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ESTIMATED 2009 AND 2010 ACRE PAYMENTS

Estimates of 2009 and 2010 Average Crop Revenue Election (ACRE) payments are provided for Illinois. These estimates are useful as farmers make decisions concerning whether to enroll in ACRE for the 2010 cropping year. The deadline for enrolling Farm Service Agency (FSA) farms into ACRE that have not already been enrolled in ACRE is June 1.

For 2009, state ACRE payments are estimated at $27 per acre for corn, $0 for soybeans, and $90 for wheat. For 2010, corn has an expected payment of $41 per acre and a 51% chance of making a payment, soybeans have an expected payment of $14 per acre and a 35% chance of making a payment, and wheat has an expected payment of $33 per acre and a 66% chance of making a payment.

State ACRE Guarantees and State ACRE Payment Calculations

ACRE will make a state payment when state revenue is less than the state guarantee. For corn, the 2009 guarantee is $639 per acre. The $639 per acre equals the Olympic average of the five previous years' yields (172 bushels per acre) and the average of the previous two years of national market year average (MYA) prices ($4.13 per bushel). Guarantee calculations for corn, soybeans, and wheat in Illinois are shown in Figure 1.

State revenue for 2009 will equal the 2009 Illinois state yield times the 2009 MYA price. For corn, the Illinois state yield is estimated at 174 bushels per acre. The FSA has not released the 2009 yield yet. The 174 bushel estimate is based on yields released by the National Agricultural Statistical Service (NASS). NASS yields are adjusted to represent the historical difference between NASS yields and FSA benchmark yields.

The 2009 MYA price for corn is estimated at $3.52 per bushel. This price is not known with certainty because the market year has not ended. The market year for corn and soybeans ends in August. NASS has released monthly prices used in calculating MYA prices through the month of March. For corn, the April through August prices are forecasted based on Chicago Board of Trade (CBOT) futures contract prices adjusted by historical bases. These monthly prices are multiply by historical monthly marketing weights to arrive at the estimated MYA price.
Based on the 174 bushel yield and $3.52 per bushel price, 2009 state revenue for corn is estimated at $612 per acre. This $612 per acre revenue is below the state guarantee, meaning that the estimated state ACRE payment is $27 per acre ($639 guarantee - $612 revenue). The actual ACRE payment may vary from this estimate if actual monthly prices do not equal estimated prices. Up to date estimates of prices and ACRE payments can be made using FAST Microsoft Excel spreadsheet entitled "2009 ACRE Payment Estimator". This spreadsheet can be downloaded from the FAST section of *farmdoc* (http://www.farmdoc.illinois.edu/fasttools/index.asp).

Farm-level payments will vary from the state ACRE payment. Before receiving a payment, a farm must meet a farm revenue benchmark. If this benchmark is met, a farm's ACRE payments will be adjusted based on the ratio of the farm's five-year history of yields to the state's five-year history of yields. More detail on the above cited Excel spreadsheet. Webinars and additional papers are available under ACRE resources in the policy section of *farmdoc* (http://www.farmdoc.illinois.edu/policy/index.asp).

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Figure 1. ACRE Guarantees for 2009 and Estimated for 2010, Illinois.

Panel A. Corn

	Year					
	2004	2005	2006	2007	2008	2009E
State Yield	179	143	163	175	177	174
Market Year Average Price				4.20	4.06	3.52

2009 benchmark yield[1] = 172 bushels = (163 + 175 + 177) / 3

2009 benchmark price[2] = $4.13 = ($4.20 + $4.06) / 2

2009 state guarantee = $639 = 172 bushel x $4.13 price x .90

2010 estimated benchmark yield[1] = 171 = (163 + 175 + 174) / 3

2010 estimated benchmark price[2] = $3.79 = ($4.06 + $3.52) /2

2010 estimated state guarantee = $587 = 170 bushels x $3.79 x .90

Panel B. Soybenas

	Year					
	2004	2005	2006	2007	2008	2009E
State Yield	49.5	46.5	48	43.5	46.5	46
Market Year Average Price				10.10	9.97	9.55

2009 benchmark yield[1] = 47 bushels = (46.5 + 48 + 46.5) / 3

2009 benchmark price[2] = $10.04 = ($10.10 + $9.97) / 2

2009 state guarantee = $425 = 47 bushel x $10.04 price x .90

2010 estimated benchmark yield[1] = 46 bushels = (46.5 + 46.5 + 46) / 3

2010 estimated benchmark price[2] = $9.76 = ($9.97 + $9.55) /2

2010 estimated state guarantee = $404 = 47 bushels x $9.76 x .90

Panel C. Wheat

	Year					
	2004	2005	2006	2007	2008	2009E
State Yield	49.8	59.4	66.9	50.3	62.4	54
Market Year Average Price				6.48	6.78	4.95

2009 benchmark yield[1] = 60.2 bushels = (58.8 + 59.4 + 62.4) / 3

2009 benchmark price[2] = $6.63 = ($6.48 + $6.78) / 2

2009 state guarantee = $369 = 54 bushel x $4.95 price x .90

2010 estimated benchmark yield[1] = 58.6 bushels = (59.4 + 62.4 + 54) / 3

2010 estimated benchmark price[2] = $5.87 = ($6.78 + $4.95) /2

2010 estimated state guarantee[3] = $323 = $369 guarnatee x .90

[1] Equals the Olympic average of the five previous years' yields

[2] Equals the average of the two preivous market year average prices.

[3] The guarantee can not vary more than 10% from the previous year's guarnatee. For wheat this limit determines the 2010 guarantee.

Estimated 2009 ACRE Payments

The 2009 state ACRE payment for corn is estimated at $27 per acre (see Table 1). ACRE payments for corn are very likely. For ACRE to not make payments, the remaining monthly market average prices would have to average above $3.84 per bushel.

Table 1. Estimated 2009 Acre Payments, Illinois.

Crop	Estimated ACRE Payment
	$/acre
Corn	$27
Soybean	$0
Wheat	$90

The estimated 2009 payment for soybeans in Illinois is estimated at $0 per acre. Prices would have to fall dramatically before ACRE would make soybean payments, averaging below $8.31 for the remainder of the marketing year for ACRE to make a payment.

The state ACRE payment for wheat is estimated at $90 per acre. It is almost certain that ACRE payments will be made on wheat. The market year for wheat ends in May and price estimates are used to arrive at the $90 estimate only for April and May. In April and May, wheat prices would have to average above $23 per bushel for an ACRE payment not to be received.

Estimating 2010 payments

Estimates of ACRE payments for 2010 are made by first calculating 2010 state guarantees for corn, soybeans, and wheat using the estimated 2009 state yields and prices shown in Figure 1. The 2010 guarantees are $576 per acre for corn, $404 for soybeans, and $323 per acre for wheat. The $323 wheat guarantee results because of a limit specified by ACRE provisions: the guarantee can not be more than 10 percent away from the previous year's guarantee. For wheat, the 2009 guarantee was $369 per acre, meaning that the 2010 guarantee cannot be lower than $323 per acre ($369 guarantee in 2009 x.90). The usual calculation results in a guarantee for wheat of $309 per acre (58.6 benchmark yield x $5.87 benchmark price x .90). The $309 is below the limit; therefore, the limit of $323 per acre is used as the guarantee.

Since 2010 yields and MYA prices are not known, a large number of state yields and MYA price pairs were generated to represent possible outcomes in 2010. ACRE payments are calculated for these simulated yields and prices that cause estimated 2010 revenue to fall below the 2010 guarantee. Averages of state ACRE payments are then calculated over all the simulated yields and prices, including those pairs with an ACRE payment of $0 per acre. Also computed are the number of times, or chance, that ACRE will make a payment.

Figure 2. Histogram of Simulated Yields Used in Estimating 2010 State ACRE Payments, Corn, Illinois.
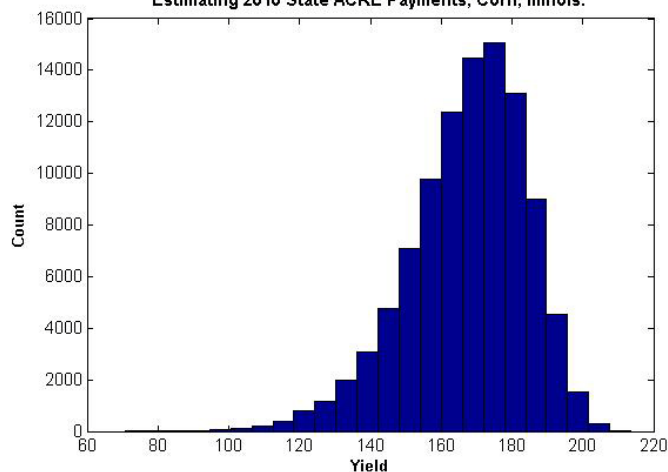
Yields are simulated so that the average and variability of state yields match historical variability when previous yields are detrended to today's conditions. The averages of state yields in the simulations are 167 bushels for corn, 47 bushels for soybeans, and 61 bushels for wheat. Figure 2 shows a histogram of simulated corn yields.

MYA prices distributions are parameterized based on prices of futures and options contracts during late April. Hence, prices represent expectations made in April 2010. The futures price distributions are then adjusted to reflect MYA prices based on historical relationships between futures prices and MYA prices. The average MYA prices in the simulations are $3.59 for corn, $9.18 for soybeans, and $4.90 for wheat. Figure 3 shows a histogram of simulated corn prices.

Figure 3. Histogram of MYA Prices Used in Estimating 2010 State ACRE Payments, Corn, Illinois.
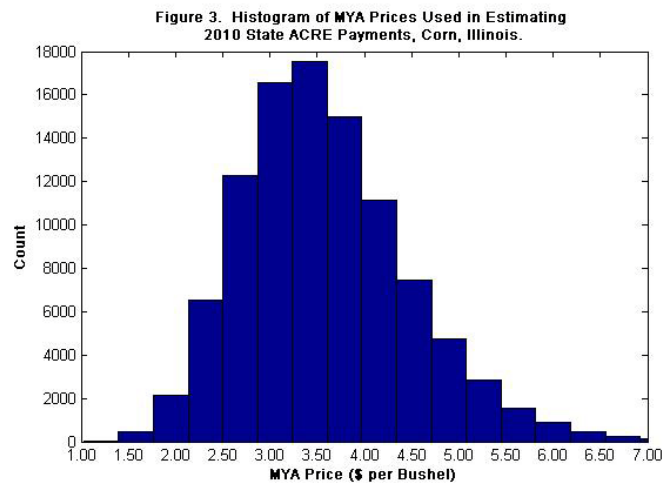
Price and yield combinations are simulated so that above average yields are associated with below average prices, and vice versa. Correlations between yields and prices are -.60 for corn, -.55 for soybeans, and -.11 for wheat.

Estimated 2010 ACRE Payments

Corn is estimated to have an expected state ACRE payment in 2010 of $41 per acre. Simulated yields and prices suggest that corn ACRE payments will be received in 51% of the years (see Table 2). Both the $41 per acre estimated payment and 51% chance of payment is above averages implied by estimating ACRE payments using historical data (see "Historical Analysis of ACRE" www.farmdoc.illinois.edu/manage/newsletters/fefo09_11/fefo09_11.html).

These historical estimates suggest that ACRE will make payments in 32% or the years and that the average ACRE payment will be $18 per acre. The mean of the simulated 2010 prices of $3.69 is below the benchmark price of $3.79 (see Figure 1). Because the average of the simulated prices is below the benchmark price, there is a higher than average chance of an ACRE payment and a higher expected ACRE payment. In other words, lower price expectations leads to higher expected ACRE payments.

Table 2. Estimated 2010 ACRE Payments, Illinois.

Crop	Percent Chance of ACRE Payment	Expected State ACRE Payment
		$/acre
Corn	51%	$41
Soybeans	36%	$14
Wheat	66%	$33

The state ACRE payment in Illinois for soybeans in 2010 is estimated at $14 per acre and the percent chance of an ACRE payment is estimated at 36% (see Table 2). The 2010 estimates are above those implied by historical data averages ($7 per acre average payment with ACRE payments occuring in 16% of the years). Like corn, the average of the simulated soybean prices ($9.18) is below the benchmark soybean price ($9.87). Lower price expectations again lead to higher expected ACRE payments.

The state ACRE payment for wheat is estimated at $33 per acre. ACRE is estimated to make payments 66% of the time. The $33 per acre estimated payment and the 66% chance is above historical averages ($15 payment with a 26% chance of occurring). There are two factors leading to high estimates of ACRE payments for wheat. First, the average of the simulated prices ($4.90) is below the benchmark price ($5.87). Lower price expectations lead to higher expected ACRE payments. Second, because of the 10% limit from the previous year's guarantee, ACRE's guarantee is above that implied by multiply the benchmark yield by the benchmark price by .90. Having the higher guarantee increases the chance of ACRE payments.

Summary

Based on April 2010 price expectations, corn, soybean, and wheat payments are likely to have a higher chance of occurring in 2010 than would be expected from an analysis using historical prices. From a standpoint of obtaining payments, 2010 is likely to be an opportune year to sign up for ACRE due to these higher chances of receiving ACRE payments. This is particularly true for farmers that plant a large amount of their acres in wheat and corn.

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