STAX and Cotton Crop Insurance: First Year Results

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Follow me: @DrKeithhCoble
- 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

<table>
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<tr>
<th>Coverage Level</th>
<th>Basic &amp; Optional Subsidy %</th>
<th>Enterprise Unit Subsidy %</th>
<th>SCO Subsidy %</th>
<th>STAX Subsidy %</th>
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Some Background Information
Base County Rates Reflect the Yield Risk of a County
Subsidy Per Acre Remarkably Consistent Across Regions
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
STAX Acreage is Regionally Concentrated
Wide Variation in STAX as a Percent of Individual Coverage – average 29%
Coverage Levels for Combo Products

2015 Cotton Average Coverage Level

Avg_cover_level
- Red: 50–55
- Orange: 56–65
- Yellow: 66–75
- Cyan: 76–80
- Green: 81–85
A Concentration of Participation at 70% Coverage

Change in Cotton Individual Coverage Levels

- 50%: 12% (2014), 12% (2015)
- 55%: 1% (2014), 1% (2015)
- 60%: 13% (2014), 13% (2015)
- 65%: 18% (2014), 15% (2015)
- 70%: 29% (2014), 38% (2015)
- 75%: 22% (2014), 18% (2015)
- 80%: 4% (2014), 4% (2015)
- 85%: 1% (2014), 1% (2015)
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
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

Two Cotton Yield Distributions

- Series1
- Series2
Good preseason weather led producers to skip STAX
YE for Irrigated Cotton
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

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