

STAX and Cotton Crop Insurance: First Year Results

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MISSISSIPPI STATE UNIVERSITY™
DEPARTMENT OF
AGRICULTURAL ECONOMICS



Agricultural Risk Policy & Insurance Collaboratory

- Developed first U.S area insurance
- Author of comprehensive RMA rate review
- Developed RMA weather weighting system
- Working with USDA Chief Economist on 'Big ag data'
- Coauthored recent review of RMA price volatility
- A leading university in peer-reviewed scientific articles related to crop insurance & farm policy

Five Big Questions we are addressing

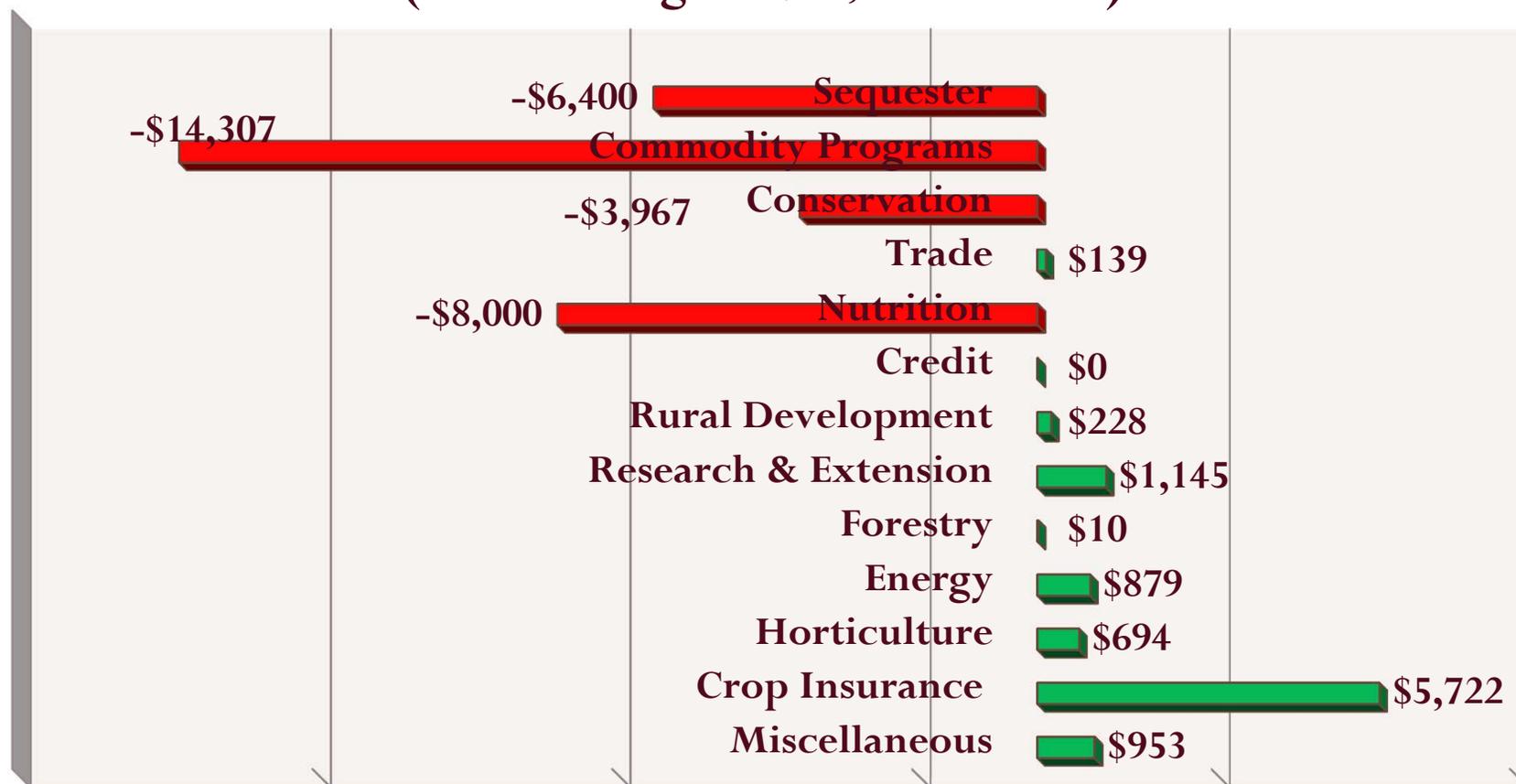
1. Can we **harness precision ag data** to better manage farms and **mitigate risk**?
2. How do we improve models of **markets**, and **weather** to create **better risk management** tools?
3. What is the **role for government** and the **private sector** in food and agricultural risk management?
4. Can risk management tools incentivize **world food security and resource conservation**?
5. Can we address human response to food, health and agricultural risk with **behavioral economics**?

Setting the Stage



The Shift in Emphasis in the 2014 Farm Bill

Agricultural Act of 2014 Budget Implications (Total Savings of \$23,008 million)



Change in Baseline Funding (Millions)

Stacked Income Protection Plan (STAX)

- Only for cotton and began in 2015
- 80% premium subsidy
- Modified version of county-level GRIP (with harvest revenue option)
- Expected revenue: Max of GRP yield or 5 year Olympic average yield x higher of crop insurance base price
- Actual revenue: County yield x crop insurance harvest price
- Maximum 90% coverage (10% deductible)
- Maximum range of payments is 90-70% of expected revenue
- Do not have to purchase individual-level coverage
- If in STAX, not eligible for SCO



Crop Insurance Subsidy Levels

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

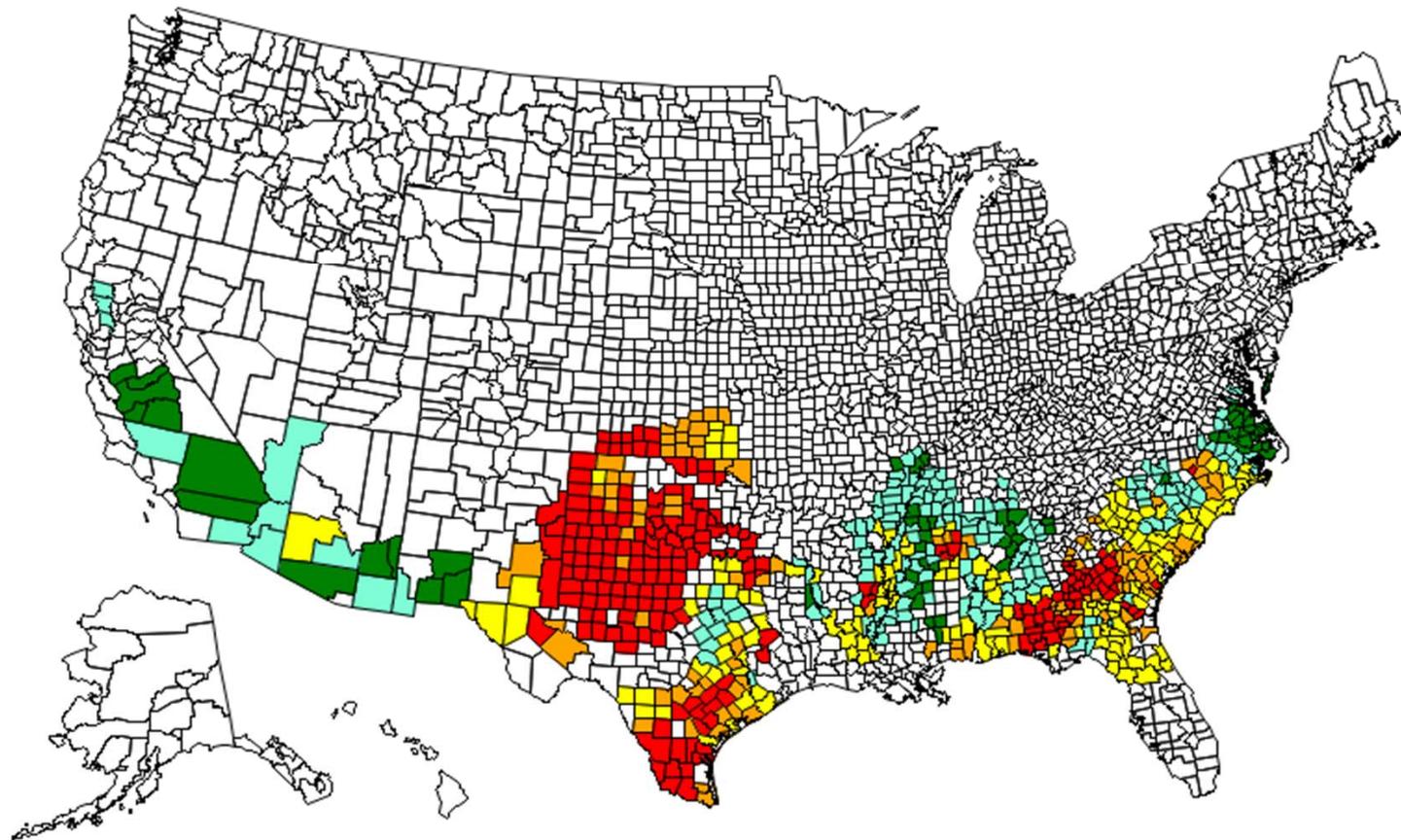


Some Background Information



Base County Rates Reflect the Yield Risk of a County

2016 Base County Premium Rate — Cotton

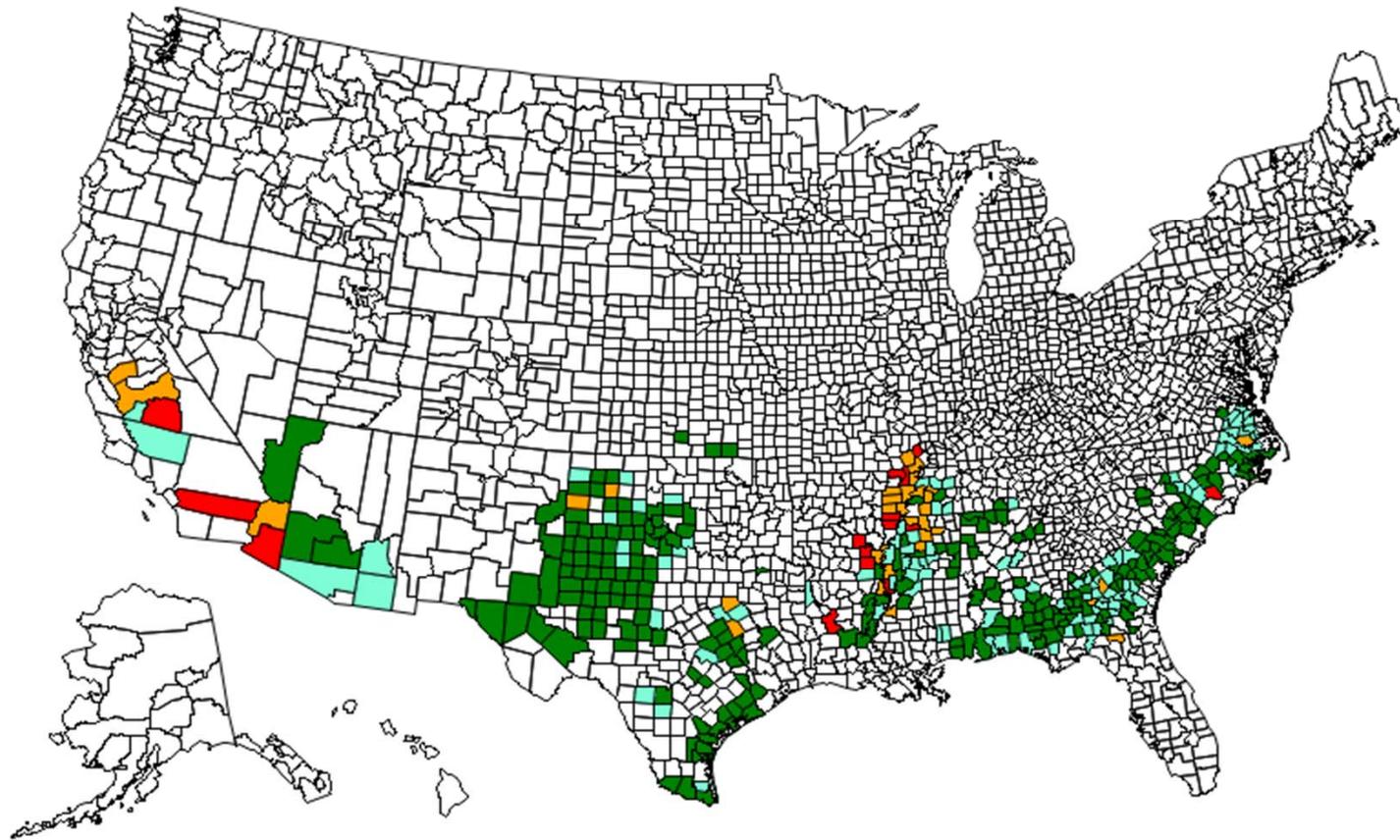


baserate_level

	< 7%		14—21%		21—28%
	7—14%		> 28%		

Subsidy Per Acre Remarkably Consistent Across Regions

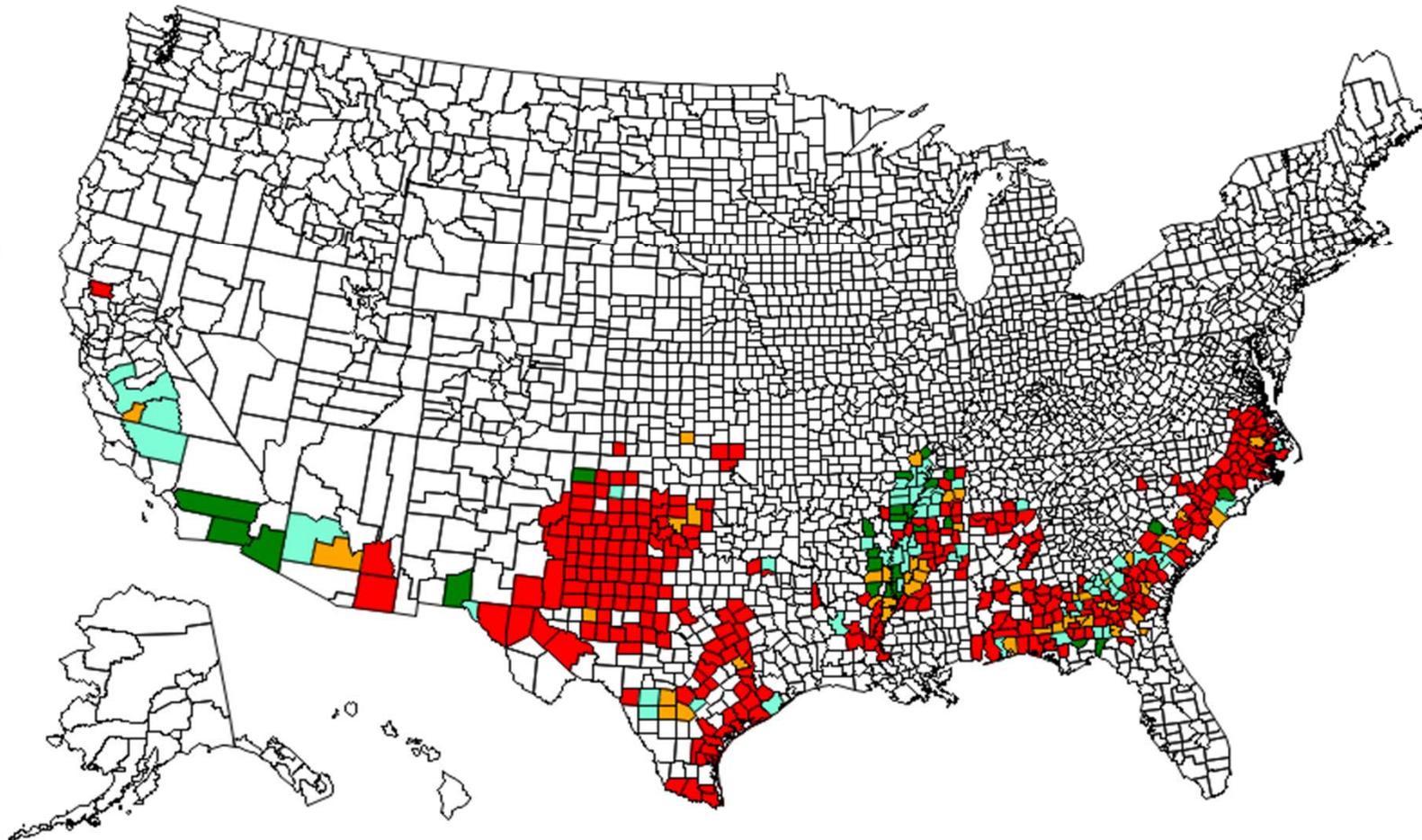
2015 Cotton Subsidy Per Acre
crpcde= 21



subsidypac_level ■ 0—10 ■ 10—20 ■ 20—30 ■ > 40

Catastrophic Coverage is Still Prevalent in some Regions

2015 Catastrophic Coverage As a Percent of Individual Coverage



percatac_level ■ 0—10 ■ 10—20 ■ 30—50 ■ > 50

So What Happened



An Overview

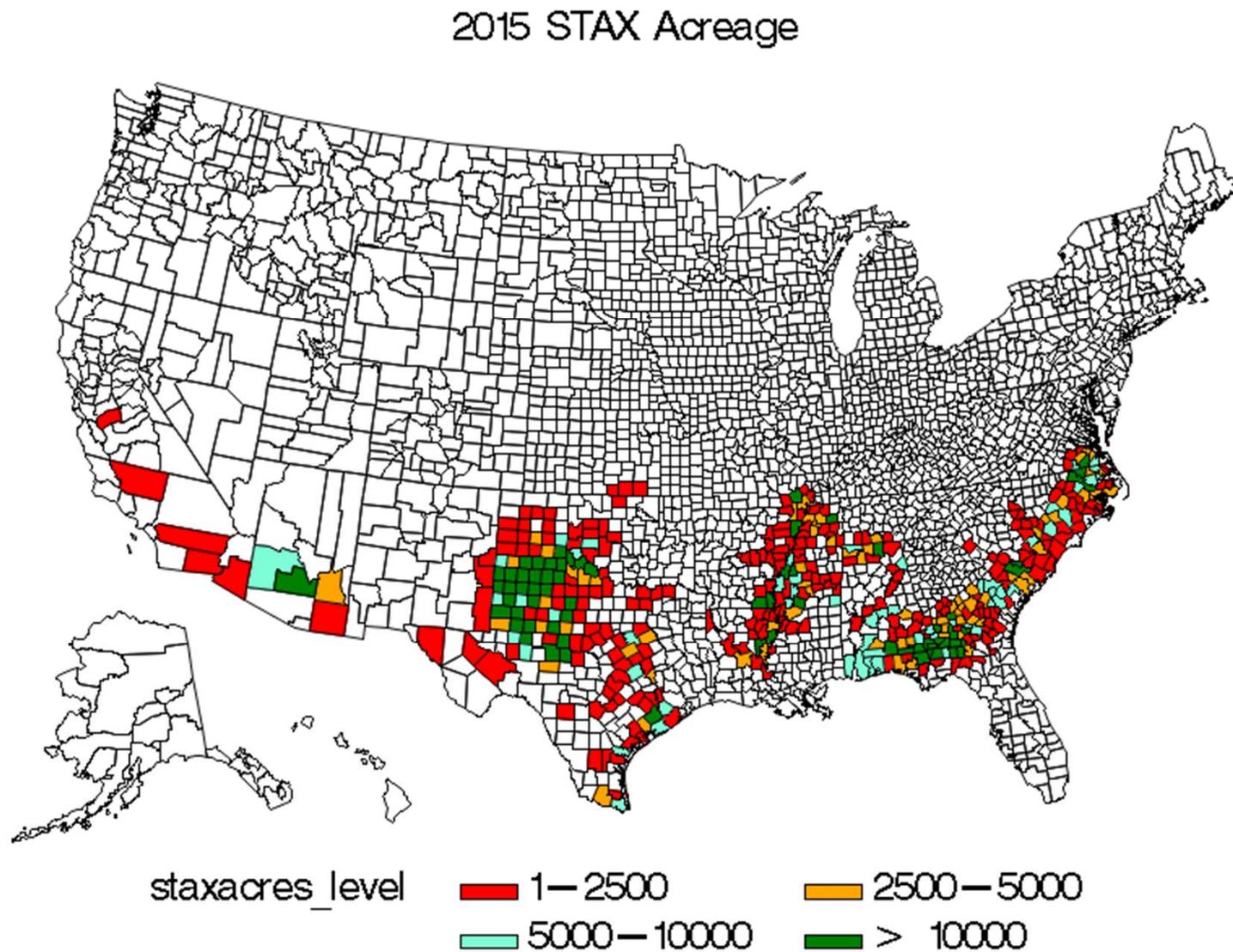
- In 2014 CBO estimated STAX would cost \$3.29 Billion over 10 years
- 2015 STAX subsidy \$75.5 million
- 2.47 million acres insured with STAX
- 8.50 million acres of individual coverage cotton insurance



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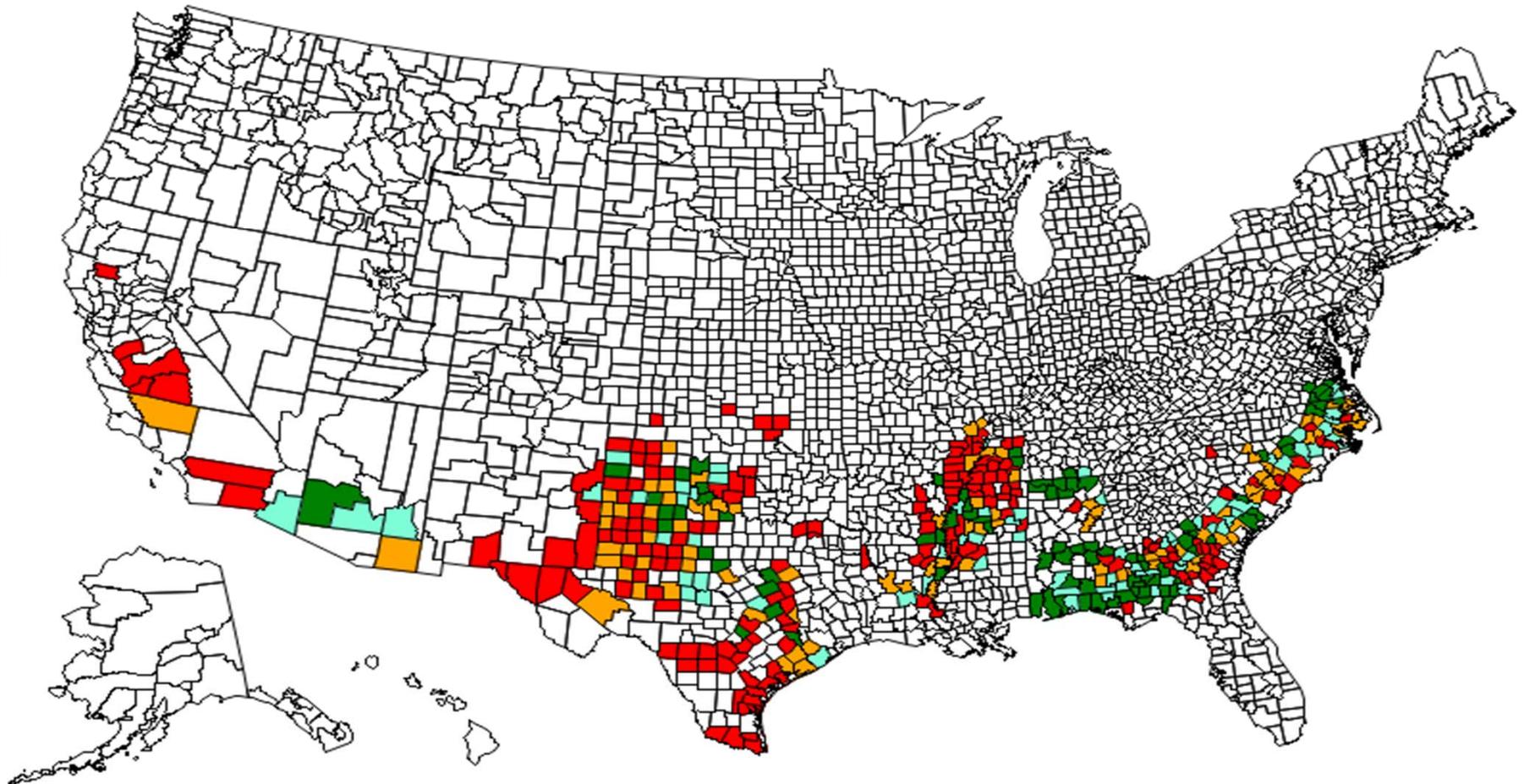


STAX Acreage is Regionally Concentrated



Wide Variation in STAX as a Percent of Individual Coverage - average 29%

2015 STAX/SCO Acres As a Percent of Individual Coverage



STAX %

0-20

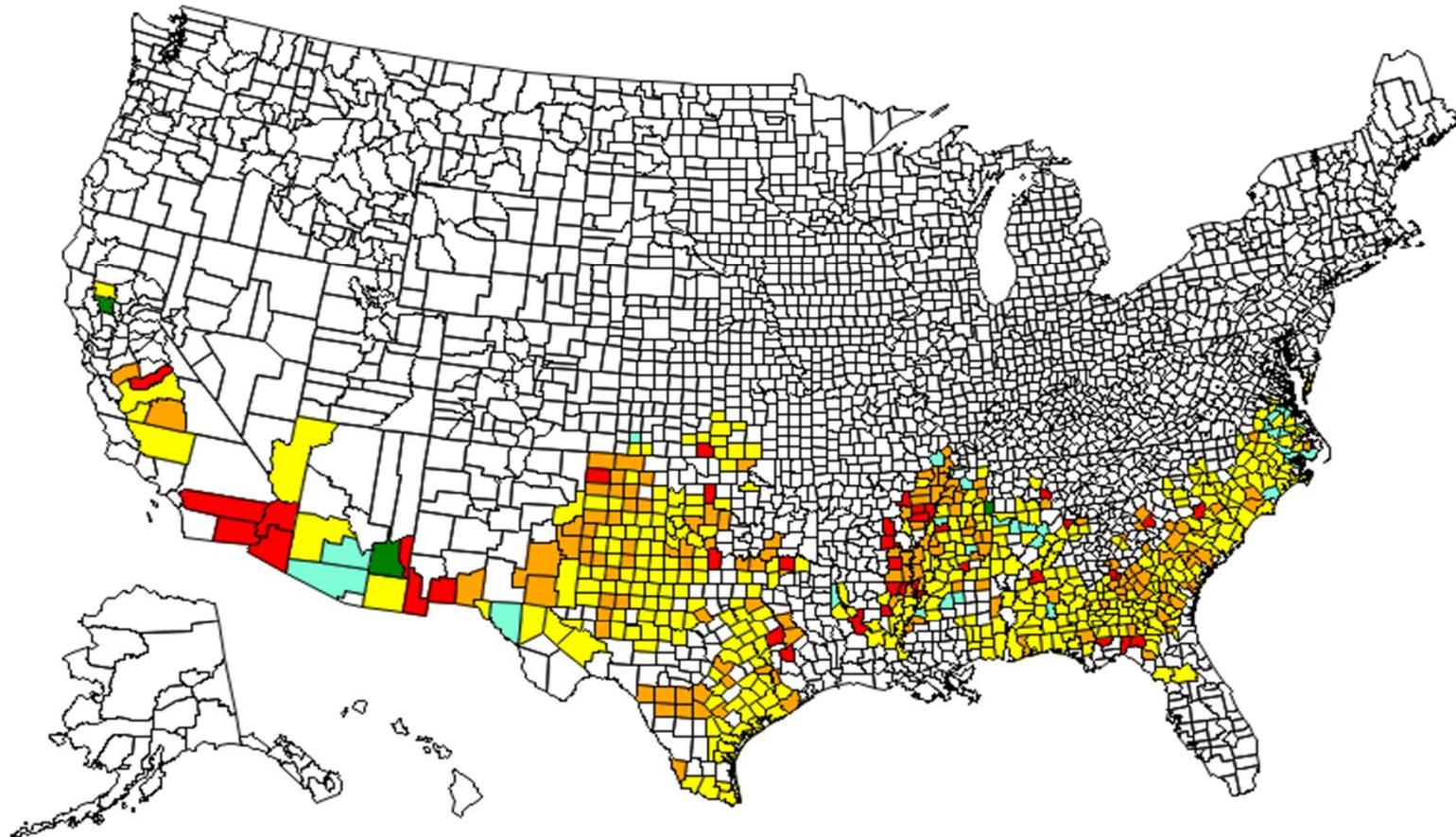
20-40

40-60

> 60

Coverage Levels for Combo Products

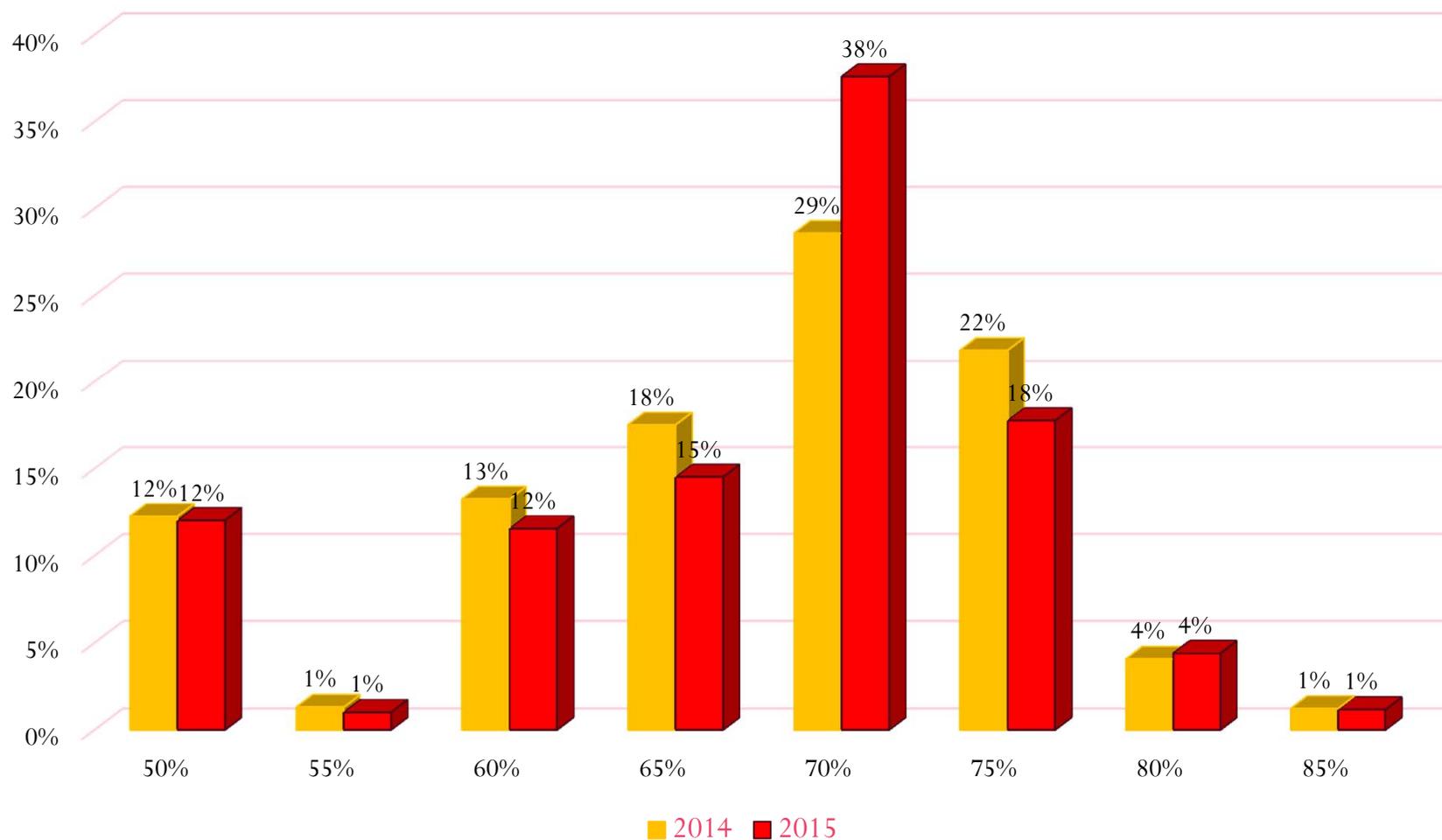
2015 Cotton Average Coverage Level



Avg_cover_level	50—55	56—65	66—75
	76—80	81—85	

A Concentration of Participation at 70% Coverage

Change in Cotton Individual Coverage Levels



Representative Farm Analysis



Methods

- Model several hundred counties for cotton, wheat, soybeans, rice and corn with data back to 1974
- Market-year average prices from NASS, same time period
 - Relative price changes are computed
- Representative farm-level yield variability obtained by matching variability to RMA base county rates



Results – STAX is chosen

- Analyzed representative farm in 145 major cotton producing counties
- Assumed moderately risk averse 1000 acre cotton farm.
- In 145 of 145 counties some STAX is optimal
- Average increase in risk-adjusted returns \$9.15/acre (range \$3.79 to \$19.07)

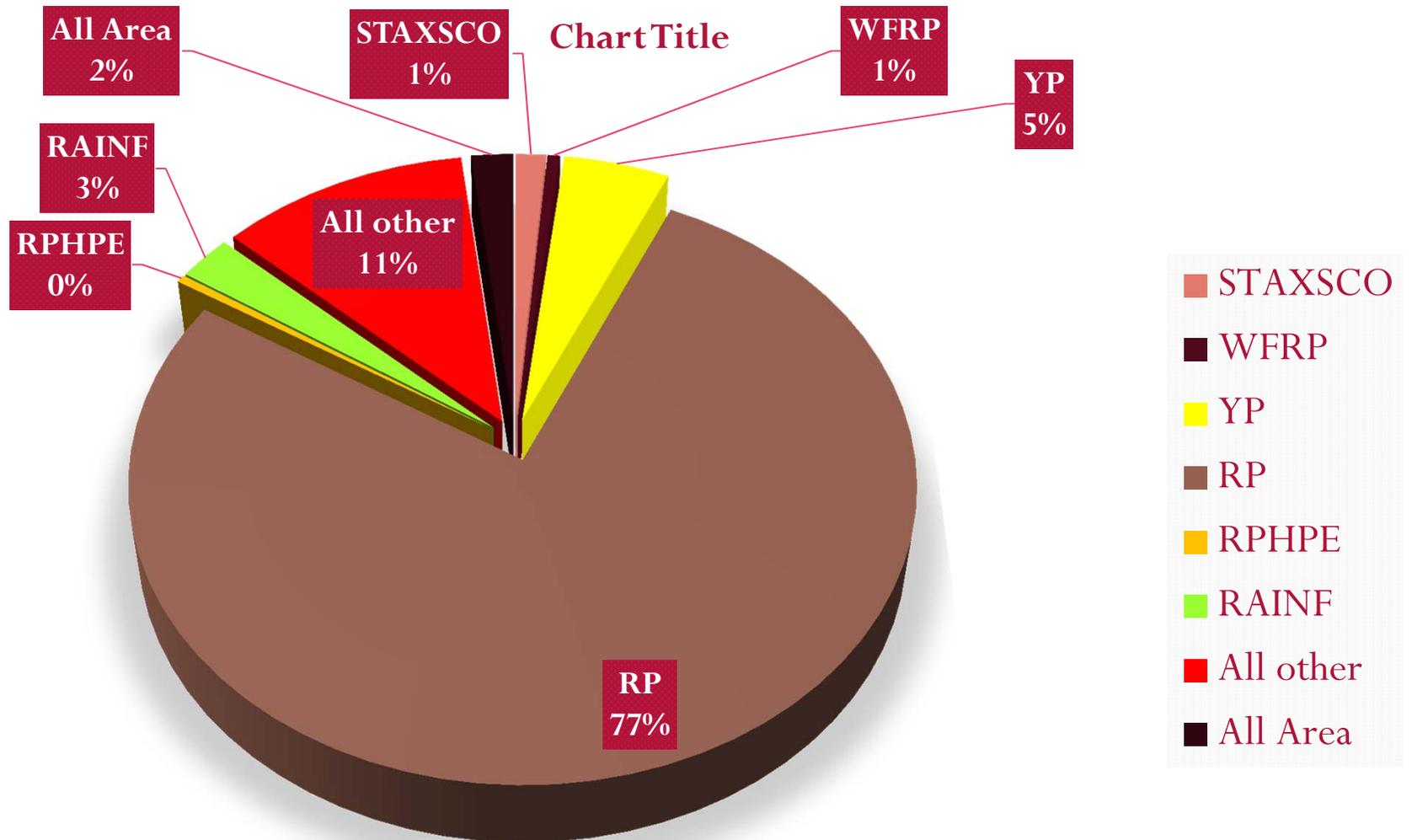


Why not more STAX ?– Answers I have heard

1. Farmers prefer individual coverage
 - Correlation
 - Differences in yield perception
2. Good preseason weather led producers to skip STAX
3. Yield Exclusion was a better deal
4. Farmers did not have full information on STAX



2015 Insurance Plan Premium Shares

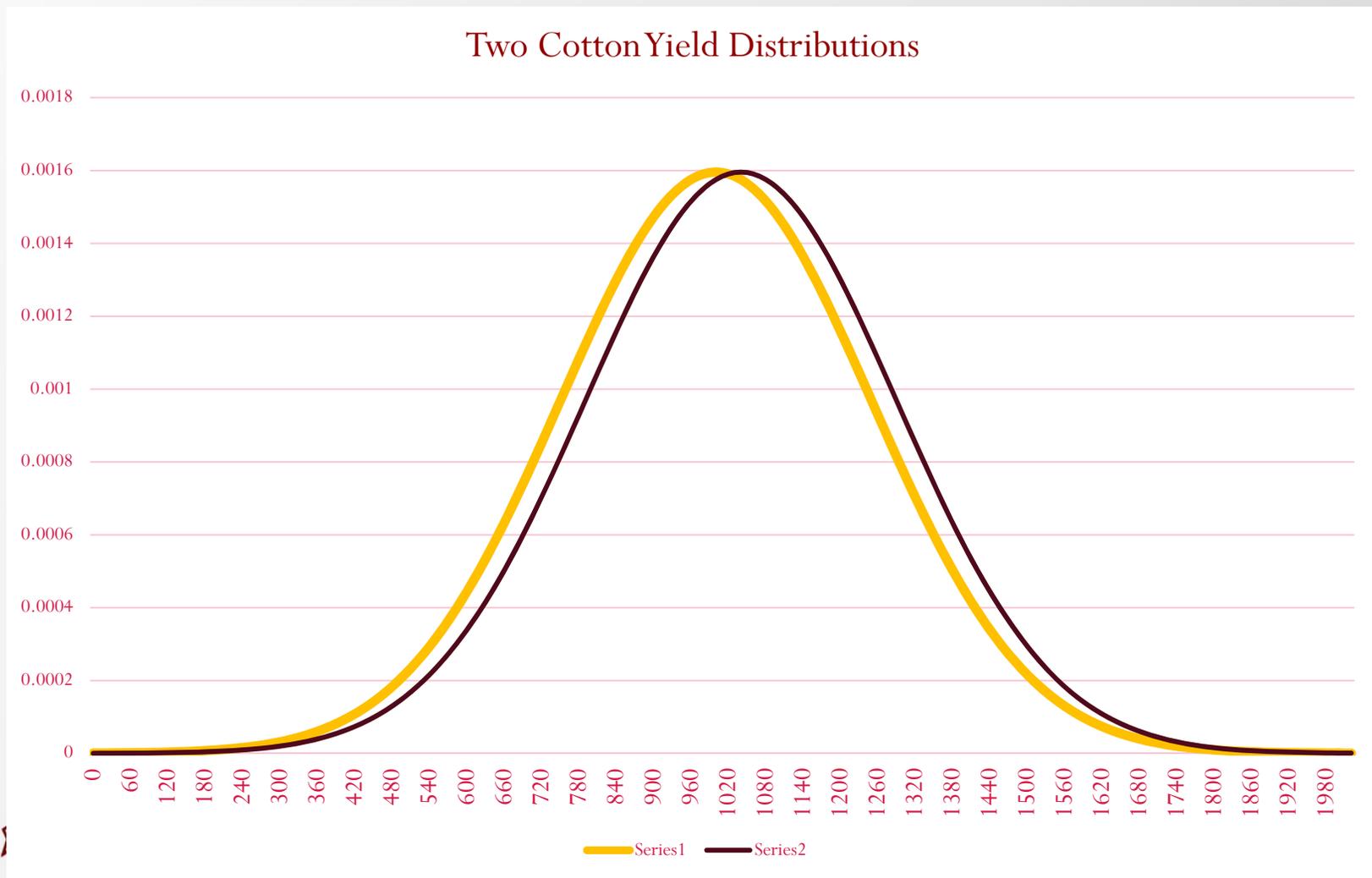


The Correlation Issue

- Representative farms are ‘typical’
- The reality is that farms vary within a county
- Often hear “my average is above the county average”
- The real question is whether farm yield moves up and down with the county yield
- Example: Matagorda County, Texas
 - Correlation of farm-county yield ranges from 0.18 to 0.93



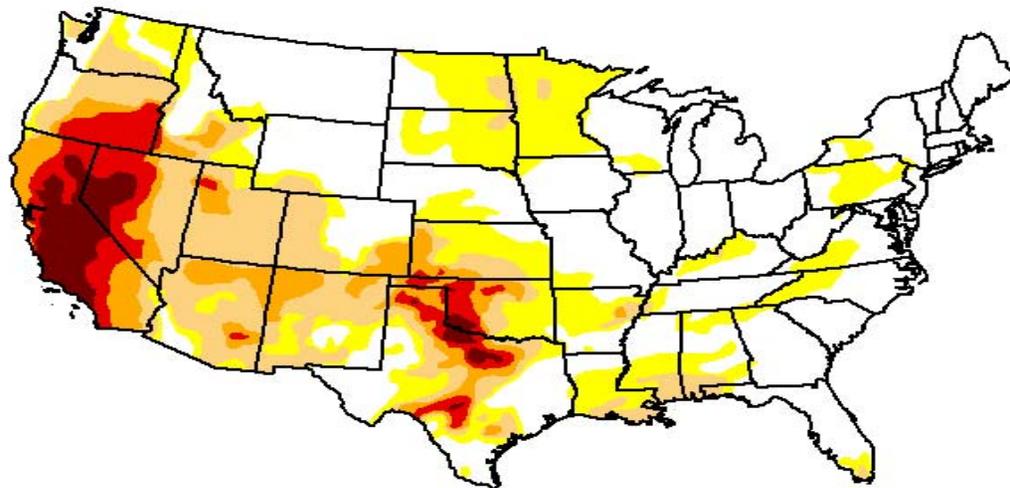
Difference in Risk Perceptions



Good preseason weather led producers to skip STAX

U.S. Drought Monitor CONUS

March 3, 2015
(Released Thursday, Mar. 5, 2015)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	47.49	52.51	31.88	15.66	8.43	3.21
Last Week <i>2/24/2015</i>	45.89	54.11	32.83	16.42	8.82	3.30
3 Months Ago <i>12/2/2014</i>	52.23	47.77	29.13	16.90	8.81	3.68
Start of Calendar Year <i>12/30/2014</i>	53.20	46.80	28.68	16.93	8.96	2.54
Start of Water Year <i>9/30/2014</i>	52.22	47.78	30.57	18.66	9.41	3.85
One Year Ago <i>3/4/2014</i>	46.53	53.47	35.85	21.56	7.40	1.57

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

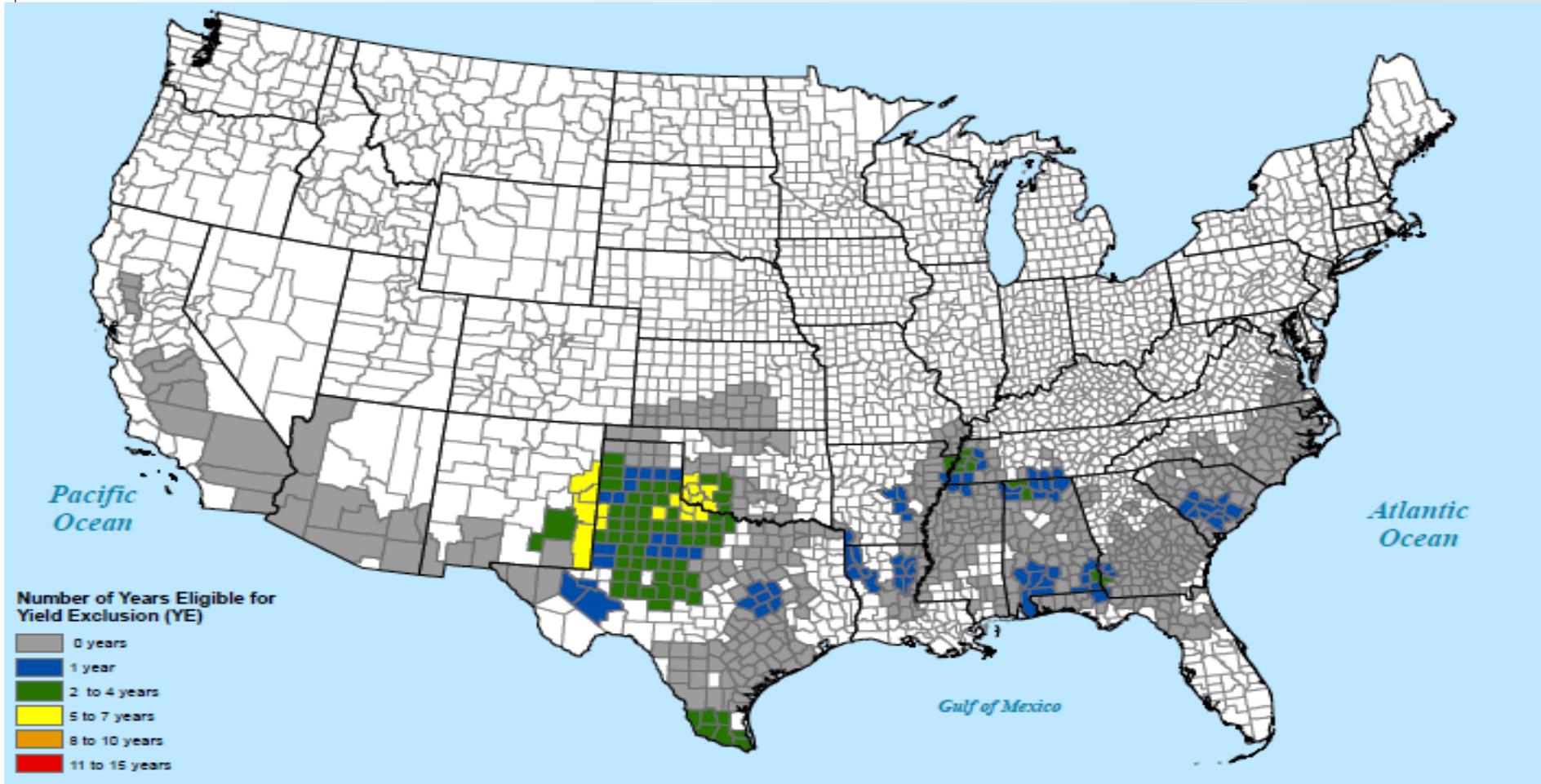
Author(s):

David Simeral
Western Regional Climate Center



<http://droughtmonitor.unl.edu/>

YE for Irrigated Cotton



[TABLE](#)

Links directly to the state table
(double click)

2015 CROP YEAR
IRRIGATED COTTON
YIELD EXCLUSION (YE)

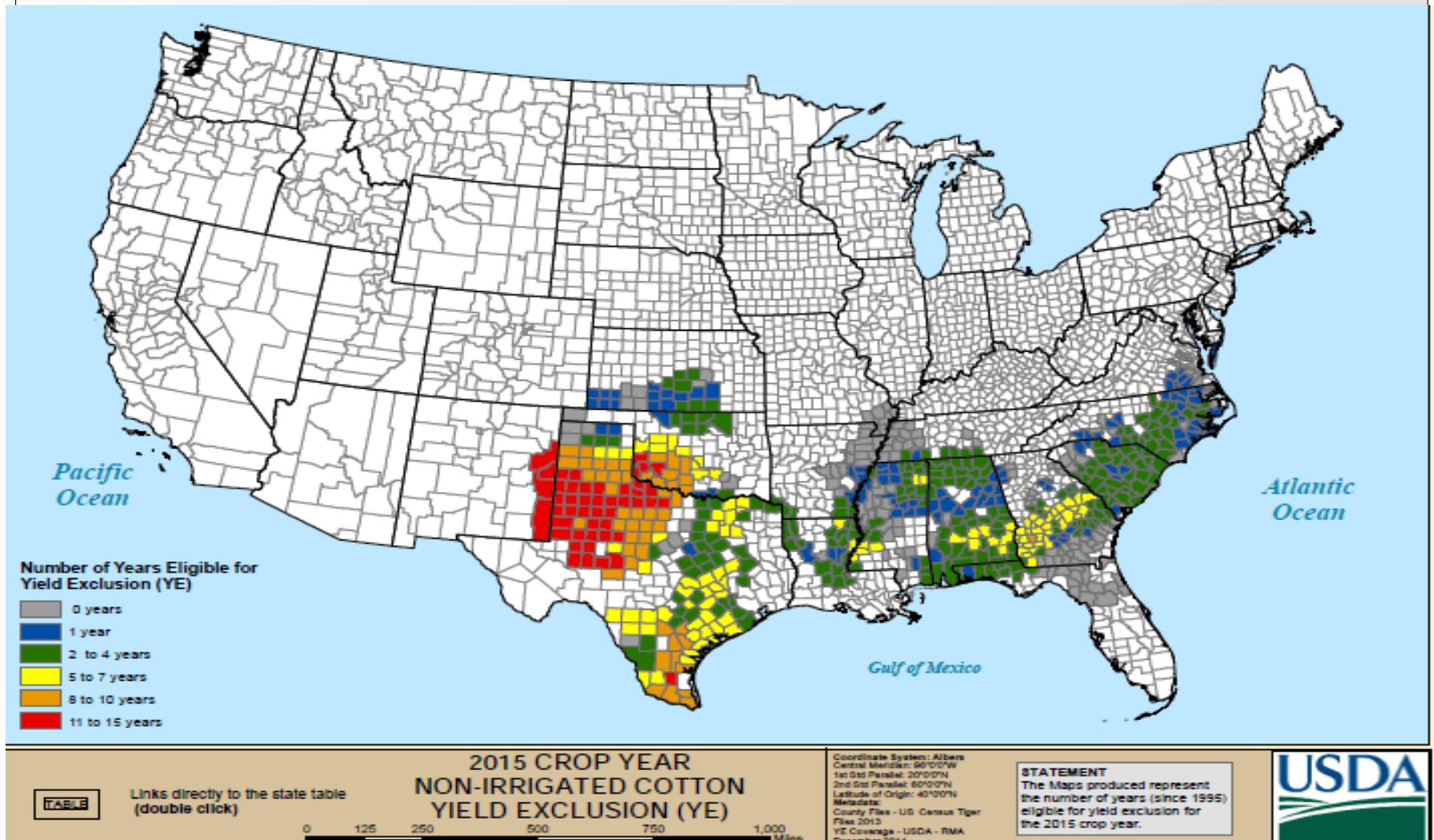
0 125 250 500 750 1,000 Miles

Coordinate System: Albers
Central Meridian: 96°00'W
1st Std Parallel: 20°00'N
2nd Std Parallel: 60°00'N
Latitude of Origin: 40°00'N
Metadata:
County Files - US Census Tiger
Files 2013
YE Coverage - USDA - RMA
December 2014

STATEMENT
The Maps produced represent
the number of years (since 1995)
eligible for yield exclusion for
the 2015 crop year.



YE for Non-Irrigated



APH Yield Exclusion (YE) 2015 Participation

- Near 90% of cotton eligible
- Only 23% used YE
- More than a 20% bump in APH when used
- Similar story in other crops – low YE participation



Six Questions to Ask Your Insurance Provider

1. What about enterprise units?
2. Will trend adjusted yields let me maintain coverage but at a lower coverage level?
3. How much will the APH yield exclusion can raise my APH?
4. What is the premium for different coverage levels?
5. What about topping off individual coverage with SCO or STAX for cotton?
6. What about separate coverage levels by irrigated/non-irrigated practice?



Thank You



- Contact me: coble@agecon.misst.edu
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