STAX/SCO Options of Cotton Farmers in the 2014 Farm Bill

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Farm bill 2014

- Title I (Commodity Program)
- Title XI (Federal Crop Insurance Program)

Title I (Commodity Program)

- Price Loss Coverage (PLC)
- Agricultural Risk Coverage (ARC)
  - One time decision for 2014-2018 crop

COTTON IS NOT ELIGIBLE FOR EITHER PROGRAMS

Title XI (Federal Crop Insurance Program)

- Deep Loss Insurance Products
  - Common Crop Insurance Policy (CCIP)
  - Area Risk Protection Insurance Plan (ARPI)
- Shallow Loss Insurance Products
  - Supplemental Coverage Option Endorsement (SCO Endorsement)
  - Stacked Income Protection Plan (STAX)

Common Crop Insurance Policy (CCIP)

- Yield Protection (YP)
- Revenue Protection (RP)
- Revenue Protection with Harvest Price Exclusion (RP-HPE)
- Coverage level: 50% - 85%
- Premium Subsidy Percent:

Coverage level %	50	55	60	65	70	75	80	85
Basic or optional unit	67	64	64	58	58	55	48	38
Enterprise unit	80	80	80	80	80	77	68	53

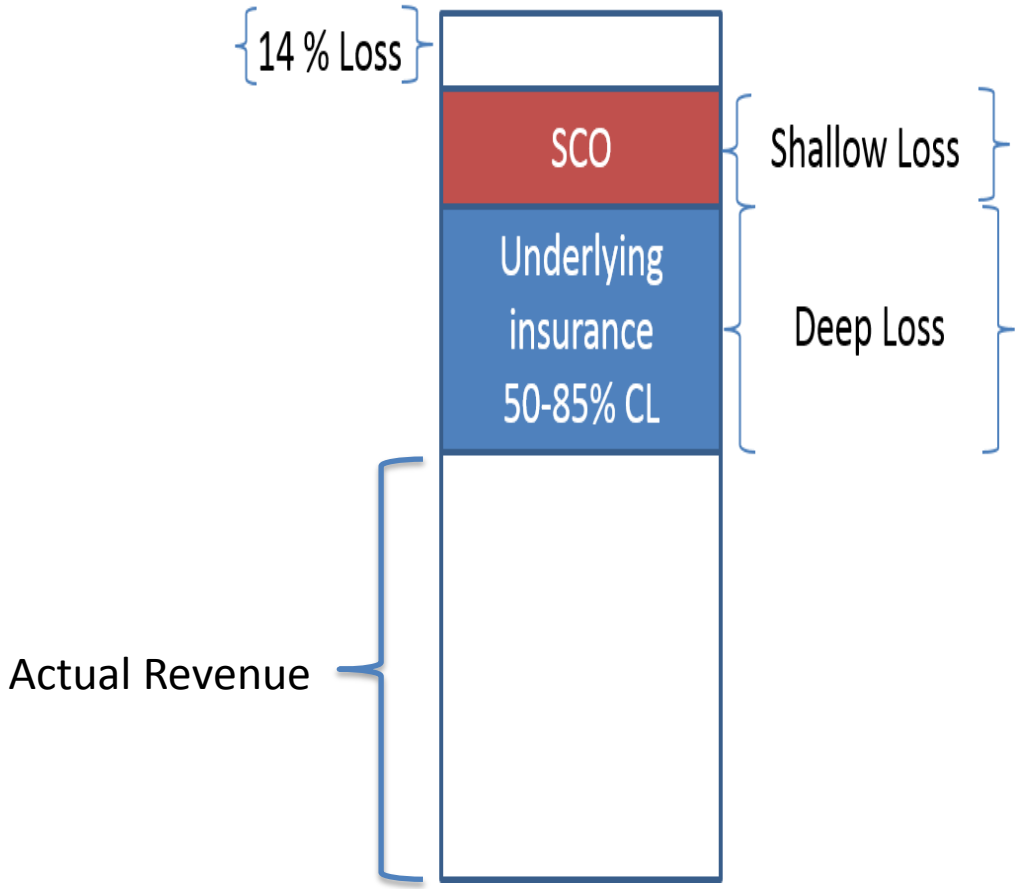
Area Risk Protection Insurance Plan (ARPI)

- Area Yield Protection (AYP)
- Area Revenue Protection (ARP)
- Area Revenue Protection with Harvest Price Exclusion (ARP-HPE)
- Coverage levels: 70% - 90%
- Premium Subsidy :

Coverage level %	70	75	80	85	90
Premium subsidy %	59	59	55	55	51

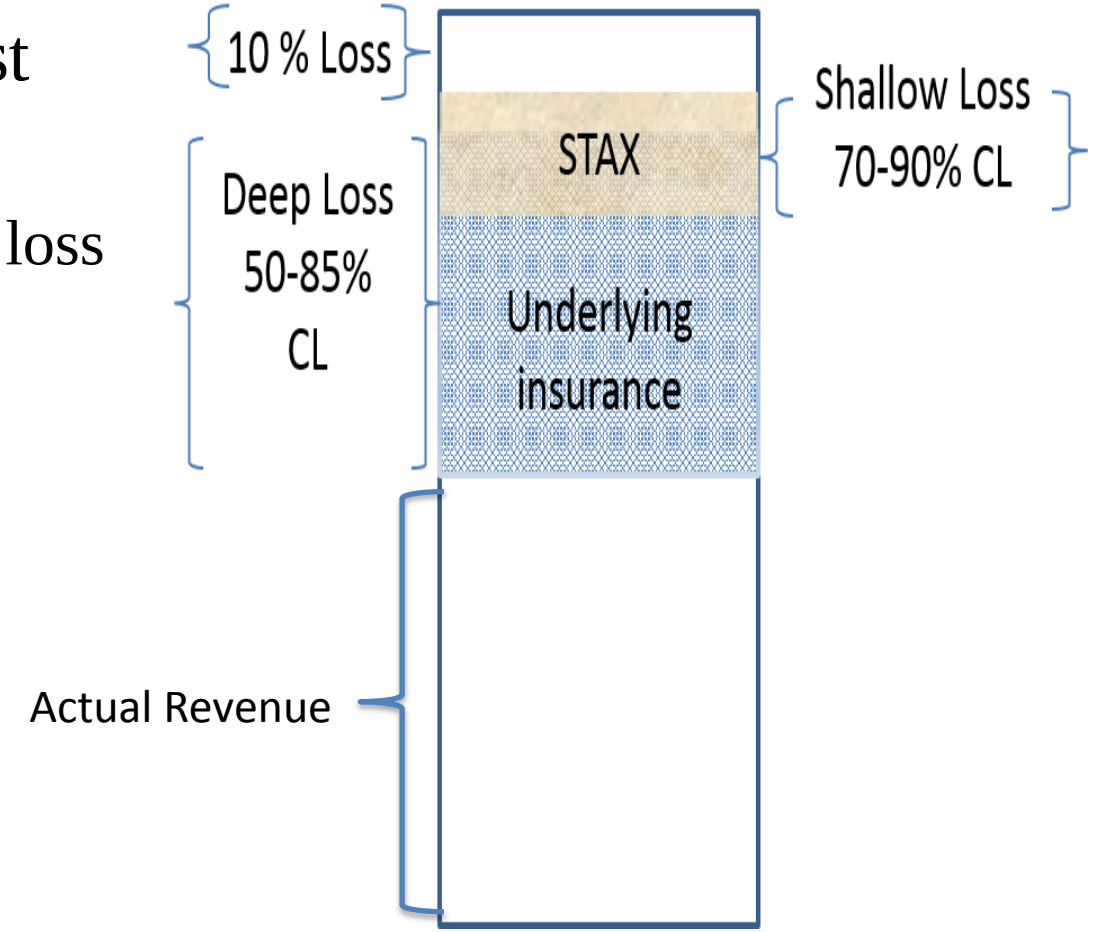
Supplemental Coverage Option Endorsement (SCO Endorsement)

- SCO with Yield Protection (SCO-YP)
- SCO with Revenue Protection (SCO-RP)
- SCO with Revenue Protection with Harvest Price Exclusion (SCO-RP-HPE)
- Coverage level:
  - *Continuous coverage*
  - *underlying coverage level - 86%*
- Subsidy :
  - *65% subsidy for all coverage levels*
- Protection Factor: 100%



Stacked Income Protection Plan (STAX)

- STAX with Revenue Protection (STAX-RP)
- STAX with Revenue Protection with Harvest Price Exclusion (STAX-RP-HPE)
  - Could combine with any CCIP and ARPI (deep loss insurance)
- Coverage level:
  - *No overlapping coverage level with deep loss insurance*
  - *Range 70-90% in any 5-20% interval*
- Subsidy :
  - 80% subsidy for all coverage levels
- Protection Factor: 80% -120%



Analysis

- Panel Survey to Construct 2500 acres Representative farms for Hockley and Lynn Counties
  - Lynn County dry land cotton farms
  - Hockley County Irrigated and dry land cotton farms
  - High Yield Farm and Low Yield Farm for both counties

Data and Methods

Simulated Scenarios Assuming Enterprise Unit Level Coverage

- Lynn County
  - High Yield Dry Land Cotton Farm
  - Low Yield Dry Land Cotton Farm
- Hockley County
  - High Yield Irrigated and Dry Land Cotton Farm
  - Low Yield Irrigated and Dry Land Cotton Farm

Lynn Farm Characteristics

- Dry land cotton farm of 2500 acres
  - Own acres = 667 acres
  - Shared acres = 1833 acres
- Initial producer net worth = $373,044

Cotton Yield Characteristics

	Mean (lb./acres)	Standard Deviation (lb./acres)
Low Productivity Farm	304	146
High Productivity Farm	494	187
Survey County	383	129
RMA Expected County	282	

Hockley Farm Characteristics

- Total irrigated and dry land cotton farm 2500 acres
- Initial producer net worth = $964,276

Farm Characteristics

	Owned acres	Shared Acres
Dry Land	394	700
Irrigated	569	837

Hockley Farm Characteristics

Cotton Yield Characteristics

	Mean (lb./acres)	Standard Deviation (lb./acres)
Dry Land Low Productivity Farm	230	132
Dry Land High Productivity Farm	417	188
Survey Dry Land County	328	141
RMA Expected Dry Land County	292	
Irrigated Low Productivity Farm	596	215
Irrigated High Productivity Farm	1,032	312
Survey Irrigated County	808	198
RMA Expected Irrigated County	846	

Results: Risk Neutral (Profit maximizer)

Lynn County Low Productivity Dry Land Cotton Farm per Acre Certainty Equivalent Difference Using *RMA Expected County Yield*

Insurance Policy (Risk Neutral: coefficient of risk aversion, r = 0)		Per Acre Benefit Over No Insurance Case		
		No Insurance Underlying	Yield Protection	Revenue Protection
Underlying policy	Benefit Over No Insurance Case		$7.66	$9.21
	optimal coverage level		75%	75%
SCO	Benefit Over No Insurance Case		$6.52	$8.17
	optimal coverage level		75%	75%
STAX_RP	Benefit Over No Insurance Case	$1.39	$8.96	$10.51
	optimal coverage level	90%-70%, 1.2	75%, 90%-75%, 1.2	75%, 90%-75%, 1.2
STAX_RP_HPE	Benefit Over No Insurance Case	$0.87	$8.53	$10.08
	optimal coverage level	90%-75%, 1.2	75%, 90%-75%, 1.2	75%, 90%-75%, 1.2

Results: Risk Neutral (coefficient of risk aversion, r = 0)

Lynn County-Low Yield Dry Land Cotton Farm Using *Survey County Mean Yield*

	Per Acre Benefit Over No Insurance Case	Optimal choice
Yield Protection (YP)	$7.66	75%
Revenue Protection (RP)	$9.21	75%
Revenue Protection With Harvest Price Exclusion (RPHPE)	$7.77	75%
SCO Revenue Protection (SCO RP)	$11.57	75%
STAX- RP-RP	$18.34	75%, 90-75%, 1.2
STAX-RPHPE_RP	$16.99	75%, 90-75%, 1.2

Results: Risk Neutral (coefficient of risk aversion, r = 0)

Hockley County-Low Yield Dry Land and Irrigated Cotton Farm Using *RMA Expected County Yield*

	Per Acre Benefit Over No Insurance Case	Optimal choice
Yield Protection (YP)	$17.43	75%
Revenue Protection (RP)	$20.16	75%
Revenue Protection With Harvest Price Exclusion (RPHPE)	$16.21	75%
SCO Revenue Protection (SCO RP)	$25.84	75%
STAX- RP-RP	$37.90	70%, 90-70%, 1.2
STAX-RPHPE_RP	$34.58	70%, 90-70%, 1.2

Results: Risk Neutral (coefficient of risk aversion, r = 0)

Hockley County-Low Yield Dry Land and Irrigated Cotton Farm Using *Survey County Mean Yield*

	Per Acre Benefit Over No Insurance Case	Optimal choice
Yield Protection (YP)	$17.43	75%
Revenue Protection (RP)	$20.16	75%
Revenue Protection With Harvest Price Exclusion (RPHPE)	$16.21	80%
SCO Revenue Protection (SCO RP)	$25.21	75%
STAX- RP-RP	$36.01	70%, 90-70%, 1.2
STAX-RPHPE_RP	$33.03	70%, 90-70%, 1.2

Conclusions

Our preliminary results suggest the following:

- STAX RP with underlying RP is always optimal for all the farms considered
- Sometime SCO endorsement will pay less compared to stand-alone underlying policy due premium cost.
- Premium price for SCO endorsement is relatively higher than STAX
- Producer should understand the RMA Expected County yield to better project the benefit from STAX and SCO.

Future work

- How optimal insurance choice and program benefits are affected due to Yield Exclusion APH Yields.

Conclusions

Generally speaking, the following should be considered:

1. STAX/SCO are county-triggered—you could suffer a loss when the county does not and not receive a payment.
2. Because of (1), choose what level of underlying insurance protects you the best (note in our analysis, optimal underlying insurance is at normal levels).
3. If you believe conditions are right in your county to take advantage of county coverage, then STAX is the best bet; STAX outcomes are highly county-specific.

Thank You and Questions!!!