

FARM POLICY BRIEF

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Senate Agriculture Committee Version of 2012 Farm Bill

By Keith Coble, Barry Barnett, Corey Miller, and David Ubilava

On April 26, 2012, the Senate Agriculture, Nutrition, and Forestry Committee passed its version of a 2012 farm bill. The final vote was 16-5 and notably four of the five “no” votes were cast by senators from southern states: Sens. Cochran (MS), Boozman (AR), Chambliss (GA), and McConnell (KY). The full Senate reportedly will take up the bill during the month of June. Officially titled the Agriculture Reform, Food, and Jobs Act of 2012, the bill proposes major changes to federal commodity programs, including eliminating direct payments, counter-cyclical payments, and the Average Crop Revenue Election or ACRE program, all of which were created or renewed by the 2008 farm bill. The marketing loan program remains largely intact, with the exception of modifications to loan rates for cotton.

The bill is the product of a number of proposals issued by various groups and members of Congress since the collapse of the so-called “Super Committee” on deficit reduction in December 2011. This brief outlines the important features of the bill as it was reported out of committee and also includes results from preliminary simulation analyses of the payments generated by the proposed legislation. These simulations calculate payments for major crops in different representative locations in Mississippi and account for yield trends, expected future price levels, and the probability of extreme events.

Ag Risk Coverage (ARC)

A central component of the Senate bill is known as the Ag Risk Coverage program, or ARC. An earlier version of ARC was included in a proposal agreed to by the chairs of the House and Senate agriculture committees before the collapse of the Super Committee. According to the bill, crops eligible for ARC include “wheat, corn, grain sorghum, barley, oats, long-grain rice, medium-grain rice, pulse crops, soybeans, other oilseeds, and peanuts.” The version of ARC included in the bill allows a producer to select a revenue guarantee based on farm-level revenue or county-level revenue as a one-time decision for the life of the bill. For both levels, the revenue guarantee is 89% of the average benchmark revenue and a payment cannot be larger than 10% of the benchmark revenue. Thus, like most of the 2012 farm bill proposals, ARC is a “shallow loss” program. For farm-level ARC, benchmark revenue equals the five-year Olympic average of *individual* yields for a crop on a farm multiplied by the ten-year average of the national marketing year average (MYA) price for a crop.¹ The payment rate is multiplied by 65% of planted acres for farm-level coverage. The actual revenue for farm-level ARC equals the individual farm yield multiplied by the higher of the marketing loan rate for the crop or the crop’s “midseason price”—the average national MYA price for the first five months of the marketing year. For county-level ARC benchmark revenue equals the five-year Olympic average of *county* yields for a crop multiplied by the five-year Olympic average of the national MYA price for a crop. The payment rate is multiplied by 80% of planted acres for county-level coverage. The actual revenue for county-level ARC equals the average county yield multiplied by the higher of the marketing loan rate for the crop or the midseason price. ARC stipulates FSA delivery, has no premium charge, and includes a payment limit as discussed below.

¹ ARC includes a special rule for rice and peanuts that applies to both farm-level and county-level versions in the calculation of benchmark revenue. For rice, a price of \$13.00 per cwt. is substituted for any year in which the national MYA price is below this value. Similarly, for peanuts a price of \$530.00 per ton is substituted.

Stacked Income Protection Plan

As upland cotton is not among the commodities included under ARC, the bill creates an insurance-like program specifically for cotton known as Stacked Income Protection, or STAX (which is actually included in Title XI, Crop Insurance, and not Title I, Commodities). STAX was developed in large measure to address the outcome of the WTO dispute settlement case against U.S. cotton programs.² The U.S. reached an agreement with Brazil to avoid retaliation until the 2012 farm bill modifies the existing programs. STAX, basically a modified version of the existing USDA-Risk Management Agency (RMA) crop insurance program Group Risk Income Protection (GRIP), uses county-level instead of farm-level measures to protect against shallow losses in the ranges of 10 to 30% of expected county revenue. The deductible cannot be less than 10% of expected county revenue. The program uses the higher of the expected price established under the existing GRIP program or \$0.65 per pound as a minimum price guarantee. STAX computes expected revenue by multiplying this price by the higher of expected county yield under an existing area insurance plan (most likely GRIP) or a 5-year Olympic average of county yields. Like ARC, STAX is paid on planted acres. In our simulations that follow, the calculations assume payments are triggered by shortfalls in county revenue, the revenue guarantee equals 90%, and the payment range is up to 20%; i.e., additional program payments cease when losses fall below 70% of the guarantee. STAX also includes a premium; however, as written in the bill this premium is 80% subsidized. No payment limits are included under STAX, however. In addition, producers participating in STAX cannot participate in the Supplemental Coverage Option (SCO) discussed below.

Supplemental Coverage Option

SCO is a program included in the crop insurance title of the Senate farm bill that is similar to the Total Coverage Option (TCO) proposed by USDA during the 2008 farm bill deliberations and the Crop Risk Options Plan (CROP) introduced by Rep. Neugebauer of Texas in fall 2011. SCO essentially provides coverage for the deductible amount of a producer's insurance policy using an area-based yield or revenue policy. SCO is yield- or revenue-based depending on whether a producer's underlying individual coverage is yield- or revenue-based. Coverage begins when the county average yield or revenue falls below 90% of its expected level. The coverage ceases (payments reach a maximum) when the county average yield or revenue (as a percentage of its expected value) falls to the coverage level of the producer's individual policy. For example, for a producer who purchases a 65% Yield Protection crop insurance policy and participates in SCO, if the county average yield falls to 65% of its expected level or less, the producer receives the maximum SCO payment, which equals 90% of the value of the deductible of the Yield Protection policy. SCO is designed as an optional endorsement to a producer's existing crop insurance policy and therefore requires payment of a premium.³ SCO does not include any payment limits.

Examples

The following tables provide illustrations for how the proposed programs discussed above function. Table 1 describes the STAX program using data for Washington County, Mississippi, for cotton. The examples use data for the last three crop years available, 2008-2010. One feature noticeable about STAX is the use of terminology similar to crop insurance, such as "projected price" and "indemnity." Since the focus is on the mechanics of calculating an indemnity, this example does not consider STAX premiums. The largest indemnity occurs in 2008 because the largest price shortfall, the difference between the realized price (line 6) and the projected price (line 3), occurs in 2008, resulting in a relatively large shortfall in revenue. In contrast, in 2009 the yield is well below the expectation but the futures price for the realized income is actually higher than the projected price at planting, which results in a realized income closer to the reference income and a smaller indemnity. In 2010, both the yield and futures price are well above their expectations, resulting in a much higher realized income compared to the reference income.

² Early [reports](#) indicate Brazil does not believe STAX will meet WTO rules.

³ Programs with premiums such as STAX, SCO, and crop insurance include an Administrative & Operating charge payable to the private insurance company that sold the policy, generally equal to around 20% of premiums.

Table 1. STAX illustration for cotton in Washington County, Mississippi.

Row	Calculation/value	2008	2009	2010
1	Projected price (1/15-2/14 average for Dec cotton contract)	\$0.79	\$0.52	\$0.72
2	Expected area-wide yield per planted acre (lbs.; higher of trend yield or 5-year Olympic average)	926.1	889.2	847.2
3	Area-wide Projected Income (1 × 2)	\$734.58	\$465.05	\$613.03
4	Protection factor (values range from 0.80 to 1.20)	1.20	1.20	1.20
5	Maximum protection per acre (3 × 4)	\$881.50	\$558.06	\$735.64
6	November average of December cotton futures price	\$0.51	\$0.66	\$1.12
7	Area-wide reference Income (higher of 1 & 6) × 2	\$734.58	\$583.58	\$951.66
8	90% of reference Income (90% of 7)	\$661.12	\$525.22	\$856.49
9	Actual area-wide yield per planted acre (lbs.)	797.40	670.10	1,027.90
10	Area-wide realized Income (6 × 9)	\$403.25	\$439.79	\$1,154.64
11	Income shortfall (8 – 10 if 10 < 8)	\$257.88	\$85.44	\$0.00
12	Maximum indemnity (20% of 7)	\$146.92	\$116.72	\$190.33
13	Indemnity (smaller of 11 & 12)	\$146.92	\$85.44	\$0.00

Table 2. SCO illustration for corn in Yazoo County, Mississippi.

Row	Calculation/value	2008 data	2009 data	2010 data
1	Projected price (1/15-2/14 average for Dec corn contract)	\$5.40	\$4.04	\$3.99
2	APH yield	154.66	158.51	162.36
3	Crop insurance coverage level	70%	70%	70%
4	Expected farm revenue	\$835.16	\$640.38	\$647.82
5	SCO coverage (90% – Row 3) × Row 4	\$167.03	\$128.08	\$129.56
6	Expected area-wide yield (bu.) per planted acre (higher of trend yield or 5-year moving average)	140.6	144.1	147.6
7	Area-wide projected income (1 × 2)	\$759.24	\$582.16	\$588.92
8	SCO coverage level	90%	90%	90%
9	November average of December corn futures price	\$4.13	\$3.72	\$5.46
10	Actual area-wide yield per planted acre (bu.)	121.9	112.8	132.0
11	Area-wide realized income (9 × 10)	\$503.45	\$419.62	\$720.72
12	Revenue ÷ expected revenue (Row 11 ÷ Row 7)	66%	72%	122%
13	Percent shortfall bounded between 0 and the value of Row 8 – Row 3	20%	18%	0%
14	Percent shortfall as a percent of deductible % [Row 13 ÷ (Row 8 – Row 3) Bounded at 100%]	100%	90%	0%
15	Indemnity (Row 5 × Row 14)	\$167.03	\$114.76	\$-

Table 2 illustrates a revenue-triggered SCO program for corn in Yazoo County, Mississippi, again using 2008-10 data. As with STAX, SCO is based on shortfalls in area revenue. However, the SCO payment only triggers when the actual county revenue falls below 90% and reaches a maximum once the actual county revenue falls to 70% of the expected county revenue or less. Thus, in Table 2 SCO payments trigger for the 2008 and 2009 data because actual revenue as a percentage of expected revenue (Row 10) in each of these years falls below this level. In both years actual revenue fall

below expected revenue because of declines in *both* actual yields and prices relative to their expected levels. However, a large enough decrease in either variable could result in a payment. Only for the 2010 data is no SCO payment triggered because actual revenue as a percentage of expected revenue remains above this range. As in the previous STAX example, SCO premiums are not considered in this illustration.

Table 3 lists an example of ARC for soybeans in Coahoma County, Mississippi, also using the 2008-10 data. The example uses county-level yield data, but for the farm-level option farm yields simply replace county yields. For 2008 and 2009, ARC payments do not trigger because the actual revenues are well above the trigger revenues. In the case of 2008 and 2009, the revenue increases almost entirely due to the increase in county yields. The example for 2010 uses the data for this year except the actual MYA price is replaced with a hypothetical low price to illustrate how the ARC program functions. This relatively low price results in actual revenue less than the trigger revenue. The difference between these two values is multiplied by 80% (the factor used for county-level ARC payments) to calculate the final ARC payment. However, the maximum ARC payment cannot exceed 10% of the product of the benchmark revenue and the 80% factor, and in the 2010 example because of this limit the actual ARC payment per acre (Row 10) is well below the calculated payment (Row 9).

Table 3. County-level ARC illustration for soybeans in Coahoma County, Mississippi.

Row	Calculation/value	2008 data	2009 data	2010 data with low price
1	Olympic average yield (bu.)	38.5	39.4	40.9
2	MYA price in \$/bu.	\$9.97	\$9.59	\$11.30
3	Benchmark Revenue (Row 1 × Row 2)	\$383.85	\$377.85	\$462.17
4	Trigger revenue (89% of Row 3)	\$341.62	\$336.28	\$411.33
5	Actual yield (bu.)	43	45	38
6	Average of 1st 5-month MYA price	\$9.87	\$9.66	\$8.00
7	Actual revenue (Row 5 × Row 6)	\$424.41	\$434.70	\$304.00
6	Difference (Row 4 – Row 7)	\$-	\$-	\$107.33
7	County payment share = 80%	80%	80%	80%
8	Calculated ARC Payment per acre (Row 6 x Row 7)	\$-	\$-	\$85.87
9	Maximum ARC payment per acre (10% x Row 3 x Row 7)	\$30.71	\$30.23	\$36.97
10	Total ARC payment per acre (smaller of Row 8 and Row 9)	\$-	\$-	\$36.97

Table 4 presents how a hypothetical target price program could function for rice in Bolivar County, Mississippi. Some in the rice and peanut industries have proposed a target price program as an alternative to ARC. This example is very similar to the current counter-cyclical payment program (CCP) included in the 2008 farm bill. As in the current program, payments are made on 85% of base acres. The target price is set at \$13.98 per cwt.—considerably higher than the current target price of \$10.50 per cwt. The example uses a county average yield, for which an individual producer’s current CCP yield could be substituted. Another difference in the example is the use of an actual price equal to the average MYA price for the first five months of the marketing year, as opposed to the annual MYA price used by the current CCP program. Row 9 lists the payment per base acre, while Row 10 lists the payment. Row 11 lists the total payment assuming the payment is made on 85% of planted acres. In 2008 and 2009 no payment is triggered because the actual price exceeds the target price. In contrast, in 2010 the actual price falls below the target price, resulting in a total payment of almost \$14,000.

Simulation Analysis

Researchers at Mississippi State analyzed the Senate farm bill proposal using a computer simulation model to determine the expected average per acre payments for four major crops in Mississippi. The model generates these payments for

representative counties to reflect either major production areas and/or particular regions in the state. Also, these payments account for any premiums or other fees producers are required to pay to participate in a particular program.

Table 4. Target price program illustration for rice in Bolivar County, Mississippi.

Row	Calculation/Value	2008	2009	2010
1	Base Acres	500	500	500
2	Planted Acres	200	200	200
3	Percent of planted acres on which payments are made	85%	85%	85%
4	Payment Acres (Planted Acres × Payment Percentage)	170.00	170.00	170.00
5	County Average CCP Yield (cwt. per acre)	44.75	44.75	44.75
6	1 st 5-month MYA Price (\$ per cwt.)	\$18.34	\$14.72	\$12.14
7	Target Price	\$13.98	\$13.98	\$13.98
8	Price Shortfall	\$0.00	\$0.00	\$1.84
9	Payment per Payment Acre	\$0.00	\$0.00	\$82.34
10	Payment per Planted Acre	\$0.00	\$0.00	\$69.99
11	TP program if base line price exactly correct (Payment acres × CCP Yield × Price Shortfall)	\$0.00	\$0.00	\$13,997.80

Significantly, this analysis does not use “backcasting” to examine what would have occurred under these proposals in the past, but instead uses the current market situation as a starting point to examine how these programs may perform in future years.

Table 5 lists the average per acre net payments for corn in a representative Mississippi county in the Delta region incorporating ARC, SCO, and Revenue Protection (without the harvest price exclusion) crop insurance. The payments presented in these simulation results are net of estimated farmer premium costs. Since as the bill is written a producer could participate in SCO without participating in ARC, we include two scenarios consisting solely of Revenue Protection and SCO. We then present four ARC scenarios where the subscript *f* indicates ARC at the farm-level and the subscript *c* indicates ARC at the county-level. Pairing SCO with 70% Revenue Protection generates payments similar to a combination of farm-level ARC, 70% Revenue Protection, and SCO. Farm-level ARC also results in larger payments than county-level ARC for either coverage level.

Table 5. Simulated annual average expected net payments for corn, representative Mississippi county in the Delta region.

Program	ARC	RI	SCO	Total
RI ₆₀ + SCO _{90,60}		\$16.63	\$22.68	\$39.31
RI ₇₀ + SCO _{90,70}		\$25.98	\$20.78	\$46.76
ARC _f + RI ₇₀ + SCO _{79,70}	\$18.82	\$25.98	\$2.51	\$47.31
ARC _c + RI ₇₀ + SCO _{79,70}	\$15.27	\$25.98	\$2.51	\$43.76
ARC _f + RI ₆₀ + SCO _{79,60}	\$18.82	\$16.63	\$2.42	\$37.87
ARC _c + RI ₆₀ + SCO _{79,60}	\$15.27	\$16.63	\$2.42	\$34.32

Table 6 lists the same payments as Table 5 for soybeans, and the results are similar. The magnitudes of the average payments are slightly lower, but the relative differences are the same as for corn in Table 1.

As cotton is not eligible for ARC, Table 7 includes the STAX payments for comparison. Revenue Protection at 70 percent coverage and STAX results in larger payments than Revenue Protection at either 60 or 70 percent and SCO. Revenue Protection at 60 percent coverage and STAX provides payments similar to Revenue Protection at 70 percent coverage and SCO.

Table 6. Simulated annual average expected net payments for soybeans, representative Mississippi county in the Delta region.

Program	ARC	RI	SCO	Total
RI ₆₀ + SCO _{90,60}		\$26.40	\$12.19	\$38.59
RI ₇₀ + SCO _{90,70}		\$32.41	\$10.58	\$42.99
ARC _f + RI ₇₀ + SCO _{79,70}	\$8.53	\$32.41	\$1.34	\$42.28
ARC _c + RI ₇₀ + SCO _{79,70}	\$7.16	\$32.41	\$1.34	\$40.91
ARC _f + RI ₆₀ + SCO _{79,60}	\$8.53	\$26.40	\$1.48	\$36.41
ARC _c + RI ₆₀ + SCO _{79,60}	\$7.16	\$26.40	\$1.48	\$35.04

Table 7. Simulated annual average expected net payments for cotton, representative Mississippi county in the Delta region.

Program	RI	SCO	STAX	Total
RI ₆₀ + SCO _{90,60}	\$20.30	\$20.13		\$40.43
RI ₇₀ + SCO _{90,70}	\$28.66	\$17.18		\$45.84
RI ₇₀ + STAX	\$28.66		\$24.89	\$53.55
RI ₆₀ + STAX	\$20.30		\$24.89	\$45.19

The final table for the representative Delta county, Table 8, lists the average payments for rice. The relative differences in magnitude are similar to those for corn and soybeans.

Table 8. Simulated annual average expected net payments for rice, representative Mississippi county in the Delta region.

Program	ARC	RI	SCO	Total
RI ₆₀ + SCO _{90,60}		\$10.24	\$27.95	\$38.19
RI ₇₀ + SCO _{90,70}		\$19.75	\$24.68	\$44.43
ARC _f + RI ₇₀ + SCO _{79,70}	\$22.48	\$19.75	\$2.93	\$45.16
ARC _c + RI ₇₀ + SCO _{79,70}	\$17.53	\$19.75	\$2.93	\$40.21
ARC _f + RI ₆₀ + SCO _{79,60}	\$22.48	\$10.24	\$2.71	\$35.43
ARC _c + RI ₆₀ + SCO _{79,60}	\$17.53	\$10.24	\$2.71	\$30.48

Table 9 lists the average payments for corn for a representative Mississippi county in the Black Belt soil region. Interestingly, while in general the values are similar to those in Table 4, the payments slightly higher than the payments with and without ARC in the representative Delta county.

Table 9. Simulated annual average expected net payments for corn, representative Mississippi county in the Black Belt region.

Program	ARC	RI	SCO	Total
RI ₆₀ + SCO _{90,60}		\$31.68	\$15.82	\$47.50
RI ₇₀ + SCO _{90,70}		\$39.31	\$14.19	\$53.50
ARC _f + RI ₇₀ + SCO _{79,70}	\$13.59	\$39.31	\$1.83	\$54.73
ARC _c + RI ₇₀ + SCO _{79,70}	\$10.07	\$39.31	\$1.83	\$51.21
ARC _f + RI ₆₀ + SCO _{79,60}	\$13.59	\$31.68	\$1.84	\$47.11
ARC _c + RI ₆₀ + SCO _{79,60}	\$10.07	\$31.68	\$1.84	\$43.59

Table 10 lists the average payments for soybeans for a representative Mississippi county in the Black Belt soil region. The values are similar to those for soybeans in the Delta county, although the average payments in Table 10 are slightly higher.

Table 10. Simulated annual average expected net payments for soybeans, representative Mississippi county in the Black Belt region.

Program	ARC	RI	SCO	Total
RI ₆₀ + SCO _{90,60}		\$32.76	\$12.07	\$44.83
RI ₇₀ + SCO _{90,70}		\$37.94	\$10.31	\$48.25
ARC _f + RI ₇₀ + SCO _{79,70}	\$7.90	\$37.94	\$1.31	\$47.15
ARC _c + RI ₇₀ + SCO _{79,70}	\$6.88	\$37.94	\$1.31	\$46.13
ARC _f + RI ₆₀ + SCO _{79,60}	\$7.90	\$32.76	\$1.51	\$42.17
ARC _c + RI ₆₀ + SCO _{79,60}	\$6.88	\$32.76	\$1.51	\$41.15

Payment Limits

Still another important aspect of the ARC program concerns payment limits. According to the bill, ARC payments across covered commodities (except peanuts) cannot exceed \$50,000 per year. With this in mind, Table 11 provides an illustration of what typical ARC payments look like for a hypothetical representative Mississippi farm in the Delta region since 1990. This relatively small- to medium-sized farm consists of 3,000 acres divided among corn, soybeans, and rice (again, cotton is not eligible to participate in the ARC program). The ARC program represented is at the county level due to the availability of county data, but as evidenced from the preceding analysis of ARC farm-level payments would be slightly higher. As indicated in Table 11, ARC payments occur in only 6 of 22 years. However, of these six years, total ARC payments across crops exceed \$50,000 twice. Thus, while ARC payments may not occur very frequently, particularly in times of relatively high prices, when they do occur a farm need not be particularly large to reach the annual payment limit.

Table 11. ARC payments for corn, rice, and soybeans for a hypothetical Mississippi Delta farm.

	Corn	Rice	Soybeans	
Crop Acres				
	750	750	1,500	
ARC Payments				
				Total
1990	\$0	\$0	\$0	\$0
1991	\$0	\$0	\$0	\$0
1992	\$0	\$0	\$0	\$0
1993	\$0	\$0	\$0	\$0
1994	\$0	\$0	\$0	\$0
1995	\$0	\$0	\$0	\$0
1996	\$0	\$0	\$0	\$0
1997	\$0	\$0	\$0	\$0
1998	\$17,052	\$0	\$22,798	\$39,849
1999	\$0	\$30,656	\$22,054	\$52,710
2000	\$0	\$30,107	\$5,660	\$35,767
2001	\$0	\$1,596	\$0	\$1,596
2002	\$0	\$0	\$0	\$0
2003	\$0	\$0	\$0	\$0
2004	\$0	\$0	\$0	\$0
2005	\$0	\$0	\$0	\$0
2006	\$0	\$0	\$25,649	\$25,649
2007	\$0	\$0	\$0	\$0
2008	\$0	\$0	\$0	\$0
2009	\$0	\$0	\$0	\$0
2010	\$0	\$0	\$0	\$0
2011	\$0	\$52,421	\$0	\$52,421

Conclusions

While the final 2012 farm bill still has a long, long way to go before completion, a number of trends have emerged. The most significant trend is that the majority of major proposals to date are revenue-based, and essentially all proposals eliminate direct payments. Such a trend is in stark contrast to 2008 when lawmakers included ACRE as an option that ultimately few producers were willing to choose. Another important difference in 2012 is that the budget has become Congress' predominate concern. Thus, program cost will contribute greatly to the design of future farm programs. Because the current proposals respond to revenue shortfalls, producers examining these potential programs should look beyond the size of the potential payments generated to other factors such as the level of risk reduction provided. Researchers in the Department of Agricultural Economics at Mississippi State will continue to track and analyze proposals as the 2012 farm bill debate progresses.



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