

# **Impact of the USDA 2007 Farm Bill Proposals on Arkansas Representative Farms**

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On January 31, 2007 the USDA released their 2007 Farm Bill proposal. The following report provides an analysis of the farm level impacts to Arkansas representative panel farms from the USDA commodity program proposal. The results are presented as annual averages for the years 2008-2012. They are compared to a continuation of the baseline which assumes a continuation of the 2002 Farm Bill. The USDA 2007 Farm Bill proposal if fully adopted would have an extremely negative impact on Arkansas crop farms. However, specific elements of the proposal including the proposed changes to direct payments and counter-cyclical payments would improve the economic well-being of Arkansas crop farms. The payment limit proposal has the most negative impact.

## Methodology

Eight Arkansas representative panel farms are described in the Table 1 by their location within the state, total crop acreage, acreage dedicated to each crop, and program base acres and yields. The data for each farm was collected by the Arkansas Cooperative Extension and used to create the farm simulation. The representative farm panel process begins with a group of producers, in a specific location within the state, that are interviewed to create a single farm based upon their own operations and experience. Appendix 1 and 2 presents the assumptions for prices, yields, and policy programs for the scenarios.

## The Scenarios

- 1) The **Baseline** scenario. This is the current farm policy programs as contained in the 2002 Farm Bill, extended throughout the simulated years of 2008-2012 with no changes.
- 2) The **Direct Payment** scenario: This scenario uses the USDA proposal on direct payments with all other farm policies described in the 2002 Farm Bill during the simulated years.
- 3) The **Counter-Cyclical Revenue Payment (CCRP)** scenario. The 2002 Farm Bill price based counter-cyclical program is replaced with the proposed counter-cyclical revenue program during the simulated years. All other policies are the same as in the baseline.
- 4) The **Loan Rate** scenario. This proposal would set the loan rate at the lesser of 85% of the 5-year Olympic average of the market price or the loan rates established by the House-passed version of the 2002 Farm Bill. All other policies are the same as in the baseline.

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5) The **Payment Limitations** scenario: This scenario analyzes the USDA proposal to change the 2002 Farm Bill loan deficiency payment, direct payment, and counter-cyclical payment limitations per entity to \$140,000, \$110,000, and \$110,000, respectively. The proposal makes payment limitations binding by eliminating the 2002 Farm Bill 3-entity rule and replacing it with the rule that only one natural person can receive government payments from the farm. All other policies are the same as under the baseline.

6) The **Adjusted Gross Income (AGI)** scenario. The scenario is the same as the Baseline scenario except that the three-year average AGI maximum is changed from \$2.5 million to \$200 thousand. This proposal also eliminates the exception if 75% of AGI comes from agriculture.

7) The **Total USDA Proposal** scenario. The scenario analyzes the cumulative impact of the USDA Farm Bill proposal, scenarios 2-6, on the farms through the simulated years.

8) The **USDA Proposal Except Limitations** scenario. This scenario analyzes the impact of scenarios 2-4 on the panel farms. Payment limitations and AGI are the same as in the 2002 Farm Bill baseline.

## Results

Table 2 presents the annual average results of each simulation for each of the eight farms. Returns per acre are given for the baseline scenario and the results for the other scenarios are reported as percent changes from the baseline scenario. This analysis assumes the policies would be implemented from 2008-2012. The results were generated by stochastically simulating farm performance. These results are based on alternative farm yields and prices based on the Food and Agricultural Policy Research Institute (FAPRI) 2007 baseline estimates and the historical variation faced by these farms. Therefore, each farm was simulated 500 times for each scenario. The results are the annual average over the 5 simulated years. Table 3 presents per acre government payments and net farm incomes averaged across the representative farms for the simulation years. The standard deviation and coefficient of variation is presented to show the distribution of each farm's actual value around the average. A coefficient of variation close to zero implies a more equal distribution than a coefficient of variation further from zero. Table 4 presents the rankings of the policies analyzed based upon second degree-stochastic dominance (SDD). Second-degree stochastic dominance criterion assumes the producer prefers more income to less and is risk averse.

- The **Direct Payment** scenario increased farm income on average by 3% compared to the baseline. Government payments, the distribution of payments and the overall ranking was the third most preferred policy based upon the SDD analysis.
- The **CCRP** scenario increased farm income on average by 3.4% compared to the baseline. Government payments per acre were the third highest compared to other policies and distributed the third most equally. Two farms (ARC4200 and ARCR6500) would prefer this policy the most. The overall ranking of this scenario would place it as the second most preferred.

- The **Loan Rate** scenario decreased farm income on average by 9.6% compared to the baseline. Government payments per acre and distribution ranked fifth among the policies. The overall ranking of this scenario would place it as the sixth most preferred.
- The **Payment Limitations** scenario decreased farm income on average by 33.5% compared to the baseline. Only the smallest farm was not impacted by the proposed change in payment limitations. This policy negatively impacted the top three largest farms more than the others. Government payments per acre, distribution of payments among farms, and the overall ranking all placed as the seventh most preferred policy.
- The **AGI** scenario decreased farm income on average by 8.5% compared to the baseline. Five of the eight farms would be impacted by this policy. Government payments and the distribution of payments ranked sixth while the overall ranking placed it as the fifth most preferred.
- The **Total USDA Proposal** scenario decreased farm income on average by 40.7% compared to the baseline. The smallest farm increased income by 3.1% under this scenario. Government payments, the distribution of payments, and overall ranking all placed this scenario as the least preferred policy. Although this policy was ranked the least preferred, income per acre between farms were more equally distributed than under any other policy.
- The **USDA Proposal Except Limitations** scenario increased income on average by 3.8% compared to the baseline. Government payments would be the highest under this scenario and would be distributed the fourth most equal among farms per acre. The overall ranking of this scenario would place it as the most preferred policy.

## **Conclusion**

The Arkansas representative panel farms analyzed in this study all had different policy preferences. The majority of farms preferred the USDA Proposal without the proposed change in payment limitations. The majority of Arkansas farms however, would find the total USDA 2007 Farm Bill proposal which includes the payment limit proposal as the least preferred. Payment limitations were the main reason for the difference in preference and the policy would have a severely negative impact on the representative farms. Although the Baseline scenario ranked as the fourth most preferred policy, it distributed government payments more equally on a per acre basis than any other scenario. Net income was distributed among farms most evenly under the least preferred scenario.

**Table 1. Characteristics of Arkansas Representative Panel Farms.**

Location	Leachville	Osceola	Pine Bluff	McGehee	Stuttgart	Wynne	Hoxie	Forrest
Farm Name	ARNC5000	ARCR650	ARCR4000	ARC6000	ARSR3640	ARWR1200	ARHR3000	City ARC4200
<b>Total Cropland</b>	5,000	6,500	4,000	6,000	3,640	1,200	3,000	4,200
Acres Owned	1,000	1,950	1,200	1,200	728	360	1,000	1,000
Acres Under Crop Share Lease	3,200	3,185	2,520	4,800	2,912	740	1,900	1,700
Acres Under Cash Lease	800	1,365	280	0	0	100	100	1,500
<b>Planted Acres for Simulation</b>								
Irrigated Cotton	4,500	1,316	1,320	2,000	0	0	0	2,600
Dryland Cotton	500	1,609	0	0	0	0	0	0
Long Grain Rice	0	1,625	800	2,000	1,620	600	1,575	0
Medium Grain Rice	0	0	0	0	0	0	175	0
Irrigated Soybeans	0	585	1,504	1,500	1,620	576	1,125	0
Dryland Soybeans	0	1,365	376	0	0	24	125	1,200
Wheat	0	0	0	0	324	60	0	0
Corn	0	0	0	0	0	0	0	400
Grain Sorghum	0	0	0	500	0	0	0	0
<b>Program Variables</b>								
Base Acreage								
Irrigated Cotton	4,050	987	1,320	1,900	0	0	0	780
Dryland Cotton	450	1,207	0	0	0	0	0	0
Long Grain Rice	0	975	800	1,900	1,620	600	1,575	0
Medium Grain Rice	0	0	0	0	0	0	175	0
Irrigated Soybeans	0	999	1,504	2,000	1,620	576	1,125	0
Dryland Soybeans	0	2,332	376	0	0	24	125	780
Wheat	0	0	0	0	235	60	0	0
Direct Payment Yield								
Irrigated Cotton	480	650	800	640	0	0	0	500
Dryland Cotton	480	650	0	0	0	0	0	0
Long Grain Rice	0	5,000	4,500	4,500	5,500	5,230	4,630	0
Medium Grain Rice	0	0	0	0	0	0	4,630	0
Irrigated Soybeans	0	22	19	22	29	31	31	0
Dryland Soybeans	0	22	19	0	0	31	31	20
Wheat	0	0	0	0	44	47	0	0
Counter-Cyclical Payment Yield								
Irrigated Cotton	725	750	900	920	0	0	0	825
Dryland Cotton	725	750	0	0	0	0	0	0
Long Grain Rice	0	4,995	5,850	5,500	5,900	5,230	5,600	0
Medium Grain Rice	0	0	0	0	0	0	5,600	0
Irrigated Soybeans	0	30	35	30	36	31	37	0
Dryland Soybeans	0	30	35	0	0	31	37	25
Wheat	0	0	0	0	44	47	0	0

**Table 2. The Average Percentage Impact of Alternative Policies on Arkansas Representative Panel Farms, 2008-2012.**

Farm	% Difference from the Baseline Scenario							USDA
	Baseline (\$/acre)	Direct Payment	CCRP	Loan Rate	Payment Limitations	AGI	Total USDA	Except Limitations
<b>ARNC5000</b>								
Loan Deficiency	23.88	0.0	0.0	-70.0	-65.0	-44.4	-90.2	-70.0
Direct Payments	20.18	66.1	0.0	0.0	0.0	-38.8	-20.7	66.1
CCP/CCRP	35.93	-35.4	8.6	22.7	-61.5	-35.7	-71.7	37.1
Total Payments	79.99	0.8	3.9	-10.7	-47.0	-55.6	-72.9	12.5
Net Income	124.89	1.0	3.7	-9.2	-43.6	-49.8	-69.9	11.4
<b>ARCR6500</b>								
Loan Deficiency	36.06	0.0	0.0	-33.9	-64.0	-12.4	-70.0	-33.9
Direct Payments	27.66	29.6	0.0	0.0	-38.8	-11.5	-40.6	29.6
CCP/CCRP	14.35	-44.3	52.2	24.4	-25.1	-11.0	-30.9	81.1
Total Payments	78.08	2.3	9.6	-11.2	-47.9	-11.8	-52.4	9.7
Net Income	3.52	8.0	39.2	-64.4	-217.0	-39.8	-247.1	25.3
<b>ARCR4000</b>								
Loan Deficiency	19.70	0.0	0.0	-33.0	-20.4	0.0	-37.9	-33.0
Direct Payments	31.04	31.0	0.0	0.0	-11.4	0.0	-11.4	31.0
CCP/CCRP	29.04	-0.1	-15.2	11.7	-31.1	0.0	-45.4	0.4
Total Payments	79.78	12.0	-5.5	-3.9	-20.8	0.0	-30.3	4.0
Net Income	-137.02	7.8	-3.7	-4.8	-15.0	0.0	-23.7	1.0
<b>ARC6000</b>								
Loan Deficiency	23.55	0.0	0.0	-29.4	-53.4	-0.5	-59.4	-29.4
Direct Payments	34.62	22.0	0.0	0.0	-47.0	-0.4	-47.0	22.0
CCP/CCRP	22.79	-27.1	4.0	18.5	-43.3	-0.3	-46.9	27.4
Total Payments	80.95	1.8	1.1	-3.3	-47.8	-0.4	-50.6	8.6
Net Income	-44.72	1.4	2.3	-9.4	-67.8	-0.4	-75.3	7.7
<b>ARSR3640</b>								
Loan Deficiency	15.78	0.0	0.0	-3.9	-11.9	-5.1	-17.1	-3.9
Direct Payments	33.81	5.1	0.0	0.0	-10.6	-5.9	-14.5	5.1
CCP/CCRP	7.84	-8.1	33.3	2.5	0.0	-5.5	16.1	38.5
Total Payments	57.43	1.9	4.5	-0.7	-9.5	-5.6	-11.0	7.2
Net Income	27.24	4.1	10.1	-2.0	-22.1	-11.8	-24.6	15.4
<b>ARWR1200</b>								
Loan Deficiency	27.79	0.0	0.0	-4.2	0.0	0.0	-4.2	-4.2
Direct Payments	49.96	5.0	0.0	0.0	0.0	0.0	5.0	5.0
CCP/CCRP	10.79	-7.4	39.2	2.5	0.0	0.0	44.2	44.2
Total Payments	88.55	1.9	4.8	-1.0	0.0	0.0	6.9	6.9
Net Income	-173.53	0.9	2.5	-0.8	0.0	0.0	3.1	3.1
<b>ARHR3000</b>								
Loan Deficiency	32.53	0.0	0.0	-4.2	-40.4	0.0	-41.9	-4.2
Direct Payments	50.94	4.9	0.0	0.0	-28.0	0.0	-28.0	4.9
CCP/CCRP	13.90	-7.3	28.0	3.0	-5.9	0.0	-8.2	34.0
Total Payments	97.37	1.5	4.0	-1.0	-29.0	0.0	-29.8	6.0
Net Income	-179.84	0.8	2.6	-1.0	-18.3	0.0	-19.0	3.2
<b>ARC4200</b>								
Loan Deficiency	18.11	0.0	0.0	-68.2	-47.8	-0.8	-78.2	-68.2
Direct Payments	5.98	54.6	0.0	0.0	0.0	-0.6	54.3	54.6
CCP/CCRP	9.06	-35.9	7.8	23.7	0.0	-0.6	25.2	37.6
Total Payments	33.16	0.0	2.1	-30.7	-26.1	-0.7	-26.0	-17.1
Net Income	-27.48	-0.3	1.0	-18.5	-13.3	-0.2	-16.2	-13.0
<b>Average of All Farms</b>								
Loan Deficiency	<b>24.67</b>	<b>0.0</b>	<b>0.0</b>	<b>-29.3</b>	<b>-40.0</b>	<b>-8.2</b>	<b>-50.6</b>	<b>-29.3</b>
Direct Payments	<b>31.77</b>	<b>19.2</b>	<b>0.0</b>	<b>0.0</b>	<b>-19.1</b>	<b>-5.2</b>	<b>-19.1</b>	<b>19.2</b>
CCP/CCRP	<b>17.96</b>	<b>-21.6</b>	<b>12.9</b>	<b>15.5</b>	<b>-31.6</b>	<b>-10.4</b>	<b>-32.6</b>	<b>32.9</b>
Total Payments	<b>74.41</b>	<b>3.0</b>	<b>3.1</b>	<b>-6.0</b>	<b>-29.0</b>	<b>-9.6</b>	<b>-34.0</b>	<b>6.4</b>
Net Income	<b>-27.85</b>	<b>3.0</b>	<b>3.4</b>	<b>-9.6</b>	<b>-33.5</b>	<b>-8.5</b>	<b>-40.7</b>	<b>3.8</b>

Note: The table reports averages of the simulation years. Column one contains the Baseline dollar averages per acre while the remaining columns show the average change as a percentage from the baseline resulting from the alternative policy.

**Table 3. Summarization of Alternative Policies as an Average of All Farms.**

	Baseline	Direct Payment	CCRP	Loan Rate	Payment Limitations	AGI	Total USDA	USDA Except Limitations
<b>Government Payments</b>								
Average (\$/acre)	74.41	76.63	76.73	69.97	52.82	67.23	49.13	79.18
Std. Dev. (\$/acre)	12.17	21.10	21.12	22.38	20.08	24.06	24.11	24.05
Coef. Var.	0.16	0.28	0.28	0.32	0.38	0.36	0.49	0.30
<b>Net Income</b>								
Average (\$/acre)	-84.99	-82.45	-82.09	-93.11	-113.45	-92.25	-119.58	-81.76
Std. Dev. (\$/acre)	109.62	108.53	110.38	108.89	105.60	98.72	100.92	111.78
Coef. Var.	1.29	1.32	1.34	1.17	0.93	1.07	0.84	1.37

**Table 4. Ranking of Alternative Farm Policies on Arkansas Representative Panel Farms.**

Farm	Baseline	Direct Payment	CCRP	Loan Rate	Payment Limitations	AGI	Total USDA	USDA Except Limitations
ARNC5000	3	2	5	4	6	7	8	1
ARCR6500	4	3	1	6	7	5	8	2
ARCR4000	3	1	5	6	7	4	8	2
ARC6000	4	3	2	6	7	5	8	1
ARSR3640	4	3	2	5	7	6	8	1
ARWR1200	5	4	3	8	6	7	2	1
ARHR3000	4	3	2	6	7	5	8	1
ARC4200	2	4	1	8	6	3	7	5
<b>Overall Ranking</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>8</b>	<b>1</b>

Note: Overall ranking is calculated by taking a simple mean of each farm's ranking of scenarios.

**Appendix Table 1. 2007 FAPRI Baseline National Prices and Yields.**

	2008	2009	2010	2011	2012
Cotton Price (\$/lb.)	0.554	0.567	0.574	0.578	0.582
Ajusted World Cotton Price (\$/lb.)	0.545	0.557	0.568	0.570	0.576
Cottonseed Price (\$/ton)	125.74	125.15	122.24	120.39	118.80
Rice Price (\$/cwt)	8.02	8.30	8.51	8.54	8.72
Long Grain Rice Price (\$/cwt)	7.43	7.78	8.04	8.12	8.37
Medium Grain Rice Price (\$/cwt)	9.79	9.84	9.91	9.82	9.80
Adjusted World Rice Price (\$/cwt)	6.22	6.61	6.90	6.97	7.26
Soybean Price (\$/bu.)	7.02	7.01	6.90	6.83	6.76
Wheat Price (\$/bu.)	4.07	4.11	4.15	4.17	4.19
Corn Price (\$/bu)	3.24	3.25	3.22	3.19	3.15
Grain Sorghum Price (\$/bu.)	2.98	3.01	3.02	3.02	3.01
Cotton Yield (lbs./acre)	808.42	815.54	823.55	830.68	838.69
Rice Yield (cwt/acre)	70.06	70.67	71.26	71.86	72.46
Soybean Yield (bu./acre)	41.36	41.72	42.09	42.46	42.83
Wheat Yield (bu./acre)	42.31	42.63	42.93	43.24	43.55

**Appendix Table 2. Farm Program Variables for Simulation.**

	2008	2009	2010	2011	2012
<b>2002 Farm Bill</b>					
<b>Target Price</b>					
Cotton (\$/lb.)	0.724	0.724	0.724	0.724	0.724
Rice (\$/cwt)	10.50	10.50	10.50	10.50	10.50
Soybean (\$/bu.)	5.80	5.80	5.80	5.80	5.80
Wheat (\$/bu.)	3.92	3.92	3.92	3.92	3.92
<b>Direct Payment Rate</b>					
Cotton (\$/lb.)	0.067	0.067	0.067	0.067	0.067
Rice (\$/cwt)	2.35	2.35	2.35	2.35	2.35
Soybean (\$/bu.)	0.44	0.44	0.44	0.44	0.44
Wheat (\$/bu.)	0.52	0.52	0.52	0.52	0.52
<b>Loan Rates</b>					
Cotton (\$/lb.)	0.52	0.52	0.52	0.52	0.52
Rice (\$/cwt)	6.50	6.50	6.50	6.50	6.50
Soybean (\$/bu.)	5.00	5.00	5.00	5.00	5.00
Wheat (\$/bu.)	2.75	2.75	2.75	2.75	2.75
<b>USDA Proposal</b>					
<b>Target Revenue</b>					
Cotton (\$/acre)	516.86	516.86	516.86	516.86	516.86
Rice (\$/cwt)	548.06	548.06	548.06	548.06	548.06
Soybean (\$/bu.)	219.58	219.58	219.58	219.58	219.58
Wheat (\$/bu.)	140.42	140.42	140.42	140.42	140.42
<b>National Payment Yield</b>					
Cotton (lbs./acre)	636	636	636	636	636
Rice (cwt/acre)	51.24	51.24	51.24	51.24	51.24
Soybean (bu./acre)	34.1	34.1	34.1	34.1	34.1
Wheat (bu./acre)	36.1	36.1	36.1	36.1	36.1
<b>Direct Payment Rate</b>					
Cotton (\$/lb.)	0.1108	0.1108	0.1108	0.1108	0.1108
Rice (\$/cwt)	2.35	2.35	2.52	2.52	2.52
Soybean (\$/bu.)	0.47	0.47	0.50	0.50	0.50
Wheat (\$/bu.)	0.52	0.52	0.56	0.56	0.56
<b>Maximum Loan Rates</b>					
Cotton (\$/lb.)	0.519	0.519	0.519	0.519	0.519
Rice (\$/cwt)	6.50	6.50	6.50	6.50	6.50
Soybean (\$/bu.)	4.92	4.92	4.92	4.92	4.92
Wheat (\$/bu.)	2.58	2.58	2.58	2.58	2.58