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Analysis of the STAX and SCO Programs for Cotton Producers

Jody L. Campiche

Department of Agricultural Economics
Oklahoma State University

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Abstract

Both the House and Senate farm bills include changes to Title I commodity programs and crop insurance programs, including a new shallow loss revenue protection program, a price protection program, and two supplemental crop insurance programs. A key change in the new farm bill is that the Title I shallow loss revenue protection and price protection programs would not be available to cotton producers. Instead, cotton producers would have the option to enroll in either the Supplemental Coverage Option (SCO) or the Stacked Income Protection Plan (STAX). Both products are similar to the Group Risk Income Protection (GRIP) crop insurance policy and would cover county-wide losses. The products are designed to complement a producers' individual insurance policy. Understanding the differences in payments from Title I programs as compared to potential payments from the STAX or SCO programs will be important for cotton producers. For this study, average direct payments and counter-cyclical payments over the 2002–2011 time period were compared to potential STAX and SCO payments for several Oklahoma and Texas counties.

Key words: STAX, SCO, Farm Bill, crop insurance

After unsuccessful attempts in 2012 to pass a new farm bill, the farm bill process has continued throughout much of 2013. In June 2013, the Senate passed its version of the new Farm Bill (S.954), called the “Agricultural Reform, Food and Jobs Act of 2013”, which included significant revisions to the commodity provisions of the 2008 farm bill. Then, in July 2013, an unprecedented event occurred with the passage of an ‘ag and conservation only’ version of the farm bill in the House (H.R. 2642), called the “Federal Agricultural Reform and Risk Management Act of 2013”, which excludes nutrition programs. The current farm bill expires on September 30, 2013 and as of the beginning of September, the current status of the farm bill debate is unknown. The question remains on whether or not the House will pass a nutrition bill and go to conference with the Senate (on either the full farm bill or the split version passed by the House) prior to the expiration of the current bill or at least by the end of the year. Both versions of the farm bill include significant changes to commodity programs. Several commodity programs will be eliminated, including Direct Payments (DP), Counter-Cyclical Payments (CCP), the Average Crop Revenue Election (ACRE) program, and the Supplemental Disaster Assistance (SURE) program. However, the House bill contains a provision for direct payments for cotton producers to be phased out over the 2014 and 2015 crop years.

Both the House and Senate bills include a shallow loss revenue protection program, a price protection program, and two new supplemental crop insurance programs. The Supplemental Coverage Option (SCO) is available to all eligible commodity producers and the Stacked Income Protection Plan (STAX) is only available to upland cotton producers. Both products are similar to the Group Risk Income Protection (GRIP) crop insurance policy and would cover county-wide losses. Producers would pay a premium and receive an indemnity

payment for eligible losses. The supplemental crop insurance plans would sit on top of a producers' individual insurance policy which means that a producer can purchase two insurance policies for the same crop. The idea is that STAX or SCO would cover shallow losses while the producers' individual insurance policy would cover deeper losses.

A key change in the new farm bill is that the Title I revenue and price protection programs would not be available to upland cotton producers. Instead, cotton producers would have the option to purchase an SCO or STAX policy. This will be an adjustment for producers since they are not required to pay a premium to participate in the Direct and Counter-Cyclical Payment (DCP) program. Producers do not pay a premium to participate in ACRE either but few cotton producers have participated in ACRE. Understanding the differences in payments from the DCP program and payments that producers could potentially receive from the STAX or SCO programs will be important for cotton producers. For this study, average direct payments and counter-cyclical payments over the 2002–2011 time period were compared to potential STAX and SCO payments for several Oklahoma and Texas counties.

STAX

The Stacked Income Protection Plan (STAX) is a county-level revenue loss policy available to upland cotton producers. Producers can purchase STAX as a stand-alone policy or in addition to an individual insurance policy such as Revenue Protection (RP) or Yield Protection (YP). STAX is similar to GRIP which covers revenue losses based on average county yields instead of individual farm yields. However, very few cotton producers purchase GRIP policies. In 2012, only 37 policies were sold across the United States. Producers receive GRIP payments when the actual county revenue drops below the expected county revenue (RMA 2012). Similar to GRIP, STAX provides coverage for county-wide revenue losses, but a key difference between GRIP and STAX is that producers can purchase a STAX policy and an individual insurance policy. If the producer does have an individual policy, STAX would sit on top and cover losses ranging between 10% and 30% of expected county revenue, so 70–90% coverage is available with STAX.

In the recently passed House and Senate bills, the STAX program has the same parameters. In an earlier version of the bill, the House included a minimum STAX reference price of \$0.6861/lb which would have provided more price protection if prices decline, but this was dropped in the latest version of the bill. As discussed by Campiche (2013), coverage cannot overlap between an individual insurance policy and STAX. For example, a producer with 80% coverage on an individual policy could only get up to 10% coverage under STAX. A producer with 70% coverage on his individual policy could get up to 20% coverage with STAX. The majority of cotton producers in the United States have 65-75% coverage on their individual policy. However, quite a few Texas producers have 50-60% coverage as well. STAX coverage is available in 5% increments, so producers could choose a coverage level of 5%, 10%, 15%, or 20% depending on the coverage level of their individual policy. Higher coverage levels will result in higher premiums so producers will want to evaluate their options. STAX is subsidized by the federal government at 80%, so the producer portion of the premium will be 20%. Similar to the GRIP insurance program, producers can select a payment rate multiplier up to 120% to obtain a closer match between their individual loss expectations and their county-level STAX coverage.

SCO

SCO is a county-level revenue or yield loss policy available to eligible commodity producers as a supplemental policy to cover a portion of the deductible of their individual insurance policy. In the House bill, an SCO indemnity is paid on county losses of 10% or greater and coverage cannot exceed 90% minus the deductible level of the producers' individual insurance policy (i.e. 25%). In the Senate bill, producers are subject to a deductible of 10% of their expected crop value or 22% if enrolled in Agriculture Risk Coverage (ARC), which is the revenue protection program. In addition, SCO yield coverage cannot exceed 85% of the individual yield or 95% of the county yield. As noted by Zulauf (2012), SCO coverage is tied to the individual yield or revenue insurance policy. So a producer with an individual Yield Protection (YP) policy would only have the option to purchase an SCO yield protection policy (as opposed to a revenue protection policy). Paulson (2012b) provides a detailed summary of the SCO program and assumes that the prices and yields used for the SCO calculations are similar to those used in GRIP or GRP (Group Risk Protection) insurance plans. In another study, Paulson (2012a) notes that SCO supplements individual yield and revenue policies by protecting intra-year price drops as opposed to price movements over time.

In an earlier version of the House and Senate farm bills, the premium subsidy was closer for SCO and STAX (70% for SCO and 80% for STAX). However, in the latest versions of the farm bill, the SCO premium subsidy was reduced to 65% which means that cotton producers are even less likely to enroll in SCO. However, since cotton producers have the option to choose between the two programs, a discussion of the key differences between STAX and SCO is provided.

STAX vs. SCO Coverage

As shown in Table 1, the calculations for STAX and SCO are similar (assuming an SCO revenue protection policy). In both SCO and STAX, the projected (or expected) price is the futures price at planting and the harvest price is the futures price at harvest. For the expected county yield, only the expected county trend NASS yield is used for SCO, while the 5-year moving average county NASS yield is also incorporated into the STAX calculation. For both programs, the range of coverage is the lesser of 20% or 90% minus the individual policy coverage level. A key difference between the two programs is that SCO includes individual farm revenue in the maximum payment calculation. For STAX, the maximum payment is the product of the range of coverage, expected county revenue, and the payment multiplier. For SCO, the maximum payment is the range of coverage times the expected farm revenue. The payment multiplier is only an option with STAX coverage.

Table 1. STAX vs. SCO

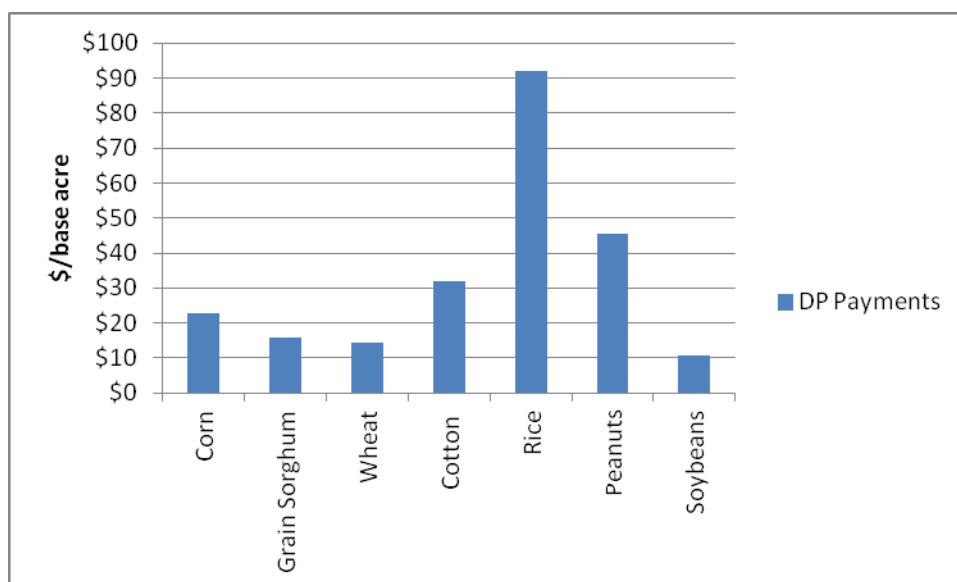
		STAX	SCO*
How are prices determined?	Projected price	Futures price at planting	Futures price at planting
	Harvest price	Futures price at harvest	Futures price at harvest
	Expected price	Projected price	Projected price
How is County Revenue Determined?	Expected county yield	Higher of: Expected county trend NASS yield or 5-year moving average county NASS yield	Expected county trend NASS yield
	Expected county revenue	Expected county yield * projected price	Expected county yield * projected price
	Final expected county revenue	Expected county yield * higher of: projected price or harvest price	Expected county yield * higher of: projected price or harvest price
	Actual county revenue	Actual county NASS yield * harvest price	Actual county NASS yield * harvest price
How is Farm Revenue Determined?	Expected farm revenue	N/A	Farm APH yield * projected price
	Final expected Farm revenue	N/A	Farm APH yield * higher of: projected price or harvest price
How is the Maximum Coverage Level Calculated?	Range of coverage	Minimum of: 20% (10-30% of expected county revenue) or 90%—individual buy-up coverage level	Minimum of: 20% (10-30% of expected county revenue) or 90%—individual buy-up coverage level
	Maximum payment	Range of coverage * final expected county revenue * payment multiplier	Range of coverage * final expected farm revenue
How is the Payment Calculated?	Percent loss	90% - (actual county revenue/final expected county revenue)	90% - (actual county revenue/final expected county revenue)
	Payment	Minimum of: Maximum payment or (percent loss * final expected county revenue * payment multiplier)	Minimum of: Maximum payment or (percent loss * final expected county revenue)
What is the Premium Subsidy?	Government subsidy	80% (producer pays 20%)	65% (producer pays 35%)
What is the Payment Multiplier?	Multiplier	Up to 120%	N/A

*assume Revenue Protection (RP) individual buy-up coverage (BUP) policy and SCO coverage up to 25% (i.e. not in ARC).

*Adapted from Campiche (2013).

STAX/SCO vs. Direct and Counter-Cyclical Payment Program

As discussed in a recent study by Campiche (2013), under the previous two farm bills, cotton producers enrolled in the Direct and Counter-Cyclical Payment (DCP) program were eligible for direct payments and counter-cyclical program payments (and marketing loans). Although cotton producers had the option to participate in the Average Crop Revenue Election (ACRE) program under the 2008 Farm Bill, few producers/landowners with cotton base acreage enrolled in ACRE since they would no longer receive counter-cyclical payments and they would lose 20% loss of their direct payments. This was an important consideration for cotton producers as opposed to producers of some of the other crops. Figure 1 shows average direct payments per base acre for the 2009–2010 crop year for corn, grain sorghum, wheat, cotton, rice, peanuts, and soybeans. On average, cotton producers receive the third highest direct payment per base acre at around \$32/acre. Direct payments are paid on historical base acreage and payment yields and fixed payment rates established in the farm bill. Direct payments are not tied to planted acres and producers/landowners are not required to plant a crop to receive the payments.



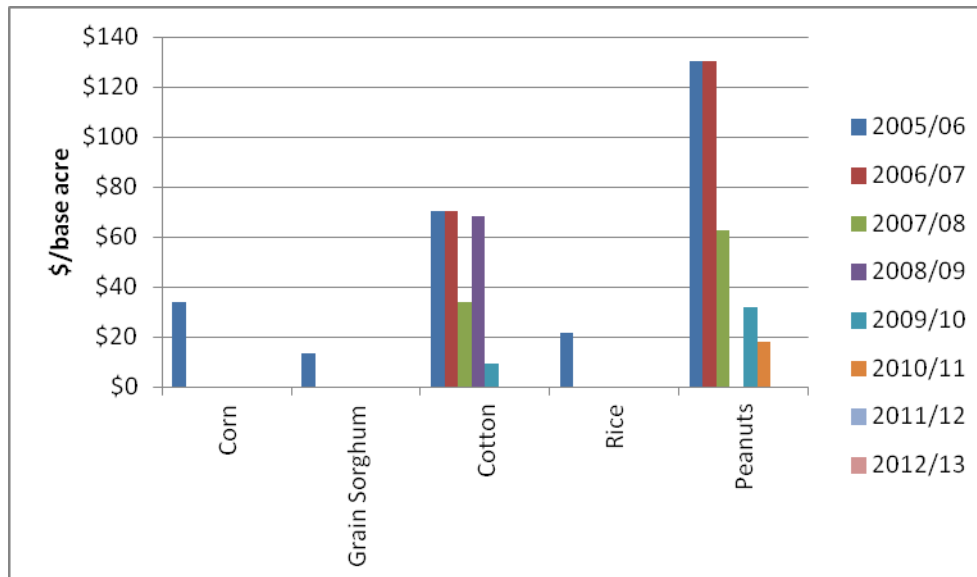
Source: USDA ERS, FSA, and NASS.

Figure 1. 2009/10 Average U.S. Direct Payments

The counter-cyclical payment (CCP) program was introduced in the 2002 farm bill and cotton producers received a CCP payment every year until the 2010/11 crop year (see figure 1 for 2005-2012 CCP payments by crop). For other program commodities, with the exception peanuts and rice, CCP payments have only been made one or two times between 2002 and 2012. Wheat and soybean producers have never received a CCP payment. Similar to direct payments, counter-cyclical payments are also tied to historical base acreage and fixed target prices included in the 2002 and 2008 farm bills. However, the CCP program is tied to current market prices and payments are made when the National Average Marketing Year Price drops below the target price.

With STAX or SCO, cotton producers will no longer receive a guaranteed payment each year and they will have to pay a premium for the new product. However, unlike Title I

commodity programs, crop insurance programs are not subject to payment limits (at least not in the current bill language). The Senate bill does include a new income limitation that would affect the subsidy amount received by a producer for the crop insurance premium.



Source: USDA ERS, FSA, and NASS.

Figure 2. CCP Payment per Base Acre for Program Commodities

Previous Research

Several studies have examined potential impacts of the proposed commodity and crop insurance programs (Coble, Barnett, and Miller, 2012; Karov, Wailes, and Watkins, 2012; Outlaw et al. 2012; Paulson, 2012a; Paulston, 2012b; Westhoff and Gerlt, 2012). Much of the previous research also examines the interactions between SCO and Title I commodity programs. Since this research focuses on cotton, the interaction between SCO and the new commodity programs is not discussed. It is also important to note that some program parameters and assumptions have changed multiple times during the farm bill debate so earlier studies analyzing SCO and STAX may have used slightly different parameters. Using current baseline price projections as well as a declining price scenario, Outlaw et al. (2012) analyzed the impact of the STAX program on 64 representative farms. Not surprisingly, they found that STAX offers more price protection if a minimum reference is included.

Coble, Barnett, and Miller (2012) used a simulation model to analyze potential STAX and SCO payments and found that the average STAX payment was greater than the SCO payment for cotton in most counties across the United States. Based on their analysis, the average STAX payment was about \$26/acre. In a study of Arkansas representative farms, Karov, Wailes, and Watkins (2012) analyzed the impact of the STAX program versus current commodity programs. Results of their study indicated that none of the representative farms would benefit from STAX as compared with direct payments under the 2008 Farm Bill. They also found that none of the farms would be profitable at STAX coverage levels below 95%

(which is higher than the maximum coverage level included in the current farm bills). Average payments ranged from \$1 to \$46 per acre for the 70–95% coverage levels.

Westhoff and Gerlt (2012) used FARPI-MU economic models to analyze the impact of new commodity and crop insurance programs in the House and Senate farm bills. Using a STAX participation rate of 95%, they estimated an annual STAX payment of approximately \$40/acre based on the average of results from 500 different market outcomes and 5 marketing years. In another study, Paulson (2012b) used historical data to analyze SCO payments for corn in McLean County Illinois. Results of his analysis suggest that average SCO payments over the 1977-2001 time period would have been around \$28/acre for SCO revenue coverage (at 80%) and around \$13/acre for SCO yield coverage (at 80%).

Data and Methods

The potential impact of new supplemental crop insurance programs on cotton producers in several counties in Oklahoma and Texas was examined. Using historical data from 2002-2012, payments to cotton producers from the existing Direct and Counter-Cyclical Payment (DCP) program and the new STAX and SCO programs were analyzed. County data was used to estimate DCP, STAX, STAX with the reference price, and SCO payments for a representative farm in Tillman County (OK), Jackson County (OK), Gaines County (TX) and Lynn County (TX). Although, the House farm bill no longer includes a reference price in STAX, payments were estimated to provide a comparison. To estimate payments from the DCP program, average county direct payment and counter-cyclical payment yields for the 2002 farm Act were obtained from the United States Department of Agriculture (USDA) Farm Service Agency (FSA). It is important to note that farm level DCP payments will vary due to individual direct payment and counter-cyclical payment yields (as well as base acreage), but for this analysis, average county DCP payments were used. The national average marketing year prices were obtained from the National Agricultural Statistics Service (NASS). The direct payment rates and target prices were obtained from the 2002 and 2008 farm bills.

To estimate STAX and SCO payments, actual county yield data for 2002-2012 was obtained from NASS. To calculate farm revenue for SCO, Actual Production History (APH) yield data from the Risk Management Agency (RMA) was used for the Oklahoma counties and a ten year average of NASS county yields was used for the two Texas counties. Projected and harvested prices were also obtained from RMA. To calculate the county trend yield, a simple linear trend regression was used. For each representative farm, the producer was assumed to have a Revenue Protection (RP) insurance policy with 70% coverage. For STAX, a multiplier of 100% and a coverage level of 20% were used to estimate payments.

Parameters used in the STAX and SCO calculations are based on my interpretation of the programs as included in S.954 and H.R.2642 along with a few additional assumptions (since all program parameters are not completely specified in the bill language).

Results

As shown in Figures 3-10, payments from the DCP program vary from year to year since producers receive a fixed direct payment each year but the counter-cyclical payment varies with current market prices. It is important to note that while the figures show payments per acre, DCP payments are tied to base acreage and STAX/SCO payments are paid on planted acreage.

Although the House bill no longer includes a reference price for STAX, these results are shown below to provide an understanding of the role of the reference price. When comparing STAX to SCO, STAX generally provides more coverage which is not surprising since the calculation is based off of the higher of the county trend yield or the 5-year moving average yield (as opposed to just the county trend yield with SCO).

For many of the counties (and practices), a DCP payment (or STAX with reference price) would have been made in only 5 or 6 of the 10 years. For most counties, in the years with a STAX payment, STAX performs about the same or better than DCP or SCO. Yields were low in 2011 but prices were high so producers did not receive a CCP payment. As shown in the figures, producers would receive a payment under STAX w/Ref but not the STAX program in several years. Going forward, it is quite likely that cotton producers will not receive STAX or SCO payments in some years. Producers with irrigated cotton in Lynn County, Texas would receive the lowest number of STAX/SCO payments over the 2002-2011 period. Additional analysis will be conducted to obtain a more accurate representation of yields used to calculate STAX and SCO payments.

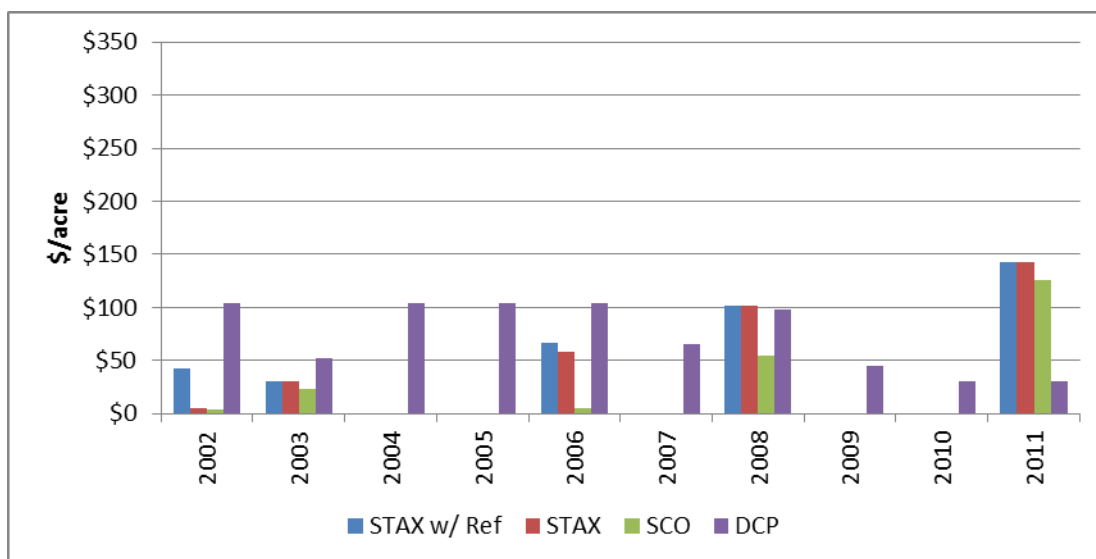


Figure 3. Comparison of Payments for Non-Irrigated Cotton in Jackson County, Oklahoma

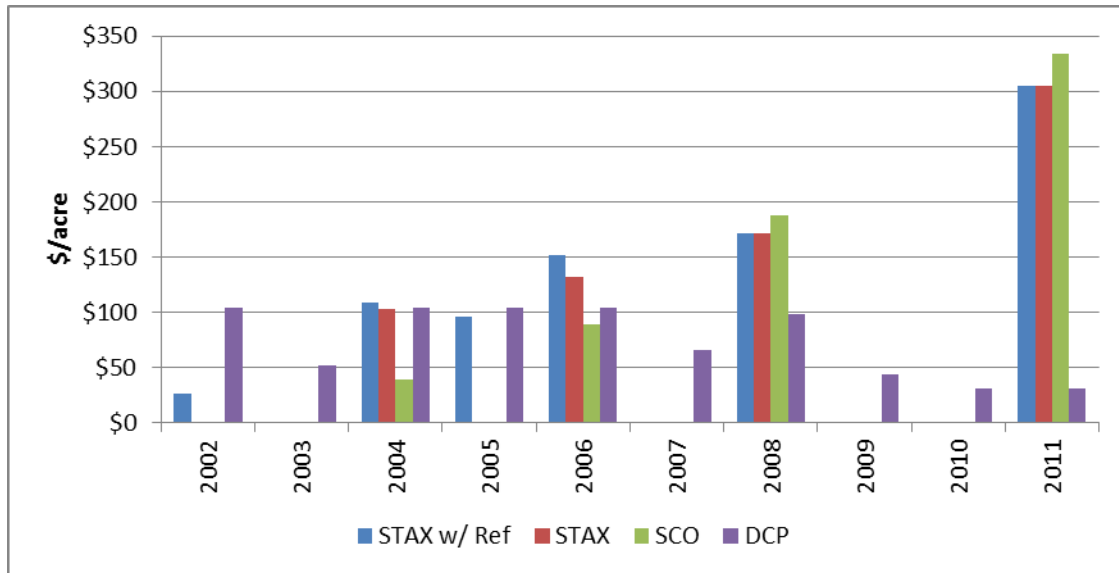


Figure 4. Comparison of Payments for Irrigated Cotton in Jackson County, Oklahoma

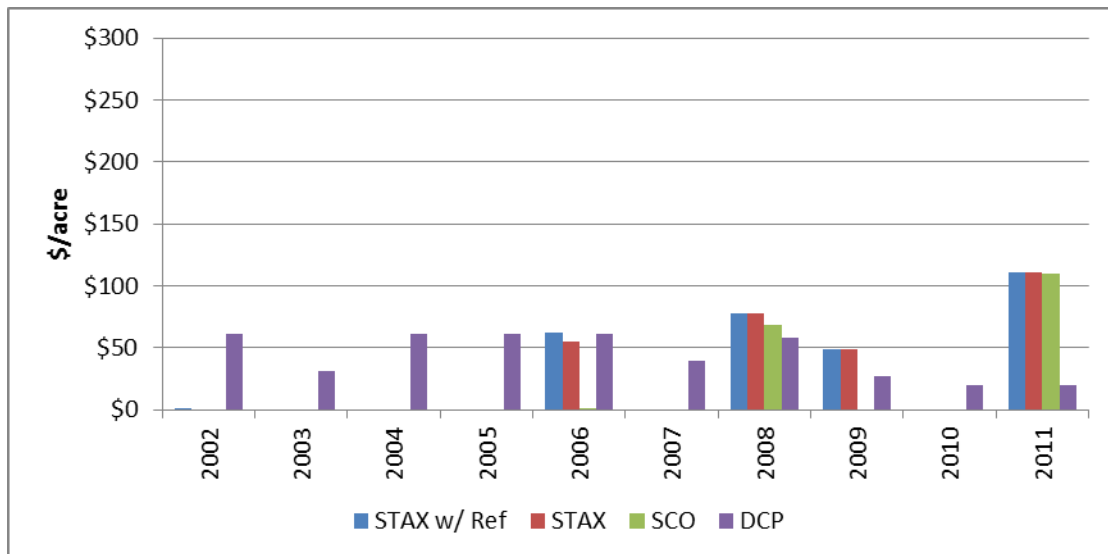


Figure 5. Comparison of Payments for Non-Irrigated Cotton in Tillman County, Oklahoma

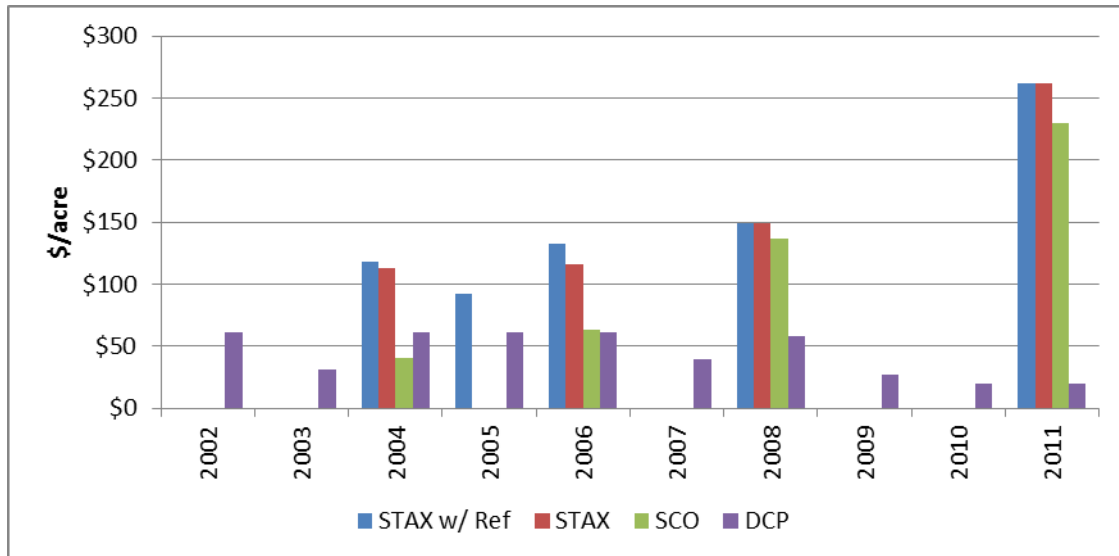


Figure 6. Comparison of Payments for Irrigated Cotton in Tillman County, Oklahoma

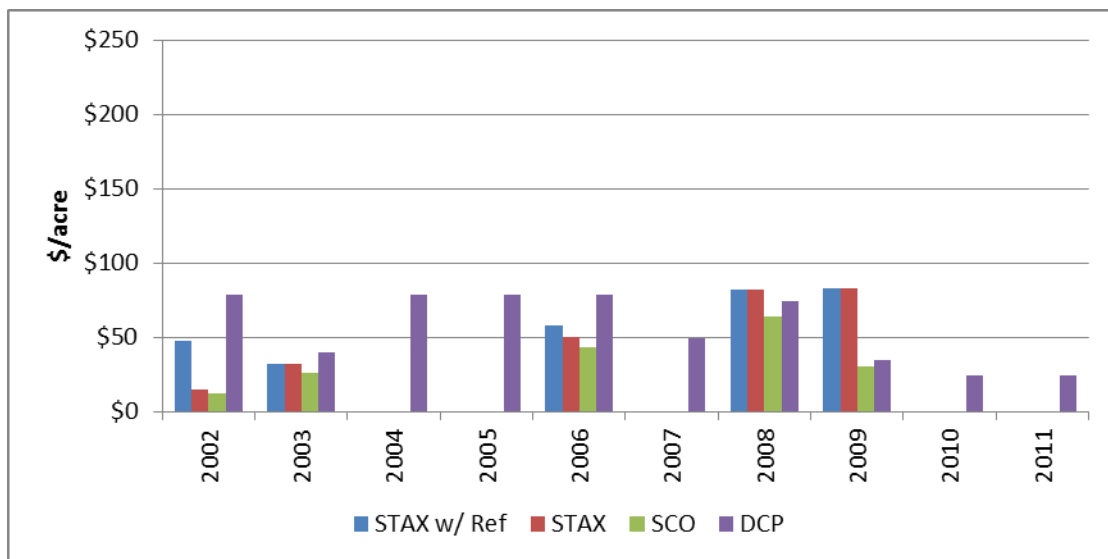


Figure 7. Comparison of Payments for Non-Irrigated Cotton in Gaines County, Texas

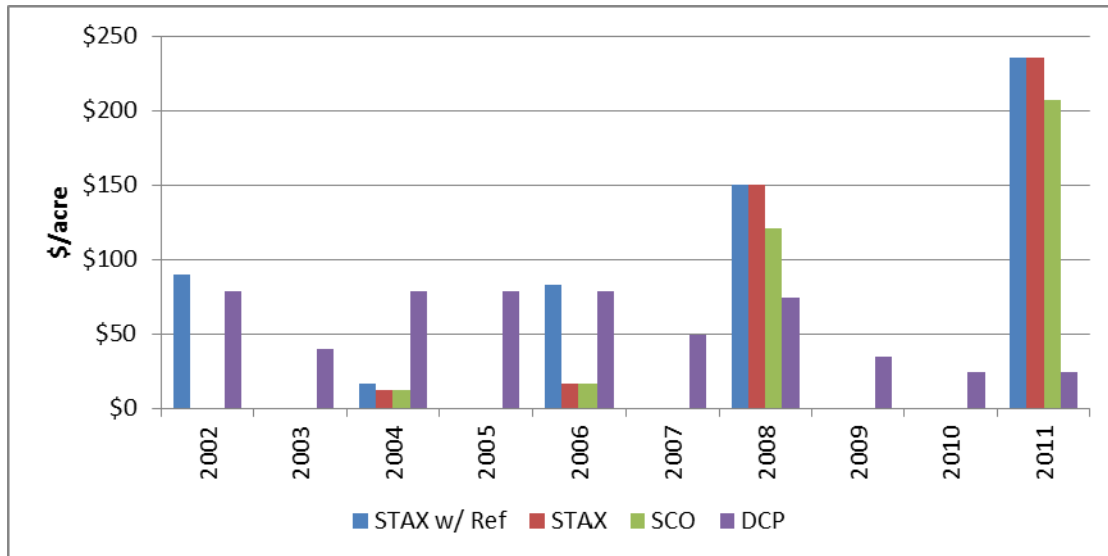


Figure 8. Comparison of Payments for Irrigated Cotton in Gaines County, Texas

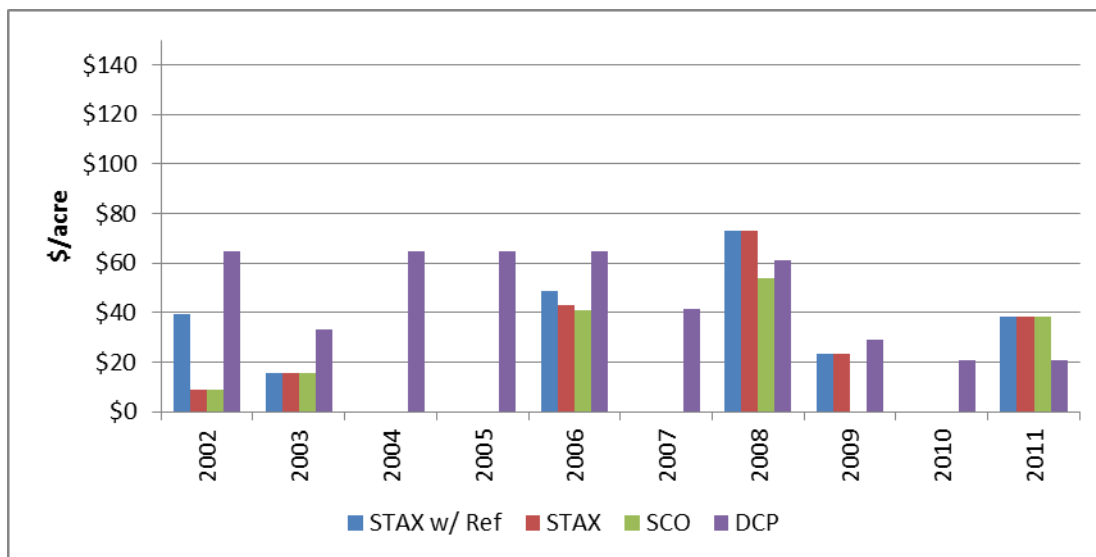


Figure 9. Comparison of Payments for Non-Irrigated Cotton in Lynn County, Texas

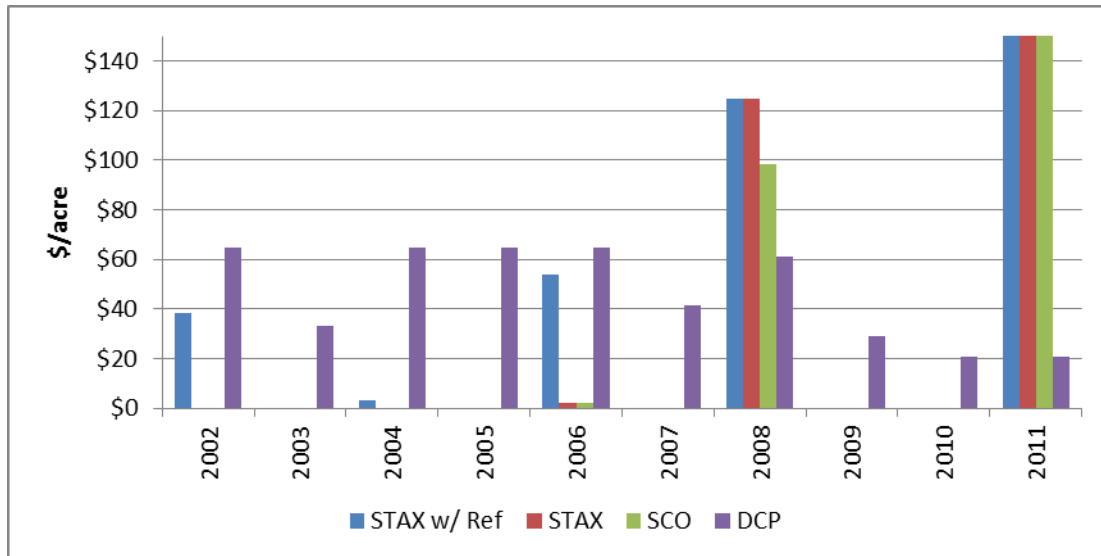


Figure 10. Comparison of Payments for Irrigated Cotton in Lynn County, Texas

Conclusions

Overall, producers would receive more payments under the DCP program than under the STAX or SCO programs, which was expected since direct payments are fixed payments. Under STAX and SCO, payments vary from year to year and producers can expect years with no STAX or SCO payments. STAX and SCO payments vary for each county and for irrigated and non-irrigated cotton.

For this study, a simple linear trend yield was used for the expected county yield. The actual NASS trend yield incorporates additional factors and will likely differ from the trend yields used in this study. Premium estimates for STAX and SCO were not included in this study but will be an important consideration for producers. It will also be important for producers to examine the interactions between a new supplemental insurance policy and their individual buy-up coverage. Producers may want to lower the coverage level of their individual policy and purchase a higher coverage level on the supplemental policy. However, an analysis of alternative coverage levels was not included in this study. This research will be expanded to include additional states and counties. In addition, a simulation model will be developed to forecast potential STAX and SCO payments for cotton producers for 2014-2018.

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