Staff Report No. 2014-14 **September 2014**

A Preliminary Overview of the CTAP, SCO and STAX Programs for Producers of Upland Cotton

Michael A. Deliberto and Michael E. Salassi
Louisiana State University Agricultural Center
Department of Agricultural Economics & Agribusiness

The Agricultural Act of 2014, commonly referred to as the 2014 farm bill, places a degree of interaction between Title I farm program benefits and Title XI crop insurance programs and policies. A common theme in all farm bill analyses focus on how the landmark rewrite of the commodity title places a strong dependence on traditional and new crop insurance policies afforded to producers- particularly producers of upland cotton- as a means of risk management As upland cotton transitions out of Title I support in 2014, concessions are made to the industry as new crop insurance programs (e.g. the supplemental coverage option or SCO and the stacked income protection plan or STAX) will not be made available until the 2015 crop year. These concession are made through cotton transition assistance payments (CTAP).

CTAP is identified as a temporary program that provides payments to producers on farm for which cotton base acres were in existence as of September 30, 2013. The program will only operate for the 2014 crop year and in certain counties for the 2015 crop year (Federal Register, 2014). As its name implies, this program is designed to be a 'transition' for cotton producers between the previous direct and counter-cyclical payment programs and the new STAX program, which is authorized to begin in the 2015 crop year. The CTAP program has similarities to the direct payment program of the 2008 farm bill in reference to how the payment rate is calculated. Another similarity to the direct payment program is that producers do not have to grow upland cotton to be eligible for CTAP.

Enrollment in CTAP begins on August 11, 2014 and ends October 7, 2014. For CTAP applications that are received prior to October 1, 2014, payments will be subject to a congressionally-mandated budget reduction of 7.2% for the 2014 crop year. Application approved after this date will be subject to the required 7.3% reduction for the 2015 crop year (USDA FSA, 2014). For the 2015 CTAP (if applicable), the signup is July 31, 2015. Applications for CTAP are independent of any election and participation in the ARC or PLC program. CTAP is decoupled from ARC or PLC program participation. It is possible for cotton base acres eligible for CTAP to also qualify for eligible generic base acres for ARC and PLC (Federal Register, 2014). It is noted that a producer will need to separately elect and enroll in ARC or PLC to be eligible for those benefits. The application for CTAP has no bearing on ARC or PLC elections. Likewise, a person or legal entity that enrolls and elects ARC or PLC and who do not file an application for 2014 or 2015 CTAP in accordance with this rule will not be paid for 2014 or 2015 CTAP, even is those acres were eligible for CTAP (Federal Register, 2014).

USDA FSA has calculated the 2014 transition payment rate to be to $0.09 per pound. This amount represents the difference between the August 1, 2013 and the December 10, 2013, midpoint price estimate

as contained in the USDA WASDE report. Language in the Agricultural Act of 2014 (P.L. 113-79) states that the amount of transition assistance to be provided to producers on a farm for a crop year shall be equal to the product of 60% of the cotton base acres and the transition assistance rate in effect for the 2014 crop year. For counties where STAX is not available in 2015, the transition assistance provided shall equal the product of 36.5% of the cotton base acres and the transition assistance rate. Eligibility for CTAP in 2015 is determined in-part by the availability of STAX in a county.

For example, suppose a farm has 500 acres of cotton base (as of September 30, 2013) and elects to participate in the CTAP program for 2014. The farm has a payment yield history of 850 pounds. To calculate the farm's CTAP, a series of calculations are performed.

The transition assistance rate of $0.09 per pound can be multiplied by the 60% identified in the legislation in order to determine the transition payment rate made per base acre. This results in a CTAP rate of $0.054 per pound. Recall, that the farm in question has a payment yield of 850 pounds. This equates to a CTAP of $45.90 per cotton base acre, obtained by the product of ($0.054 * 850 pounds). The total CTAP payment to this farm with 500 acres of cotton base for the 2014 crop year is $22,950. However, this is subject to the budget sequestration rate of 7.2%. Meaning, that the total CTAP payment would be reduced by this sequestered rate of $1,652.40 to equal $21,297.60.

CTAP payments are limited to $40,000 per person or legal entity, which is similar to the direct and counter-cyclical payment limitation under the 2008 farm bill. This $40,000 CTAP payment limit is separated from the aggregated $125,000 Title I program payment limit for ARC, PLC, MAL, and LDP.

Two general enhancements of the federal crop insurance program stem from the desire of many in Congress to bolster what they consider to be the most significant aspect of the farm safety net. Unlike farm commodity programs, federal crop insurance is applicable to a variety of crops and requires producers to pay for part of the program. Producers are indemnified only after an insurable crop loss (Shields, 2014). A distinguishing feature of crop insurance programs in the new farm bill is the authorization of SCO and STAX policies designed to reimburse "shallow losses"- an insured producer's out-of-pocket loss associated with the policy deductible.

The commodity program choice (ARC or PLC) will determine the eligibility to purchase SCO insurance. Any crop on a farm that is enrolled in the ARC program is not eligible for SCO coverage because ARC is a revenue plan designed to pay for "shallow losses". SCO is designed to serve as a shallow loss program for covered commodities enrolled in the PLC program. SCO will be made available to producers of corn, cotton, rice, sorghum, soybeans, and wheat for the 2015 crop year. The premium cost of the SCO policy is subsidized by 65%. The costs of the SCO premium depends on the crop, county, coverage level (percentage), and the type of underlying policy coverage (yield or revenue protection).

The SCO is a new crop insurance option that provides additional coverage for a portion of your underlying crop insurance policy deductible (USDA RMA, 2014). SCO is an area-wide (e.g. county) loss policy, whereby an indemnity is paid on area losses not more than the deductible level selected by the producer for the underlying policy (Shields, 2014). The SCO guarantee can be based on either expected county yields or revenues, and SCO policies must be purchased as an endorsement to (conjunction with) the type of underlying policy for the individual crop. Indemnities are triggered by county losses greater

than 14% and policy coverage cannot exceed the difference between 86% and the coverage level selected by the producer for the underlying policy (Shields, 2014).

Beginning in 2015, cotton producers can participate in the SCO and STAX programs, but cannot have SCO and the stacked income protection plan (STAX) on the same acres.

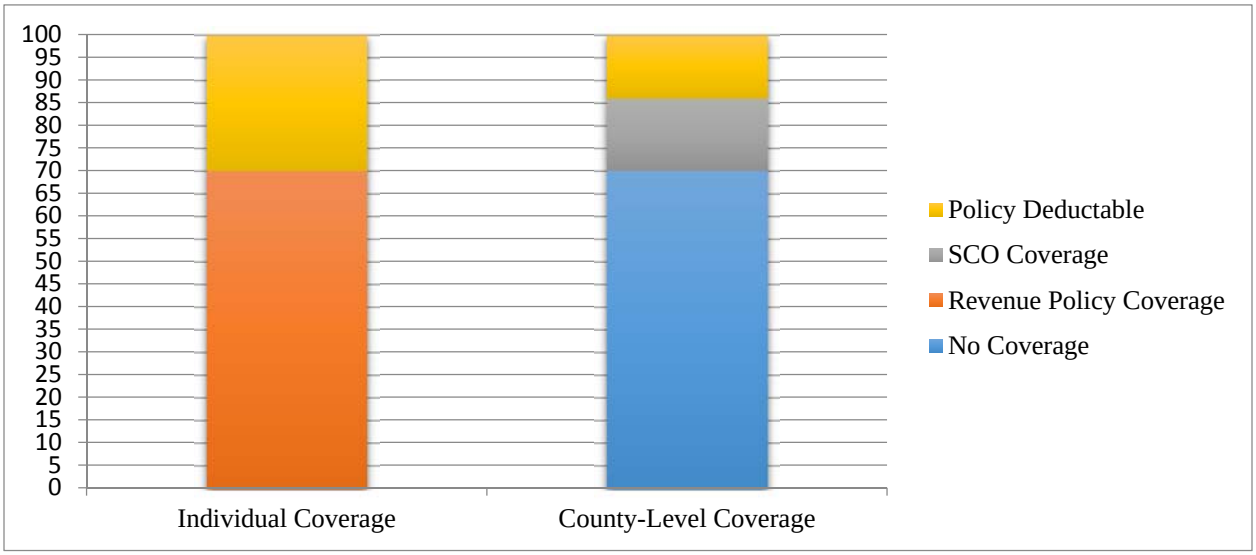
SCO follows the coverage of the underlying policy. For example, if a producer were to choose revenue protection (RP), then SCO covers against revenue loss (USDA RMA, 2014). The underlying policy for the individual crop pays a loss on an individual basis and an indemnity is triggered when the producer suffers an individual loss in yield or revenue. SCO pays a loss on an area basis, and an indemnity is triggered when there is a county level loss in yield or revenue.

As an example, suppose a cotton producer has an expected crop value of $640.00 per acre (800 pound per acre yield multiplied by a $0.80 price). If the producer were to purchase a traditional revenue protection policy with a 75% coverage level, this would serve as the underlying policy. This revenue protection policy would cover 75% of the expected crop value or $480.00 while leaving the remaining 25% (or $160.00) as the unrecovered policy deductible. Let us assume that a producer elects to purchase SCO coverage. Since the underlying policy to this cotton crop is revenue protected, SCO will provide revenue protection with potential payments determined at the county level.

Recall that SCO indemnities are triggered when county revenue, in this case, falls below 86% of the expected level (100% - 14%). This 86% benchmark is set legislatively in the 2014 farm bill. The SCO endorsement will pay out its full amount when the county revenue falls to the coverage level of the expected level set by the underlying revenue policy, or 75%. Therefore, the expected crop value covered by SCO is equal to 11% (86% - 75%). The amount of SCO revenue protection for the crop is calculated by multiplying the 11% of expected crop value ($640.00) which equates to $70.40. This can be interpreted as the SCO policy covering up to $70.40 of the $160.00 deductible that is not covered by the underlying policy.

Figure 1 provides an illustration of how the SCO policy can provide protection for a portion of the underlying policy's premium. Here, the relevant information from the preceding example is included in the left bar such that the 70% revenue protection policy for the producer's individual policy coverage (shaded in orange) and the remaining 30% of the expected crop revenue representing the deductible (shaded in yellow) are identified. Due to the fact that SCO is determined by county level revenue and not affected by whether the producer receives a payment from their underlying policy, it is possible to experience an individual loss but not receive an SCO payment, or vise-versa (USDA RMA, 2014). The bar on the right represents SCO operating at the county level. Since SCO is designed as an area-wide loss policy, indemnities are triggered when county losses are greater than 14% (100% - 86%). Coverage of the SCO policy in this example is provided from 86% of expected revenue down to the 70% of the underlying policy held by the producer (shaded in grey). Since SCO requires that an underlying policy be purchased, SCO coverage cannot overlap the 70% revenue protection of the underlying policy. The bar on the right-side of the graph illustrates how SCO can act to offset a cost of the deductible of the underlying policy.

Figure 1. A comparison of a 70% revenue coverage crop insurance policy and the SCO coverage acting to supplement revenue protection from 86% to 70% of expected county revenue.



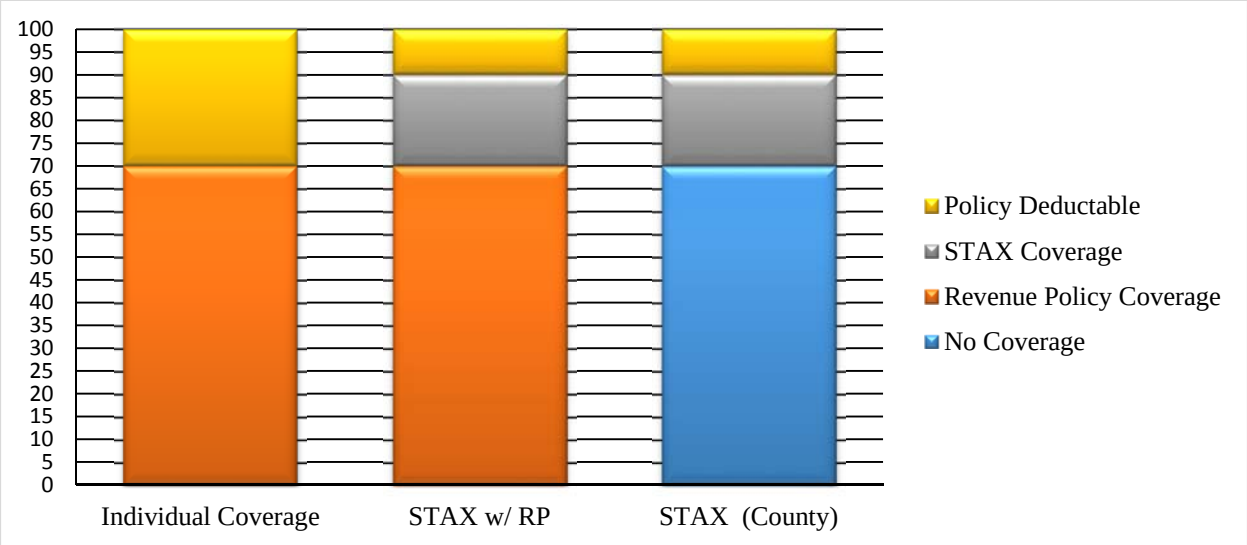
In order to apply this SCO example to a production situation, recall the example from the earlier paragraphs of a representative cotton farm with an APH yield of 800 pounds per acre. The projected harvest price is $0.80 per pound and the expected county yield is 800 pounds per acre, which results a county expected revenue of $640.00. Suppose the individual farm has an underlying revenue protection policy of 75%. Revenue protection for the underlying policy is calculated to be $480.00. The farm's actual yield is 650 pounds with a harvest-time price of $0.80 per pound. Actual cotton yield for the county was reported to be 672 pounds per acre. Actual income earned from the farm is $520.00, while the actual county level income is $537.60. In order for the farm's revenue policy to pay an indemnity, the revenue to the farm would have to fall below the $480.00 amount identified by the 75% coverage level. In this instance, the actual income of the farm was $520.00; resulting in no insurance indemnity payment being made. However, in reference to the county-wide SCO plan, the trigger for the county is set equal to 86% of the expected county income, or $550.40. SCO coverage in this case spans from 86% to the 75% level of the underlying revenue policy of the farm, with a maximum limit of $70.40. Since county actual income is $537.60, which is less that the SCO triggered amount of $550.40, an SCO payment of $12.80 is made.

It is also important to note that starting with the 2016 crop year, USDA RMA will be making greater use of crop insurance data to expand SCO coverage into more areas and crops. USDA RMA intends to make SCO coverage more practice-specific (irrigated in comparison to non-irrigated units).

The stacked income protection plan (STAX) for upland cotton provides coverage for a portion of the expected revenue for the producer's production area (USDA RMA, 2014). STAX, which begins in 2015, pays a loss on an area wide basis, with an indemnity triggered when there is an area revenue loss. In most cases the term "area" refers to the county assuming a creditable amount of data is available to establish an expected yield and premium rate. STAX may be purchased as a stand-alone policy or as a supplement to

existing underlying policy. STAX provides coverage for up to 20% of the expected area revenue in increments of 5% percentage points. Loss payments begin when area revenue falls below 90% of its expected level- although a lower loss trigger may be selected. Loss payments reach their maximum when area revenue falls to 70% of its expected level- unless the underlying policy has a coverage level above the 70% in which payments end sooner (USDA RMA, 2014). The amount of coverage for STAX can be increased or decreased by selection of a protection factor (ranging from 0.80 to 1.20) so that producers may better tailor their coverage to their risk preferences (USDA RMA, 2014). In Figure 2, the left bar represents a traditional revenue protection policy which protects against revenue losses below 70% of expected revenue. The middle bar represent a 70% revenue protection policy coupled with a STAX policy. In this case, the STAX would provide coverage from 90% down to 70% of the expected county revenue. This would offset or cover a portion of the revenue protection policy premium (30% in this example), should a STAX indemnity be triggered. It is noted that STAX sets its coverage ban to begin at 90% of the expected county revenue not individual farm revenue- meaning that the first 10% of county revenue is lost. The bar on the right illustrates how STAX would operate if it were purchased as a stand-alone policy. Unlike the SCO example, no underlying policy is required for STAX. Losses are triggered when county revenue falls below 90%. The maximum coverage ban for STAX protects revenue losses down to 70%. In this case, STAX operates as a shallow loss revenue protection plan for county revenue coverage.

Figure 2. A comparison of a 70% crop revenue policy (RP), STAX policy coupled with 70% RP, and a stand-alone STAX policy.



Coverage depends on the expected yield, projected price, coverage range, and the protection factor. The expected yield for STAX is based on the historical average of yields in the country reported to RMA by insured producers (USDA RMA, 2014). 80% of the STAX premium cost will be subsidized.

For example, suppose a producer has a cotton crop with an expected area-wide value of $596.00 (745 pounds per acre at a $0.80 per pound price). The producer has an underlying revenue protection policy

with a 75% coverage level. Recall that STAX begins to pay when area revenue falls below 90%. The STAX endorsement pays the full amount when area revenue falls to the higher of: 70% or the percentage of the underlying policy. In this example the 75% revenue policy applies and hence the STAX coverage range is 15% (90% - 75%). It is assumed that the producer chooses the maximum protection factor of 1.20. Therefore the amount of STAX protection is equal to $107.28 (15% x 1.20 x $596.00). This is interpreted as the STAX policy can cover up to $107.28 in addition to what is covered by the underling policy. This example was included since the STAX coverage cannot overlap coverage with an existing policy. Instead of providing a 20% coverage band, the existence of an underlying 75% revenue policy reduced STAX coverage to 15%.

In the following example, the provisions of STAX are identified in the situation where STAX would be purchased as a stand-alone insurance policy. In order to determine the insurance protected price, the price discovery period of the December futures contract is used from January 15th to February 14th. The expected county yield is obtained from USDA RMA. The expected county income is the product of these two values. For example, suppose the insurance protected price is $0.80 per pound and the expected county yield from USDA RMA is 900 pounds, then the expected income is $720.00. In order to trigger an indemnity payment, county revenue must fall below 90% of the expected income level, calculated to be $648.00 (90% * $720.00). By law, the policy provisions of STAX allow a maximum indemnity payment of 20% of the expected county income, or $144.00. (This is expressed as the coverage ban of 90% down to 70% shallow loss protection of the program.) Moving forward, suppose the insurance harvest price of the December futures contract from October 1st to October31st is $0.68 per pound and the actual county yield is 900 pounds. The resulting actual county revenue is $612.00 ($0.68 * 900 pounds). Since the actual county revenue of $612.00 is less than the triggered indemnity level of $648.00, a county indemnity payment is calculated to be $36.00. However, this would then be multiplied by the producer-selected STAX protection factor (0.80 to 1.20). In this case if the producer chose a protection factor of 1.2, then the STAX indemnity would be $43.20 ($36.00 * 1.20).

As previously stated, a unique provision of the STAX policy is that it can function as a stand-alone policy. In another exercise, suppose that a producer has no underlying revenue (or yield protection) policy for his cotton crop at the individual farm level. The projected price is assumed to be $0.80 per pound with an expected county yield of 800 pounds per acre. Therefore, the expected county revenue is calculated to be $640.00. The STAX program will trigger an indemnity at 90% of this expected county (area) revenue of $576.00. STAX provides coverage to 70% of this revenue measure, or $448.00. The resulting STAX coverage band is the difference between this upper and lower limit of protection, or $128.00. If the actual county yield is 672 pounds and harvest price remains at $0.80, actual income is $537.60. The producer is assumed to select a protection factor of 1.20. This protection factor is then multiplied by the STAX coverage bans of $128.00 to establish a maximum STAX indemnified amount of $153.60. Since $537.60 is less than the triggered income of $576.00, the county indemnity is $38.40. This is then multiplied by the protection factor (1.20) that results in a STAX indemnity of $46.08 being released.

STAX can be combined with an underlying policy. Suppose the producer has an underlying revenue policy of 70%. His APH of the farm is 800 pounds. Using the same information presented in the preceding paragraph, assume that the actual individual farm yield is 550 pounds. The expected revenue to the producer is $640.00 (800 * $0.80). The revenue policy indemnity trigger in this case is 70% of

$640.00, or $448.00. Since actual farm level data is used in this STAX calculation- due to the existence of an underlying policy- the actual farm income is $440.00 (550 * $0.80). This is less than the triggered amount of the protected revenue for the underlying policy, meaning an $8.00 insurance indemnity is made to the producer. This is separated from the STAX calculation. The STAX indemnity of $46.08 would be a separate amount paid to the producer, resulting in a total payment of $54.08.

It is important to note that with the inclusion of a separate revenue policy for STAX, individual farm data will be used in conjunction with the area-wide (county) data for the STAX coverage. Since STAX is designed to function as a county-wide plan, coverage is only provided from 90% to 70% of expected county revenue, although a protection factor may be selected that allows a producer to scale this county value up or down to the level that he feels provides the best risk management strategy.

USDA RMA has developed an online crop insurance decision tool that is designed to evaluate to the SCO and STAX programs while considering farm-level APH data, actual and expected county yields, as well as expected and final harvest prices. In order to evaluate the SCO and STAX provisions for cotton producers, several examples (Tables 1 to 6) are provided in efforts to detail and chronicle the calculations of potential indemnity payments of each program while considering an underlying revenue protection policy. It is assumed that cotton crop is non-irrigated, with the farming operation located in Tensas Parish, Louisiana per the instruction prompted by the decision aid.

In this example, the SCO is evaluated in conjunction with an underlying revenue protection policy with harvest price exclusion (RPHPE) for the cotton crop.

Table 1. SCO with underlying revenue protection with harvest price exclusion policy (RPHPE) for cotton.

Parameter	Value/Unit of Measure
Farm's APH (lbs/ac)	800
Projected Price ($/lb)	$0.72
Expected County Yield (lbs/ac)	525
Underlying Policy Protection Level	75%
SCO Coverage Range	11%
Actual County Yield (lbs/ac)	399
Harvest-time Price ($/lb)	$0.77
Expected Crop Value (w/ APH) ($/ac)	$576.00
Supplemental Protection Amount ($/ac)	$63.36
Actual County Income ($/ac)	$307.23
Actual Farm Yield (lbs/ac)	350
Actual Farm Income ($/ac)	$269.50
Expected County Income ($/ac)	$378.00
SCO Payment Factor	0.429
SCO Indemnity Amount($/ac)	$27.20
RPHPE Indemnity Amount($/ac)	$162.50

The results in Table 1 indicate that under the projected and harvest-time price and yield conditions, the SCO indemnity totals $27.20 and the underlying policy produces a $162.50 indemnity. From a computational standpoint, the farm's APH yield, projected insurance price, expected county yield, and underlying protection coverage level of the RPHPE policy are those identified in Table 1. The SCO

coverage band is equal to 11% (86% - 75%). Expected county income is the product of the projected price ($0.72) and the expected yield (525 pounds) $378.00. The expected crop value is equal to $576.00 (farm's APH of 800 pounds per acre multiplied by the insurance projected price of $0.72 per pound). The maximum SCO protection amount is equal to $63.36, or (11% * $576.00). Actual county yield, actual harvest-time price, and actual farm yield are also assumed for this example. The actual county income is the product of the actual harvest-time price and the actual county yield, in this case $307.23. Actual farm income is calculated in the same manner, $269.50. Calculation of the SCO payment factor is performed by subtracting the ratio of the actual county income to the expected county income from the 0.86 SCO coverage level. This is then divided by the SCO coverage band of 0.11. The SCO indemnity is then a product of the payment factor and the SCO protection amount, which results in an indemnity of $27.20. Specific to this 75% RPHPE policy, since the actual farm income of $269.50 is less than the expected crop value of the farm ($576.00), a crop insurance indemnity is made. The amount is equal to this difference less the 25% policy premium (100% -75%) multiplied by the farm's APH yield and the $0.72 projected price. The crop insurance indemnity is therefore $162.50.

In the second example, the SCO is evaluated in conjunction with an underlying revenue protection policy (RP) for the cotton crop.

Table 2. SCO with underlying revenue protection (RP) policy for cotton.

Parameter	Value/Unit of Measure
Farm's APH (lbs/ac)	800
Projected Price ($/lb)	$0.72
Expected County Yield (lbs/ac)	525
Underlying Policy Protection Level	75%
SCO Coverage Range	11%
Actual County Yield (lbs/ac)	399
Harvest-time Price ($/lb)	$0.77
Expected Crop Value (w/ APH) ($/ac)	$576.00
Expected Crop Value (w/APH and Higher Price) ($/ac)	$616.00
Supplemental Protection Amount ($/ac)	$67.76
Actual County Income ($/ac)	$307.23
Actual Farm Yield (lbs/ac)	400
Actual Farm Income ($/ac)	$308.00
Expected County Income ($/ac)	$404.25
SCO Payment Factor	0.909
SCO Indemnity Amount($/ac)	$61.60
RP Indemnity Amount($/ac)	$154.00

Here, the key difference lies in the type of the underlying crop insurance policy and the effect that the policy type has on the SCO and RP indemnity amount. Since the underlying policy is revenue-protecting, SCO will operate similar to a revenue plan. From the previous example, all assumptions made oat the county and farm-level are held constant. The expected crop value, with the RP policy, is calculated to be $616.00. This obtained by multiplying the underlying policy coverage level (75%) by the higher of the projected price ($0.72) and the harvest-time price ($0.77) to the farm's APH yield. The SCO coverage band of 11% is multiplied by this expected crop value to obtain the $67.76 maximum SCO protection

amount. Due to the fact the both RPHPE and RP are revenue-related insurance products, the use of the higher cotton price with the RP policy provision leads to a higher SCO protection amount. The expected county income of $404.25 is calculated by multiplying the 525 pound expected county yield by the higher of the projected insurance price or the harvest-time price, in this case the $0.77 harvest-time price. The SCO payment factor, 0.909, is obtained by subtracting the ratio of the actual county yield to the expected county yield from 0.86. This figure is then divided by the SCO coverage band of 0.11. The SCO payment factor is multiplied by the $67.76, resulting in an SCO indemnity payment of $61.60. Recall that the actual farm income of $308.00 is less than the expected crop value (with the farm's 800 pound yield APH) of $616.00. 25% of the farm's APH multiplied by the higher of the insurance projected price or the harvest-time price is subtracted from the difference of the expected crop value and the actual farm income. The resulting RP insurance indemnity is $154.00.

In the third example, the STAX policy is presented as a stand-alone policy, selected as a RPHPE policy.

Table 3. STAX purchased as a stand-alone RPHPE policy for cotton.

Parameter	Value/Unit of Measure
Projected Price ($/lb)	$0.72
Expected County Yield (lbs/ac)	525
Triggering STAX Indemnity ($/ac)	$340.20
Maximum STAX Indemnity ($/ac)	$83.16
Actual County Yield at Harvest (lbs/ac)	420
Actual Price at Harvest ($/lb)	$0.77
Actual County Income ($/ac)	$323.40
STAX Payment Factor	0.222
County STAX Indemnity ($/ac)	$16.80
STAX Protection Factor (0.80 to 1.20)	1.10
STAX Indemnity Amount($/ac)	$18.48

A major difference between SCO and STAX is that STAX can be purchased as a stand-alone policy, whereas SCO must carry a companion policy for the individual crop. Results in Table 3 indicate that a STAX indemnity would be paid in the amount of $18.48 under the prescribed parameters for the county. In keeping with the basic assumptions from the previous two examples, the insurance projected price and expected county yields are consistent, however Table 3 realizes a higher county yield of 420 pounds per acre. STAX is an area-wide policy that provides coverage for a portion of the expected revenues of a given area, in this case, the county. No individual farm level data is used to calculate a STAX indemnity when STAX is purchased as a stand-alone policy. One assumption made in this example is that STAX coverage is selected from 90% to 70% of county revenue, or a 20% coverage band. The $340.20 policy-triggering amount is 90% of the expected county yield multiplied by the projected price. The maximum STAX indemnity of $83.16 is obtained from multiplying 20% by the product of the projected price and the expected county yield and then multiplied by the STAX protection factor or 1.10. Here, the 1.10 protection factor is the assumed protection factor that is chosen by the producer. The STAX payment factor of 0.222 is equal to the ratio of the actual county income to the expected county income subtracted from 0.90 and then divided by 0.20 coverage band. For the county level STAX indemnity amount of $16.80, the payment factor is multiplied by the product of the projected price and the expected county

yield and 0.20. This county level amount is then multiplied by the 1.10 protection factor to result in a STAX indemnity of $18.48 made to the producer.

In the fourth example, the STAX policy is presented as a stand-alone policy, selected as a RPHPE policy.

Table 4. STAX purchased as a stand-alone RP policy for cotton.

Parameter	Value/Unit of Measure
Projected Price ($/lb)	$0.72
Expected County Yield (lbs/ac)	525
Triggering STAX Indemnity ($/ac)	$340.20
Maximum STAX Indemnity ($/ac)	$88.94
Actual County Yield at Harvest (lbs/ac)	420
Actual Price at Harvest ($/lb)	$0.77
Actual County Income ($/ac)	$323.40
County Income (W/ Higher Price)	$404.25
STAX Payment Factor	0.500
County STAX Indemnity ($/ac)	$40.43
STAX Protection Factor (0.80 to 1.20)	1.10
STAX Indemnity Amount($/ac)	$44.47

In this example STAX is again purchased as a stand-alone policy, however it is selected with the RP policy option. The projected price and county yield are held constant from the previous STAX example. The triggering STAX indemnity level is again equal to $340.20, which is the product of the projected price of $0.72 and the expected county yield of 525 pounds, multiplied by 90%. The maximum STAX indemnity amount is equal to $88.94, which due to nature of the RP policy option, is slightly greater than the STAX RPHPE indemnity previously calculated. This indemnity of $88.94 is the equal to 0.20 multiplied by the product of the expected county yield and the higher of the projected price ($0.72) or the harvest-time price ($0.77) multiplied by the protection factor (1.10). Since this is RP in nature, the higher of the price levels is multiplied by the expected county yield of 525 pounds to obtain the $404.43 county income measure. The STAX payment factor of 0.50 is equal to the ratio of the actual county income to the expected county yield multiplied by the higher of the price levels divided by 0.20 coverage band. The county level STAX indemnity of $40.43 is obtained by the product of the payment factor multiplied by the expected county yield multiplied by the higher price multiplied by 0.20. This is then multiplied by the STAX protection factor of 1.10 to obtain a STAX indemnity amount of $44.47.

Similar to the SCO examples, STAX is now paired with an accompanying (or underlying) RP policy with 70% coverage. Traditional crop insurance policy coverage cannot share or ‘overlap’ coverage with the purchased STAX policy (e.g. a STAX cotton acre cannot have a (90% - 70%) 20% coverage band and an underlying policy with 80% revenue coverage). Therefore, in the STAX examples that follow, the underlying RP policy is one that carries 70% revenue protection in conjunction with the maximum STAX coverage. Parameters such as farm APH, expected county yield, projected insurance price, actual county yield, harvest-time price, and protection factor are consistent with those policy parameters appearing in Tables 3 and 4 for the STAX stand-alone policy indemnity calculations.

Table 5. STAX with underlying revenue protection with harvest price exclusion policy (RPHPE) for cotton.

Parameter	Value/Unit of Measure
Farm's APH (lbs/ac)	800
Projected Price ($/lb)	$0.72
Expected County Yield (lbs/ac)	525
Underlying Policy Protection Level	70%
STAX Trigger	$340.23
Actual County Yield (lbs/ac)	420
Harvest-time Price ($/lb)	$0.77
Expected Crop Value (w/ APH) ($/ac)	$576.00
Payment Factor	0.222
Actual County Income ($/ac)	$323.40
Actual Farm Yield (lbs/ac)	400
Actual Farm Income ($/ac)	$308.00
Expected County Income ($/ac)	$378.00
STAX Protection Factor	1.10
County STAX Indemnity ($/ac)	$16.80
STAX Indemnity Amount ($/ac)	$18.48
RPHPE Indemnity Amount($/ac)	$95.20

Results from Table 5 illustrate the indemnity amounts of STAX and a RPHPE policy. Recall, that the policy design of STAX is built on an area-wide basis. Therefore, the indemnity amount of STAX, selected as a RPHPE option, carrying a 1.10 protection factor, is the same as the results in Table 3 ($18.48). The methodology of calculating the RPHPE indemnity is similar to the previous SCO example (Table 1) with actual farm income falling under the expected crop value. A key difference in Table 5 is that the underlying policy's coverage level is set to 70%; not the 75% in the SCO example. This is due to the fact that STAX coverage cannot overlap the individual policy coverage percent on the same cotton acre. The $95.20 RPHPE indemnity amount is equal to (100% - 70%) multiplied by the farm's APH yield and projected price subtracted from the expected crop value of $576.00.

Table 6. STAX with underlying revenue protection policy (RP) for cotton.

Parameter	Value/Unit of Measure
Farm's APH (lbs/ac)	800
Projected Price ($/lb)	$0.72
Expected County Yield (lbs/ac)	525
Underlying Policy Protection Level	70%
STAX Trigger	$340.23
Actual County Yield (lbs/ac)	420
Harvest-time Price ($/lb)	$0.77
Expected Crop Value (w/ APH) ($/ac)	$616.00
Payment Factor	0.50
Actual County Income ($/ac)	$323.40
Actual Farm Yield (lbs/ac)	400
Actual Farm Income ($/ac)	$308.00
Expected County Income ($/ac)	$378.00
STAX Protection Factor	1.10
County STAX Indemnity ($/ac)	$40.43
STAX Indemnity Amount ($/ac)	$44.47
RP Indemnity Amount($/ac)	$123.20

Table 6 illustrates a STAX policy, operating as RP, with a 70% accompanying RP policy for the individual crop. The STAX indemnity of $44.47 per acre is calculated the same way as in Table 4, again due to the fact the STAX is operating at the county level. The RP indemnity of $123.20 is obtained from the parameters of the underlying 70% RP policy for the individual crop, somewhat similar to the SCO with underlying RP policy example in Table 2. The $123.20 RP indemnity amount is obtained by the product of 30% and the farm's APH and the higher of the projected insurance price or harvest-time price. This is subtracted from the difference of the expected crop value (with higher of the price level) and the actual farm income.

Information contained in this report was obtained from USDA RMA pertaining to the SCO and STAX programs that are slated to begin delivery for the 2015 crop year. Numerical examples that are contained in this report are presented for educational purposes only and are not program recommendations. An important distinction is that SCO and STAX coverage cannot overlap on the same cotton acres. SCO and STAX must be purchased from a licensed crop insurance agent and will carry a policy premium (which will be partially-subsidized by the Government). Therefore, the producer's share of premium costs should be considered in selecting one or both of these policies for their farming operation.

References

Agricultural Act of 2014. Public Law 113-79. 113th Congress. February 7, 2014.

Federal Register. Vol. 79, No. 153, (ppg. 46335-46348). Friday, August 8, 2014.

Shields, D.A. *Crop Insurance Provisions in the 2014 Farm Bill (P.L. 113-79).* Congressional Research Service. R43494. April 22, 2014.

USDA FSA. New Release: "Cotton Transition Assistance Program Enrollment Begins Next Week". USDA FSA Release No. 0136.14. August 7, 2014.

USDA RMA. *Supplemental Coverage Option for Federal Crop Insurance*. USDA RMA Fact Sheet. July 2014.

USDA RMA. *Stacked Income Protection Plan (STAX) for Upland Cotton.* USDA RMA Fact Sheet. August 2014.

USDA RMA. Crop Insurance Decision Tool (CIDT). http://prodwebnlb.rma.usda.gov/apps/CIDT/ Date Accessed: August 29, 2014.

Michael A. Deliberto can be contacted in the Department of Agricultural Economics and Agribusiness at (225) 578-7267 or by emailing mdeliberto@agcenter.lsu.edu.