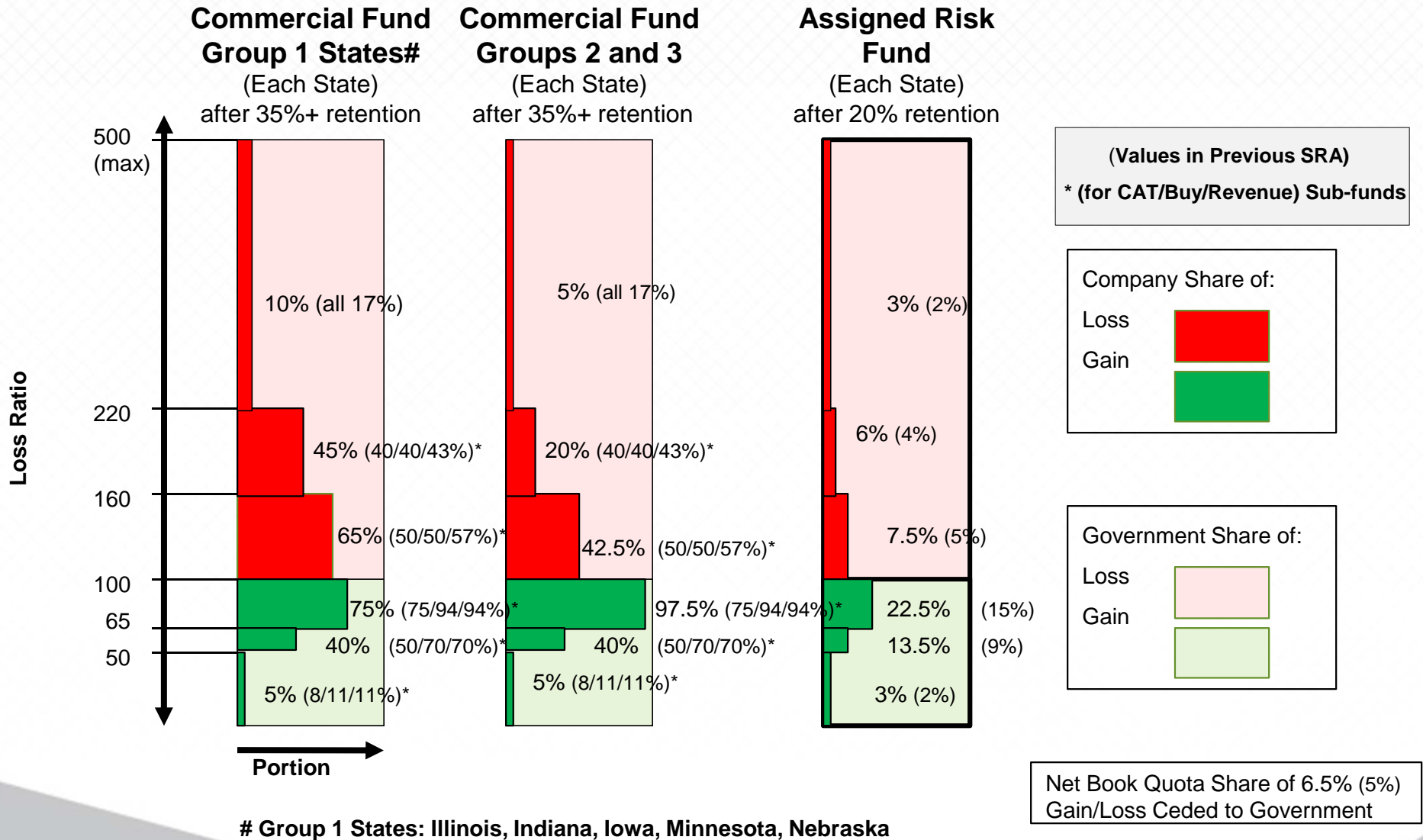


Year	AIR Modeled Gross Loss Ratios(Percent)	AIR Modeled Loss Ratios Post-SRA(Percent)
1974	146.24%	113.56%
1975	70.14%	76.16%
1976	164.98%	111.19%
1977	102.35%	93.46%
1978	61.60%	71.21%
1979	35.14%	64.94%
1980	86.54%	84.62%
1981	74.66%	77.42%
1982	96.78%	89.57%
1983	113.79%	96.53%
1984	73.03%	74.79%
1985	62.96%	70.57%
1986	75.93%	74.90%
1987	38.82%	65.14%
1988	183.64%	121.37%
1989	94.15%	88.22%
1990	56.57%	69.08%
1991	87.18%	82.21%
1992	63.29%	72.89%
1993	126.62%	102.82%
1994	60.41%	70.08%
1995	74.29%	78.10%
1996	60.02%	69.88%
1997	42.84%	66.06%
1998	76.56%	77.22%
1999	85.28%	80.80%
2000	88.40%	82.31%
2001	93.64%	83.45%
2002	100.47%	91.64%
2003	81.60%	79.07%
2004	86.24%	83.40%
2005	56.74%	69.44%
2006	74.61%	77.61%
2007	67.86%	74.83%
2008	105.21%	91.11%
2009	60.65%	70.62%
2010	53.87%	68.18%
2011	82.98%	79.16%
2012	153.85%	113.59%

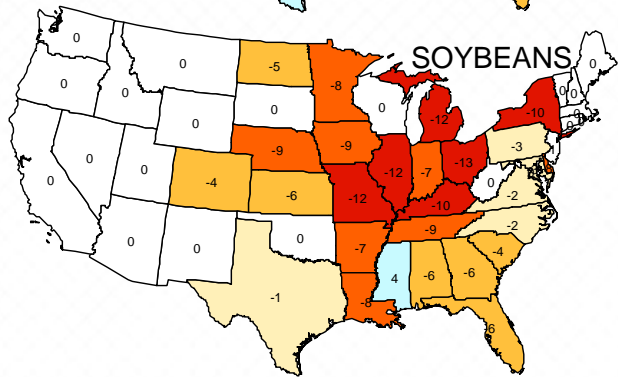
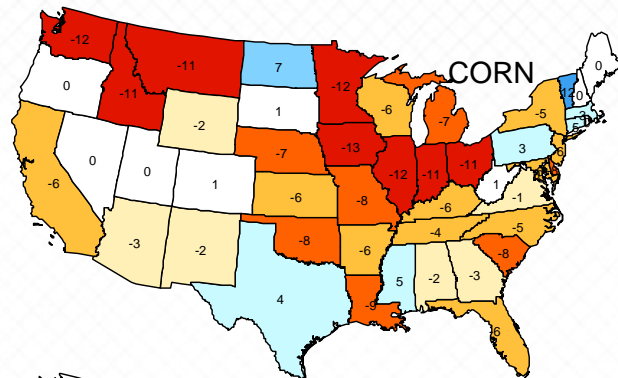
FACTORS AFFECTING CHANGES

- Changes from RMA
 - SRA sharing change
 - Pure Premium Rate Change
- Market Driven Changes
 - Commodity Price
 - Volatility Change
- Farmer Preference Change
 - Coverage level change
 - Trend adjustment option
 - Unit structure

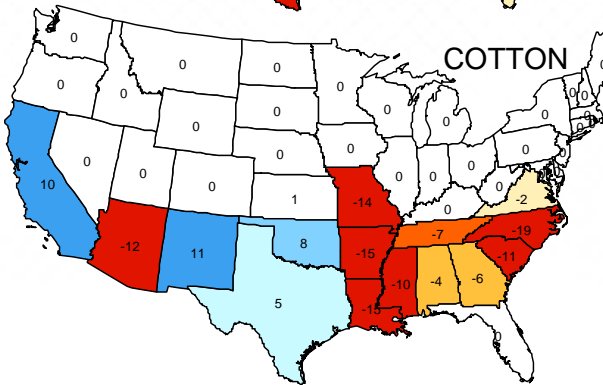
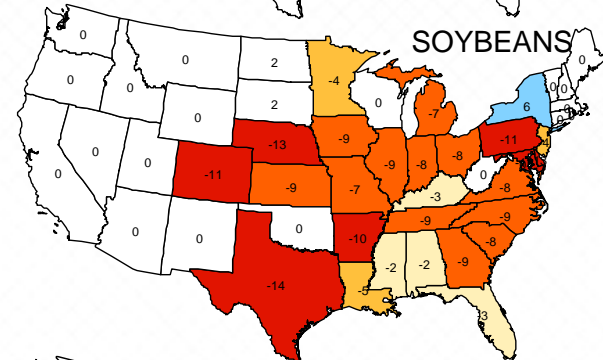
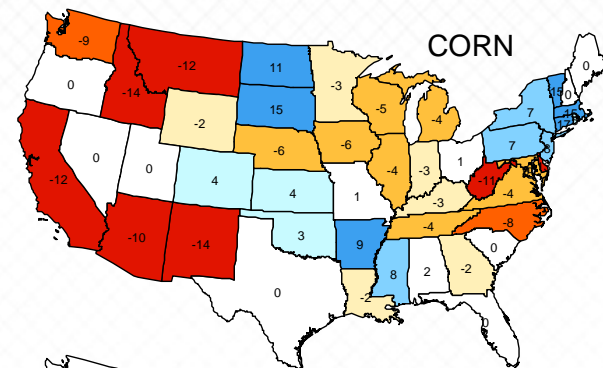
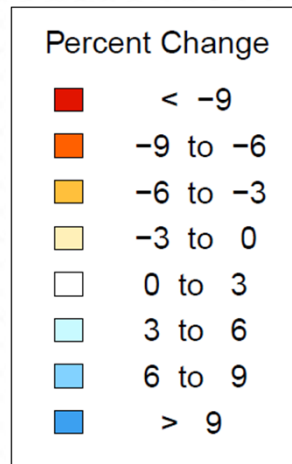
SRA CHANGES TO INSURER'S SHARE OF RETAINED GAIN/LOSS



PREMIUM RATE CHANGES TO BASE RATES WERE CHANGED FOR 2012 AND 2013 CROP SEASONS



2011 → 2012



2012 → 2013

Average Percent Change in Premium Rates

State	Corn	Soybeans	Wheat	Cotton	Sorghum
AL	6.47	0.18	-17.66	1.34	----
AR	8.23	-8.11	13.14	6.28	7.36
CA	-14.46	----	-11.91	4.68	-0.37
CO	9.85	----	-19.5	----	8.33
FL	4.76	4.97	12.81	4.76	----
GA	25.81	2.61	8.78	-0.43	2.42
ID	-11.96	----	-8.52	----	----
IL	6.74	-8.59	4.42	----	0.68
IN	8.28	-7.28	4.72	----	----
IA	-4.28	-6.21	14.87	----	----
KS	3.7	-9.13	-6.66	9.71	2.68
KY	14.98	-10.91	-0.23	----	6.02
LA	-3.83	-3.07	-6.1	2.05	-9.88
MI	-0.32	2.64	1.65	----	----
MN	-5.1	-4.7	-10.73	----	----
MS	3.19	-3.12	0.48	9.95	5.98

State	Corn	Soybeans	Wheat	Cotton	Sorghum
MO	9.74	6.97	9.37	-1.42	2.7
MT	-9.75	----	-20.49	----	----
NE	6.67	-7.17	-14.96	----	3.02
NC	5	-1.96	6.91	-5.26	-3.73
ND	4.68	-0.2	0.76	----	----
OH	4.1	-0.2	7.56	----	----
OK	12.76	-2.04	-3.61	18.94	7.41
PA	8.75	-2.35	3.65	----	----
SC	-3.8	-1.71	-1.71	7.96	----
SD	8.22	3.57	-11.88	----	-0.38
TN	13.36	-2.05	-5.22	-7.96	2.98
TX	1.63	-4.98	-3.63	7.14	1.25
VA	6.24	6.21	6.93	-8.67	----
WA	-3.72	----	-7.56	----	----
WI	7.64	----	-4.54	----	----

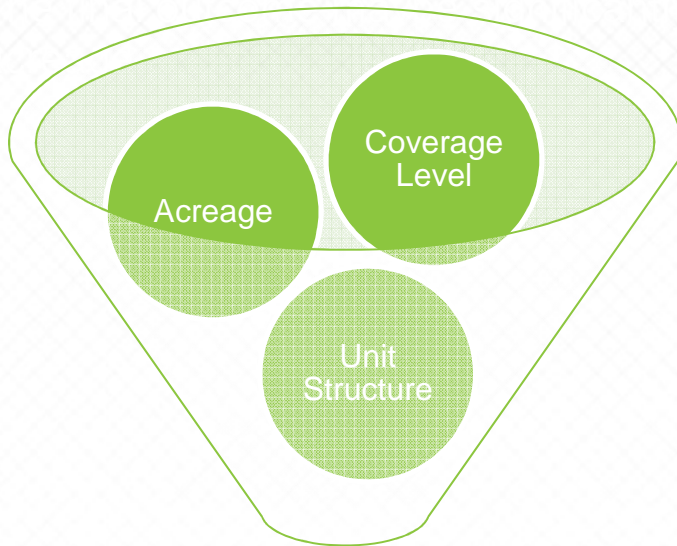
Average Percent Change of Total Premium Volumes for All Crops and All States

For the entire program, the premium rates have not significantly changed in 2014

State	Premium Change
AL	-2.54
AR	1.6
CA	-11.2
CO	-4.71
FL	5.39
GA	5.95
ID	-8.64
IL	2.4
IN	3.09
IA	-4.94
KS	-2.69
KY	1.08
LA	-3.74
MI	0.55
MN	-5.44
MS	0.8

State	Premium Change
MO	8.53
MT	-20.33
NE	1.32
NC	1.07
ND	2.19
OH	2.68
OK	-0.95
PA	6.35
SC	-0.23
SD	3.39
TN	0.7
TX	3.14
VA	5.45
WA	-7.54
WI	6.9
US	-0.02

Including Prices and Volatility Changes 2013-2014



The final outcome maybe significantly different, depending on producers' choices of acreage and policy terms

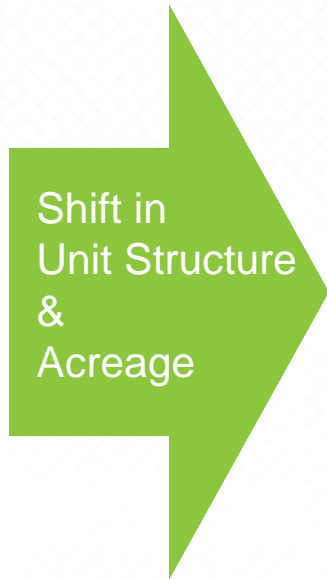
State	Premium Change
AL	-21.55
AR	-18.97
CA	-26.32
CO	-24.61
FL	-4.41
GA	-6.18
ID	-16.6
IL	-19.51
IN	-18.48
IA	-26.55
KS	-23.57
KY	-20.39
LA	-24.56
MI	-21.85
MN	-24.91
MS	-19.86

State	Premium Change
MO	-12.5
MT	-38.08
NE	-20.02
NC	-19.59
ND	-18.25
OH	-18.88
OK	-23.39
PA	-13.8
SC	-19.71
SD	-16.55
TN	-18.03
TX	-11.26
VA	-14.84
WA	-15.45
WI	-14.62
US	-19.76

2012 -2013 Observed VS Estimated Change in Premium

Estimated

State	Premium_Change	State	Premium Change
AL	-17.51	MO	-6.13
AR	3.63	MT	0.7
CA	15.97	NE	-9.92
CO	-4.31	NC	-7.81
FL	-17.74	ND	0.55
GA	-20.18	OH	-6.88
ID	-0.83	OK	0.55
IL	-15.36	PA	2.26
IN	-9.81	SC	-9.72
IA	-15.46	SD	4.18
KS	-9.08	TN	-8.33
KY	-3.96	TX	-8.22
LA	-0.67	VA	-3.03
MI	-7.18	WA	-3.17
MN	-10.57	WI	-8.98
MS	1.23	US	-6.79



Observed

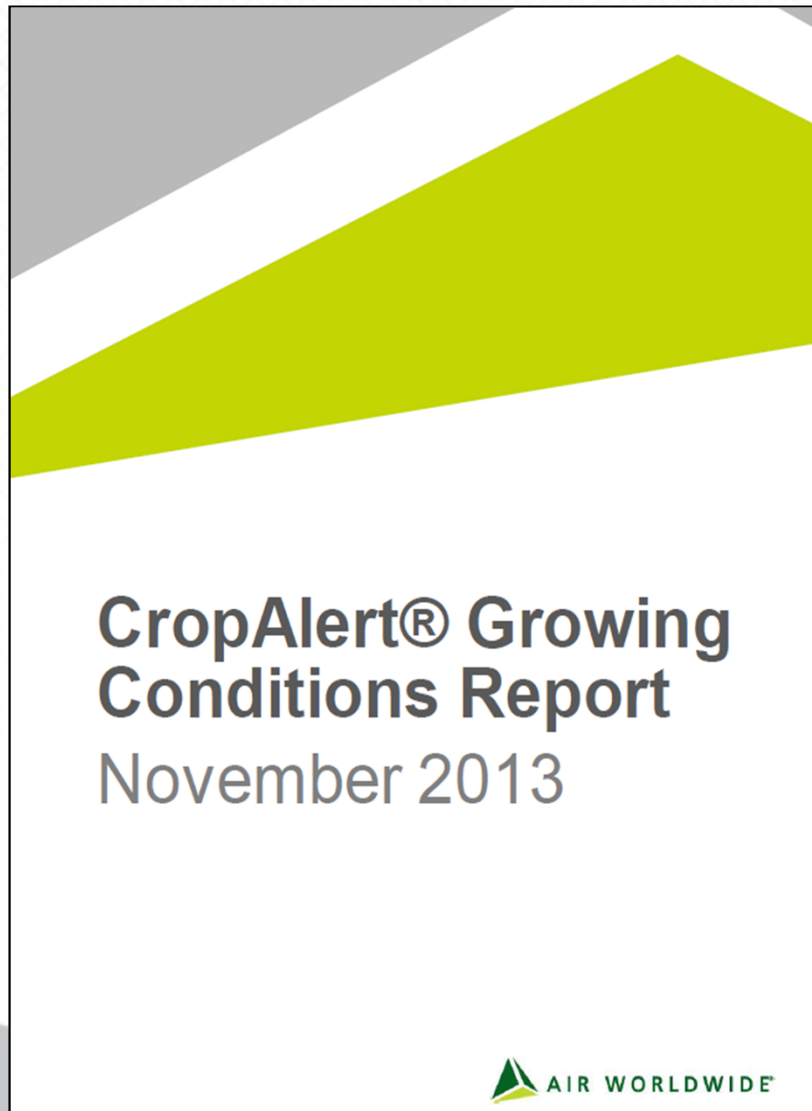
State	Premium_Change	State	Premium Change
AL	-3.3	MO	-3.49
AR	-2.03	MT	0.66
CA	10.12	NE	-8.07
CO	-1.26	NC	-8.88
FL	-5.26	ND	11.53
GA	-14.08	OH	-6.24
ID	0.2	OK	-2.91
IL	-9.45	PA	2.33
IN	-10.08	SC	-4.44
IA	-10.31	SD	7.09
KS	-0.46	TN	-1.55
KY	-3.43	TX	-4.06
LA	-1.2	VA	-4.18
MI	-6.53	WA	-6.29
MN	-8.37	WI	-8.04
MS	0.63	US	-3.56

ANNUAL AVERAGE LOSS OF INDUSTRY DUE TO RECENT RMA CHANGES

- Industry Average Loss Ratio (Based on Industry Premium and Low Volatility Catalog)

	2013 Rate and Old SRA	2013 Rate and New SRA	2014 Rate and New SRA
US total	81.5%	83.9%	84.2%
IA	75.2%	83.7%	85.3%
IL	75.3%	83.7%	83.9%
IN	75.6%	84.1%	83.8%
TX	82.4%	82.5%	81.6%

ADDITIONAL READING: AIR CURRENTS



Scenario 1: For 2013, according to our CropAlert report and the November NASS Production report, we will end the crop year with slightly below normal yields for corn and soybeans. The corn price at harvest was \$4.39, which is 78% of the corn price at planting. The soybean price at harvest was \$12.87, which is the same soybean price at planting.

Based on stochastic events similar to this scenario, the AIR model computes an industry loss ratio post SRA of 84%.

Scenario 2: In this scenario, we utilize the AIR county yield estimates for 2013 as presented on a state by state basis in the yield table for corn and soybeans. The prices utilized are the same as for Scenario 1, as the price discovery for all crops is completed. It is obvious that the result is driven by Iowa, which is the major state in the Corn Belt to have below-normal yields, and revenue policies will trigger on both yield deviation and price drop.

In this scenario, given the uncertainty in the county yield forecast, AIR estimates an industry loss ratio post SRA between 92% and 101%. This scenario is likely, given the significant reduction in corn yield observed in Iowa and the lower prices at harvest.

GOVERNMENT REPORT

**Federal Crop Insurance Corp
Summary of Business Report for 2011 thru 2014
As of 04-28-2014**

(Net Acre and Dollars in Thousands)

	2011 Crop Year To Date	2012 1 Year Ago To Date	2012 Crop Year To Date	2013 1 Year Ago To Date	2013 Crop Year Prev Week	2013 Crop Year To Date
<u>Combined Business:</u>						
Policies with Premium	1,151,329	1,172,851	1,171,126	238,607	1,222,958	1,223,263
Units with Premium	3,319,661	3,439,461	3,436,505	683,121	3,576,855	3,577,148
Net Acres Insured	265,772	282,403	282,106	87,146	295,720	295,785
Liability	114,172,785	116,960,423	116,775,137	19,838,728	123,537,022	123,615,174
Total Premium	11,966,335	11,087,698	11,084,213	2,171,641	11,779,234	11,784,051
Subsidy	7,459,485	6,960,372	6,958,624	1,382,574	7,280,092	7,282,366
Indemnity	10,858,466	17,168,875	17,386,539	68,991	11,822,336	11,903,100
Loss Ratio	0.91	1.55	1.57	0.03	1.00	1.01

SUMMARY

- The US agriculture insurance market has gone through a lot of changes in recent years
- RMA recent rerating and market profitability
- AWI Modeling approach to deal with Agriculture risk