GENERAL SESSION V
Future Farm Policy and Drought Risk
Dr. Keith Coble
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Keith Coble is the W.L. Giles Distinguished Professor of Agricultural Economics and holds teaching, research, and extension appointments. His work focuses on risk management, agricultural and food policy, renewable energy, climate, insurance, and experimental economics. Coble has analyzed how farmers can use risk management tools such as futures contracts, crop insurance, and federal commodity programs. Work in renewable energy focuses on the federal policy for renewable energy and economic feasibility of renewable energy. He has testified before Congressional Committees and has co-authored over fifty reports for government agencies. His insurance analysis and studies have modified several billion dollars of U.S. crop insurance premiums per year. Coble currently serves on the Council on Food, Agricultural and Resource Economics' Blue Ribbon Panel of Experts who provide guidance about matters of significance to policy makers.

Abstract/Summary

While significant progress has been made agronomics and farm management, drought still looms large as a risk that producers face. The 2014 Farm Bill focused on agricultural risk protection and insurance to an unprecedented degree. Coble will look at the drivers of the risk programs in the 2014 Farm Bill and then look forward at the crop insurance program of and farm programs of the future. In particular, the effect of big data on ag risk, potential changes in crop insurance subsidy, environmental issues, and future drought policy will be addressed.

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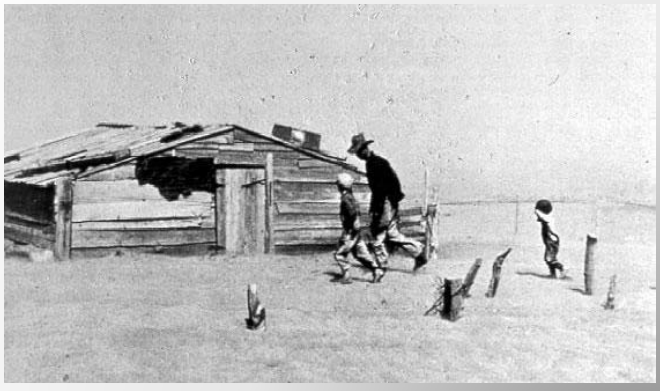
Future Farm Policy and Drought Risk

Keith Coble
Giles Distinguished Professor

Agricultural Risk Policy & Insurance Collaboratory



"Fleeing a dust storm". Farmer Arthur Coble and sons walking in the face of a dust storm, Cimmaron County, Oklahoma. Arthur Rothstein, photographer, April, 1936. (Library of Congress)

...turf grasses would represent the single largest irrigated "crop" in the U.S., occupying a total area three times larger than the surface of irrigated corn

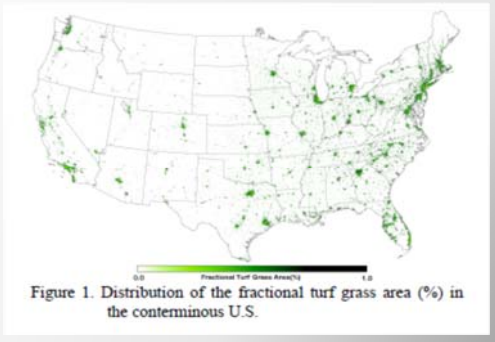


Figure 1. Distribution of the fractional turf grass area (%) in the conterminous U.S.

International Society for Photogrammetry and Remote Sensing C. Milesia,e, C. D. Elvidgeb, J. B. Dietzc, B. T. Tuttled, R. R. Nemania and S. W. Runninge

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Outline

- Past
  - Farm bill context
  - Crop insurance history
- Present
  - Farm Bill sign up
  - Current Crop Insurance
- Future
  - Crop insurance
  - The next (last) farm bill

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The Past

Factors leading to the 2014 Farm Bill & the evolution of crop insurance

The ~~2011~~, ~~2012~~, ~~2013~~, 2014 Farm Bill

- 112th United States Congress Joint Select Committee on Deficit Reduction (aka the "Supercommittee"), but the Supercommittee failed
- Congress did not adopt a new farm bill in 2012 as scheduled
  - Senate adopted farm bill legislation
  - House Ag Committee bill was not considered by the full House
- 2008 farm bill was extended through the end of 2013
- Senate passed farm bill legislation in June 2013
  - House Ag Committee reports out a bill that is defeated on the House floor
  - Nutrition programs are stripped out of House bill. Remaining titles are adopted by House in July. Nutrition legislation is adopted later
- The Agricultural Act of 2014 completed on January 27, 2014

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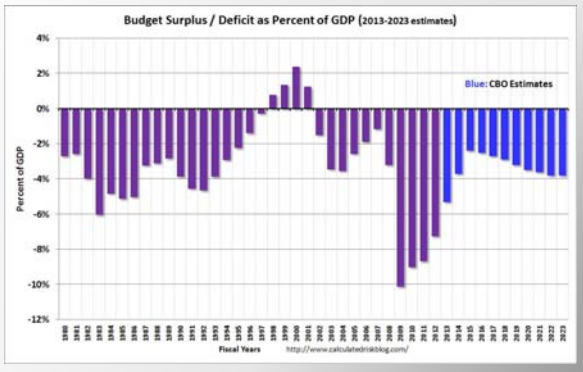
The Farm Bill was couched in the context of budget deficits = cuts



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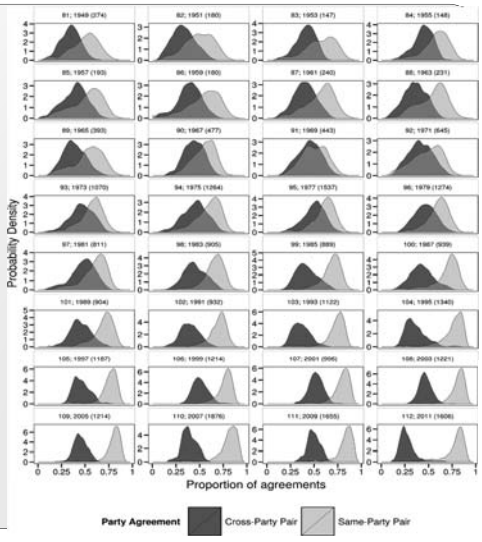
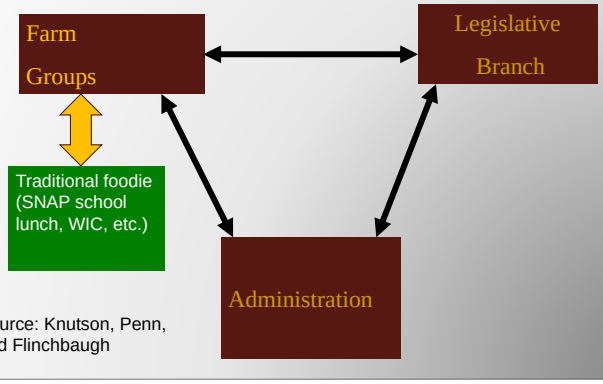
Increasing Partisanship

Source: Andris C, Lee D, Hamilton MJ, Martino M, Gunning CE, et al. (2015) The Rise of Partisanship and Super-Cooperators in the U.S. House of Representatives. *PLoS ONE* 10(4): e0123507. doi:10.1371/journal.pone.0123507

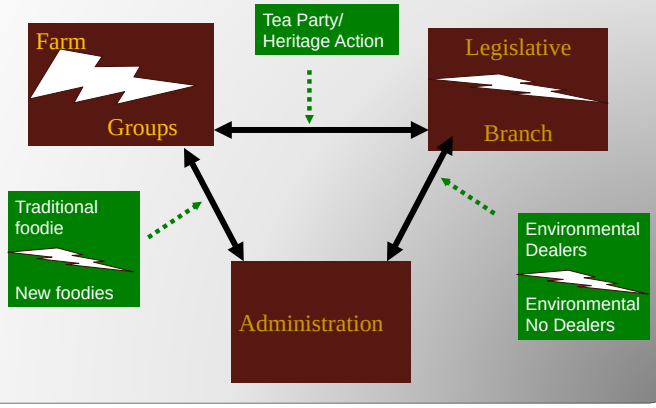


The Old Political Triangle of Farm Policy



Source: Knutson, Penn, and Flinchbaugh

The New Political Context of Farm Policy

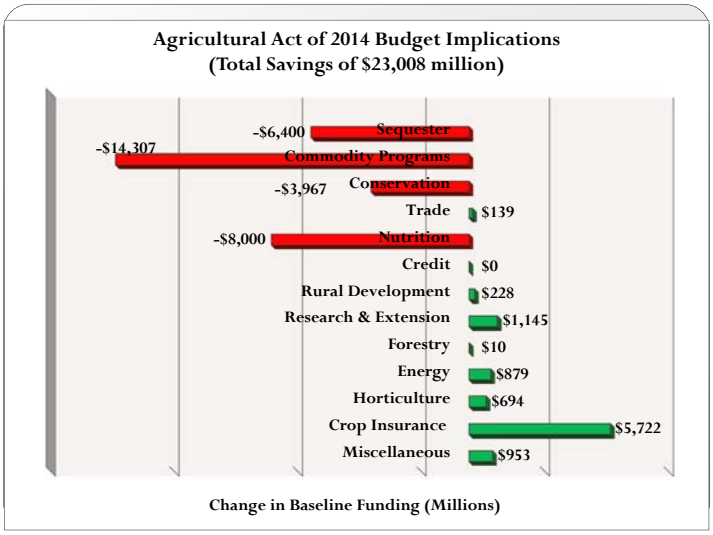


The Splintering into Commodity "Teams"

Teams	Commodities	Preferred Policy	Motive
Revenue-ers	Corn and Soybeans	Shallow Loss Revenue (County ARC)	Negative price-yield correlation, Buying high levels of crop insurance coverage, liked Olympic average price
Traditionalists	Rice, Peanuts Southern wheat	Price targets (PLC)	Rice has mostly price and input cost risk, peanuts are highly contracted, buy lower crop insurance coverage
Bold Movers	Cotton	STAX	WTO, Recognized Title 11 was golden and Title 1 controversial
The other white crop	Milk	Dairy margin/supply control	Wanted 'pseudo-insurance' (insurance with legislated premiums
Big County Crowd	Mountain State wheat	Individual ARC	Perceived county triggered programs will not work in large counties
Wallflowers	Sugar	Status quo	It is good to not score at CBO

The Non-commodity "Teams"

Teams	Preferred Policy	Motive
Environmental Dealers	Conservation compliance	Pragmatic get your foot in the door on insurance
Environmental No-dealers	Reduce Title 1 and 11	Throw a bomb in the room
The Tea Party-Heritage faction	Reduce Title 1 and 11	Throw a bomb in the room
The traditional "Foodie"	Support SNAP, WIC, School Lunch	Assist the poor
The Neo-Foodie	Local food, GMOs, specialty crops, animal welfare	Assist the up-scale consumer



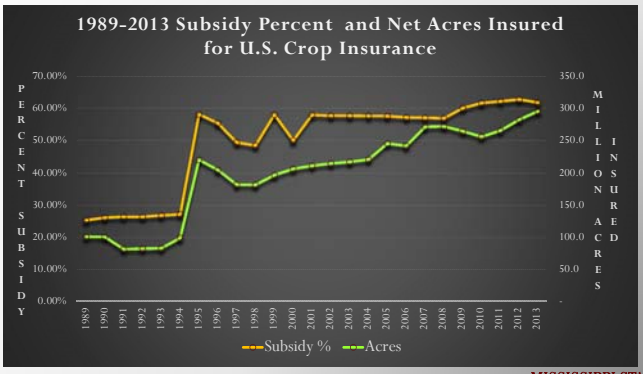
Crop Insurance: where have we been?

- The modern era since 1980
- Legislative changes and revenue insurance in mid-1990s
- ARPA 2000
- Agricultural Act of 2014

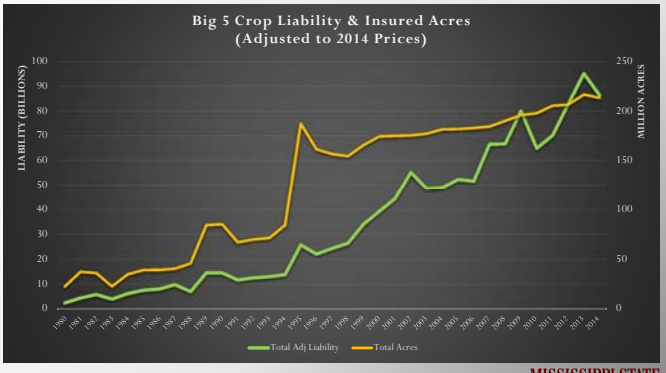
A political decision to transition away from ad hoc disaster payments

- A stated objective of various crop insurance legislations has been to reduce or end ad hoc disaster payments
  - Federal Crop Insurance Act of 1980
  - Federal Crop Insurance Reform Act of 1994
  - Agricultural Risk Protection Act of 2000 (ARPA).
- For many year, this pledge rang hollow
  - Between 1987 and 1994 more than 60 percent of U.S. farms received disaster payments
- Have times changed?
  - Senator Lincoln efforts for disaster aid in 2010
  - The drought of 2012

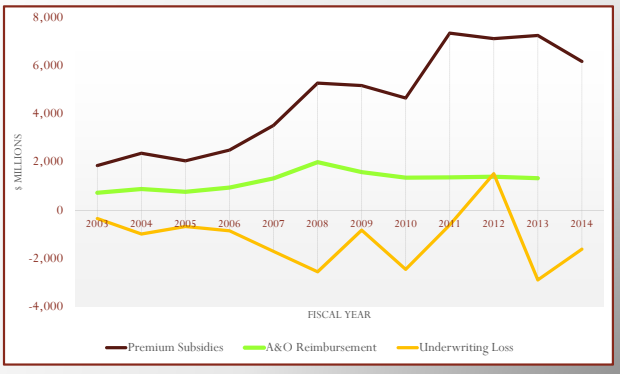
Crop insurance program growth



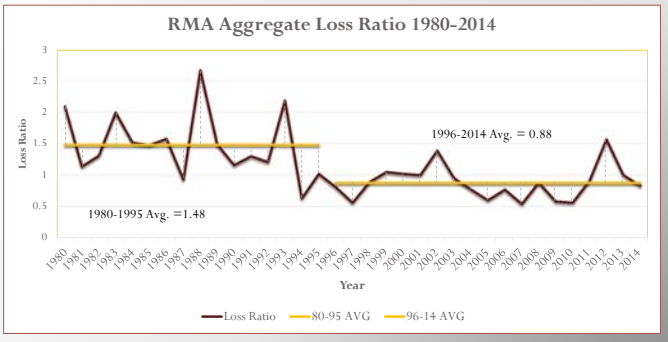
Acres have led liability until recently



Federal Crop Insurance Program Cost



Improved Loss Ratio
(indemnity / premium)



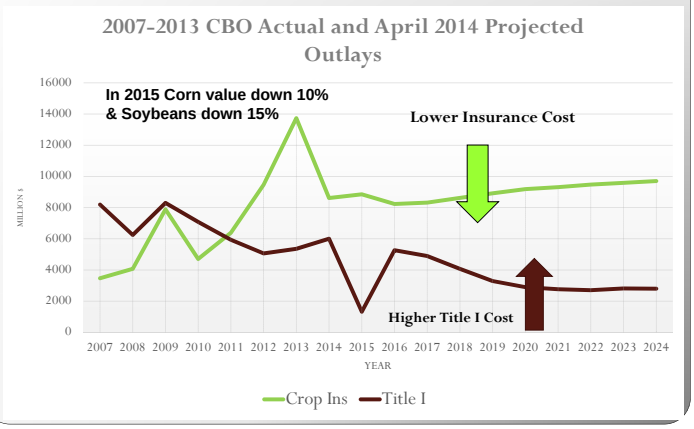
Why? Mixture of good weather, more participants, better production practices, better rates

The Present

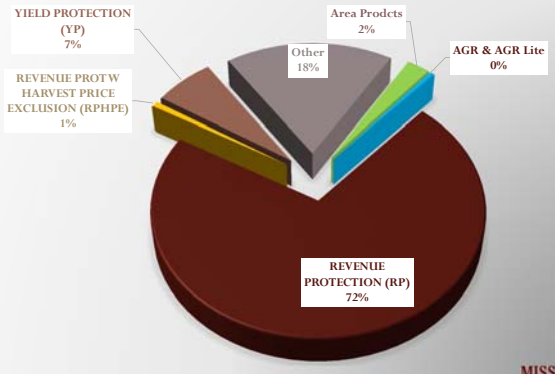
Farm Program sign up

Percent of Farms and Base Acres that Made an ARC/PLC Election -- National by Crop			
	Percent of Bases Electing …		
	PLC	ARC-CO	ARC-IC
BARLEY	75%	22%	4%
CANOLA	97%	2%	1%
CORN	7%	93%	0%
GRAIN SORGHUM	66%	33%	0%
LONG GRAIN RICE	100%	0%	0%
MEDIUM GRAIN RICE (SOUTHERN)	96%	4%	0%
OATS	32%	67%	1%
PEANUTS	100%	0%	0%
SOYBEANS	3%	97%	0%
SUNFLOWERS	56%	43%	1%
WHEAT	42%	56%	2%

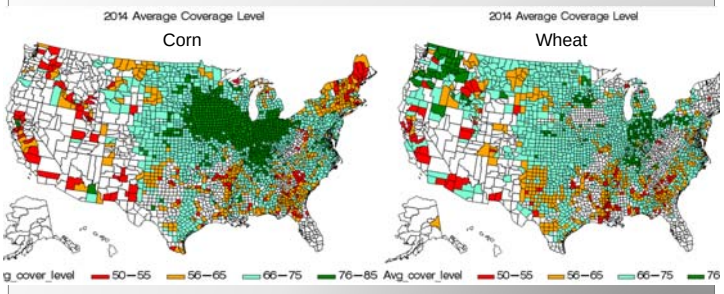
So what do lower prices do to these baselines?



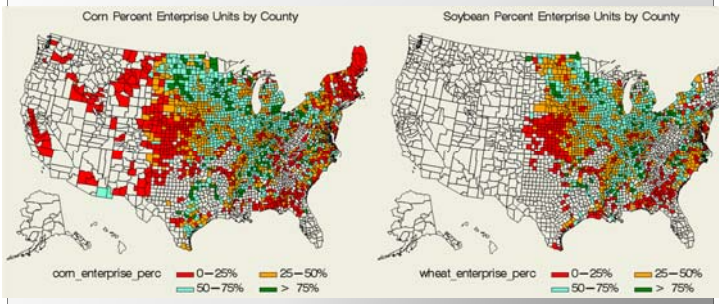
2014 Insurance Plan Mix is Dominated by RP



Coverage Levels



Enterprise units are increasing



So how does one use actual losses with more robust probability?

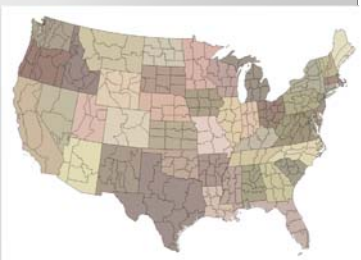
- Recent history likely to misrepresent weather effects.
  - Was a bad year a 1 in 10 or a 1 in 50 year event?
- The relationship between weather and yields is problematic
  - Not regionally stable
  - Not robust across crops
- Kept returning to the question "Given we observed a loss cost in 2005 of 0.12 what probability do we give it?"

Weather weighting of crop insurance experience

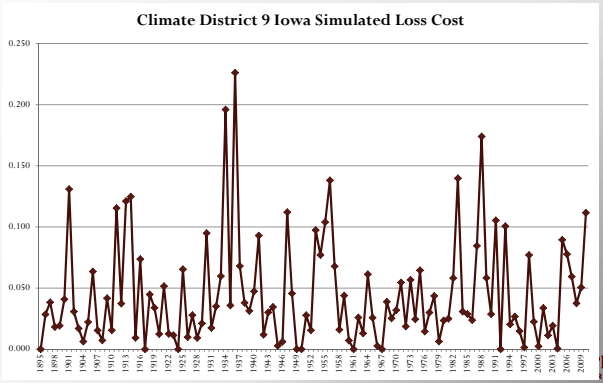
- RMA now
  - Uses weather-weighting by climate division
  - a base rating period to 20 years,
  - adjusts pre-1995 experience

Addressing the Weather Issue

- NOAA Climate Division Data
  - Longest record with national coverage (since 1895)
  - Provides historical & monthly updates
    - Drought
    - Precipitation
    - Temperature
    - Heat unit accumulation



Example Loss Cost Index



The Future

Five Big Questions

1. What is the future of ARC, PLC, and LDPs?
   - A shrinking baseline
   - Competition with conservation and crop insurance
2. Can we harness 'big ag data' and technology to improve crop insurance?
   - knowledge of soils, inputs, practices & risk
   - Privacy issues, policy issues

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Five Big Questions for the Future of Farm Policy & Crop Insurance

3. What next for crop insurance
   The implication of the demand for insurance
4. What will the next farm bill look like?
5. What will ag risk management look like in 2020?

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1. What is the future of ARC, PLC, and LDPs?

- The satisfaction with county-yield triggered programs remains to be seen
  - Yield computation
  - Yield basis risk
- The baseline for ARC will likely erode before the next farm bill

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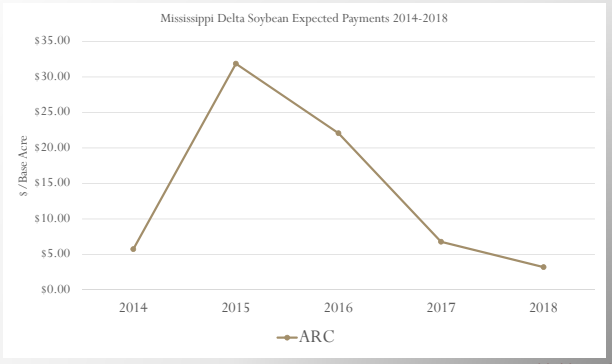
Trend in Estimated Soybean Payment over the Life of the Bill



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Title I baselines are likely to shrink

Crop	Likely CBO Baseline in2018 relative to the current baseline
Total	-14%
Feed Grains	-26%
Wheat	-13%
Soybeans	-28%

Based March 2015 CBO baseline with adjustment for a 3 year step forward

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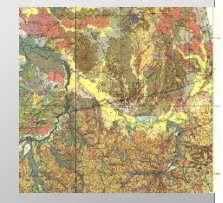
2. Can we harness 'big ag data' and technology to improve crop insurance?



- **Past decade marked by**
  - Improved data quality & quantity
  - Re-estimation of various parameters
  - Implementation of revenue insurance
  - Weather weighting of loss history
- **Possible future**
  - The next step forward is fully geo-referenced data
    - More accurate crop location = soil
    - More varied practice rating
    - Incorporating precision ag into rates, underwriting, and loss adjustment
    - If we don't do this top producers will leave in a less subsidized world

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3. What next for crop insurance?

- The subsidy bullseye
- Incentives for environmental behavior

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The 2014 Act Subsidy Schedule

Coverage Level	Basic & Optional Subsidy %	Enterprise Unit Subsidy %	SCO Subsidy
	RP, RPHPE, YP		
50%	67%	80%	65%
55%	64%	80%	65%
60%	64%	80%	65%
65%	59%	80%	65%
70%	59%	80%	65%
75%	55%	77%	65%
80%	48%	68%	65%
85%	38%	53%	65%

Subsidizing Crop Insurance

- Subsidy = RMA estimated breakeven premium – producer paid premium
- Subsidy will increase with
  - Higher crop value
  - Greater risk
  - More acres insured
  - Higher coverage level
  - Enterprise Units
  - RP > RPHPE > YP

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Masking asymmetric information problems in the crop insurance program

- Coble et al 2010 Review of RMA Rates
  - Rating crop insurance is really difficult
    - Changing practices/technology/weather
    - Shifting crop mixes
- Inaccurate rates undercharge some and overcharges others.
  - Subsidy may entice over-rated producers into the program.
  - This is costly as the undercharged producer also receive subsidy
- What is gained by buying participation?
  - Political support?
  - Data for improved rating over time?
- **A 10% reduction in subsidy will result in a 4-7% reduction in liability and a 2-4% reduction in insured acres.**

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4. What will the next farm bill look like?

- Will it matter to our best producers?
  - Compared to trade, macro economics, regulation, or the RFS
- Will the ag alliance stand together?
- Will the ag/SNAP collation prevail?

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4. What will the next farm bill look like?

- How to put all programs on auto-pilot
- Title I vs. Title XI
- Deep losses versus shallow losses
- Risk management vs. Environmental Services vs. ?????

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5 What will Ag risk management look like in 2020?

- Experience with farm bill decision aids
  - Have we taught risk tools but not risk concepts
- Will we accept black-box risk management?
  - Who do you trust?
- What technological progress will we make?
- Will risk management be more integrated?

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Risk Management 2020

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Thank You

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