

PRELIMINARY ASSESSMENT OF  
COUNTER-CYCLICAL PAYMENT (CCP) OPTIONS

PREPARED AT THE REQUEST OF THE  
COMMISSION ON 21<sup>ST</sup> CENTURY PRODUCTION AGRICULTURE

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THE FOOD AND AGRICULTURAL POLICY  
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## Preliminary Assessment of Counter-cyclical Payment (CCP) Options

The Commission on 21<sup>st</sup> Century Production Agriculture has requested that the Food and Agricultural Policy Research Institute (FAPRI) provide an assessment of two counter-cyclical payment proposals. The payments are designed to bring total gross income to the major program crops up to a selected target level. The payments are decoupled from production and are distributed among the crops based on the allocation of the recent supplemental packages.

### Assumptions

- Program crops included are corn, sorghum, barley, oats, wheat, upland cotton, rice and soybeans.
- The program is analyzed over the 2003-2009 period.
- For each crop, the Program Crop Gross Income (PCGI) is calculated as the sum of cash receipts and loan deficiency payments (LDPs). All accounts are on a calendar year basis. The total PCGI is then calculated as the sum of the individual crop totals.
- The Total Support Level is then calculated as the sum of the PCGI, AMTA payments, and Market Loss Assistance (MLA) payments.
- Table 1 shows the 8-Crop Total Support for the 1995-99 period. The first program option assumes that the reference period is fixed at the 1995-99 average. For the 8 crops, the targeted total support equals \$60.148 billion.
- The second option assumes that the reference period becomes a 5-year moving average. Targeted support levels using the moving average are given in Table 3 for the 2003-09 period.
- For each year 2003-09,  $CCPs = \text{Base Support Level} - (\text{PCGI} + \text{Baseline AMTA})$ .
- Each of the options has been evaluated over the 500 stochastic simulations generated with the FAPRI modeling system. Tables 2 and 3 provide average CCPs, as well the distribution of payments across various spending categories. The distribution of payments is also given in Figures 1 and 2.

### Preliminary Results

- With the base period fixed at the 1995 average, CCPs would average \$5.357 billion in 2003. Due to increasing yields and stronger prices, average CCPs decline to \$551 million by 2009.
- With the fixed reference period, there is a 19% chance that payments in 2003 will exceed \$8 billion. That probability declines to 2.5% by 2006.
- Allowing the base period to adjust with the 5-yr moving average causes a significant decline in CCPs. For example, CCPs for 2003 average \$2.825 billion under the moving average scheme. This is attributed to the fact that the target support level falls from \$60.148 billion down to \$57.243 billion.

Table 1. Program Crop Gross Income & Total Support

Calendar Year	1995	1996	1997	1998	1999	1995-99 Avg
	(Billion Dollars)					
<b>8-Crop PCGI</b>	<b>52.331</b>	<b>55.763</b>	<b>56.794</b>	<b>50.682</b>	<b>48.906</b>	
<b>8-Crop Total Support</b>	<b>56.756</b>	<b>61.736</b>	<b>62.914</b>	<b>59.494</b>	<b>59.841</b>	<b>60.148</b>
Wheat PCGI	9.115	9.133	8.438	7.368	6.875	
Wheat Total Support	9.702	11.229	9.838	9.696	9.762	10.045
Corn PCGI	18.893	20.669	19.878	17.696	17.681	
Corn Total Support	21.479	22.871	23.100	21.794	22.765	22.402
Sorghum PCGI	1.377	1.508	1.561	1.015	1.014	
Sorghum Total Support	1.594	1.753	1.888	1.461	1.568	1.653
Barley PCGI	0.825	0.969	0.795	0.714	0.566	
Barley Total Support	1.018	1.119	0.907	0.901	0.797	0.948
Oats PCGI	0.122	0.137	0.109	0.098	0.108	
Oats Total Support	0.149	0.147	0.117	0.111	0.125	0.130
Cotton PCGI	6.851	6.983	6.346	6.163	5.810	
Cotton Total Support	6.881	7.746	6.946	7.158	7.041	7.154
Rice PCGI	1.282	1.568	1.681	1.741	1.660	
Rice Total Support	2.066	2.074	2.131	2.487	2.592	2.270
Soybean PCGI	13.865	14.797	17.986	15.886	15.191	
Soybean Total Support	13.865	14.797	17.986	15.886	15.191	15.545

\* PCGI (Program Crop Gross Income) = Cash Receipts + LDPs

\*\* Total Support = PCGI + AMTA + Market Loss Assistance

Table 2. Projected Counter-cyclical Payments (CCPs)\* Using 1995-99 Base Period

Calendar Year	2003	2004	2005	2006	2007	2008	2009
	(Billion Dollars)						
<b>Average CCPs</b>	<b>5.357</b>	<b>4.433</b>	<b>3.102</b>	<b>2.304</b>	<b>1.462</b>	<b>0.954</b>	<b>0.551</b>
Probability of Payment Levels							
CCP = \$0	6.8%	11.4%	23.1%	32.3%	47.3%	60.1%	75.3%
\$0 < CCP < \$2B	9.0%	12.6%	18.6%	23.5%	21.8%	18.7%	12.5%
\$2 < CCP < \$4B	16.2%	20.6%	21.9%	19.0%	16.9%	14.2%	8.3%
\$4 < CCP < \$6B	23.8%	24.9%	19.5%	15.1%	10.1%	6.2%	3.5%
\$6 < CCP < \$8B	24.8%	17.9%	12.1%	7.6%	3.9%	0.7%	0.4%
\$8 < CCP < \$10B	14.3%	9.4%	3.8%	1.7%	0.1%	0.1%	0.0%
CCP >\$10B	5.0%	3.2%	0.9%	0.8%	0.0%	0.0%	0.0%

\* Average levels and probabilities are based on 500 stochastic simulations.

Table 3. Projected CCPs\* Using 5-Yr Moving Avg Reference Period

Calendar Year	2003	2004	2005	2006	2007	2008	2009
	(Billion Dollars)						
<b>5-Yr Moving Avg Support Level</b>	<b>57.243</b>	<b>56.329</b>	<b>55.688</b>	<b>55.265</b>	<b>56.223</b>	<b>57.510</b>	<b>58.879</b>
<b>Average CCPs</b>	<b>2.825</b>	<b>1.510</b>	<b>0.558</b>	<b>0.292</b>	<b>0.252</b>	<b>0.268</b>	<b>0.318</b>
Probability of Payment Levels							
CCP = \$0	23.7%	45.6%	70.3%	83.0%	86.0%	85.4%	84.7%
\$0 < CCP < \$2B	20.0%	24.6%	19.1%	12.1%	8.6%	8.9%	8.7%
\$2 < CCP < \$4B	25.7%	15.6%	7.1%	3.6%	4.1%	4.5%	4.5%
\$4 < CCP < \$6B	18.1%	9.6%	3.0%	1.1%	1.2%	1.3%	1.5%
\$6 < CCP < \$8B	9.7%	3.2%	0.5%	0.2%	0.1%	0.0%	0.4%
\$8 < CCP < \$10B	2.2%	1.3%	0.0%	0.0%	0.0%	0.0%	0.1%
CCP >\$10B	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%

\* Average levels and probabilities are based on 500 stochastic simulations.

Fig. 1 Distribution of Counter-cyclical Payments,  
Based on 1995-99 Reference Period

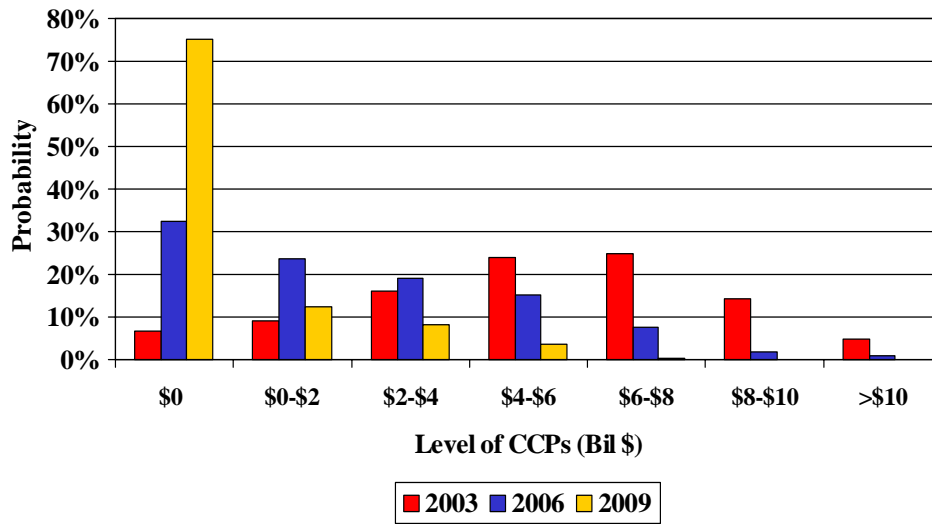
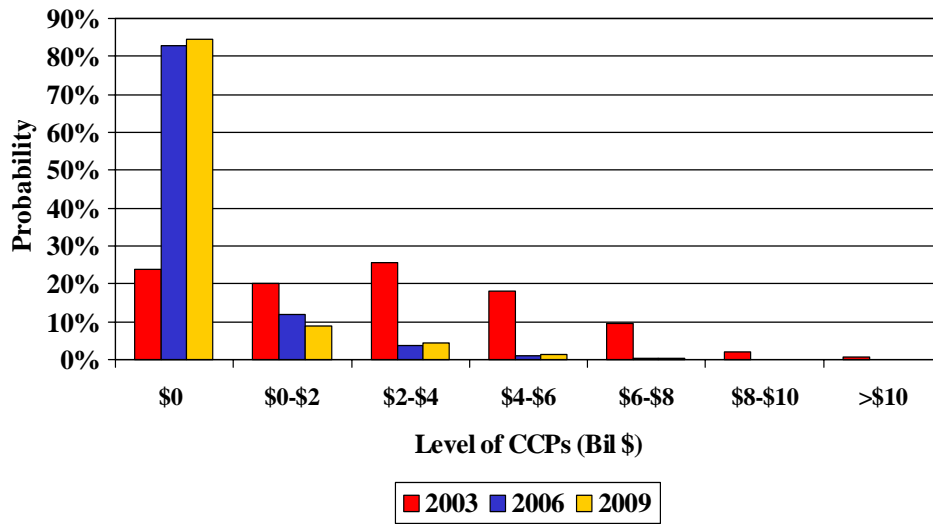


Fig. 2 Distribution of Counter-cyclical Payments,  
Based on 5-Yr Moving Average



## **Performance Over Recent History**

- In order to get some perspective of the program over history, the PCGI has been calculated for the 1984-1995 period. For the historical period, the PCGI equals the sum of cash receipts and direct government payments.
- The 5-yr moving average is then calculated and the CCPs are estimated as the shortfall between the current year PCGI and the 5-yr average.
- As shown in Table 4, payments would have been triggered in 4 of the 12 years, or one-third of the time.
- In years when the payment was triggered, the payments averaged \$1.7 billion.
- It should be pointed out that there is no clear way to analyze the program over the historical period since the direct government payments include a counter-cyclical portion through the target price/deficiency payment scheme.

Table 4. Estimated CCPs for the 1984-95 Period

Calendar Year	Cash Receipts	Direct Gov't Payments	PCGI	5-Yr Moving Average	CCP's
			(Billion Dollars)		
1979	38.646	0.852	39.498		
1980	45.452	0.767	46.219		
1981	43.801	1.092	44.893		
1982	43.759	2.321	46.080		
1983	38.892	3.150	42.042		
1984	39.078	2.629	41.707	43.747	2.040
1985	43.997	6.494	50.491	44.188	0.000
1986	33.043	10.123	43.166	45.043	1.877
1987	32.068	13.100	45.168	44.697	0.000
1988	35.270	10.450	45.720	44.515	0.000
1989	37.443	5.599	43.042	45.250	2.208
1990	39.103	5.918	45.021	45.517	0.497
1991	40.059	5.772	45.831	44.423	0.000
1992	42.232	5.165	47.397	44.956	0.000
1993	41.823	8.629	50.452	45.402	0.000
1994	45.686	3.766	49.452	46.349	0.000
1995	52.272	4.425	56.697	47.631	0.000