



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

STAX and SCO: Finding Their Place in the Farm Safety Net



By Natalie A. Graff, Henry R. Nelson, Joe L. Outlaw, Bart L. Fischer, and Henry L. Bryant

Natalie A. Graff is a graduate student in the Department of Agricultural Economics at Texas A&M University. Henry R. Nelson is a graduate student in the Department of Agricultural Economics at Texas A&M University. Joe L. Outlaw is a Regents Fellow, Professor, and Extension Economist in the Department of Agricultural Economics at Texas A&M University. Bart L. Fischer is a Research Assistant Professor in the Department of Agricultural Economics at Texas A&M University. Henry L. Bryant is a Research Professor in the Department of Agricultural Economics at Texas A&M University.

Abstract

The Stacked Income Protection Plan (STAX) for upland cotton and the Supplemental Coverage Option (SCO) are area-wide crop insurance tools that serve as complements to individual crop insurance policies. Consideration of STAX and SCO requires producers to make tough decisions

regarding other safety net programs: Agriculture Risk Coverage-County (ARC-CO) and Price Loss Coverage (PLC). This article describes STAX and SCO and shows how they work in relation to ARC-CO and PLC, using an example cotton farm in Texas. The example farm models the impact of safety net decisions on 2022 crop year payments and provides insight into producer decisions.

INTRODUCTION

The 2014 Farm Bill established Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) as Title I commodity programs and allowed producers to decide in which program to enroll base acres on a commodity-by-commodity basis. ARC and PLC were continued by the 2018 Farm Bill. Producers were allowed to make an annual election between the two programs, beginning with the 2021 crop year. ARC is offered at the individual farm level (ARC-IC) and at the county level (ARC-CO). Both provide revenue-based support; to date, utilization of ARC-CO far exceeds that of ARC-IC. ARC-CO provides shallow-loss protection and provides a payment when actual county revenue falls below the county benchmark revenue. PLC protects against deep losses and provides a payment when the marketing year average (MYA) price falls below the statutory reference price. Prior to the March 15 deadline for commodity program sign-up, a series of *Southern Ag Today* (SAT) articles addressed producers' 2022 farm safety net decisions. In the first article, Fischer and Raulston (2022) pointed to the price outlook and speculated that neither ARC nor PLC were likely to pay due to the expectation of high commodity prices. The next two SAT articles discussed alternative safety net programs for producers to consider for 2022: the Stacked Income Protection Plan (STAX) for upland cotton and the Supplemental Coverage Option (SCO) for all Title I covered commodities (Fischer and Outlaw, 2022; Outlaw and Fischer, 2022).

STAX and SCO are area-wide crop insurance tools and serve as complements to individual crop insurance policies. The SAT articles offered STAX and SCO as shallow-loss alternatives to ARC-CO and pointed out that STAX and SCO take advantage of price elections on crop insurance (generally higher than MYA prices used for ARC-CO), resulting in higher coverage. Consideration of STAX and SCO required producers to make tough decisions regarding ARC-CO and PLC. Producers cannot purchase STAX coverage if they enroll seed cotton base acres in ARC-CO or PLC; additionally, producers may purchase SCO coverage only if they enroll base acres in PLC (but not ARC-CO). Since these tools (ARC-CO, STAX, and SCO) are all area-wide supplements to individual crop insurance policies, producers are required to make a choice between them. Producers incur premium costs with STAX and SCO, whereas ARC-CO is free. However, careful consideration is needed. This article will show that under some possible market outcomes, producers may be better off with STAX or SCO. The decision producers make is important because market conditions dictate which programs are more likely to pay in a given year, and farm program payments have a large impact on a producer's bottom line. The objective of this article is to describe STAX and SCO and show how they work in relation to ARC-CO and PLC using an example cotton farm in the Southern High Plains of Texas. The example farm will be used to model the impact of safety net decisions on payments for the 2022 crop year and provide insight into producer decisions. There are many acronyms used throughout this article; these are listed and defined in Table 1.

BACKGROUND

STAX, SCO, ARC-CO, and PLC were all established in the 2014 Farm Bill and reauthorized in the 2018 Farm Bill. STAX is an area-based revenue insurance policy available only for upland cotton. STAX can be purchased on its own or with a companion crop insurance policy, such as Revenue Protection (RP) or Yield Protection (YP). STAX provides coverage for up to 20% of the adjusted expected area revenue. Figure 1 illustrates STAX coverage and the difference in deductible with and without STAX. Producers select both of the following:

- A protection factor between 80% and 120% (in 1% increments) to determine the adjusted expected area revenue (equal to the product of the protection factor and the expected area revenue).

- An area loss trigger between 75% and 90% (in 5% increments) to determine the STAX coverage range (equal to the difference between the area loss trigger and the higher of the coverage level of the companion policy and 70%). For example, if a producer chooses an area loss trigger of 90% and the coverage level of the companion policy is 75%, then the STAX coverage range is equal to 15%. With the same 90% area loss trigger, if the coverage level of the companion policy is less than or equal to 70%, then the STAX coverage range is equal to 20%.

STAX begins to pay when the *actual area revenue* drops below the *area loss trigger* percentage of the *expected area revenue*, down to the low end of the *coverage range*. The *expected area revenue* is the expected area yield, multiplied by the higher of the projected price and the harvest price. The *actual area revenue* is the product of the actual area yield and the harvest price. The amount of *STAX protection* (1) and the *STAX indemnity* (2) are calculated as follows (FCIC, 2021):

$$STAX\ protection = expected\ area\ revenue \times protection\ factor \times coverage\ range \quad (1)$$

$$STAX\ indemnity = STAX\ protection \times \min\left(\frac{\max(\text{area loss trigger} - \frac{\text{actual area revenue}}{\text{expected area revenue}}, 0)}{\text{coverage range}}, 1\right) \quad (2)$$

The expected and actual area yields are reported by the U.S. Department of Agriculture's Risk Management Agency (RMA); projected and harvest prices are determined in accordance with the Commodity Exchange Price Provisions (CEPP); and the protection factor and the area loss trigger are selected by the producer.

If a producer purchases STAX, they are not eligible to sign up for ARC or PLC on the upland cotton base acres on the farm (FCIC, 2021). Historically, STAX was unpopular for a couple of reasons: (1) producers preferred PLC, which has paid each year since 2018; and (2) some producers thought area yields were too low, which made a payment less likely. For 2022, the high upland cotton futures prices during the price discovery period means more protection can be garnered with STAX than with ARC-CO or PLC, which utilize MYA prices to determine payments. A producer also must make a choice between STAX and SCO because STAX and SCO cannot be purchased together for the same crop and on the same acres.

SCO is also an area-based policy that provides additional coverage on top of an underlying crop insurance policy. SCO can be purchased only as an endorsement to the underlying policy; unlike STAX, it

cannot be purchased on its own. Figure 2 illustrates SCO coverage in relation to an underlying policy. SCO was first available in the 2015 crop year for some major crops (spring barley, corn, soybeans, wheat, sorghum, cotton, and rice) in select counties but was expanded in 2016 to include additional counties and crops. The underlying policies eligible for an SCO endorsement include YP, RP, RP with Harvest Price Exclusion (RP-HPE), and Actual Production History (APH). SCO coverage follows the coverage of the underlying policy (i.e., if a producer chooses RP, then SCO covers revenue loss, and if a producer selects YP, then SCO covers yield loss). The underlying policy also determines the coverage range and the amount of protection for SCO. The SCO coverage range is the difference between 86% and the coverage level of the underlying policy. This study analyzes SCO as an endorsement to an RP policy; therefore, the following SCO descriptions and calculations assume an underlying RP policy. *SCO protection* is determined using individual *expected crop value*—which is based on a producer’s individual *approved yield*—unlike STAX, which uses expected area revenue. Producers select a *coverage percentage*, between 50% and 100% (in 1% increments), which allows them to customize their amount of coverage. Calculations for *expected crop value* (3) and *SCO protection* (4) are as follows (RMA, 2022b):

$$\text{Expected crop value} = \text{approved yield} \times \max(\text{projected price, harvest price}) \quad (3)$$

$$\text{SCO protection} = \text{expected crop value} \times \text{coverage percentage} \times \text{coverage range} \quad (4)$$

While the underlying policy pays an indemnity when an individual loss occurs, an SCO indemnity is triggered by an area-level loss. SCO begins to pay when the *actual area revenue* falls below 86% of the expected area level, down to the coverage level of the underlying policy. The *SCO indemnity* (5) is calculated as follows:

$$\text{SCO indemnity} = \text{SCO protection} \times \min\left(\frac{\max(0.86 - \frac{\text{actual area revenue}}{\text{expected area revenue}}, 0)}{\text{coverage range}}, 1\right) \quad (5)$$

SCO limits a producer’s farm program decisions: SCO and ARC-CO cannot be elected for the same crop on a farm; however, producers can enroll the same acres in both SCO and PLC. Given high commodity futures prices during price discovery for 2022, SCO provided significantly more revenue protection than ARC-CO, which uses MYA prices to determine revenue benchmarks. Therefore, some producers may have found SCO to be a more favorable shallow loss revenue protection option than ARC-CO. Again, SCO and STAX cannot be purchased for the same crop on the same acres.

ARC-CO payments are triggered when the actual county revenue is less than the ARC-CO revenue guarantee for a covered commodity in a specific county (FSA, 2019). Actual county revenue is determined by the MYA price and the county yield. The ARC-CO revenue guarantee equals 86% of the previous five-year Olympic average of national MYA prices (benchmark price), multiplied by the five-year Olympic average of county yields (benchmark yield). When an ARC-CO payment is triggered, the payment is equal to the difference in the actual county revenue and the ARC-CO revenue guarantee, multiplied by 85%, multiplied by base acres (not to exceed 10% of the previous five-year Olympic average of national MYA prices, multiplied by the five-year Olympic average of county yields).

PLC payments are triggered when the current year MYA price is less than the reference price for a covered commodity (FSA, 2019). Reference prices are established in each farm bill. If a PLC payment is triggered, the payment is equal to the difference in the MYA price and the higher of the loan rate or reference price, multiplied by the PLC payment yield, multiplied by 85%, multiplied by base acres. Each covered commodity on each individual farm has a unique PLC payment yield and number of base acres. For cotton, ARC-CO and PLC programs cover seed cotton (combination of cotton lint and cottonseed) price and yield, whereas the insurance policies cover cotton lint only. For ARC-CO and PLC purposes, the cotton lint yield multiplied by 2.4 equals the seed cotton yield.

To recap, enrollment in STAX makes a producer ineligible for ARC-CO, PLC, and SCO on seed cotton base acres on a farm. Enrollment in SCO makes a producer ineligible for ARC-CO. Therefore, cotton producers have the following options:

- Purchase STAX (upland cotton only), with or without a companion policy;
- Purchase SCO, with an underlying policy, and enroll base acres in PLC; or
- Enroll base acres in ARC-CO.

The subsequent sections illustrate these options on an example representative cotton farm in Texas and analyze the impact of producer decisions on farm safety net payments.

METHODOLOGY AND DATA

This section describes the representative cotton farm used to model impacts of program decisions on safety net payments for several scenarios of price

and yield realization. First, the characteristics of the farm and associated safety net program parameters are described. Next, the scenarios of price and yield realizations used to calculate payments are presented, followed by the necessary assumptions and data sources. Finally, this section describes the safety net payments that are calculated for each scenario and reported in the results section.

Dawson County Cotton Farm

This farm is representative of farm operations in Dawson County, a major cotton production county in the Southern High Plains of Texas. The farm grows dryland upland cotton. The farm purchases an RP policy for cotton, which will serve as the companion policy for STAX and the underlying policy for SCO. Safety net program parameters that remain constant for each scenario include:

- STAX/SCO expected area lint yield (RMA, 2022b): 209 lbs/acre
- STAX/SCO projected cotton lint price (RMA, 2022b): \$1.03/lb
- Assumed STAX protection factor: 120%
- Assumed STAX area loss trigger: 90%
- Assumed SCO coverage percentage: 100%
- PLC seed cotton yield (expected yield multiplied by 2.4): 501.6 lbs/acre
- PLC seed cotton reference price (FSA, 2022a): \$0.367/lb
- ARC-CO seed cotton benchmark price (FSA, 2022c): \$0.367/lb
- ARC-CO seed cotton benchmark yield (FSA, 2022c): 621.39 lbs/acre
- ARC-CO seed cotton revenue guarantee (86% of benchmark price multiplied by benchmark yield): \$192.12/acre
- Assumed RP individual farm approved lint yield: 209 lbs/acre

The assumed STAX protection factor, STAX area loss trigger, and SCO coverage percentage values that were chosen are the common choices among area producers for these parameters.

Scenarios

Six alternative price/yield scenarios of 2022 price and yield realizations were imposed on the farm to demonstrate how each would affect estimated payments from RP, STAX, SCO, ARC-CO, and PLC.

Table 2 describes each scenario and shows the actual individual farm yield, actual county yield, harvest price, and MYA price assumed for each scenario.

The baseline actual county yield and individual farm yield used for cotton are assumed to be equal to the STAX/SCO expected area yield (209 lbs/acre). For the low county yield and low individual farm yield scenarios, a yield loss of 50 pounds per acre is assumed (159 lbs/acre). The baseline harvest price used for cotton (\$1.03/lb of lint) is equal to the 2022 projected price. The low harvest price is the average of the harvest prices from the previous 5 years (\$0.77/lb of lint), which is 25% lower than the baseline price.

Recall that the harvest (lint) price is used to determine RP, SCO, and STAX payments, but ARC-CO and PLC use MYA (seed cotton) price to determine payments. When cotton was reintroduced as a covered commodity in the Bipartisan Budget Act of 2018, both cottonseed and lint were designed to be covered under the name “seed cotton” for Title I programs (Schnepf, 2018). Therefore, the *seed cotton MYA price* (6) consists of both lint price and cottonseed price, weighted by production:

$$\text{Seed cotton MYA price} = \left(\frac{\text{lint lbs.}}{\text{total lbs.}}\right) \times \text{lint price} + \left(\frac{\text{cottonseed lbs.}}{\text{total lbs.}}\right) \times \text{cottonseed price} \quad (6)$$

where total pounds equals the sum of lint pounds and cottonseed pounds. The MYA seed cotton price used for the baseline price scenarios (\$0.4923) is the most recent 2022 national MYA price projection from USDA’s World Agricultural Supply and Demand Estimates (WASDE) (FSA, 2022b). For the low-price scenarios, a reduction in the baseline MYA seed cotton price is assumed to be proportional to the difference in the baseline and low harvest price (25%). However, simply multiplying seed cotton MYA price by –0.25 does not result in a proportional change because harvest price consists only of lint price, whereas seed cotton price is made up of cottonseed and lint prices. Instead, a new (low) seed cotton MYA price (\$0.3872) is achieved by decomposing the equation for *seed cotton MYA price* into its component parts, solving for the unknown (*cottonseed price*¹), and reconstructing the equation using a new *lint price* (the WASDE-reported price, \$0.97, reduced by 25%).

Safety Net Payment Analysis

The study utilizes the farm characteristics, program parameters, and price and yield realizations described above to analyze, for each scenario, the RP net indemnity for various coverage levels (50% to 85%,

in 5% increments) and the following three safety net options, of which producers can select one:

- STAX net indemnity
- SCO net indemnity plus PLC payment
- ARC-CO payment

To calculate net indemnities, the study utilizes premium data for 2022, publicly available from RMA.

RESULTS

Results for all payments are reported on a per-acre basis. Tables 3–8 show net indemnities for RP, STAX, and SCO, for varying levels of RP coverage, along with the payment for ARC-CO and PLC. Table 3 is the baseline scenario where county and individual yields are equal to the expected area yields, and the harvest price and MYA prices are equal to the respective projected prices. Note that no indemnities are being paid out in Scenario 1 because there is no price or yield loss. Therefore, the negative values are the premiums paid for each policy.

Table 4 shows the results for Scenario 2 where the baseline yields are held constant, but harvest price and MYA price projections decrease. The RP net indemnity is still negative, but there is some indemnity paid for the higher coverage levels. With the price loss, STAX and SCO both result in a positive net indemnity regardless of the RP coverage level. It is worth noting, even with a 25% price drop from the current MYA price projection for cotton lint, that the resulting seed cotton MYA price is still not low enough to trigger a PLC payment.

In Table 5, Scenario 3 maintains baseline prices and baseline actual county yield but experiences an individual yield loss. When a producer experiences a yield loss, but the county does not, neither STAX and SCO nor ARC-CO payments are impacted because they are not dependent on individual yield. In this scenario, only RP is affected; net indemnities remain negative.

Table 6 contains results of Scenario 4 where the farm experiences low prices and an individual yield loss. With an individual yield loss and lower prices, RP net indemnities are positive for coverage levels between 65% and 85%. Given the levels of price and individual yield loss in Scenario 4, the optimal policy bundle is RP, with 75% coverage, and STAX. This combination nets over \$56 per acre.

Table 7 shows results from Scenario 5, where baseline prices are maintained and the individual farm realizes baseline yields, but a yield loss occurs at the county level. The decrease in actual county yield affects STAX and SCO and ARC-CO payments. Since these three options can be chosen only independently of one another, the optimal choice for Scenario 5 is 50% RP with STAX. When the individual farm does not experience yield loss, an RP indemnity is not triggered, and for any RP coverage level at or below 70%, the STAX coverage is the same. Therefore, when county losses are more likely than individual loss, producers may choose a lower RP coverage level to lower the RP premium and allow for maximum STAX coverage (20%).

Results for Scenario 6 are reported in Table 8. County yield loss is combined with low prices, while the individual farm experiences baseline yields. The maximum ARC-CO payment is triggered and STAX and SCO net indemnities are positive for each level of RP coverage chosen. RP net indemnities are negative since individual yield loss did not occur. Again, the price loss is not great enough to trigger a PLC payment. The optimal producer choice in this scenario is 55% RP with SCO. The same justification from Scenario 5 can be offered for Scenario 6: Choosing a lower RP coverage level and allowing an area-based policy to provide more coverage in the event of a county yield loss results in a higher net indemnity. Note that the only difference between Scenarios 5 and 6 is the price realization (baseline price is used in Scenario 5; low price is used in Scenario 6), and the optimal program choice switches from STAX to SCO for lower RP coverage levels.

Results Summary

Table 9 provides a summary of the preferred option for each scenario. Note that the preferred option (highest net benefit or lowest net loss) changes across scenarios. Both the insurance and farm programs (ARC-CO/PLC) are producer safety net programs that provide a benefit only when a loss (yield, price, or both) occurs.

It is not realistic that a producer would farm dryland cotton in Dawson County, Texas, without crop insurance—which means the results from Scenarios 1 and 3 minimized losses but provided very little protection for the farm. Price declines during the crop year or at harvest are a real possibility each year. Note that PLC never triggered, and ARC-CO only triggered more than a few dollars per acre in Scenario 6. Even in this scenario, the benefits for ARC-CO are lower than the net benefits from buying all but the highest

level of STAX and 50% to 70% SCO. The scenarios that included a price decline (2, 4, and 6) showed that RP and either STAX or SCO were preferred to ARC-CO or PLC. Note that this study has the luxury of hindsight, which results in the 50% RP coverage level being the optimal choice. Although this study assumed a 50-pound loss in low-yield scenarios, a dryland cotton farm in Dawson County could easily have a much greater yield loss. Incorporating risk by projecting stochastic yields for the future year would likely predict a higher optimal coverage level.

These results support what producers in Texas are currently doing in 2022, which is foregoing signing up for ARC-CO or PLC in favor of purchasing revenue insurance and one of the shallow loss area plans (STAX or SCO). With seed cotton prices starting the year very high and a high insurance price, producers were not anticipating much if any ARC-CO/PLC payments. Further, even after paying premiums the shallow loss insurance products would be better than ARC-CO.

CONCLUSION

Producers and landowners face many decisions within the current farm safety net, and the recent drastic changes in commodity prices have shifted which programs provide the most protection for each crop. The example farm used to model the impact of safety net decisions on payments for the 2022 crop year showed that in the event of a price or yield loss, STAX and SCO were likely advantageous for producers over ARC-CO or PLC.

These results comport with what many producers in Texas did in 2022: forgo signing up for ARC-CO or PLC in favor of purchasing revenue insurance and one of the shallow loss area plans (STAX or SCO). With seed cotton prices starting the year very high and a high insurance price, producers were not anticipating much, if any, ARC-CO/PLC payments. Further, even after paying premiums, the shallow loss insurance products were better than ARC-CO in the event of a yield loss. Understanding the program dynamics of STAX and SCO, programs that were previously unpopular, and the climate that led to them being useful in 2022 will help producers make decisions going forward.

FOOTNOTE

1. Projections for seed cotton MYA price and lint MYA price are reported by WASDE. Projections for lint and cottonseed pounds of production are reported by the National Agricultural Statistics Service (NASS). Therefore, the unknown in the equation—cottonseed MYA price—can be solved.

REFERENCES

- FSA. 2019. "2014 Farm Bill vs. 2018 Farm Bill – Agriculture Risk Coverage & Price Loss Coverage." USDA FSA.
- FSA. 2022a. Effective Reference Price for Program Year 2022. ARC/PLC Program Data. USDA FSA. Accessed September 8, 2022.
- FSA. 2022b. Market Year Average Prices. ARC/PLC Program Data. USDA FSA. Accessed September 8, 2022.
- FSA. 2022c. 2022 ARC-County Benchmark Yields and Revenues as of December 28, 2021. ARC/PLC Program Data. USDA FSA. Accessed September 8, 2022.
- FCIC. 2021. "Stacked Income Protection Plan of Insurance (STAX) Standards Handbook." USDA FCIC RMA.
- Fischer, B.L., and J. Outlaw. 2022. "Should I Buy STAX?" *Southern Ag Today* 2 (8.4).
- Fischer, B., and J.M. Raulston. 2022. "2022 Farm Safety Net Decisions." *Southern Ag Today* 2 (2.4).
- Outlaw, J., and B. Fischer. 2022. "The ARC-CO/PLC Decision isn't as Easy as You Think." *Southern Ag Today* 2 (6.4).
- RMA. 2022a. Actuarial Information Browser. USDA RMA. Accessed September 8, 2022.
- RMA. 2022b. "Supplemental Coverage Option for Federal Crop Insurance." USDA RMA.
- Schnepf, R. 2018. "Seed Cotton as a Farm Program Crop: In Brief." Congressional Research Service.

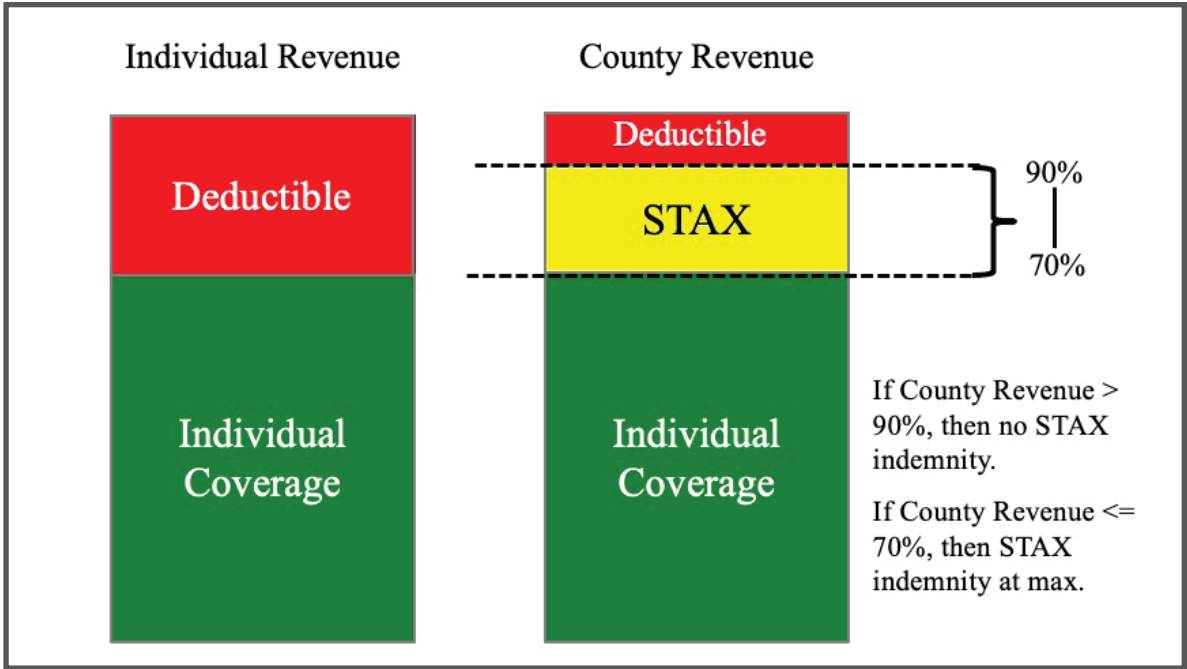


Figure 1. STAX coverage

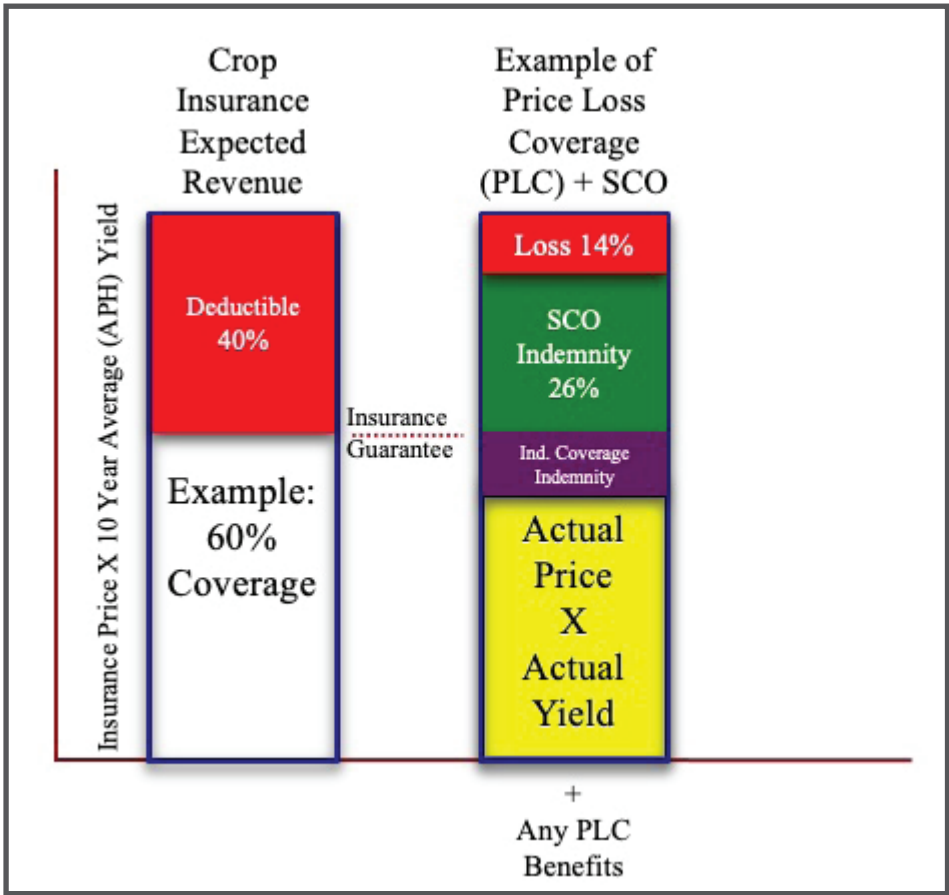


Figure 2. SCO coverage

Table 1. Acronyms

Acronym	Definition
ARC	Agriculture Risk Coverage
ARC-CO	Agriculture Risk Coverage-County
ARC-IC	Agriculture Risk Coverage-Individual Coverage
APH	Actual Production History
CEPP	Commodity Exchange Price Provisions
FCIC	Federal Crop Insurance Corporation
FSA	Farm Service Agency
MYA	Marketing Year Average
NASS	National Agricultural Statistics Service
PLC	Price Loss Coverage
SAT	<i>Southern Ag Today</i>
SCO	Supplemental Coverage Option
STAX	Stacked Income Protection Plan
RMA	Risk Management Agency
RP	Revenue Protection
RP-HPE	Revenue Protection with Harvest Price Exclusion
WASDE	World Agricultural Supply and Demand Estimates
YP	Yield Protection

Table 2. 2022 Price and Yield Realization Scenarios for Dawson County Cotton Farm

Scenario	Scenario Description	Actual Farm Yield, lbs/acre	Actual County Yield, lbs/acre	Harvest Price, \$/lb (Lint)	MYA Price, \$/lb (Seed Cotton)
1	Baseline prices, Baseline yields	209	209	\$1.03	\$0.4923
2	Low prices, Baseline yields	209	209	\$0.77	\$0.3872
3	Baseline prices, Low farm yield, Baseline county yield	159	209	\$1.03	\$0.4923
4	Low prices, Low farm yield, Baseline county yield	159	209	\$0.77	\$0.3872
5	Baseline prices, Baseline farm yield, Low county yield	209	159	\$1.03	\$0.4923
6	Low prices, Baseline farm yield, Low county yield	209	159	\$0.77	\$0.3872

Table 3. Scenario 1: Baseline Prices and Yields

RP Coverage Level	Net Indemnity, \$			Farm Program Payment, \$	
	RP	STAX	SCO	ARC-CO	PLC
50%	(5.51)	(9.16)	(16.83)	–	–
55%	(6.22)	(9.16)	(14.87)	–	–
60%	(7.04)	(9.16)	(12.87)	–	–
65%	(7.93)	(9.16)	(10.64)	–	–
70%	(9.83)	(9.16)	(8.34)	–	–
75%	(14.08)	(7.03)	(5.88)	–	–
80%	(23.94)	(4.78)	(3.26)	–	–
85%	(42.06)	(2.44)	(0.55)	–	–

Table 4. Scenario 2: Low Prices, Baseline Yields

RP Coverage Level	Net Indemnity, \$			Farm Program Payment, \$	
	RP	STAX	SCO	ARC-CO	PLC
50%	(5.51)	30.22	7.37	1.62	–
55%	(6.22)	30.22	9.33	1.62	–
60%	(7.04)	30.22	11.33	1.62	–
65%	(7.93)	30.22	13.56	1.62	–
70%	(9.83)	30.22	15.86	1.62	–
75%	(13.56)	31.72	17.80	1.62	–
80%	(12.65)	21.05	9.66	1.62	–
85%	(20.01)	10.48	1.60	1.62	–

Table 5. Scenario 3: Baseline Prices, Low Farm Yield, Baseline County Yield

RP Coverage Level	Net Indemnity, \$			Farm Program Payment, \$	
	RP	STAX	SCO	ARC-CO	PLC
50%	(5.51)	(9.16)	(16.83)	–	–
55%	(6.22)	(9.16)	(14.87)	–	–
60%	(7.04)	(9.16)	(12.87)	–	–
65%	(7.93)	(9.16)	(10.64)	–	–
70%	(9.83)	(9.16)	(8.34)	–	–
75%	(14.08)	(7.03)	(5.88)	–	–
80%	(15.49)	(4.78)	(3.26)	–	–
85%	(22.85)	(2.44)	(0.55)	–	–

Table 6. Scenario 4: Low Prices, Low Farm Yield, Baseline County Yield

RP Coverage Level	Net Indemnity, \$			Farm Program Payment, \$	
	RP	STAX	SCO	ARC-CO	PLC
50%	(5.51)	30.22	7.37	1.62	–
55%	(6.22)	30.22	9.33	1.62	–
60%	(0.31)	30.22	11.33	1.62	–
65%	9.57	30.22	13.56	1.62	–
70%	18.43	30.22	15.86	1.62	–
75%	24.94	31.72	17.80	1.62	–
80%	25.85	21.05	9.66	1.62	–
85%	18.49	10.48	1.60	1.62	–

Table 7. Scenario 5: Baseline Prices, Baseline Farm Yield, Low County Yield

RP Coverage Level	Net Indemnity, \$			Farm Program Payment, \$	
	RP	STAX	SCO	ARC-CO	PLC
50%	(5.51)	26.81	4.53	7.02	–
55%	(6.22)	26.81	6.49	7.02	–
60%	(7.04)	26.81	8.49	7.02	–
65%	(7.93)	26.81	10.72	7.02	–
70%	(9.83)	26.81	13.02	7.02	–
75%	(14.08)	28.94	15.48	7.02	–
80%	(23.94)	21.05	9.66	7.02	–
85%	(42.06)	10.48	1.60	7.02	–

Table 8. Scenario 6: Low Prices, Baseline Farm Yield, Low County Yield

RP Coverage Level	Net Indemnity, \$			Farm Program Payment, \$	
	RP	STAX	SCO	ARC-CO	PLC
50%	(5.51)	42.50	45.87	22.81	–
55%	(6.22)	42.50	47.83	22.81	–
60%	(7.04)	42.50	43.10	22.81	–
65%	(7.93)	42.50	34.57	22.81	–
70%	(9.83)	42.50	26.10	22.81	–
75%	(13.56)	31.72	17.80	22.81	–
80%	(12.65)	21.05	9.66	22.81	–
85%	(20.01)	10.48	1.60	22.81	–

Table 9. Summary of Preferred Options for Each Scenario

Scenario	Scenario Description	Producer Choice	Net Benefit
1	Baseline prices, Baseline yields	Either ARC-CO or PLC	\$0
2	Low prices, Baseline yields	STAX @ 75%	\$31.72
3	Baseline prices, Low farm yield, Baseline county yield	Either ARC-CO or PLC	\$0
4	Low prices, Low farm yield, Baseline county yield	RP @ 75% and STAX	$\$24.94 + \$31.72 = \$56.66$
5	Baseline prices, Baseline farm yield, Low county yield	RP @ 50% and STAX	$-\$5.51 + \$26.81 = \$21.30$
6	Low prices, Baseline farm yield, Low county yield	RP @ 50% and SCO	$-\$5.51 + \$45.87 = \$40.36$