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# **Impacts of Selected Provisions of the “Agriculture Reform, Food and Jobs Act of 2012”**

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## Summary

The U.S. Senate Committee on Agriculture, Nutrition and Forestry approved the “Agriculture Reform, Food and Jobs Act of 2012” on April 26, 2012. This report examines the possible consequences of several key provisions in the proposed legislation.

- 1) The elimination of the current Direct and Countercyclical Payment (DCP) and Average Crop Revenue Election (ACRE) programs.
- 2) The establishment of the Agriculture Risk Coverage (ARC) program and the Stacked Income Protection Plan (STAX).
- 3) The reduction in the acreage cap for the Conservation Reserve Program (CRP) from the current 32 million acres to 25 million acres by 2017.

Models maintained by the Food and Agricultural Policy Research Institute at the University of Missouri (FAPRI-MU) are used to estimate possible impacts of these proposed policy changes. Results are presented relative to a baseline prepared in early 2012 that assumes a continuation of existing farm policies. The analysis uses a stochastic approach that considers 500 possible future outcomes for agricultural commodity markets to examine the consequences of continued market volatility.

Eliminating the DCP and ACRE programs would reduce government farm program outlays, farm income and agricultural land values, but would only have modest impacts on agricultural commodity markets. By itself, eliminating DCP and ACRE would result in a small reduction in the total area devoted to major program crops and marginally higher crop prices.

The new ARC and STAX programs would make payments when per-acre revenues fall sufficiently below benchmark levels. Both programs cover relatively “shallow” losses; other crop insurance policies would continue to provide protection against larger losses.

- Relative to a scenario that only eliminates DCP and ACRE, introducing ARC and STAX results in a little more land used for crop production and slightly lower crop prices.
- Average payments to producers under ARC and STAX would be lower than payments under DCP and ACRE, so the net effect of these changes is to reduce federal farm program spending by an estimated \$18 billion over the next ten years.
- Relative to the baseline, the decline in budgetary outlays is proportionally larger for rice, peanuts and wheat than it is for other crops. Soybean outlays increase slightly.
- Estimated payments under ARC average approximately 2 percent of the market value of eligible crops. ARC payments are proportionally larger for corn and wheat than for rice and peanuts.
- STAX net indemnities average about 5 percent of the market value of cotton production.
- Budgetary outlays under ARC and STAX will vary greatly, but because both programs cover only a certain band of revenue losses, the budgetary exposure does have limits.

Reducing the CRP acreage cap would result in increased crop production and lower crop prices.

Other provisions of the Senate committee-passed bill are not examined in this report.

## Introduction

On April 26, 2012, the U.S. Senate Committee on Agriculture, Nutrition and Forestry approved the “Agriculture Reform, Food and Jobs Act of 2012.” The bill includes 12 titles, covering everything from farm commodity programs to nutrition, conservation, energy, agricultural research and more. This report focuses on several of the key provisions of the bill that are likely to have important consequences for U.S. crop producers:

- 1) The elimination of the current Direct and Countercyclical Payment (DCP) and Average Crop Revenue Election (ACRE) programs.
- 2) The establishment of the Agriculture Risk Coverage (ARC) program and the Stacked Income Protection Plan (STAX).
- 3) The reduction in the acreage cap for the Conservation Reserve Program (CRP) from the current 32 million acres to 25 million acres by 2017.

The bill eliminates the **DCP and ACRE** programs effective with crops harvested in 2013. The direct payment program makes fixed annual payments to producers. These payments are tied to base acreage and program yields determined by production on a farm in the distant past, and are generally unaffected by current planting decisions or production levels. Direct payments total about \$5 billion per year, and under the bill, producers would receive their last checks under the program this October.

Countercyclical payments are made to participating producers when season-average farm prices fall below a trigger level determined by legislated target prices and direct payment rates. In recent years, market prices for most grains and oilseeds have been above levels that would result in countercyclical payments, although large payments can occur when prices are low.

The ACRE program was created in the 2008 farm bill as an alternative to countercyclical payments. Participating producers get a payment when state and farm-level revenues for a particular crop fall below triggers determined by past prices and yields. Participation in this voluntary program has been limited, so actual and projected spending on the program has been far less than on the direct payment program. Under the bill, countercyclical and ACRE payments would be available on crops harvested in 2012, but not on crops harvested in subsequent years.

The proposed **ARC** program would also make payments when per-acre revenues for a particular crop fall below a trigger level. While the program has some features in common with ACRE, the program also has many distinct provisions:

- The program is available to grain and oilseed producers, but not to producers of upland cotton.
- Producers must choose between two options. One would make payments based on calculations that use county-level yields and the other would use farm-level yields. Those who choose the county-based option can receive payments on 80 percent of planted acres, while those who choose the farm-based option can receive payments on 65 percent of planted acres. Under either option, 45 percent of prevented planted acres are eligible for payment.
- A benchmark level of revenue is determined by multiplying a 5-year Olympic average of U.S. season-average market prices (the average after excluding the year with the highest price and the year with the lowest price) by a 5-year Olympic average of yields per planted acre.

- Payments are made when actual revenues (yields per planted acre multiplied by the U.S. average market price for the first five months of the marketing year) fall at least 11 percent below the benchmark.
- The maximum payment is equal to 10 percent of the benchmark. Thus the program covers losses of between 11 percent and 21 percent of the benchmark. Producers would be expected to continue to use crop insurance to protect against losses not covered by ARC.

The **STAX** program has some features in common with ARC, but also has distinct provisions.

- The program is available only to producers of upland cotton.
- STAX is offered as a crop insurance product. Producers pay a premium for coverage and receive indemnities when a calculation of county revenues falls below a trigger level determined by historical yields and futures market prices.
- STAX can be used to cover revenue losses between 10 percent and 30 percent of expected county revenue. As with ARC, producers would be expected to continue to use conventional crop insurance policies to protect against other losses.
- The STAX payment rate can be selected by the producer. The maximum is 120 percent.

The bill also includes a proposed lower limitation on **CRP** enrollment. Currently, up to 32 million acres can be enrolled at any point in time, and actual enrollment is slightly less than 30 million acres. The proposal would reduce the cap in steps from 32 million acres in the current fiscal year to 25 million acres by 2017. In addition, the bill would change CRP criteria to allow up to 1.5 million acres of grasslands that might otherwise be enrolled in the grasslands reserve program (GRP) to be enrolled in CRP.

These provisions have especially large implications for budgetary outlays, agricultural markets and producer income, but the bill also includes many other measures that would affect crop producers. For example, the new Supplemental Coverage Option (SCO), peanut revenue insurance, other changes in crop insurance, new payment limitation rules, dairy policy changes and the reconfiguration of conservation programs would all have important implications, but are beyond the scope of this report.

The analysis is conducted using economic models developed by the Food and Agricultural Policy Research Institute at the University of Missouri (FAPRI-MU). The FAPRI-MU models cover major U.S. crop and livestock commodity markets and also generate estimates of farm income, budgetary outlays, consumer food expenditures and other indicators. The models include explicit representations of a wide range of existing government programs, and new equations were added to the models to examine the new ARC and STAX programs.

The point of departure for the analysis is the set of 10-year stochastic baseline projections for the U.S. agricultural economy developed in early 2012. The baseline assumes a continuation of 2008 farm bill provisions, generally following the same policy assumptions that guide baseline development by the Congressional Budget Office (CBO). The stochastic baseline is a set of 500 projections that share a common set of policy assumptions, but that utilize different assumptions about the weather, energy markets and some of the other factors that make agricultural markets uncertain and volatile. This report generally uses averages from these 500 alternative outcomes, but the approach makes it possible to examine policy impacts under a wide range of circumstances.

## The scenarios

The analysis compares a current policy baseline to three alternative scenarios (Table 1).

- The **Baseline** assumes a continuation of 2008 farm bill provisions. The DCP and ACRE programs would remain in place, and the CRP cap would remain at the current 32 million acres.
- **Scenario 1** would eliminate the DCP and ACRE programs effective with the 2013 crop year, but retain all of the other assumptions of the Baseline.
- **Scenario 2** would introduce the new ARC and STAX programs in 2013, as well as eliminate the DCP and ACRE programs. Scenario 2 would also include a small revision to the cotton marketing loan that would allow the loan rate to decline under certain conditions.
- **Scenario 3** would make all the same assumptions as Scenario 2 and would also introduce the new lower cap on CRP enrollment.

Comparing Scenario 1 to the Baseline provides an estimate of the impacts of eliminating the DCP and ACRE programs.

Comparing Scenario 2 to the Baseline allows one to estimate the net impact of eliminating DCP and ACRE while introducing ARC and STAX. Comparing Scenario 2 to Scenario 1 isolates the impacts of ARC and STAX.

Similarly, comparing Scenario 3 to the Baseline provides an estimate of the overall impact of this set of policy changes, while comparing Scenario 3 to Scenario 2 isolates the impact of the new CRP enrollment cap.

Tables 2-9 report results for the Baseline and Scenarios 1 and 2. Table 10 summarizes key results for Scenario 3 relative to the Baseline and Scenario 2.

For the sake of brevity, the tables report multi-year averages across 500 stochastic outcomes. These averages may often mask important stories, either in how indicators change over time, or how they may differ depending on market circumstances. For example, ARC payments are likely to be low when prices are rising but could be much greater when prices are falling. Figures 3-5 look at the distributions of payments and crop insurance benefits in the Baseline and Scenario 2 to provide some flavor of the wide range of possible outcomes.

The estimates for Scenarios 2 and 3 assume that, for each crop, 50 percent of acreage will be enrolled in the county-based option under ARC and 50 percent in the farm-based option. Preliminary estimates suggested that average projected per-acre payments are slightly larger under the county-based option, which might have suggested heavier enrollment in that alternative.

However, other considerations are likely to cause many producers to choose the farm-based option, as confirmed by representative farm analysis conducted by colleagues at the Agricultural and Food Policy Center at Texas A&M. Risk management concerns could encourage some producers to choose the farm-based program, and that alternative could also be attractive to producers in large, diverse counties or with farm-level yields well above the county average. Average results under the two options are similar, so if actual participation is different than assumed here, it would not greatly alter the reported results.

**Table 1. Scenario assumptions**

	Baseline	Scenario 1: No DP, CCP or ACRE	Scenario 2: Add ARC and STAX	Scenario 3: Add 25-mil. acre CRP cap
Direct payments available?	Yes	Not after 2012	Not after 2012	Not after 2012
Countercyclical payments available?	Yes	Not after 2012	Not after 2012	Not after 2012
ACRE payments available?	Yes	Not after 2012	Not after 2012	Not after 2012
ARC payments available?	No	No	Yes from 2013	Yes from 2013
STAX program available?	No	No	Yes from 2013	Yes from 2013
Cotton loan program modified?	No	No	Yes from 2013	Yes from 2013
CRP enrollment limit				
2012	32.0 mil. a.	32.0 mil. a.	32.0 mil. a.	32.0 mil. a.
2013	32.0 mil. a.	32.0 mil. a.	32.0 mil. a.	30.0 mil. a.
2014	32.0 mil. a.	32.0 mil. a.	32.0 mil. a.	27.5 mil. a.
2015	32.0 mil. a.	32.0 mil. a.	32.0 mil. a.	26.5 mil. a.
2016	32.0 mil. a.	32.0 mil. a.	32.0 mil. a.	25.5 mil. a.
2017	32.0 mil. a.	32.0 mil. a.	32.0 mil. a.	25.0 mil. a.
GRP acres included under CRP?	No	No	No	Yes from 2013

## Area and price impacts

Eliminating the DCP and ACRE programs reduces producer income and results in a modest reduction in the area planted to major crops (Table 2, Scenario 1 results). DCP payments are not tied to current production levels, so eliminating DCP payments would have a smaller impact on crop production on a dollar-for-dollar basis than reducing payments more closely linked to production levels.

The ACRE program makes payments that are tied to current acreage planted, so eliminating ACRE payments would affect production choices. In the Baseline, ACRE participation rates average around 20 percent for corn, soybeans and wheat, but are less than 2 percent for cotton and rice. All else equal, eliminating the program results in less acreage for the crops where Baseline ACRE participation is greater and more acreage for crops with low ACRE participation.

In Scenario 1, the decline in wheat acreage accounts for almost half of the total decline in planted acreage across 12 major crops. Wheat is more likely to be grown on marginal acreage that can shift in an out of production than are crops like soybeans and corn. The average reduction in the area planted 12 major crops is just 700,000 acres, or less than 0.3 percent.

In Scenario 1, reduced acreage means less production and higher crop prices (Table 3). The impacts are uniformly small; only peanut and rice prices increase by more than 1 percent.

ARC and STAX benefits are only available to producers who attempt to grow a crop. Introducing these programs results in a 760,000 acre increase in area planted to 12 major crops relative to the scenario that simply eliminates DCP and ACRE payments (Table 2, Scenario 2 results compared to Scenario 1).

The acreage impacts differ across crops. Upland cotton and corn account for most of the increase in acreage. Average estimated STAX and ARC benefits are larger for cotton and corn than for competing crops, as discussed in the next section.

The increase in overall crop acreage and production in Scenario 2 translates into slightly lower crop prices than in Scenario 1. Because of cross-commodity effects, this is true even for a crop like sorghum that experiences a slight reduction in production.

The total area devoted to 12 crops in Scenario 2 slightly exceeds the Baseline level, even though average payments to producers are lower (Table 2, Scenario 2 results compared to the Baseline). This is a result of replacing DCP payments that are not closely tied to production with ARC and STAX payments that are only made to producers who at least attempt to grow a crop.

In Scenario 2, prices for corn, soybeans, cotton and sorghum decline slightly relative to those in the Baseline. This suggests that, on balance, the price-reducing effect of introducing the ARC and STAX programs more than offsets the price-increasing effect of eliminating DCP and ACRE payments.

All of these average impacts on acreage and prices are fairly small. One reason is that average payments under ARC and STAX are very small relative to market receipts, as discussed in the next section. However, the averages mask cases where these program changes could have larger impacts. If, for example, sharply declining prices for one particular crop mean that producers expect large payments for that crop but no payments for competing crops, the presence of the program could hold substantially more acreage in the crop with declining prices than in the absence of the program. Averages showing small acreage shifts may obscure larger opposing shifts in acreage under different market circumstances.



**Table 2. Planted area, million acres, 2013-2017 average**

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
Corn	91.78	91.68	-0.10	92.00	0.21	0.31
Soybeans	74.42	74.32	-0.09	74.34	-0.08	0.02
Wheat	55.13	54.81	-0.32	54.88	-0.25	0.07
Upland cotton	11.68	11.65	-0.04	12.02	0.34	0.38
Sorghum	5.34	5.30	-0.04	5.28	-0.06	-0.03
Rice	3.10	3.07	-0.03	3.09	-0.02	0.02
Barley	2.93	2.92	-0.01	2.92	-0.02	0.00
Peanuts	1.27	1.26	-0.01	1.26	-0.01	0.00
4 other crops*	6.94	6.89	-0.05	6.88	-0.06	-0.01
12 major crops	252.61	251.90	-0.70	252.66	0.06	0.76

\*Oats, sunflower seed, sugar beets and sugarcane.

**Table 3. Crop farm prices, 2013-2017 average**

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
Corn (dollars per bushel)	4.81	4.83	0.02	4.78	-0.03	-0.05
Soybeans (dollars per bushel)	11.42	11.47	0.05	11.41	-0.01	-0.06
Wheat (dollars per bushel)	5.95	6.00	0.05	5.95	0.00	-0.05
Upland cotton (cents per pound)	80.17	80.35	0.18	78.55	-1.61	-1.79
Sorghum (dollars per bushel)	4.67	4.69	0.03	4.66	-0.01	-0.03
Rice (dollars per hundredweight)	13.33	13.48	0.14	13.39	0.05	-0.09
Barley (dollars per bushel)	4.98	5.01	0.04	4.97	0.00	-0.04
Peanuts (cents per pound)	25.74	26.21	0.47	26.10	0.36	-0.11

## Crop returns

In the Baseline, DCP and ACRE payments are a larger share of producer income for some crops than for others (Table 4). Given program provisions and projected prices, payments are proportionally larger for rice, peanut, cotton and wheat producers than for producers of corn and soybeans.

Eliminating DCP and ACRE payments, therefore, has a larger proportional impact on producers of some crops than on others. At one extreme, soybean producers would lose \$11 per base acre in DCP payments and \$3 per planted acre in ACRE payments. At the other extreme, rice producers would lose \$96 per base acre in DCP payments. In absolute terms, corn producers would lose more payments per acre than wheat producers, but because the market value of corn production per acre is much greater than for wheat, the proportional effect on wheat producer income of losing DCP and ACRE payments would be greater than for corn.

In Scenario 1, eliminating the DCP and ACRE programs results in a slight increase in market prices. The resulting increase in the value of market sales offsets a small portion of the loss in government payments. For every crop, however, the sum of market receipts and government payments falls considerably relative to the Baseline.

In Scenario 2, introducing the ARC and STAX programs replaces more of the income lost because of the elimination of the DCP and ACRE programs. Across 500 stochastic outcomes and five marketing years, average estimated ARC payments are about \$20 per acre for corn, \$10 per acre for soybeans, \$7 per acre for wheat, \$16 per acre for rice and \$14 per acre for peanuts. STAX net indemnities (total indemnities paid for losses minus producer-paid premiums) average \$41 per acre.

Many STAX and ARC outcomes result in no payments to producers. However, when there is a large enough decline in revenues relative to a benchmark, payments can be quite large. The reported averages reflect the distribution of possible benefits, including both the outcomes where no payments occur and where the payments are at their maximum value (10 percent of benchmark revenues on eligible acres for ARC and 20 percent for STAX).

The slight increase in production caused by introducing ARC and STAX payments results in more production and lower prices than in the scenario that simply eliminates DCP and ACRE payments. For crops other than wheat, rice and peanuts, the market value of production per acre also declines relative to the Baseline.

The combination of lost DCP and ACRE payments and lower prices more than offsets the new ARC and STAX benefits for producers that have one base acre today for each acre they plant. On average, this result holds for all crops, although the reductions in total revenues are much greater for some crops than others. As discussed in the next section, base acreage and planted acreage can be very different, and this has important implications for the net effect of the program changes for returns on particular farms.

Note that other changes included in the bill but that are beyond the scope of this report would also affect producer returns and payments. SCO may prove an attractive option for many producers, including those who might be affected by ARC payment limitations. Producers would also benefit from other changes in crop insurance, such as making enterprise coverage available separately for irrigated and non-irrigated acres, introducing revenue insurance for peanuts, and increasing the floor “plug” yield used in determining actual production history (APH) yields.

**Table 4. Crop returns, dollars per acre, 2013-2017 average**

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
<b>Corn</b>						
Market sales/acre	805.61	809.73	4.12	801.01	-4.60	-8.71
Marketing loans/acre	0.00	0.00	0.00	0.00	0.00	0.00
ACRE/acre	3.50	0.00	-3.50	0.00	-3.50	0.00
ARC/acre	0.00	0.00	0.00	20.17	20.17	20.17
Sum of above/acre	809.11	809.73	0.62	821.19	12.08	11.46
Direct payments/base acre	23.40	0.00	-23.40	0.00	-23.40	0.00
CCPs/base acre	0.00	0.00	0.00	0.00	0.00	0.00
Sum of above/base acre	23.41	0.00	-23.41	0.00	-23.41	0.00
<b>Soybeans</b>						
Market sales/acre	514.32	516.64	2.32	514.19	-0.13	-2.46
Marketing loans/acre	0.01	0.01	0.00	0.01	0.00	0.00
ACRE/acre	3.14	0.00	-3.14	0.00	-3.14	0.00
ARC/acre	0.00	0.00	0.00	9.65	9.65	9.65
Sum of above/acre	517.47	516.66	-0.82	523.85	6.38	7.20
Direct payments/base acre	11.10	0.00	-11.10	0.00	-11.10	0.00
CCPs/base acre	0.01	0.00	-0.01	0.00	-0.01	0.00
Sum of above/base acre	11.12	0.00	-11.12	0.00	-11.12	0.00
<b>Wheat</b>						
Market sales/acre	273.92	276.09	2.17	274.10	0.18	-1.98
Marketing loans/acre	0.10	0.11	0.00	0.12	0.02	0.02
ACRE/acre	1.88	0.00	-1.88	0.00	-1.88	0.00
ARC/acre	0.00	0.00	0.00	6.97	6.97	6.97
Sum of above/acre	275.90	276.19	0.29	281.19	5.29	5.00
Direct payments/base acre	14.66	0.00	-14.66	0.00	-14.66	0.00
CCPs/base acre	0.18	0.00	-0.18	0.00	-0.18	0.00
Sum of above/base acre	14.84	0.00	-14.84	0.00	-14.84	0.00
<b>Upland cotton</b>						
Market sales/acre	786.98	789.09	2.11	773.01	-13.97	-16.08
Marketing loans/acre	3.98	3.81	-0.17	5.51	1.53	1.69
ACRE/acre	0.03	0.00	-0.03	0.00	-0.03	0.00
STAX/acre	0.00	0.00	0.00	40.83	40.83	40.83
Sum of above/acre	790.99	792.90	1.91	819.35	28.36	26.45
Direct payments/base acre	33.72	0.00	-33.72	0.00	-33.72	0.00
CCPs/base acre	1.94	0.00	-1.94	0.00	-1.94	0.00
Sum of above/base acre	35.65	0.00	-35.65	0.00	-35.65	0.00

Table 4, continued. Crop returns, dollars per acre, 2013-2017 average

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
<b>Rice</b>						
Market sales/acre	986.01	996.79	10.78	990.58	4.57	-6.21
Marketing loans/acre	0.00	0.00	0.00	0.00	0.00	0.00
ACRE/acre	0.25	0.00	-0.25	0.00	-0.25	0.00
ARC/acre	0.00	0.00	0.00	15.96	15.96	15.96
Sum of above/acre	986.26	996.79	10.53	1,006.54	20.28	9.75
Direct payments/base acre	95.94	0.00	-95.94	0.00	-95.94	0.00
CCPs/base acre	0.22	0.00	-0.22	0.00	-0.22	0.00
Sum of above/base acre	96.16	0.00	-96.16	0.00	-96.16	0.00
<b>Sorghum</b>						
Market sales/acre	310.54	312.31	1.76	310.19	-0.36	-2.12
Marketing loans/acre	0.00	0.00	0.00	0.00	0.00	0.00
ACRE/acre	0.74	0.00	-0.74	0.00	-0.74	0.00
ARC/acre	0.00	0.00	0.00	6.51	6.51	6.51
Sum of above/acre	311.29	312.31	1.02	316.69	5.41	4.39
Direct payments/base acre	16.50	0.00	-16.50	0.00	-16.50	0.00
CCPs/base acre	0.00	0.00	0.00	0.00	0.00	0.00
Sum of above/base acre	16.50	0.00	-16.50	0.00	-16.50	0.00
<b>Barley</b>						
Market sales/acre	360.14	362.93	2.80	359.93	-0.21	-3.00
Marketing loans/acre	0.02	0.02	0.00	0.03	0.01	0.00
ACRE/acre	1.72	0.00	-1.72	0.00	-1.72	0.00
ARC/acre	0.00	0.00	0.00	7.43	7.43	7.43
Sum of above/acre	361.87	362.96	1.08	367.39	5.51	4.43
Direct payments/base acre	9.25	0.00	-9.25	0.00	-9.25	0.00
CCPs/base acre	0.05	0.00	-0.05	0.00	-0.05	0.00
Sum of above/base acre	9.30	0.00	-9.30	0.00	-9.30	0.00
<b>Peanuts</b>						
Market sales/acre	924.46	941.74	17.28	938.13	13.66	-3.62
Marketing loans/acre	4.74	4.05	-0.68	3.58	-1.15	-0.47
ACRE/acre	0.05	0.00	-0.05	0.00	-0.05	0.00
ARC/acre	0.00	0.00	0.00	14.20	14.20	14.20
Sum of above/acre	929.24	945.80	16.55	955.91	26.67	10.11
Direct payments/base acre	45.84	0.00	-45.84	0.00	-45.84	0.00
CCPs/base acre	16.25	0.00	-16.25	0.00	-16.25	0.00
Sum of above/base acre	62.09	0.00	-62.09	0.00	-62.09	0.00

## Base acreage vs. planted acreage

Base acreage was determined by cropping patterns from many years ago, and today's planted acreage can be very different, both on a particular farm and for the country as a whole. Producers with a lot of base acreage relative to planted acreage will be the most affected by the loss of DCP payments. Producers with a lot more planted acreage than base acreage are more likely to benefit from the shift to ARC and STAX. U.S. planted acreage far exceeds base acreage for soybeans, while the reverse is true for wheat, upland cotton, sorghum, barley and rice (Table 5).

Across 10 major crops, national base acreage is 2 percent greater than projected 2013-2017 planted acreage. This is a closer match between planted and base acreage than occurs for any particular crop. It suggests that on average, total base acreage across all crops matches overall area planted to grains, oilseeds and cotton, but that the current planted acreage mix may be very different than the allocation of base acreage.

Because DCP payments are tied to base acreage, many producers are currently receiving DCP payments tied to a historical mix of crops on a farm that no longer matches current production patterns. ARC and STAX benefits are tied to production of particular commodities. This can confuse comparisons of the impact of the Committee bill on payments to producers of particular crops. Many current soybean producers, for example, are receiving DCP payments associated with other crops. Likewise, many producers receiving wheat, cotton and rice DCP payments are actually planting other crops or devoting their land to other uses.

The proposed shift from payments tied to base acreage to payments tied to planted acreage helps explain some of the production and price impacts discussed earlier. Because DCP payments are tied to base acreage and do not require producers to grow any particular crop or even any crop at all, they probably have a smaller impact on planted acreage, dollar-for-dollar, than ARC or STAX benefits that do require current production. That is why the results show slightly more area planted to major crops in Scenario 2 than in the Baseline, even though total government payments and crop insurance net indemnities are lower in Scenario 2 than in the Baseline.

**Table 5. Planted and base area in the Baseline, million acres, 2013-2017 average**

	Planted area	Baseline base area	Absolute difference	Percent difference
Corn	91.78	84.12	-7.66	-8.3%
Soybeans	74.42	50.16	-24.25	-32.6%
Wheat	55.13	73.09	17.96	32.6%
Upland cotton	11.68	18.11	6.42	55.0%
Sorghum	5.34	11.65	6.30	118.0%
Barley	2.93	8.42	5.48	186.9%
Oats	3.06	2.99	-0.06	-2.1%
Rice	3.10	4.39	1.29	41.6%
Peanuts	1.27	1.48	0.20	15.9%
Sunflower seed	1.84	1.77	-0.06	-3.5%
10-crop total	250.56	256.18	5.62	2.2%

## Government budgetary outlays

Eliminating DCP and ACRE programs would reduce farm program outlays by an estimated \$51 billion over the next ten fiscal years (Scenario 1 in Table 6). The reduction would be even larger, but direct payments associated with the 2012 crop will be made in October 2012, which is part of fiscal year 2013. For most crops, these 2012 direct payments explain most of the remaining estimated spending over the FY 2013 – FY 2022 period in Scenario 1.

The estimated 10-year budgetary cost of ARC and STAX is \$33 billion (Scenario 2 change from Scenario 1 in Table 6). Corn alone accounts for half of the estimated outlays. STAX net indemnities increase crop insurance outlays, but other crop insurance net outlays decline slightly, as ARC and STAX induce a small assumed reduction in buy-up coverage.

Changes in outlays for particular commodities should be interpreted with care. As discussed in the previous section, the bill replaces DCP payments now tied to base acreage with ARC and STAX benefits tied to planted area. What is labeled in the table as a Baseline outlay for one commodity includes DCP payments that may benefit producers of other crops. Similarly, what is labeled in the table as a Scenario 2 outlay for a particular crop may be providing ARC and STAX benefits to producers who currently receive DCP payments associated with other crops.

Relative to the Baseline, the net effect of eliminating the DCP and ACRE programs and establishing ARC and STAX is to reduce 10-year net mandatory outlays by about \$18 billion (Scenario 2 change from Baseline in Table 6).

For the same set of program changes, CBO estimates a slightly larger \$21 billion in net savings. Much of the difference can be explained by CBO's smaller estimated cost of STAX and CBO's larger estimated reduction in other crop insurance spending because of participation effects. Some of these differences trace back to different assumptions about program implementation; for example, this report assumes ARC and STAX are both available for the 2013/14 crop year, while CBO assumes STAX would not be operational until 2014/15. Given all of the uncertainties involved in the analysis, the differences between CBO and FAPRI-MU outlay estimates are quite small.

**Table 6. Government budgetary outlays, million dollars, FY 2013 – FY 2022 total\***

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
CCC net outlays	90,046	38,721	-51,324	68,641	-21,404	29,920
Corn	22,642	2,158	-20,484	19,315	-3,327	17,157
Soybeans	7,802	735	-7,068	8,195	393	7,461
Wheat	11,782	1,274	-10,508	4,824	-6,958	3,550
Upland cotton	7,286	1,699	-5,586	1,913	-5,373	213
Rice	4,245	475	-3,769	932	-3,313	457
Peanuts	1,011	183	-829	353	-658	170
Conservation reserve	22,396	21,987	-409	22,014	-382	27
All other	12,881	10,210	-2,672	11,095	-1,786	886
Crop insurance net outlays	77,966	78,098	132	81,650	3,684	3,552
STAX for cotton	0	0	0	4,647	4,647	4,647
All other	77,966	78,098	132	77,003	-963	-1,095
CCC + crop insurance	168,012	116,819	-51,192	150,291	-17,720	33,472

\*The FAPRI-MU model only makes outlay estimates through FY 2021. For purposes of this table, it is assumed that FY 2022 outlays equal those in FY 2021.

## Government costs and payments in perspective

Figures 1 and 2 provide two alternative ways of comparing effects of the bill across commodities.

Figure 1 shows percentage changes in budgetary outlays relative to the Baseline for the FY 2013 – FY 2022 period (the change vs. Baseline for Scenario 2 in Table 5 divided by Baseline net outlays). For purposes of the chart, STAX net outlays are attributed to the upland cotton program, even though STAX would be operated as part of the crop insurance program.

The proportional reductions for wheat, sorghum, rice and peanut outlays is far greater than that for upland cotton and corn, and soybean net outlays slightly exceed Baseline levels. CBO estimates generally show a similar pattern, although there are some differences for particular crops.

Figure 2 compares average ARC and STAX benefits to the market value of production. For most crops, ARC benefits average about 2 percent of the value of production. The maximum ARC benefit is 8 percent of the benchmark revenue per acre (10 percent of the benchmark on 80 percent of planted acreage for participants choosing the county-based option). With normal variability in prices and yields, revenues should exceed the benchmark about half the time. In many of the remaining circumstances, revenues may decline relative to the benchmark by less than the 21 percent that would result in maximum ARC payments.

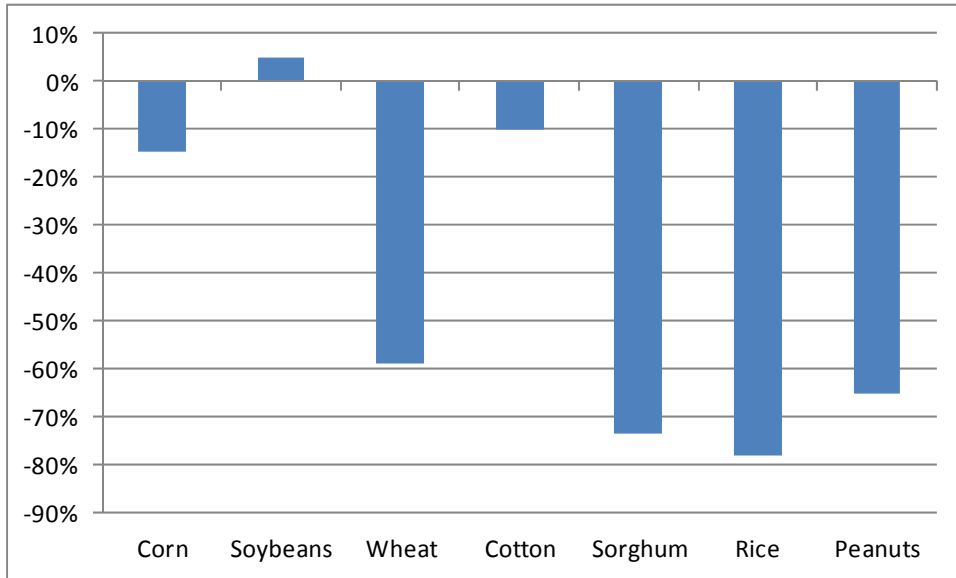
For STAX, the maximum indemnity is 20 percent of the expected county revenue, from which producer-paid premiums must be subtracted to estimate maximum net program benefits. However, producers can choose to obtain greater indemnity payments in exchange for greater premiums by increasing the payment factor by up to 20 percent. The average estimated STAX net indemnity is approximately 5 percent of the market value of cotton production.

Estimated ARC payments for corn and wheat are larger relative to the value of production than for soybeans, rice and peanuts. One reason is the projected decline in average corn and wheat prices in 2012/13 and later years relative to the 2011/12 peak. Actual ARC spending for particular commodities will depend on future price and yield developments. All else equal, ARC spending will be greater for commodities where prices are declining over time than for commodities where prices are steady or rising.

These two figures provide two of many possible ways of representing the distributional impacts of the proposed policy changes. No judgment is made about what is or is not an appropriate measure to use in assessing “equity” across commodities.

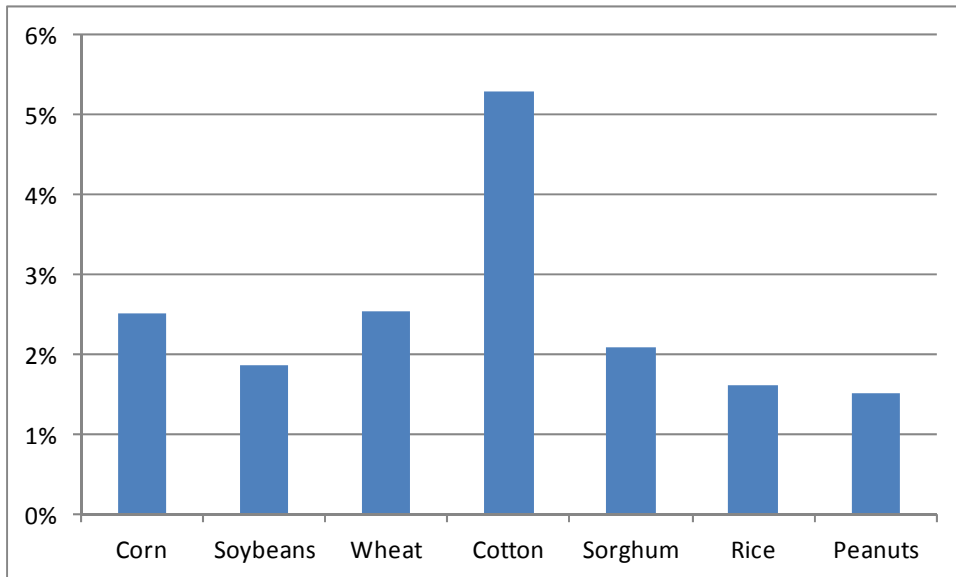


**Figure 1. Proportional change in government budgetary outlays, FY 2013-FY 2022, Scenario 2 compared to the Baseline\***



\*For crops other than cotton, change in CCC net outlays for Scenario 2 (ARC and STAX; no DCP or ACRE) compared to the Baseline. For cotton, Scenario 2 figures include STAX net indemnities, even though these will not be part of CCC net outlays.

**Figure 2. ARC and STAX benefits as a proportion of crop market receipts, 2013-2017 average\***



\*Average ARC payments and STAX net indemnities divided by crop market receipts.

## **Farm income, farm real estate values and consumer food expenditures**

Reduced government payments reduce average annual net farm income by \$4 billion in the scenario that eliminates DCP and ACRE payments (Scenario 1 in Table 7). The reduction in annual government payments is about \$5.6 billion, but this is offset by several factors. Cash receipts increase because of higher prices for crops and livestock, and rental payments to nonoperator landlords and other production costs decline slightly.

Introducing ARC and STAX benefits further moderates the reduction in net farm income. Government payments increase by \$2.6 billion relative to Scenario 1, but remain \$3.0 billion below the Baseline. STAX net indemnities are not considered government payments, but account for much of the reported \$400 million increase in “other net farm income” above Baseline levels. Rental payments to nonoperators increase relative to Scenario 1, but remain well below Baseline levels given lower crop net returns. Annual net farm income increases by about \$2 billion relative to Scenario 1, but remains about \$2 billion below the Baseline.

The reduction in net farm income corresponds to a reduction in farm real estate values (Table 8). The \$57 per acre reduction in Scenario 1 represents a 2 percent reduction relative to the Baseline, and the reduction is only slightly smaller in Scenario 2. These estimates reflect averages across all farm real estate, including land used for crop production and land used for hay and pasture. The proportional reduction would be larger in parts of the country experiencing larger percentage reductions in payments.

Consumer food expenditures are almost unchanged by these scenarios (Table 9). Food expenditures increase by \$200 million per year relative to the Baseline in Scenario 1 (less than 0.1 percent when compared to Baseline expenditures of \$1.4 trillion), and decline by \$100 million per year in Scenario 2. Note that the changes in food expenditures are of comparable magnitude to the estimated changes in livestock receipts. Higher (Scenario 1) or lower (Scenario 2) feed prices translate into corresponding changes in meat and dairy product prices, and prices of products like bread and vegetable oil also change slightly in response to changes in crop prices.

**Table 7. Farm income, billion dollars, 2013-2017 average**

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
Crop receipts	202.68	203.06	0.38	202.52	-0.16	-0.54
Livestock receipts	171.31	171.42	0.11	171.23	-0.08	-0.20
Government payments	10.64	5.08	-5.56	7.67	-2.98	2.58
Rental payments to nonoperators	13.99	13.11	-0.88	13.38	-0.61	0.27
Feed costs	52.04	52.19	0.15	51.92	-0.12	-0.27
Other production costs	277.65	277.14	-0.51	277.67	0.02	0.53
Other net farm income	48.33	48.11	-0.22	48.70	0.38	0.60
Net farm income	89.28	85.23	-4.05	87.15	-2.13	1.92

**Table 8. Farm real estate values, dollars per acre, 2013-2017 average**

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
Average farm real estate value	2,797.28	2,740.30	-56.98	2,752.24	-45.04	11.93

**Table 9. Consumer food expenditures, billion dollars, 2013-2017 average**

	Baseline	No DP, CCP or ACRE		ARC and STAX; no DP, CCP or ACRE		
		Scenario 1	Change vs. Baseline	Scenario 2	Change vs. Baseline	Change vs. Scenario 1
Total food expenditures	1,425.77	1,425.97	0.20	1,425.68	-0.10	-0.29

## Variability in program costs and benefits

Current and proposed farm programs differ greatly in the variability of program costs and benefits. The existing direct payment program is very predictable; unless there is a change in law, spending will be about \$5 billion every year. Projected prices are high enough that countercyclical payments are not likely to occur very frequently even if current laws were extended. ACRE benefits would show more annual variation, but low program participation rates limit budgetary exposure.

Figure 3 shows the distribution of the sum of projected DCP and ACRE payments in the Baseline. In many of the stochastic outcomes, countercyclical and ACRE payments are near zero, so the figure shows that in at least 10 percent of the cases, total outlays are equal to the \$5 billion of direct payments. At the other extreme, in 10 percent of the outcomes large ACRE or countercyclical payments result in total outlays of \$7 billion or more. Averaging across all 500 outcomes, total Baseline payments for these programs are slightly under \$6 billion per year.

Under the Committee proposal, ARC and STAX program benefits are likely to be much more variable than current DCP and ACRE program benefits (Figure 4). The average annual level of spending on these programs is about \$4 billion, well below the Baseline level. However, in 10 percent of the stochastic outcomes, spending on these programs is less than \$1 billion, and in 10 percent of outcomes it exceeds \$8 billion in most years.

There is an upper limit on ARC spending, as it cannot exceed 8 percent of the benchmark level of revenue (10 percent of per-acre revenues on 80 percent of acres for those participating in the county-based option). This limit holds no matter how low prices or per-acre revenues might be. If there were a sudden sharp decline in prices and prices remained at the new lower level for several years, ARC payments would always be less than 8 percent of the benchmark, and the benchmark itself would decline over time because it is based on an average of past prices and yields. Under STAX, the relevant benchmark adjusts even more quickly to a price decline, as futures prices are used in the calculations rather than an average of past prices.

The distribution of ARC and STAX program benefits shown in Figure 4 looks quite a bit like the distribution of Baseline crop insurance net indemnities in Figure 5. Given all of the assumptions of the FAPRI-MU Baseline, net indemnities average about \$5 billion each year, comparable to the level of direct payments in the Baseline. In 10 percent of the stochastic outcomes, net indemnities exceed \$8 billion, and in 10 percent they fall below \$2 billion. The actual volatility in crop insurance spending could be even greater than these estimates suggest.

Figure 3. Distribution of Baseline payments under the DCP and ACRE programs

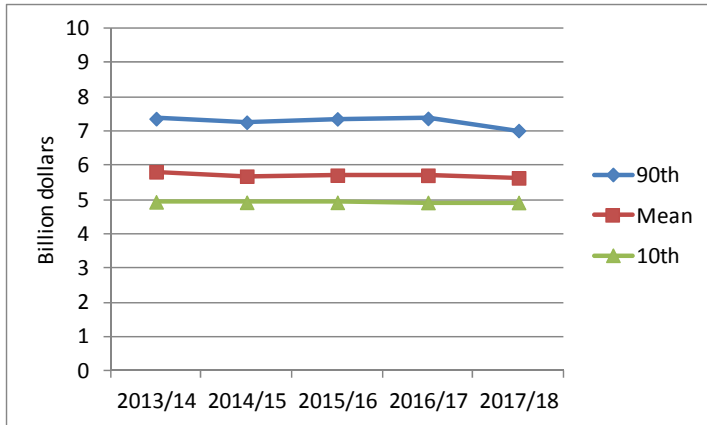


Figure 4. Distribution of Scenario 2 benefits under the ARC and STAX programs

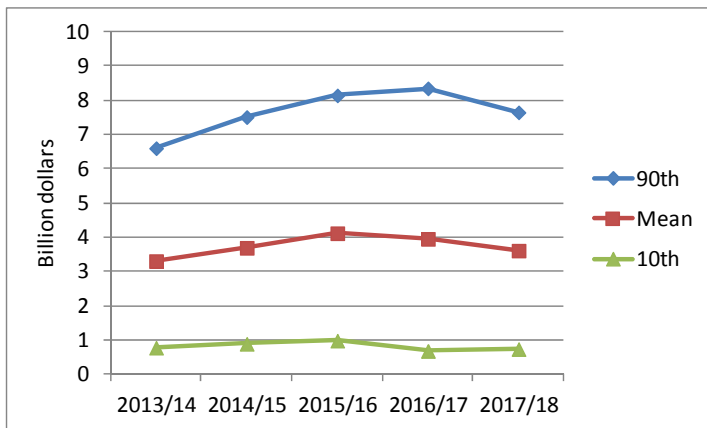
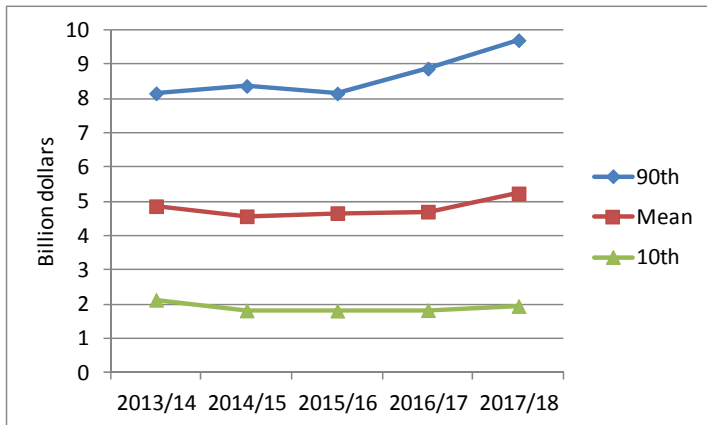


Figure 5. Distribution of Baseline crop insurance net indemnities



## **CRP enrollment cap**

Reducing the enrollment cap on CRP would reduce the average amount of land enrolled in the program by 3.3 million acres relative to the Baseline over the 2013-2017 period (Table 10). The impact grows over time, with larger impacts when the cap reaches its ultimate level of 25 million acres in 2017. As is the case today, it is assumed that the cap will not always be met; favorable returns to crop production can lead to enrolled acreage below the cap both in the Baseline and in Scenario 3.

Some of the land exiting the CRP returns to crop production. Acreage for 12 major crops increases by 1.5 million acres relative to the Baseline. Some of the land leaving the CRP remains idle or is used for hay production or pasture. In addition, the resulting reduction in prices may cause some land currently used for crop production to be shifted to other uses.

The increase in planted acreage results in lower prices for all major crops. Wheat prices, for example, decline by \$0.08 per bushel relative to Scenario 2. For corn, wheat and soybeans, the marginal impact of the CRP cap is to reduce average prices by a little more than 1 percent relative to the Baseline. While these are modest effects, for most crops they are comparable to or even larger than the net price effects of eliminating DCPs and ACRE and instituting the ARC and STAX programs.

Because demand for crops is not very responsive to changes in crop prices, the increase in acreage and reduction in prices results in a net reduction of crop receipts. Feed costs decline with corn, soybean meal and hay prices, which stimulates a small increase in livestock production. The resulting decline in livestock sector prices is also proportionally larger than the increase in production, so livestock receipts decline slightly. Reduced CRP payments further reduce farm income. Net farm income declines by \$3 billion relative to the Baseline, or \$900 million relative to Scenario 2.

Reducing CRP enrollment slightly reduces the competition for land, so rental rates and average land values decline slightly.

The increase in agricultural production contributes to a very modest decline in consumer food expenditures. Annual food expenditures decline by an average of \$480 million relative to the Baseline. Note that the CRP cap accounts for most of the estimated savings in consumer food costs.

## **Final comments**

The introduction of new, complex policies creates challenges for analysts, and results are dependent on the models and assumptions that are used. Over time, models will be enhanced to better reflect new policies. Changes in the agricultural market outlook would likely result in different estimates, and some of the differences could be large. For example, if average prices were sharply lower than FAPRI-MU currently projects, estimated ARC spending would be greater, especially in the early years. If prices dropped sharply and stayed low, the ARC benchmarks based on moving averages of prices and yields would eventually adjust downward and limit spending in the longer term.

The analysis also depends on many assumptions about program implementation, some of which may be important. Experience with the ACRE program shows that assumptions about how a program will be implemented in practice will often prove incorrect. Program implementation could have important implications for participation in the county- and farm-based options under ARC, on program outlays and on many other indicators.

**Table 10. Impacts of limiting CRP enrollment, 2013-2017 average**

	Baseline	ARC and STAX; no DP, CCP or ACRE		25 million acre CRP limit by 2017; ARC and STAX; no DP, CCP or ACRE		
		Scenario 2	Change vs. Baseline	Scenario 3	Change vs. Baseline	Change vs. Scenario 2
<u>CRP area, mil. acres</u>	30.16	30.04	-0.12	26.86	-3.30	-3.18
<u>Acreage planted, mil. acres</u>						
Corn	91.78	92.00	0.21	92.24	0.46	0.24
Soybeans	74.42	74.34	-0.08	74.69	0.28	0.35
Wheat	55.13	54.88	-0.25	55.46	0.33	0.58
Upland cotton	11.68	12.02	0.34	12.13	0.44	0.10
8 other crops	19.59	19.42	-0.17	19.61	0.02	0.20
12-crop total	252.61	252.66	0.06	254.13	1.53	1.47
Hay area harvested	58.17	58.13	-0.04	58.46	0.28	0.32
<u>Farm prices</u>						
Corn (dollars per bushel)	4.81	4.78	-0.03	4.73	-0.08	-0.05
Soybeans (dollars per bushel)	11.42	11.41	-0.01	11.26	-0.16	-0.15
Wheat (dollars per bushel)	5.95	5.95	0.00	5.87	-0.08	-0.08
Up. cotton (cents per pound)	80.17	78.55	-1.61	78.05	-2.11	-0.50
<u>Farm income, billion dollars</u>						
Crop receipts	202.68	202.52	-0.16	201.70	-0.98	-0.82
Livestock receipts	171.31	171.23	-0.08	171.00	-0.31	-0.23
Government payments	10.64	7.67	-2.98	7.43	-3.21	-0.24
Rental payments to nonop.	13.99	13.38	-0.61	13.18	-0.81	-0.20
Feed costs	52.04	51.92	-0.12	51.51	-0.53	-0.41
Other production costs	277.65	277.67	0.02	278.00	0.35	0.33
Other net farm income	48.33	48.70	0.38	48.81	0.48	0.10
Net farm income	89.28	87.15	-2.13	86.26	-3.03	-0.90
<u>Land value, dollars per acre</u>	2797.28	2752.24	-45.04	2743.13	-54.15	-9.10
<u>Food expenditures, bil. dollars</u>	1425.77	1425.68	-0.10	1425.30	-0.48	-0.38