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Factors Influencing ACRE Program Enrollment

Andrea Woolverton
Edwin Young



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Factors Influencing ACRE Program Enrollment

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Abstract

Authorized by the 2008 Farm Act, the Average Crop Revenue Election (ACRE) program is the first revenue-based, income-support program that calculates payments using recent market prices and a producer's actual plantings. The payments are triggered when a farm's revenue and State revenue (price multiplied by yield per planted acre) fall below a calculated guarantee for a crop. By contrast, other income-support programs are based on legislated rates and support levels, computed using a farm's base acres and payment yields. Had the ACRE program been available during crop years 1996-2008, this report shows that farmers would have benefited more from participating in 2002 Farm Act programs than in the hypothetical ACRE program. The report further suggests that, for 2009-12, producers of corn, soybeans, wheat, and rice are likely to benefit more from the ACRE program than from the price-based, income-support programs. Initial enrollment data suggest that factors aside from expected market prices and yields entered into the enrollment decision such as producer risk preferences and initial learning and negotiation costs. Data indicate that about 8 percent of farms with almost 13 percent of eligible base acres elected to participate in ACRE, which is less than might be expected given price- and yield-based analysis alone.

Keywords: Average Revenue Crop Election, ACRE, 2008 Farm Act, farm bill, commodity programs, risk management, income support, ERS, USDA

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Summary

Authorized by the 2008 Farm Act, the Average Crop Revenue Election (ACRE) program is the first Federal agricultural income-support method to be based on agricultural revenues and planted acres. Income-support programs continued from the 2002 Farm Act, such as direct and counter-cyclical payments, are based on legislated rates and a farm's base acres. ACRE is a revenue guarantee program that farmers can select as an alternative to counter-cyclical payments. Producers had until August 14, 2009, to elect to participate in ACRE for 2009.

What Is the Issue?

U.S. farmers eligible for the ACRE program face several unknowns because the program requires farmers to make assumptions about farm and State yields and commodity prices before deciding whether to participate in the program. Some may prefer payment certainty by remaining in a program with which they feel comfortable.

What Did the Study Find?

Initial enrollment data as of October 2009 indicate that about 8 percent of farms with almost 13 percent of eligible base acres elected to participate in ACRE, which is less than might be expected given price- and yield-based analysis. However, enrolled producers must incur initial learning and negotiation costs and must forgo 20 percent of direct payments. These costs may be larger than the expected ACRE benefits for some producers in 2009 and beyond. As expected, ACRE enrollment is in regions that typically grow wheat, corn, and soybeans. The three crops comprise 96 percent of crops planted on ACRE-enrolled acreage. Remaining producers of eligible crops who did not elect to enroll in ACRE can still enroll in any of the next 3 years (until 2012), but those who do enroll must remain in the program through 2012.

ERS researchers applied ACRE requirements to program-eligible crops from 1996 to 2008 and analyzed whether farmers would have benefited more from participating in ACRE or in the 1996 and 2002 Farm Act programs during that time. They found that total payments under the 1996 and 2002 Farm Act programs exceeded estimated total ACRE program payments every year except 1996 and 1997. While most producers would have been better off participating in 1996 and 2002 Farm Act programs than in the ACRE program in 1996-2008, this may not be the case in crop years 2009-12. The prices used to calculate the initial ACRE revenue guarantees include the historically high commodity prices of 2007 and 2008. Thus, Government payments are likely to be higher for many farmers electing ACRE than for those who retain the 2002 Farm Act set of payments.

By participating in ACRE, an agricultural producer forgoes counter-cyclical payments and is subject to a 20-percent reduction in direct payments and a 30-percent reduction in marketing loan rates. Despite these tradeoffs, many U.S. farmers may find ACRE attractive, particularly farmers who are producing crops—such as corn, wheat, and soybeans—for which market prices are projected to be high relative to historical levels. Producers of those crops are unlikely to be eligible for counter-cyclical payments and marketing loan benefits.

Agricultural producers must consider two less quantifiable costs when deciding whether to elect to participate in ACRE: (1) the learning costs associated with the new revenue-based program, and (2) the negotiation costs due to the requirement that all producers/landowners in the farm operation must agree to participate. These factors will differ across producers and could discourage participation in ACRE.

ACRE payments are crop-specific and are based on planted acres of all farm-program-eligible crops on a participating farm. Eligible crops include wheat, corn, barley, grain sorghum, oats, upland cotton, long-grain and medium-grain rice, peanuts, pulse crops, and soybeans and other oilseeds. Payments are based on a “moving” 2-year average of market prices and on 5-year Olympic averages of yields. ACRE payments are triggered when both the farm and State revenues fall below benchmark levels. (An Olympic average is a 5-year average that “drops” the highest and lowest values.)

Two ACRE program generalities are evident. First, farms with yields that are positively correlated with State yields are more likely to receive ACRE payments given the dual-payment criterion. Second, the revenue guarantee (called the State ACRE Guarantee, or SAG) will follow relatively current market prices, high and low. As prices rise (fall), the SAG will increase (decrease), although by no more than 10 percent from one year to the next, regardless of changes in commodity prices or yields.

Given the relatively high initial SAG and projected crop prices, producers of wheat, corn, soybeans, and rice could qualify for payments under ACRE if they experience even a small decline in price or yield, which could offset most of the forgone direct payments. However, for farms that expect to receive counter-cyclical payments and marketing-loan benefits (upland cotton and peanut producers, for example), ACRE payments are unlikely to offset both the forgone payments and marketing loan benefits.

How Was the Study Conducted?

ERS researchers applied ACRE requirements to program-eligible crops from 1996 to 2008 and analyzed whether farmers would have benefited more from participating in the ACRE program or in the 1996 and 2002 Farm Act programs during that time. The researchers then projected their findings into crop years 2009-12. The historical costs were estimated for ACRE, assuming State-level historical production. The analysis was based on an indepth review of the 2008 Farm Act rules and regulations for ACRE. Data on planted acreage, production, prices, and enrollment from USDA’s National Agricultural Statistics Service and Farm Service Agency were used to simulate farm-level and aggregate impacts of ACRE.

Introduction

Introduced in the 2008 Farm Act, the Average Crop Revenue Election (ACRE) Program is a new commodity program for crop producers that focuses on revenue risk by incorporating current State and farm revenues into the payment structure. The program, administered by USDA's Farm Service Agency (FSA), reduces the risk of revenue deficiencies for participating producers by providing variable income-support payments by crop to producers based on national prices and State- and farm-level yields.¹ Once enrolled, direct payments and marketing loan rates are reduced by 20 and 30 percent, respectively, in exchange for potential ACRE benefits. The ACRE program is available beginning with the 2009 crop year as an alternative to the counter-cyclical payment (CCP) program for those producers who choose to elect ACRE and then annually enroll in the program.

Primary ACRE enrollment factors to be considered by an agricultural producer include:

- price expectations
- yield expectations
- State- and farm-level yield correlation
- cash flow changes associated with reduced 2002 Farm Act program payments²
- producer risk preferences
- initial learning and negotiation costs associated with electing ACRE.

¹A producer is an owner, operator, landlord, tenant, or sharecropper who shares in the risk of producing a crop and is entitled to share in the crop available for marketing from the farm, or would have shared had the crop been produced.

²In this report we use the phrase "2002 Farm Act programs" to refer to the set of commodity programs (direct payments, counter-cyclical payments and marketing loan benefits) that were available under the 2002 Farm Act and continue in the 2008 Farm Act.

Catalysts for a Commodity Program That Addresses Revenue Risk

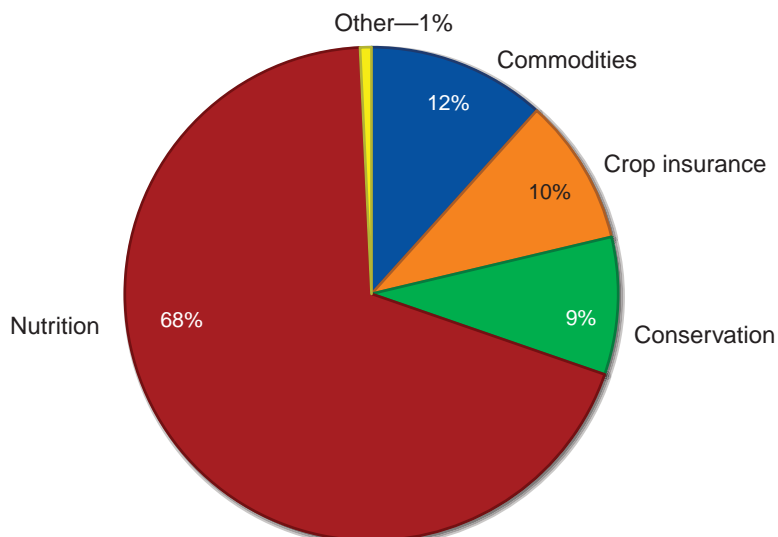
The Food, Conservation, and Energy Act of 2008 became law in June 2008 and governs agriculture, conservation, nutrition, and rural development programs through 2012. Within the 2008 Farm Act, Title I commodity programs provide the primary source of income support for program crop producers. Title I commodity programs and Title XII crop insurance represent about 22 percent of projected Farm Act spending (fig. 1).

Prior to the 2008 Farm Act, the U.S. agricultural sector experienced a period of high income in 2002-07 when the 2002 Farm Act was in force.³ Farm net cash income exceeded pre-2002 records each year from 2003 onward, reaching a record high of more than \$90 billion in 2008. High income was primarily driven by high commodity prices during this period (fig. 2).

Commodity program payments also contributed to producer income. However, at price levels well above fixed target prices, the capability of the 2002 Farm Act commodity programs (based on statutory prices) to address risk fell due to decreased frequency and size of payments. Decoupled programs such as direct payments (DP) provided a consistent level of income support in excess of \$5 billion per year to eligible producers. In contrast, price-based marketing-loan benefits and counter-cyclical payments fluctuated with prices and were important revenue sources in 2003-06, especially for upland cotton, peanuts, and corn (fig. 3). The importance of marketing loan benefits and counter-cyclical payments began to diverge after 2006 for different crops, as grain and oilseed prices increased more relative to fixed target prices and loan rates than did upland cotton and peanut prices. In 2007, farmers with historic base acres or who were producing upland cotton or peanuts were the primary recipients of price-based commodity payments

³The Farm Security and Rural Investment Act of 2002 legislated commodity programs from 2002 to 2007.

Figure 1
Farm programs account for about 22 percent of Farm Act budget allocations FY 2008-17

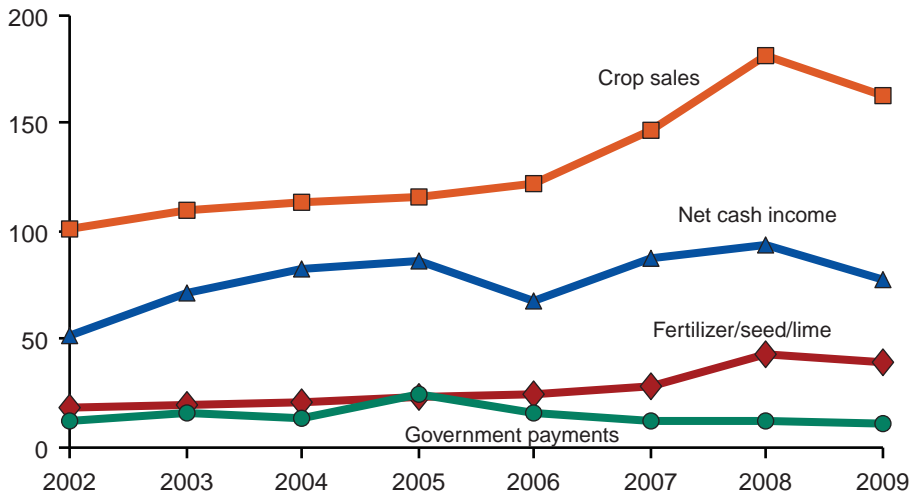


Source: USDA, Economic Research Service using Congressional Budget Office estimates.

Figure 2

Crop cash income and key expenses, 2002-09

Billion dollars



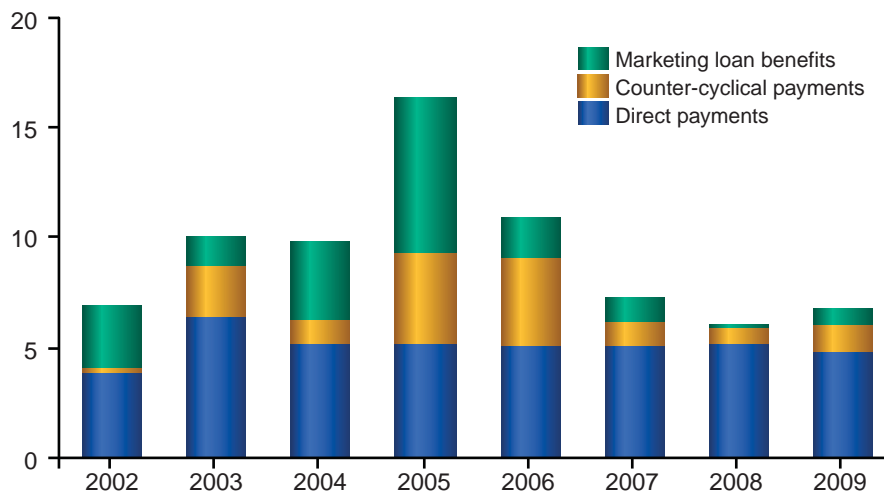
2009 forecast.

Source: USDA, Economic Research Service, Farm Income and Cost Data.

Figure 3

Commodity program payments, 2002-09

Billion dollars



2009 forecast.

Source: USDA, Economic Research Service, Farm Income Data, 2009.

such as counter-cyclical payments and marketing-loan benefits. Those payments amounted to approximately one-third of all commodity program payments.

As price-based commodity support payments decreased for many producers (particularly of grains and oilseeds), producers' input costs also were increasing. Key inputs such as fuel, fertilizer, and seed followed commodity price trends (fig. 2). The 2008 fertilizer costs alone were double the 2002 costs. From 2002 to 2008, commodity prices were volatile. Thus, when the 2002 Farm Act was to end in 2007, crop producers faced relatively large,

volatile crop revenues and input costs with small Government payments. Price-based income-support programs designed to serve as income “safety nets” were not providing payments that were correlated with farm revenue, or the payments were small relative to operating costs.

The ACRE program’s inclusion in the 2008 Farm Act occurred in an agri-economic environment of volatile, high prices and rising costs. In 2006, USDA held a series of farm-bill discussions to solicit opinions of producers and other industry stakeholders about the future of farm policy.⁴ Some participants saw the strong financial situation as an opportunity to shift farm-bill spending away from commodity programs to focus on conservation, nutrition, and energy programs. Most farm groups on the other hand, argued that the commodity programs in the 2002 Act worked well and should not be changed significantly. The National Corn Growers Association (NCGA) was a primary commodity group arguing for major changes, citing that payouts from marketing-loan benefits and counter-cyclical payments did not correlate with farm revenue changes. The NCGA argued for payments based on revenue changes.

USDA announced a set of farm-bill proposals in January 2007 based on the discussions. The USDA proposals called for making U.S. agricultural commodity programs more market oriented and more compatible with World Trade Organization (WTO) commitments by switching support to decoupled direct payments and eliminating the fruit and vegetable planting restrictions on base acres. While the ACRE program has evolved from original proposals for a counter-cyclical revenue assistance program, the legislative outcome in the 2008 Farm Act is the first U.S. revenue-based farm payment program. The ACRE program is not a substitute for current crop revenue insurance products, but is an addition to existing agricultural income-support programs.⁵

⁴USDA farm-bill forum comments from producers and other stakeholders can be found at <http://www.usda.gov/wps/portal/usdafarmbill?contentidonly=true&contentid=2006/03/0106.xml/>. (Accessed January 2009).

⁵For further discussion of how the ACRE program was created, see Zulauf, Carl R., Michael R. Dicks, and Jeffrey D. Vitale. 2008. “ACRE (Average Crop Revenue Election) Farm Program: Provisions, Policy Background, and Farm Decision Analysis,” *Choices*, Vol. 23, No. 3 (3rd Quarter 2008):29-35.

Opportunity Costs and Payment Scenarios

Agricultural producers had the opportunity to elect to participate in ACRE beginning in August 2009. Participants in the ACRE program are eligible for State-based revenue coverage that reflects recent yields and recent national prices for designated program crops (see appendix A for additional program details).⁶ ACRE payments can be triggered by a decrease in national prices or reported State yields (fig. 4). Enrolled producers will receive ACRE payments when both State-level and farm-level payment triggers are met (see box, “ACRE Definitions,” p. 29). The participation decision depends on the amount and variability of expected ACRE payments compared with 2002 Farm Act programs, as well as the producer’s risk tolerance.⁷

The ACRE program’s 20-percent reduction in guaranteed income through direct payments reduces the incentive for producers with high-valued base acres to participate in ACRE. Direct payments for producers with rice base acres, for example, are almost \$100 per base acre (fig. 5). These producers will incur a much higher financial penalty for electing to participate in ACRE than producers with oats base, who receive average direct payments of \$1 per base acre, or for producers with pulse (dry peas, lentils, chickpeas) base, who get no direct payments. Figure 6 indicates that direct payments are highest along the Mississippi River, along the Gulf Coast, and in central California. Producers in these regions are less likely to elect to participate in ACRE.

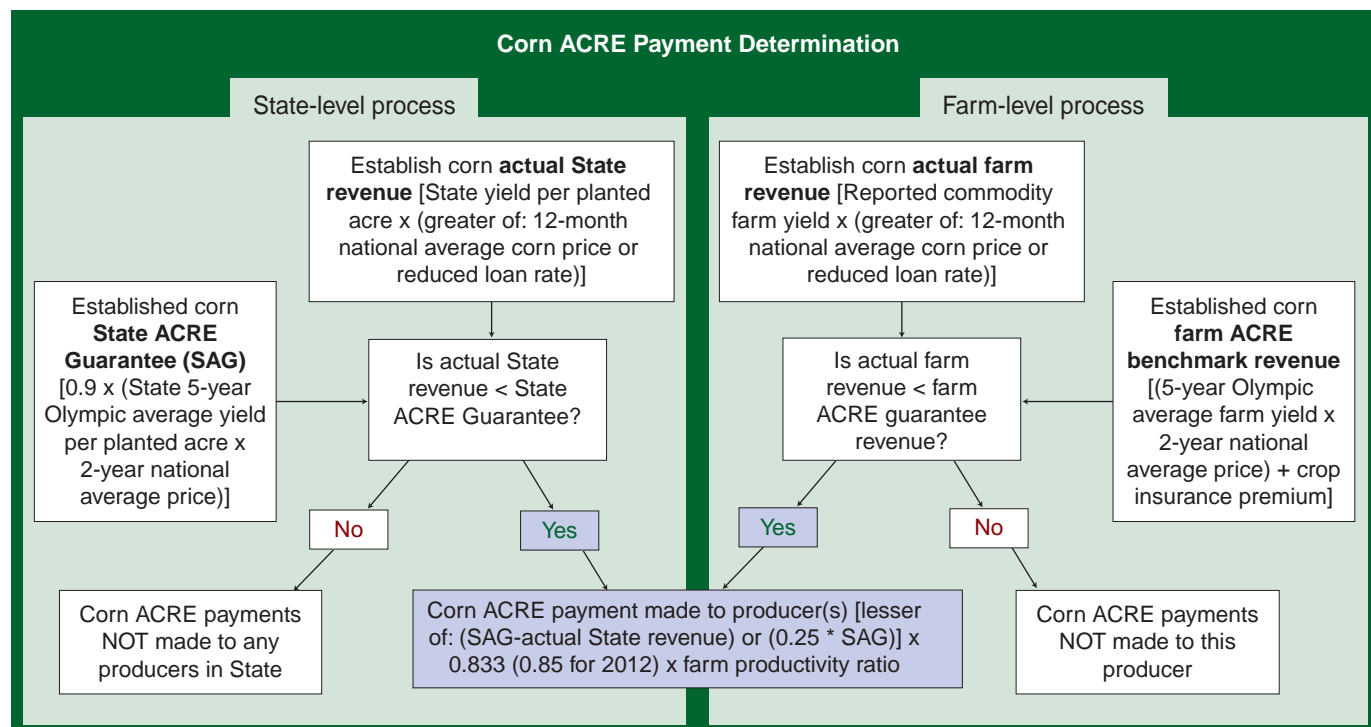
⁶Eligible crops include wheat, corn, barley, grain sorghum, oats, upland cotton, long-grain and medium-grain rice, peanuts, and pulse crops (dry peas, lentils, small and large chickpeas), and soybeans and other oilseeds (sunflower seed, canola, rapeseed, safflower, mustard seed, flaxseed, crambe, and sesame seed). These commodities are generally referred to as “covered commodities and peanuts” within the farm bill legislation.

⁷Some producers may choose to enroll in ACRE even though expected ACRE payments may be less than 2002 Farm Act program payments because the ACRE program has the potential for reducing revenue variability. Other producers may have a preference for payment certainty (direct payments) and for staying in a program with which they feel comfortable.

Figure 4

ACRE Payment Determination Process

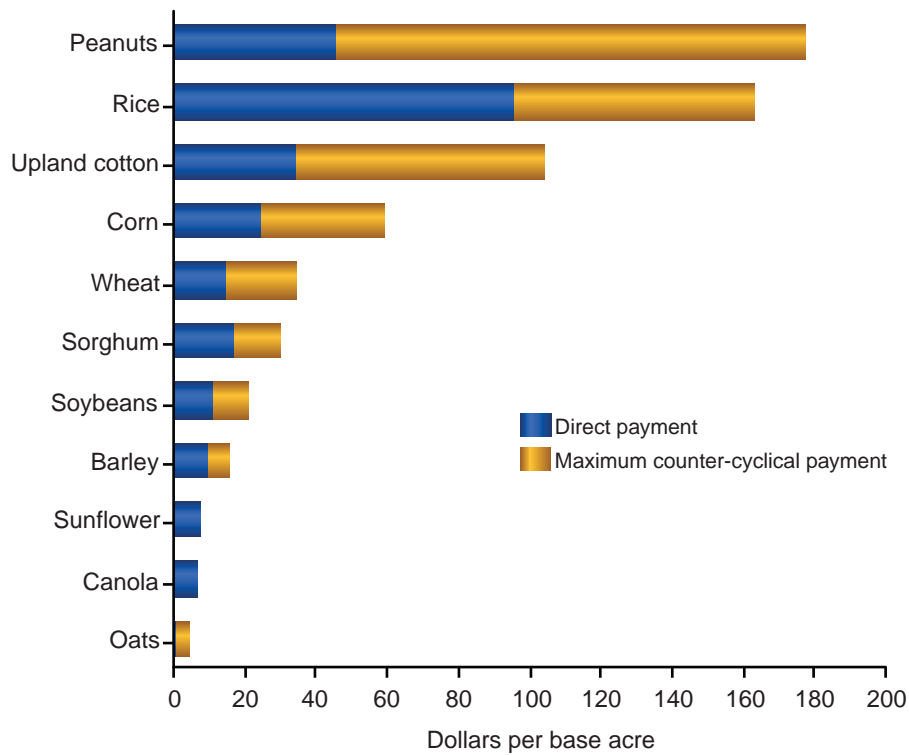
This schematic illustrates how ACRE payments are determined on an annual basis for each program crop. In this example, we will follow the process for corn on an enrolled farm for 1 crop year. To receive ACRE payments, both the State-level process and the farm-level process must trigger payments as indicated by a “Yes” result across both processes within the schematic.



See box, “ACRE Definitions,” in appendix A.
Source: USDA, Economic Research Service analysis.

Figure 5

Value per base acre of direct and counter-cyclical payments, 2008 Farm Act¹



¹Assumes national average payment yields for direct and counter-cyclical payments. Maximum counter-cyclical payments assume 2009 target prices.

Source: USDA, Economic Research Service analysis using data from USDA, Farm Service Agency.

Rice, cotton, and peanuts with high-valued base acres are typically produced in these regions.

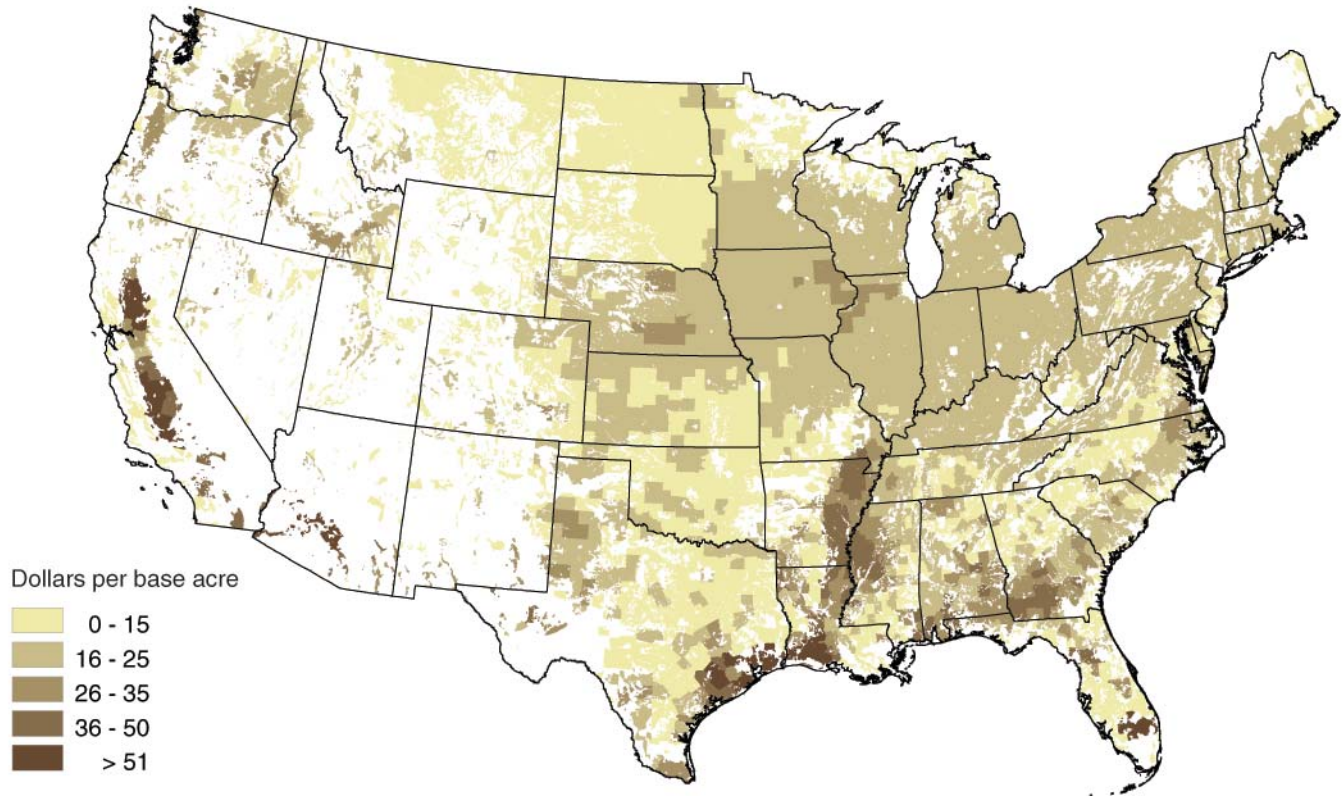
Marketing loan rates are reduced by 30 percent for ACRE participants. This reduction virtually eliminates any expected marketing-loan gains or loan-deficiency payments for any crop. However, the loan program will continue to assist ACRE participants who need funds for cash flow or tax management reasons, but want to delay selling their commodity.

Market prices for the major crops (corn, wheat, soybeans, rice, and upland cotton) were relatively high over the last several years and are projected to remain at these levels over the next 10 years (USDA, Office of the Chief Economist, 2009). High market prices in 2007/08 and 2008/09 mean that the 2009/10 ACRE guarantee price is well above target prices and marketing loan rates for many major ACRE-eligible commodities (table 1). With effective target prices of \$2.35 for corn, \$5.56 for soybeans, \$3.65 for wheat,⁸ and \$8.15 for rice, prices would need to decline significantly from these projected 2009/10 levels to trigger counter-cyclical payments (CCPs) for corn, soybeans, wheat, and rice (fig. 7). Producers with upland cotton and peanut base acres would expect to receive counter-cyclical payments and possibly marketing loan benefits, which would reduce their incentive to enroll in ACRE.

⁸The effective target price for wheat is \$3.40 per bushel in 2009.

Figure 6

Projected direct payments per base acre under the 2008 Farm Act



Source: USDA, Economic Research Service analysis of data from USDA, Farm Service Agency.

Table 1

Preliminary ACRE guarantee prices compared with projected prices and other program support prices

| | 2009/10 projected price | Acres guarantee price estimate | Effective 2009 target price ¹ | 2009 marketing loan rate |
|---|----------------------------|-----------------------------------|---|-----------------------------|
| Corn (<i>bu</i>) | \$3.50 | \$4.13 | \$2.35 | \$1.95 |
| Grain sorghum (<i>bu</i>) | \$3.00 | \$3.64 | \$2.22 | \$1.95 |
| Barley (feed) (<i>bu</i>) | \$2.80 | \$4.09 | \$2.00 | \$1.85 |
| Soybeans (<i>bu</i>) | \$9.40 | \$10.05 | \$5.36 | \$5.00 |
| Wheat (<i>bu</i>) | \$5.20 | \$6.63 | \$3.40 | \$2.75 |
| Long-grain rice (<i>cwt</i>) | \$12.50 | \$13.70 | \$8.15 | \$6.50 |
| Medium- and short-grain rice (<i>cw.</i>) | \$20.00 | \$19.15 | \$8.15 | \$6.50 |
| Upland cotton (<i>lb</i>) | \$0.54 | \$0.54 | \$0.65 | \$0.52 |
| Peanuts (<i>lb</i>) | \$0.21 | \$0.22 | \$0.23 | \$0.18 |

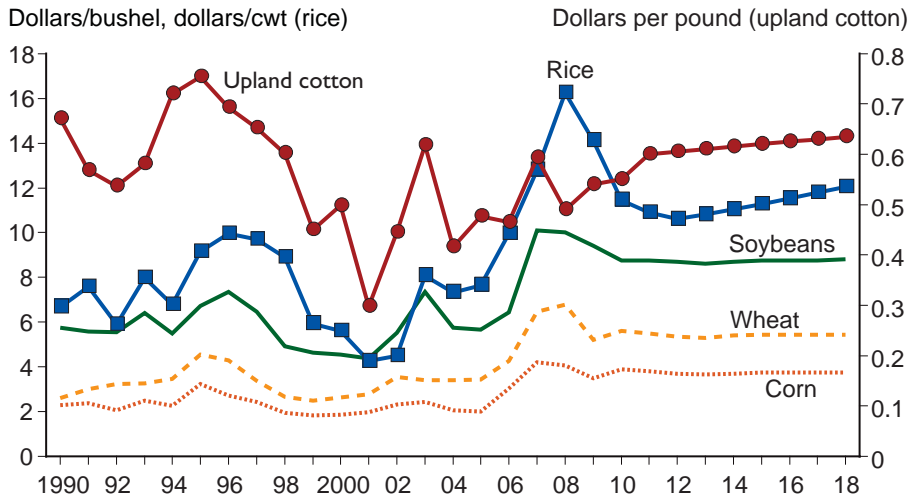
Note: Bu = bushel; cwt = hundredweight; lb = pound.

¹Target price minus direct payment rate.

Sources: USDA, Farm Service Agency, Preliminary and Final Average Crop Revenue Election (ACRE) Guarantee Prices for 2009 Compared With 2009/10 Price Forecasts, August 31, 2009 update (http://www.fsa.usda.gov/Internet/FSA_File/acre_prices_values_update.xls). Accessed September 10, 2009.

Figure 7

Historical and forecast average U.S. prices, selected crops, 1990-2018



2009-18 forecast.

Source: USDA, National Agricultural Statistics Service, and USDA, Office of the Chief Economist (2009).

Other important costs and benefits that will be considered in the net expected ACRE benefit calculations include learning and negotiation costs and benefits from reduced revenue risk exposure. The ACRE program is new, and learning costs will be incurred when developing a sound understanding of program details and State and farm yield dynamics. Farmers may not have an appreciation of how their farm revenues are related to State-level revenues.

All landowners and operators on the farm must agree to elect ACRE. Negotiation costs will increase as the percentage of rented land, the complexity of lease arrangements, and the value of base acreage increases. Direct payments have been found to increase land values, and some landowners with high-value base acreage may be reluctant to accept the 20-percent reduction in direct payments.

An important benefit that potentially offsets the learning and negotiation costs is the reduction in revenue risk resulting in ACRE enrollment. There is value associated with annual reduction in revenue risk, even if net expected ACRE payments are less than expected 2002 Farm Act payments. These costs and benefits are difficult to quantify and are not included in the analysis. However, they are likely to be significant factors in a producer's decision to elect to participate in ACRE or not, and the weight given to each will vary across producer risk preferences.

Complex Program Results in a Variety of Payment Outcomes

ACRE is a complex support program that can result in a variety of payment outcomes depending on producer, State, and market characteristics. This section uses two scenarios with key price and yield expectations to illustrate ACRE payment outcomes and to expand upon the associated monetary-based opportunity costs of enrollment for two selected commodities (corn and upland cotton) at the farm level.⁹

Each scenario estimates the net monetary benefit from participating in ACRE. Net benefits include estimated 2002 Farm Act program payment tradeoffs. The ACRE program is a counter-cyclical payment substitute; therefore, CCPs are forfeited. The CCP tradeoff value is based on 100 percent of the effective target price since the decision not to enroll in ACRE preserves 2002 Farm Act program benefits. ACRE participants will continue to receive 80 percent of direct payments. ACRE participants' eligibility for marketing-loan benefits also continues; however, the loan repayment rates¹⁰ must be less than 70 percent of the marketing loan rate for marketing loan benefits (MLBs) to trigger. Marketing loan gains and loan deficiency payments for a producer enrolled in ACRE would equal the margin between the loan repayment rates and the reduced marketing loan rates. The marketing loan program would continue to benefit ACRE participants with some short-term credit at favorable interest rates. Non-ACRE producers will continue to receive MLBs when market prices are less than the marketing loan rate.

Scenario A: Given the nature of agricultural production and the positive correlation in yields across farmers in a region, it is common that a State may experience yield shocks with substantial differences between actual and expected yield. For example, in 1998, corn yield per planted acre in Georgia was 37 percent below the national yield. In 2001, it was 57 percent greater than the national average yield per planted acre. Depending on the State's position within the national and global supply, State-level yield shocks may or may not have large impacts on national market prices.

In this scenario, we assume the State-level weather-related yield shocks do not impact national (global) market prices for the various respective crops. For corn, this assumption is unlikely to be the case for the Corn Belt States, Iowa and Illinois in particular, but is certainly possible for States in peripheral corn-producing regions (Cooper, 2009a). For U.S. cotton-growing regions, the relatively low price-yield relationships suggest that State-level cotton yield shocks will have a relatively low impact on prices. With stable commodity prices, ACRE payments are likely to be triggered by low yields if both State and farm revenues fall below guarantee levels.

Positive correlation between farm and State average yields is critical to ACRE payment outcomes. Coble estimates that, nationally, corn farm-level revenue has a correlation coefficient of almost 0.5 with State-level revenue (Coble, 2009). The correlation coefficients for wheat and soybeans are around 0.4, whereas the cotton correlation coefficient is 0.34.¹¹ As correlation decreases, the likelihood that the State and farm will both trigger ACRE payments in a particular year is lower.

⁹These scenarios are discrete, nonstochastic, and are used solely to illustrate ACRE payment outcomes with certain agricultural expectations. They do not take into consideration guarantees calculated separately for irrigated and nonirrigated land.

¹⁰Rate at which farmers are allowed to repay their loans when market prices are below the commodity loan rate. This lower repayment rate is based on the posted county prices (PCPs) for wheat, feed grains, or oilseeds; on the adjusted world price for rice or upland cotton; and on the national posted price for peanuts. Any accrued interest on the loan is waived.

¹¹The figures are inferred from revenue simulations based on State- and farm-level yield and price variability in 1980-2009.

A State-level yield shock scenario for both corn and upland cotton production within the State for 2009-12 with the yield shock occurring in 2010 and 2011 is illustrated in table 2 (see appendix B for full 2009-12 details). In this scenario, both crops trigger ACRE payments at the State level in 2010 and 2011 when yield shocks are incurred. The SAG in 2012 declines because the 2010 and 2011 yield declines are incorporated into the SAG calculation. The resulting decline in the SAG, however, is limited by the 10-percent constraint on the change in the SAG in any year. The 2012 corn and upland cotton SAGs are \$701 (\$696 unconstrained) and \$447 (\$437 unconstrained), respectively.

Farmer A receives corn ACRE payments in 2011 and upland cotton payments in 2010-11. In 2010, Farmer A's corn yields are not as low as State yields. The farm-level payment criterion is not triggered, and Farmer A does not receive an ACRE corn payment for 2010. In 2012, Farmer A's actual corn revenue and cotton revenue are both below the farm ACRE benchmark revenue level; however, ACRE payments are not triggered at the State level.

ACRE payments triggered at the State level, but not at the farm level, are not expected to be common. The SAG is 90 percent of the ACRE guarantee price multiplied by the ACRE benchmark State yield. By contrast, the farm-level

Table 2

Scenario A: State-level yield shocks in 2010 and 2011¹

| Yield shocks | Corn | | | Upland cotton | | |
|--|------------|-------------|------------|---------------|-------------|--------------|
| | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 |
| State assumptions | | | | | | |
| ACRE price | \$5.35 | \$5.40 | \$5.23 | \$0.60 | \$0.59 | \$0.58 |
| Actual yield/planted acre | 105 | 98 | 172 | 500 | 600 | 964 |
| Actual State revenue | \$561.75 | \$529.20 | \$899.56 | \$300.00 | \$354.00 | \$559.12 |
| ACRE guarantee price | \$5.28 | \$5.33 | \$5.38 | \$0.59 | \$0.61 | \$0.60 |
| Benchmark State yield/planted acre | 163 | 163 | 144 | 920 | 904 | 817 |
| State ACRE Guarantee (SAG) ² | \$772.26 | \$779.58 | \$701.10 | \$490.59 | \$496.30 | \$446.67 |
| ACRE payment rate | \$193.07 | \$194.90 | \$0.00 | \$122.65 | \$124.07 | \$0.00 |
| Farm assumptions | | | | | | |
| Planted acreage | 100 | 100 | 100 | 100 | 100 | 100 |
| Actual farm yield/planted acre | 171 | 150 | 172 | 850 | 950 | 960 |
| ACRE price | \$5.35 | \$5.40 | \$5.23 | \$0.60 | \$0.59 | \$0.58 |
| Actual farm revenue/planted acre | \$914.85 | \$810.00 | \$899.56 | \$510.00 | \$560.50 | \$556.80 |
| ACRE guarantee price | \$5.28 | \$5.33 | \$5.38 | \$0.59 | \$0.61 | \$0.60 |
| Benchmark farm yield/ planted acre | 162 | 165 | 165 | 929 | 913 | 946 |
| Crop insurance premium/acre | 30 | 30 | 30 | 24 | 24 | 24 |
| Farm ACRE benchmark revenue/planted acre | \$886.35 | \$908.64 | \$916.89 | \$574.31 | \$580.91 | \$586.77 |
| Does this producer receive an ACRE payment? | No | Yes | No | Yes | Yes | No |
| Total farm ACRE payment | \$0.00 | \$16,467.90 | \$0.00 | \$10,314.26 | \$10,437.80 | \$0.00 |
| ACRE participation tradeoffs | | | | | | |
| Direct payment tradeoff | \$604.76 | \$604.76 | \$617.10 | \$722.29 | \$722.29 | \$737.04 |
| Counter-cyclical payment tradeoff | \$0.00 | \$0.00 | \$0.00 | \$3,211.73 | \$3,912.98 | \$4,614.23 |
| Net ACRE participation monetary benefit ³ | \$(604.76) | \$15,863.14 | \$(617.10) | \$6,380.24 | \$5,802.53 | \$(5,351.27) |

¹Calculated values may differ from those shown in the table due to rounding error.

²SAG is limited to 90 percent of the prior year's SAG. ³Potential marketing loan benefits are not incorporated into net ACRE benefits.

Source: USDA, Economic Research Service calculations.

benchmark revenue is 100 percent of the ACRE guarantee price multiplied by the farm benchmark yield. Moreover, the farmer-paid premium for crop insurance is added into the farm's benchmark revenue. The differences in the calculation of the farm and State revenue targets imply the State-level ACRE payment trigger is more difficult to meet than the farm-level trigger. Farm-level loss could be greater than the State-level loss, illustrating the need for the producer to consider crop insurance.

The ACRE enrollment tradeoff is net positive from 2009-12 for both crops, assuming there are no LDPs for the price-yield value in scenario A. Here lies an interesting nuance. Building on the 90- versus 100-percent discussion above, when corn and upland cotton ACRE payments are triggered in 2010 and again in 2011 for upland cotton, the farm-level revenue loss is smaller than State-level revenue loss. Nonetheless, the ACRE payment rate is based on the State-level revenue loss adjusted for the farm productivity ratio.¹² Therefore, Farmer A's 2010 corn ACRE payment is substantial relative to Farmer A's revenue loss because the farm's reported yield loss was not as severe as the State's yield loss. The relative size of the upland cotton ACRE payments compared to revenue loss in 2010 and 2011 is similar. However, the loss of upland cotton CCPs that would have been paid during 2009-12 must be subtracted from the ACRE payment to evaluate the net benefit.

Scenario B: This scenario illustrates the impacts on ACRE payments if national average market prices decrease in the event that agricultural production exceeds global demand. As market prices decrease, the likelihood of receiving commodity counter-cyclical and loan deficiency payments increases. These program payments are based on differences between fixed support prices and market prices. As in scenario A, farmers would need to consider tradeoffs when participating in ACRE rather than in 2002 Farm Act income-support programs. Expected tradeoffs would vary across commodities. For example, the difference between current market prices and counter-cyclical payment target prices is much larger for corn than for cotton.

A State-level scenario where national prices are falling for both corn and upland cotton for 2009-12 is shown in table 3 (see appendix C for full 2009-12 details). In this example, ACRE payments for corn are triggered in 2011-12 as the corn price decreases and actual State revenue falls below the State ACRE Guarantee for those years. Upland cotton producers in this scenario are also eligible for ACRE payments in 2011 and 2012.

Farmer B in this example planted 100 acres of both corn and upland cotton. Farmer B generally has a corn yield per planted acre similar to the State average and an upland cotton yield per planted acre above the State average.

In the case of corn, both State- and farm-level triggers are met and ACRE payments are made to Farmer B in 2011-12. The corn ACRE payments exceed the direct and counter-cyclical payment tradeoff in 2011 only, resulting in a negative net benefit from the ACRE program.¹³

For upland cotton, Farmer B's actual farm revenue is less than benchmark revenue in 2011-12. When the upland cotton price is assumed to drop \$0.06/lb from 2010 to 2011, Farmer B receives a cotton ACRE payment,

¹²ACRE payment rate is capped at 25 percent of the SAG.

¹³Counter-cyclical payments would be zero in this instance.

as both the State- and farm-level triggers are activated in 2011. Farmer B receives a cotton ACRE payment again in 2012.

As the upland cotton market price decreases, Farmer B begins to trade off actual cotton CCPs for potential benefits from ACRE enrollment. The 2011 upland cotton ACRE participation tradeoff is negative for 2009-12, even with a positive ACRE payment. The CCP becomes significantly larger as the national average upland cotton price falls from \$0.62 to \$0.47, all other factors being equal.¹⁴ Any time the upland cotton market price is below \$0.52, the reduced marketing-loan benefits also enter the tradeoff calculation.

Together, scenarios A and B provide ACRE payment applications incorporating varying market price and yield issues that influence both ACRE enrollment and budgetary outcomes. Scenario A illustrates both that (1) it is possible for ACRE payments to be triggered at the State-level, but an individual farmer may not receive ACRE payments when other farmers in the State are receiving ACRE payments; and (2) it is possible for ACRE payments to be triggered at the farm level, without ACRE payments being made to the farmer. Scenario B with “falling prices” introduces an interesting

¹⁴The maximum CCP rate for upland cotton is \$0.1258 per pound.

Table 3

Scenario B: Falling market price scenario¹

| Falling prices | Corn | | | Upland cotton | | |
|--|----------|------------|------------|---------------|--------------|--------------|
| | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 |
| State assumptions | | | | | | |
| ACRE price | \$4.50 | \$4.00 | \$3.75 | \$0.58 | \$0.52 | \$0.47 |
| Actual State yield/planted acre | 168 | 172 | 170 | 964 | 975 | 982 |
| Actual State revenue | \$756.00 | \$688.00 | \$637.50 | \$559.12 | \$507.00 | \$461.54 |
| ACRE guarantee price | \$5.15 | \$4.78 | \$4.25 | \$0.59 | \$0.60 | \$0.54 |
| Benchmark State yield/ planted acre | 163 | 165 | 167 | 943 | 962 | 970 |
| State ACRE guarantee (SAG) ² | \$753.96 | \$709.09 | \$640.05 | \$503.73 | \$519.48 | \$471.26 |
| ACRE payment rate | \$0.00 | \$21.09 | \$2.55 | \$0.00 | \$12.48 | \$9.72 |
| Farm assumptions | | | | | | |
| Planted acreage | 100 | 100 | 100 | 100 | 100 | 100 |
| Actual farm yield/planted acre | 164 | 170 | 169 | 1,000 | 1,020 | 1,010 |
| ACRE price | \$4.50 | \$4.00 | \$3.75 | \$0.58 | \$0.48 | \$0.47 |
| Actual farm revenue/planted acre | \$738.00 | \$680.00 | \$633.75 | \$580.00 | \$489.60 | \$474.70 |
| ACRE guarantee price | \$5.15 | \$4.78 | \$4.25 | \$0.59 | \$0.58 | \$0.51 |
| Benchmark farm yield/ planted acre | 164 | 165 | 168 | 938 | 968 | 987 |
| Crop insurance premium/acre | 30 | 30 | 30 | 24 | 24 | 24 |
| Farm ACRE benchmark revenue/planted acre | \$872.91 | \$816.82 | \$742.10 | \$579.49 | \$585.18 | \$527.23 |
| Does this producer receive an ACRE payment? | No | Yes | Yes | No | Yes | Yes |
| Total farm ACRE payment | \$0.00 | \$1,754.24 | \$217.04 | \$0.00 | \$1,045.59 | \$840.57 |
| ACRE participation tradeoffs | | | | | | |
| Direct payment tradeoff | \$604.76 | \$604.76 | \$617.10 | \$722.29 | \$722.29 | \$737.04 |
| CCP tradeoff | \$0.00 | \$0.00 | \$0.00 | \$7,419.23 | \$8,821.73 | \$8,821.73 |
| Net ACRE participation monetary benefit ³ | \$604.76 | \$1,149.48 | (\$400.06) | \$(8,141.52) | \$(8,498.43) | \$(8,718.20) |

¹Calculated values may differ from those shown in the table due to rounding error.

²SAG is limited to 90 percent of the prior year's SAG. ³Potential marketing loan benefits are not incorporated into net ACRE benefits.

Source: USDA, Economic Research Service calculations.

tradeoff dynamic in the enrollment decision when market prices are less than the effective target price. At this price point, relatively large CCPs are likely difficult to offset with expected ACRE payments.

In general, farms with yields that are positively correlated with State yields are more likely to receive ACRE payments, all other factors being equal. The dynamic nature of the State ACRE Guarantee means that, in the long run, the revenue guarantee will follow both high and low prices. The 10-percent restriction on the year-to-year revenue guarantee variation ensures that the revenue guarantee adjustment is moderated relative to large price changes.

A Historical Perspective

ACRE payments are highly related to market prices and current production. As it is difficult to predict the future, it is difficult to predict ACRE payment outcomes. To gain perspective regarding potential ACRE payment outcomes, it is useful to look at historical production and price patterns and hypothetical ACRE outcomes (all other factors remaining the same).

Using 1996 as the starting year, figure 8 provides maximum hypothetical ACRE payments for five major program crops, assuming State-level historical production and U.S. price patterns.¹⁵ From this perspective, ACRE payments generally would have trended upward following an immediate price or yield shock, but then leveled. These maximum-payment outcomes assume all planted acres across the country were enrolled and all enrolled acres received an ACRE payment when payments were triggered at the State level. Hence, this analysis likely provides an upper bound on ACRE payments over the time span. Payments would have exceeded \$5 billion a year in crop years 1998 and 1999 when commodity prices declined, with corn and soybeans accounting for over half of the payments. Producers would also have received 80 percent of the decoupled production flexibility contract payments (replaced by direct payments) each year. ACRE would have paid over \$1 billion for upland cotton in crop years 1999 and 2001.

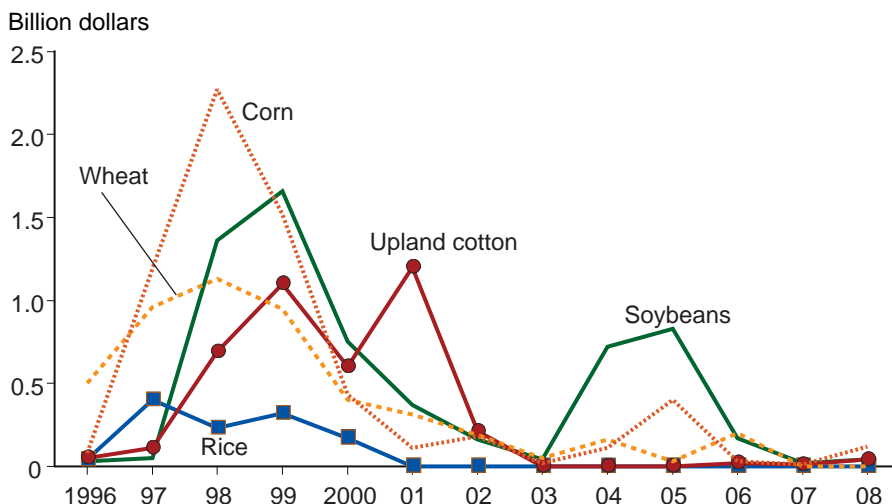
Assuming ACRE payments as illustrated in figure 8, would producers have been better off with ACRE or with the mix of programs in place during 1996-2008? To answer this question we compare estimated ACRE costs, including 80 percent of production flexibility contract payments and direct payments, with actual program expenditures (fig. 9).¹⁶ Total 1996 and 2002 Farm Act program payments exceeded estimated total ACRE program payments in

¹⁵This analysis assumes that annual production levels under ACRE would have been the same as under the 1996 and 2002 Farm Act commodity programs and incorporates the SAG 10-percent change limits.

¹⁶The ACRE program cost estimates do not include any marketing loan benefits. With ACRE, marketing loan rates are reduced by 30 percent. Marketing loan benefits would have been triggered for upland cotton in 2001, for example, when market prices fell below \$0.30 per pound.

Figure 8

Hypothetical ACRE payments assuming historical production and price patterns¹

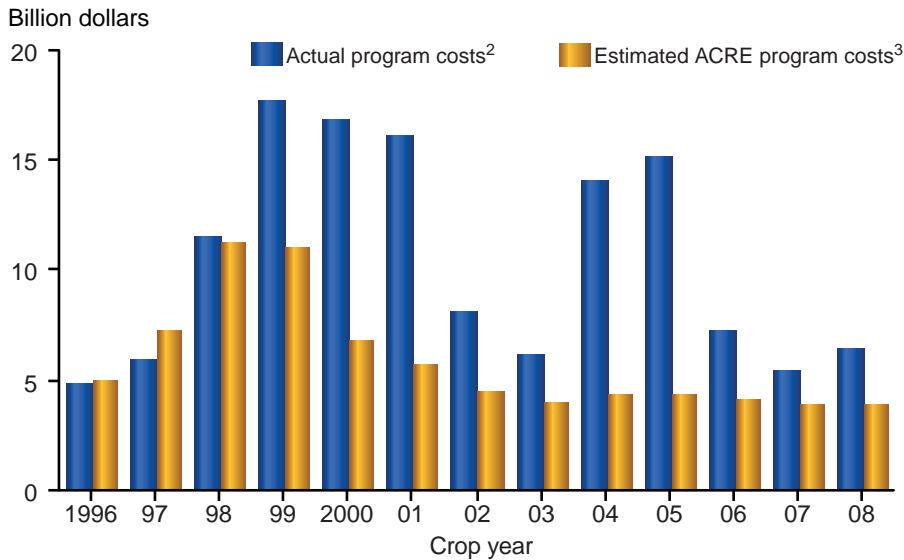


¹Based on actual commodity prices and State-level yields, 1991-2008

Source: USDA, Economic Research Service analysis using data from USDA, National Agricultural Statistics Service.

Figure 9

Actual program costs compared with estimated ACRE costs, 1996-2008¹



¹Crops analyzed were: corn, wheat, soybeans, rice, and upland cotton.

²Includes direct and counter-cyclical payments, market loss assistance payments, and marketing loan benefits.

³Assumes 100-percent participation in ACRE and 80 percent of direct payments.

Source: USDA, Economic Research Service analysis using data from USDA, Farm Service Agency.

every year except for 1996 and 1997. While some individual producers may have received higher payments with ACRE in this time period, most would not have, due to relatively high price-based marketing-loan benefits and counter-cyclical payments.

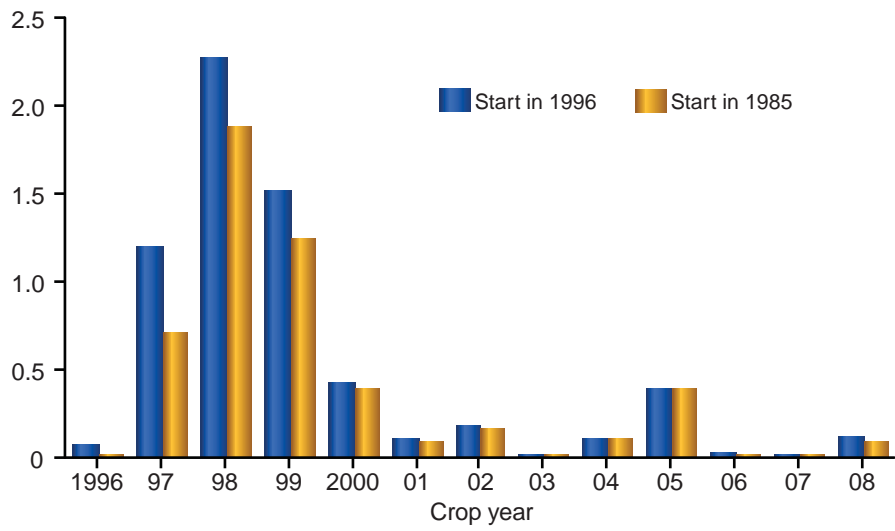
The starting year for the SAG can have a large impact on payment outcomes with ACRE. Therefore, starting years either at the top or the bottom of a price trend are likely to yield different payout results. Figure 10 illustrates that using 1996 as the starting year results in different payment outcomes for years 1996 through 2000 than would have occurred had the program begun to operate earlier (e.g., 1985). This difference is due to restrictions within the ACRE program that limit changes in the ACRE guarantee to no more than 10 percent from year to year. In Iowa, for example, if ACRE had begun in 1996, the State ACRE Guarantee would have been \$312 per acre. However, if the program had begun operating in 1985, the Iowa corn revenue guarantee in 1996/97 would have been \$292 due to the 10-percent cap on the increase from the 1995/96 Iowa corn guarantee of \$265/planted acre.

The 10-percent cap would have continued to limit the State ACRE Guarantee through 2000/01. Thus, if the price decline that started in 1996 repeats itself beginning in 2009, the high starting price that results from the high prices in 2007 and 2008 will increase expected ACRE payments for some time into the future. ACRE program costs would have been \$1.3 billion (over 25 percent) higher had the program begun in 1996 compared to beginning in 1985.

Figure 10

Estimated ACRE payouts: For corn, “starting year” matters¹

Billion dollars



¹Based on actual corn prices and State-level yields, 1991-2008.

Source: USDA, Economic Research Service calculations.

The Enrollment Decision in 2009 and Beyond

With the introduction of the ACRE program, farmers must now choose between continued enrollment in the 2002 Farm Act farm income-support programs or enrolling in the ACRE program. Either choice has its own set of benefits and tradeoffs. As the previous scenarios and discussion illustrate, the decision to elect to participate in ACRE depends on a wide range of factors, including market expectations and producer risk preferences, and varies with commodity mix in production.

The ACRE program is revenue-based—payments are equally based on prices and yields. However, given recent historical price trends, the price component of the program will likely have a large influence on enrollment decisions. Prices for most program commodities were at or near historical highs in 2008 and 2009 (see fig. 7, p. 8). While prices are projected to decline somewhat for the next several years, they are projected to remain at historically high levels. The ACRE guarantee price for the 2009/10 crop will be calculated using the 2007/08 and 2008/09 prices.

Table 1 presents a comparison of the ACRE guarantee price with projected prices for 2009-10, as well as the marketing loan rate and effective counter-cyclical target price. The price projections indicate that prices for all of the commodities will be lower than the average for the 2 prior years. If we assume that 2009 yields per planted acre are similar to the 2004-08 Olympic (5-year) average, the price relationships indicate that many producers will strongly consider election of ACRE. Price projections for corn, grain sorghum, barley, oats, and wheat are over 10 percent lower than the ACRE price guarantee, creating a high probability of ACRE payments in 2009/10. Price projections for soybeans and upland cotton are almost 10 percent lower than the 2-year average. Upland cotton producers will find ACRE less attractive due to the low price projection for upland cotton (\$0.54/lb.), which is near the marketing loan rate and below the effective counter-cyclical target price. Upland cotton producers will likely receive higher payments from 2002 Farm Act programs.

The Farm-Level Decision

There is a high probability of ACRE payments in 2009/10 based on the USDA price projections (Cooper, 2009b). We illustrate some factors that will influence participation by producers of various commodities in four regions:

1. A Corn Belt corn/soybean farm (Iowa)
2. A Northern Plains wheat farm (South Dakota)
3. A Southeastern cotton/corn farm (Georgia)
4. A Delta rice/soybean farm (Mississippi)

For these examples, we base our typical farms on representative-crop acreage and base-acreage data for the selected regions, using the Agricultural Resource Management Survey, conducted by the Economic Research Service and the National Agricultural Statistics Service, USDA. To estimate ACRE payments, we assume that individual Farm ACRE Benchmark Revenue per planted acre is equal to the State ACRE Guarantee per planted acre for the respective States.

The case for a typical Iowa farm is illustrated in table 4. We assume that the farm has 585 base acres, but plants 710 acres total. If the farmer elects to participate in ACRE, he or she must forgo \$2,478 in direct payments each year. A farmer electing ACRE in 2009 would need \$9,900 of ACRE payments over 4 years to offset the forgone direct payments.

We assume that the farm and State face across-the-board crop revenue shortfalls ranging from 0 to 20 percent for each commodity and have the same level of revenue (i.e., the same yield and price). With a 5-percent revenue reduction, the farm will receive \$755 (\$10.07/acre on planted wheat acres) in wheat ACRE payments.

If revenue declines by 10 percent, ACRE payments would also be available for planted corn and soybean acres. However, ACRE payment acres cannot exceed the farm's historical base acres. When planted acres equal historical base acres, the ACRE payment acres equal 83.3 percent of the planted acres (85 percent in 2012). In this example, base acres are less than 83.3 percent of the planted acres (710 planted acres x 0.833 = 591.4 > 585 base acres).¹⁷

Based on these considerations, the Iowa producer would likely choose to designate all planted soybean acres as potential payment acres and designate the

¹⁷Farmers would need to designate acreage for ACRE payments by September 30 of each year of participation.

Table 4

ACRE 2009/10 payouts for a typical Iowa corn/soybean farm

| | Corn | Soybeans | Wheat | 2009 payments ¹ |
|---|-----------|-----------|----------|----------------------------|
| Acres planted | 350 | 285 | 75 | |
| 2009 expected yield per planted acre | 173 | 51 | 44 | |
| 2009 price expectation | \$3.50 | \$9.40 | \$5.20 | |
| Olympic average yield per planted acre | 166 | 50 | 41 | |
| ACRE 2-year price guarantee | \$4.13 | \$10.05 | \$6.63 | |
| ACRE revenue guarantee (per acre) | \$616 | \$455 | \$242 | |
| ACRE revenue guarantee (total farm) | \$194,127 | \$129,665 | \$18,125 | |
| Expected market revenue (per acre) | \$606 | \$479 | \$229 | |
| Expected market revenue: | | | | |
| 0-percent revenue shortfall | \$211,925 | \$136,629 | \$18,125 | \$0 |
| ACRE payment per planted acre | \$0.00 | \$0.00 | \$0.00 | |
| 5-percent revenue shortfall | \$201,329 | \$129,798 | \$17,219 | \$755 |
| ACRE payment per planted acre | \$0.00 | \$0.00 | \$10.07 | |
| 10-percent revenue shortfall | \$190,733 | \$122,966 | \$16,312 | \$9,865 |
| ACRE payment per planted acre | \$8.08 | \$19.58 | \$20.13 | |
| 15-percent revenue shortfall | \$180,136 | \$116,135 | \$15,406 | \$24,995 |
| ACRE payment per planted acre | \$33.30 | \$39.55 | \$30.20 | |
| 20-percent revenue shortfall | \$169,540 | \$109,303 | \$14,500 | \$40,202 |
| ACRE payment per planted acre | \$58.52 | \$59.51 | \$40.26 | |
| Base acres | 335 | 240 | 10 | 585 |
| Direct and counter-cyclical payment yield | 116 | 36 | 36 | |
| Traditional program benefits: | | | | |
| Direct payments | \$9,064 | \$3,167 | \$158 | \$12,388 |
| Expected counter-cyclical payments | \$0 | \$0 | \$0 | \$0 |
| Expected marketing loan benefits | \$0 | \$0 | \$0 | \$0 |

Note: ACRE payments can only be received on 585 base acres.

¹Farm would also be eligible to receive 80 percent of direct payments with ACRE.

Source: USDA, Economic Research Service calculations based on Agricultural Resource Management Survey (ARMS) data. ARMS is produced by USDA's National Agricultural Statistics Service and ERS.

remaining base acres as potential corn or wheat payment acres. In this example, the farmer has 285 planted acres of soybeans and will receive ACRE payments on 237.4 acres (285 planted acres x 0.833) of soybeans. The 237.4 payment acres are subtracted from the total base acres within the farm unit to determine remaining corn or wheat ACRE payment acres (485 base acres – 237.4 soybean payment acres = 247.6 acres remaining). At lower levels of revenue reductions (5 percent), the producer would maximize payments by giving up payments on 6.4 acres of corn plantings. If a 10-percent revenue shortfall occurred, the producer would receive ACRE payments of \$9,865, offsetting almost the entire 4 years of forgone direct payments.

If the revenue shortfall increases to 15 percent, the producer would maximize payments by forgoing payments on wheat plantings, since ACRE payments per planted acre would be larger for corn.

Our typical wheat farm can expect ACRE payments with average yields (no reduction in expected revenue) in 2009 (table 5). While wheat, corn, and sorghum prices are projected to be relatively high in 2009/10, they are more than 10 percent lower than the 2007/08-2008/09 average. This producer could expect ACRE payments with average yields. Expected ACRE payments would offset 4 years of forgone direct payments with no reduction in expected revenue in 1 of 4 years. ACRE payments per acre of wheat and

Table 5

ACRE payouts for a typical South Dakota wheat farm

| | Corn | Soybeans | Wheat | Sorghum | Barley | 2009 payments ¹ |
|---|---------|----------|-----------|---------|---------|----------------------------|
| Acres planted | 22 | 15 | 678 | 69 | 18 | |
| 2009 expected yield per planted acre | 113 | 36 | 42 | 29 | 28 | |
| 2009 price expectation | \$3.50 | \$9.40 | \$5.20 | \$3.00 | \$2.80 | |
| Olympic average yield per planted acre | 110.2 | 34 | 40.5 | 29 | 28 | |
| ACRE 2-year price guarantee | \$4.13 | \$10.05 | \$6.63 | \$3.64 | \$4.09 | |
| ACRE revenue guarantee (per acre) | \$409 | \$308 | \$242 | \$95 | \$103 | |
| ACRE revenue guarantee (total farm) | \$9,001 | \$4,613 | \$163,848 | \$6,555 | \$1,855 | |
| Expected market revenue (per acre) | \$396 | \$338 | \$218 | \$87 | \$78 | |
| Expected market revenue: | | | | | | |
| 0-percent revenue shortfall | \$8,701 | \$5,076 | \$148,075 | \$6,003 | \$1,411 | \$14,218 |
| ACRE payment per planted acre | \$11.34 | \$0.00 | \$19.38 | \$6.67 | \$20.55 | |
| 5-percent revenue shortfall | \$8,266 | \$4,822 | \$140,671 | \$5,703 | \$1,341 | \$21,057 |
| ACRE payment per planted acre | \$27.82 | \$0.00 | \$28.47 | \$10.29 | \$23.81 | |
| 10-percent revenue shortfall | \$7,831 | \$4,568 | \$133,268 | \$5,403 | \$1,270 | \$27,932 |
| ACRE payment per planted acre | \$44.29 | \$2.47 | \$37.57 | \$13.91 | \$27.08 | |
| 15-percent revenue shortfall | \$7,396 | \$4,315 | \$125,864 | \$5,103 | \$1,200 | \$34,982 |
| ACRE payment per planted acre | \$60.76 | \$16.57 | \$46.67 | \$17.54 | \$30.34 | |
| 20-percent revenue shortfall | \$6,961 | \$4,061 | \$118,460 | \$4,802 | \$1,129 | \$42,032 |
| ACRE payment per planted acre | \$77.23 | \$30.66 | \$55.76 | \$21.16 | \$33.61 | |
| Base acres | 22 | 29 | 628 | 65 | 60 | 804 |
| Direct and counter-cyclical payment yield | 63 | 28.6 | 24.4 | 42.2 | 32.7 | |
| Traditional program benefits: | | | | | | |
| Direct payments | \$323 | \$304 | \$10,467 | \$800 | \$392 | \$12,286 |
| Expected counter-cyclical payments | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Expected marketing loan benefits | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |

¹Farm would also be eligible to receive 80 percent of direct payments with ACRE.

Source: USDA, Economic Research Service calculations based on Agricultural Resource Management Survey (ARMS) data. ARMS is produced by USDA's National Agricultural Statistics Service and ERS.

feed barley planted are greater than for the other commodities until revenue losses approach 10 percent. At 10-percent revenue losses for each planted commodity, corn ACRE payments per acre are higher.

Our third farm is a Southeastern cotton/corn farm (table 6). Almost 85 percent of this farm's base acres are cotton base. The farm has shifted the majority of its acreage to corn in recent years. With cotton prices projected to be \$0.54 per pound, which is about the average for the 2 prior years, the farmer can expect to receive ACRE payments with a 15-percent revenue shortfall. However, cotton base has a high value per acre, given direct payment rates and potential counter-cyclical payments. A 1-year decline in cotton revenue of almost 15 percent would be required to offset 4 years of forgone direct payments for this farm. The potential counter-cyclical payment loss for cotton base and cotton marketing-loan benefits make it unlikely that this farm would elect to participate in the ACRE program. Electing to enroll cotton acres in the ACRE program would require giving up potential counter-cyclical payments of \$46,688 per year. Thus, even though this farm could likely receive ACRE payments for corn on over half of its planted acreage, the ACRE payments are not likely to offset forgone cotton direct and counter-cyclical payments. This example points out that farms expecting to receive counter-cyclical payments or marketing-loan benefits during 2009-2012 (upland cotton and peanuts) are less likely to find ACRE an attractive option.¹⁸

¹⁸Each producer's mix of base acres and program yields, coupled with expectations of ACRE payments, will likely influence his or her ultimate decision.

Table 6

ACRE payouts for a typical Georgia cotton/corn farm

| | Corn | Soybeans | Wheat | Cotton | 2009 payments ¹ |
|---|-----------|----------|---------|-----------|----------------------------|
| Acres planted | 490 | 25 | 13 | 380 | |
| 2009 expected yield per planted acre | 111 | 29 | 31 | 812 | |
| 2009 price expectation | \$3.50 | \$9.40 | \$5.20 | \$0.54 | |
| Olympic average yield per planted acre | 108.9 | 27.7 | 25.8 | 802 | |
| ACRE 2-year price guarantee | \$4.13 | \$10.05 | \$6.63 | \$0.54 | |
| ACRE revenue guarantee (per acre) | \$404 | \$251 | \$154 | \$391 | |
| ACRE revenue guarantee (total farm) | \$198,103 | \$6,264 | \$2,001 | \$148,662 | |
| Expected market revenue (per acre) | \$389 | \$273 | \$161 | \$438 | |
| Expected market revenue: | | | | | |
| 0-percent revenue shortfall | \$190,365 | \$6,815 | \$2,096 | \$166,622 | \$6,446 |
| ACRE payment per planted acre | \$13.15 | \$0.00 | \$0.00 | \$0.00 | |
| 5-percent revenue shortfall | \$180,847 | \$6,474 | \$1,991 | \$158,291 | \$14,383 |
| ACRE payment per planted acre | \$29.34 | \$0.00 | \$0.67 | \$0.00 | |
| 10-percent revenue shortfall | \$171,329 | \$6,134 | \$1,886 | \$149,960 | \$22,507 |
| ACRE payment per planted acre | \$45.52 | \$4.34 | \$7.39 | \$0.00 | |
| 15-percent revenue shortfall | \$161,810 | \$5,793 | \$1,781 | \$141,629 | \$36,686 |
| ACRE payment per planted acre | \$61.70 | \$15.69 | \$14.10 | \$15.42 | |
| 20-percent revenue shortfall | \$152,292 | \$5,452 | \$1,676 | \$133,298 | \$51,905 |
| ACRE payment per planted acre | \$77.88 | \$27.04 | \$20.82 | \$33.68 | |
| Base acres | 0 | 0 | 138 | 770 | 908 |
| Direct and counter-cyclical payment yield | 62.5 | 15 | 35.2 | 688 | |
| Traditional program benefits: | | | | | |
| Direct payments | \$0 | \$0 | \$2,104 | \$29,434 | \$31,538 |
| Expected counter-cyclical payments | \$0 | \$0 | \$0 | \$46,688 | \$46,688 |
| Expected marketing loan benefits | \$0 | \$0 | \$0 | \$0 | \$0 |

¹Farm would also be eligible to receive 80 percent of direct payments with ACRE.

Source: USDA, Economic Research Service calculations based on Agricultural Resource Management Survey (ARMS) data. ARMS is produced by USDA's National Agricultural Statistics Service and ERS.

Our fourth farm (table 7) is a rice/soybean farm in the Delta Region (Mississippi). Rice comprises about two-thirds of the farm's base with the remainder as soybean and wheat base. Potential ACRE payments will need to be high for this farm to offset the forgone direct payments. Rice base acres have the highest direct payments per base acre (Young et al.). ACRE payments would need to exceed \$44,000 to offset the forgone direct payments.¹⁹ However, as with other commodities, long-grain rice prices were high in 2007 and 2008, which resulted in a high ACRE guarantee price. Long-grain rice prices in 2009 are projected by USDA to be around 8 percent lower than the ACRE guarantee price. To offset total forgone direct payments over 4 years, this farm would need at least 1 year when some combination of commodity revenue is over 12 percent lower than expected revenue in 2009.

Our wheat farm could expect ACRE payments to offset forgone direct payments over the 2009-12 crop years with no decline in expected revenue this year, whereas the corn/soybean and rice farms would require 1-year declines of 10 and 15 percent, respectively. ACRE payments (primarily from corn) for our cotton farm would likely offset forgone direct payments with a 10-percent decline in revenue in any one year, but these producers would find ACRE less attractive (depending on the share of cotton base acres on the

¹⁹This farm would have direct payments and potential ACRE payments that would exceed allowable payment limits if only one individual operator is involved with the farm operation. If multiple operators are involved in the farm operation, payment limits will be less of an issue.

Table 7

ACRE 2009/10 payouts for a typical Mississippi rice/soybean farm

| | Rice | Soybeans | Wheat | 2009 payments ¹ |
|---|-----------|-----------|----------|----------------------------|
| Acres planted | 578 | 303 | 70 | |
| 2009 expected yield per planted acre | 71 | 39 | 52 | |
| 2009 price expectation | \$12.50 | \$9.40 | \$5.20 | |
| Olympic average yield per planted acre | 69 | 37 | 49 | |
| ACRE 2-year price guarantee | \$13.70 | \$10.05 | \$6.63 | |
| ACRE revenue guarantee (per acre) | \$854 | \$338 | \$292 | |
| ACRE revenue guarantee (total farm) | \$493,883 | \$102,500 | \$20,467 | |
| Expected market revenue (per acre) | \$888 | \$367 | \$270 | |
| Expected market revenue: | | | | |
| 0-percent revenue shortfall | \$512,975 | \$111,080 | \$18,928 | \$1,282 |
| ACRE payment per planted acre | \$0.00 | \$0.00 | \$18.31 | |
| 5-percent revenue shortfall | \$487,326 | \$105,526 | \$17,982 | \$7,532 |
| ACRE payment per planted acre | \$9.45 | \$0.00 | \$29.57 | |
| 10-percent revenue shortfall | \$461,678 | \$99,972 | \$17,035 | \$31,792 |
| ACRE payment per planted acre | \$46.41 | \$6.95 | \$40.84 | |
| 15-percent revenue shortfall | \$436,029 | \$94,418 | \$16,089 | \$58,572 |
| ACRE payment per planted acre | \$83.38 | \$22.22 | \$52.10 | |
| 20-percent revenue shortfall | \$410,380 | \$88,864 | \$15,142 | \$85,352 |
| ACRE payment per planted acre | \$120.34 | \$37.49 | \$63.36 | |
| Base acres | 627 | 208 | 94 | 930 |
| Direct and counter-cyclical payment yield | 42 | 20 | 34 | |
| Traditional program benefits: | | | | |
| Direct payments | \$51,385 | \$1,517 | \$1,403 | \$54,304 |
| Expected counter-cyclical payments | \$0 | \$0 | \$0 | \$0 |
| Expected marketing loan benefits | \$0 | \$0 | \$0 | \$0 |

¹Farm would also be eligible to receive 80 percent of direct payments with ACRE.

Source: USDA, Economic Research Service calculations based on Agricultural Resource Management Survey (ARMS) data. ARMS is produced by USDA's National Agricultural Statistics Service and ERS.

farm) due to the significant counter-cyclical payments and marketing-loan benefits that they would forgo.

A less quantifiable feature of ACRE is the potential for stabilizing effects on farm revenue even at higher market prices. Producers who value the revenue-stabilizing features of ACRE will likely elect ACRE even if it is not clear that expected payments would offset potential losses in direct payments. Given the high probability of State-level ACRE payments being triggered, these farmers are likely to elect ACRE. Zulauf (2009) estimates that, when State-level revenue declines by 10 percent or more, a farm-level trigger will be met on more than 80 percent of farms in Illinois.

Based on our four typical farms, expected revenue decisions, and using the framework adopted here, it is likely that many farmers will view ACRE as an attractive alternative to 2002 Farm Act programs. High market prices in 2007 and 2008 resulted in relatively high ACRE price guarantees used to calculate ACRE payouts. Many corn, wheat, and soybean producers can expect ACRE to offset most, if not all, of the forgone 20 percent of direct payments (Cooper, 2009b). In addition, it is unlikely that counter-cyclical payments or marketing-loan benefits will be triggered for these commodities during 2009-12. Even if payments under the 2002 Farm Act price-based programs are triggered, the price declines would likely result in substantial ACRE payments. If we assume that prices decline sufficiently to trigger the maximum reductions in the ACRE guarantee (10 percent) every year until 2012, the ACRE guarantee prices would remain well above effective target price levels for corn, soybeans, wheat, and rice. However, for farms that expect to receive counter-cyclical payments and marketing-loan benefits in 2009 (upland cotton and peanut producers), ACRE payments are unlikely to offset forgone payments for these programs.

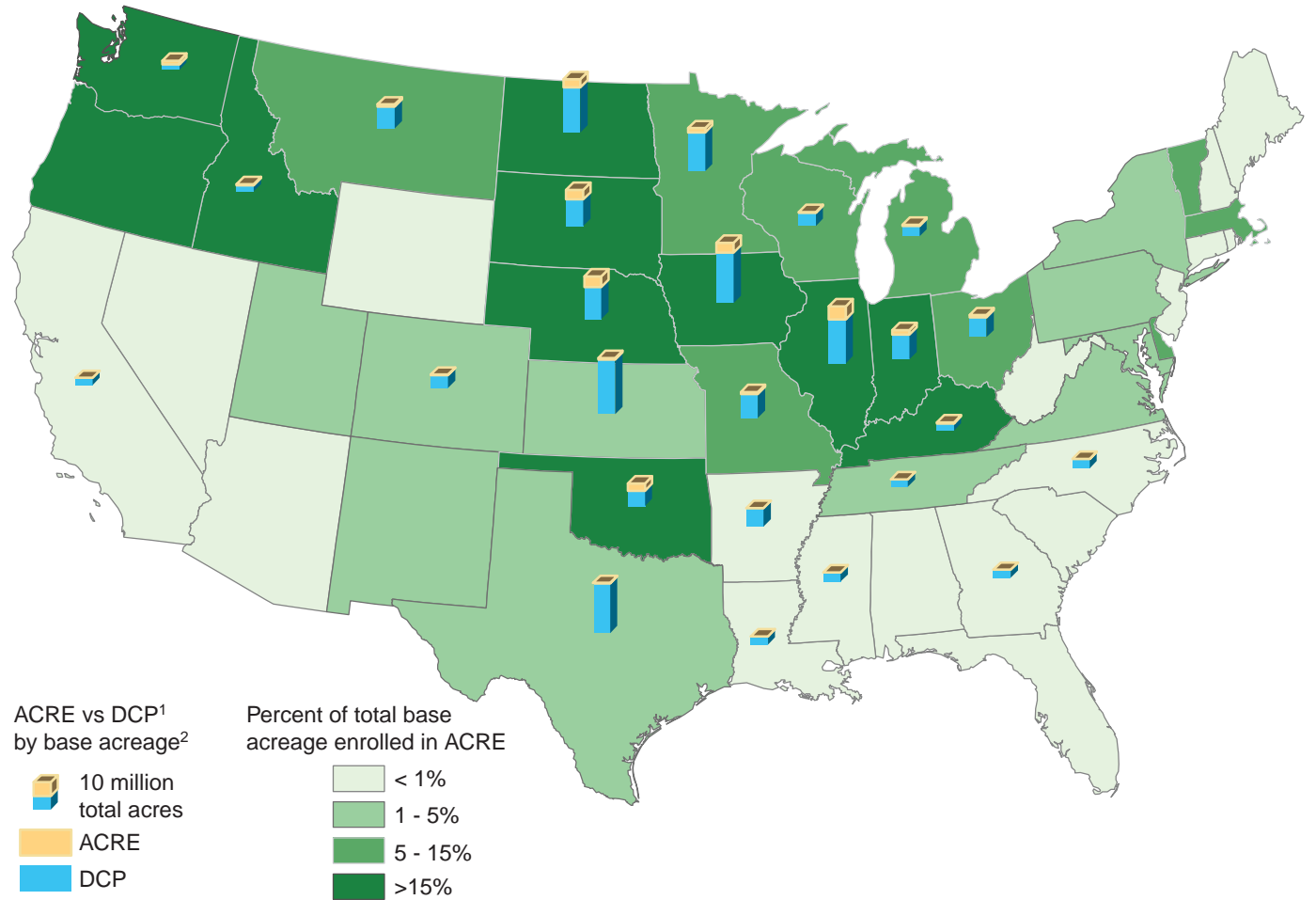
2009 Average Crop Revenue Election Program Enrollment

Producers had until August 14, 2009, to elect to participate in ACRE for 2009 crops. USDA released initial ACRE enrollment data in October 2009 (USDA, FSA, 2009). These data indicate that 128,620 farms (or 7.7 percent of FSA farms with base acreage enrolled in either the direct and counter-cyclical payments program or the ACRE program) elected to participate in ACRE in 2009. Farms electing ACRE are larger than average and represent 32.5 million base acres, or 12.8 percent of total enrolled base acreage. Enrollment is concentrated in regions that typically grow wheat, corn, and soybeans (fig. 11). On farms that elected to participate in ACRE, 40 percent of their base acres are corn, 23 percent are soybeans, and 28 percent are wheat.

The highest shares of base acres enrolled are in the wheat-producing States of Washington (43 percent) and Oklahoma (33 percent). Lower wheat prices and below-average yields in 2009 will trigger high ACRE payments for wheat in those States. (ACRE payments in those two States are projected to be capped at 25 percent of the State ACRE Guarantee.) Farm enrollment is much lower in regions where upland cotton, rice, and peanuts are grown, due to relatively high direct payments per base acre and greater likelihood of counter-cyclical payments and marketing loan benefits. As a result, almost three-fourths of the upland cotton base acres and two-thirds of the rice base acres on farms

Figure 11

ACRE participation begins, 2009-10



¹DCP = direct and counter-cyclical payments.

²Excludes States with less than 2 million base acres.

Source: USDA, Economic Research Service calculations based on data from USDA, Farm Service Agency, and USDA, National Agricultural Statistics Service.

that elected ACRE are located in Oklahoma where wheat plantings predominated. Farmers in Oklahoma who elected ACRE planted only 2,300 acres of upland cotton in 2009 even though there are 19,600 upland cotton base acres on farms that elected to participate in ACRE in Oklahoma. The strong likelihood of wheat ACRE payments for crop year 2009 encouraged some farmers to forgo 20 percent of their direct payments and all of their counter-cyclical payments for upland cotton and rice in return for ACRE payments.

Crop plantings on enrolled acreage are predominantly corn, soybeans, and wheat, which is consistent with ACRE payment and tradeoff expectations (fig. 12).²⁰ Barley and sunflowers are the next largest plantings on ACRE farms. The majority of corn plantings (65 percent) and soybean plantings (69 percent) that were on farms enrolled in ACRE are in Illinois, Iowa, Nebraska, South Dakota, and North Dakota. Plantings of wheat enrolled in ACRE are concentrated in Oklahoma, Washington, South Dakota, Montana, and North Dakota, accounting for 74 percent, with the largest being Oklahoma (32 percent).

²⁰Crop plantings are defined as planted and considered planted for payment purposes and reflected in the data compiled by FSA.

We estimate the maximum potential payouts for ACRE to provide a perspective on program costs. In order to approximate potential maximum ACRE payments, we combine State-level enrollment data with August 2009 National Agricultural Statistics Service estimates of State-level yields and USDA's August 2009 projections of national prices for 2009 corn, soybeans, and wheat. For simplicity we assume that:

- all regions experience identical percentage revenue reductions
- when a State-level trigger is met, all farm-level plantings in the State are triggered
- no adjustment is made for farms that planted more land than they have base
- no adjustment in payout is made to reflect payment differentials in States with irrigated and nonirrigated payments
- payment rates are not capped at 25 percent of the program guarantee
- most importantly, payout is not reduced to reflect the 20-percent reduction in direct payments.

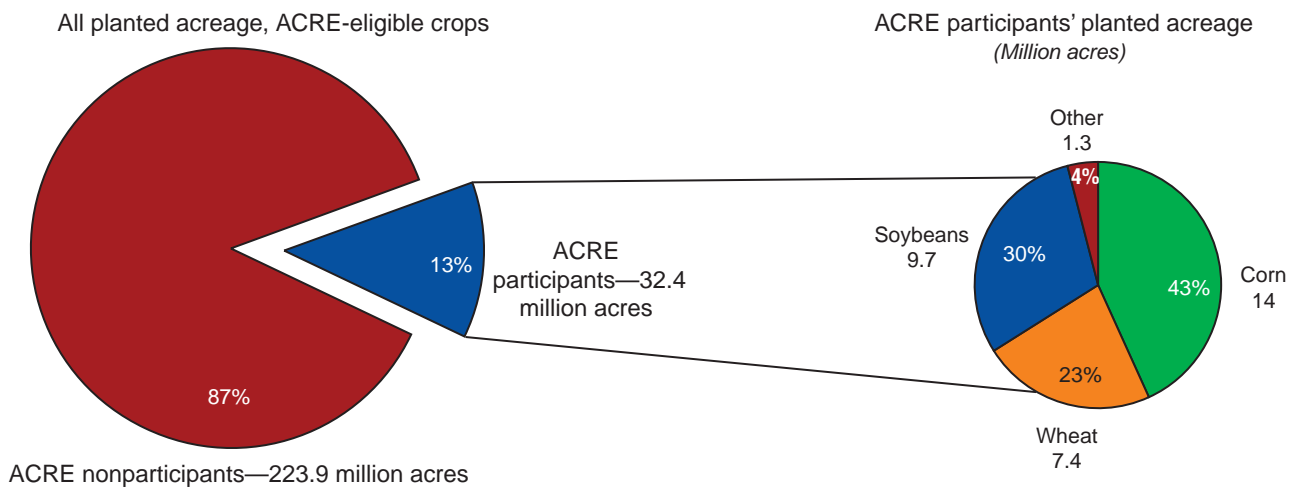
With this set of simplifying and conservative assumptions, we are overestimating likely ACRE payments. Under these assumptions, ACRE payments would be about \$440 million (table 8). Wheat is estimated to receive almost 70 percent of the total payments. However, for scenarios with further revenue reductions (through either lower prices or yields than currently forecast), corn payments would increase significantly.

Overall, actual enrollment is somewhat lower than might have been expected based on the preceding analysis of revenue-based benefits associated with ACRE participation (pp. 22-24). However, as noted previously there are a number of factors that could have limited farmer participation, including:

- ACRE is a new and complicated program. Some producers may lack a full understanding of the program details needed to assess the variables

Figure 12

Majority of crop plantings remain outside of ACRE program, 2009-10



Source: USDA, Economic Research Service calculations using data from USDA, Farm Service Agency and USDA, National Agricultural Statistics Service.

that cause both State- and farm-level triggers for a farm to be eligible for a payment (see box, “ACRE Definitions,” p. 29).

- It takes time to learn how the new ACRE program will affect individual farm operations relative to State-level triggers. Many farmers are not accustomed to thinking about how their revenue per planted acre compares to State-level revenue per planted acre. They are more familiar with actual revenue and national-level prices and harvested yields.
- All landowners and operators must agree to participate. If one landowner or operator associated with a farm operation was unwilling to elect ACRE, the farm was not eligible.
- Detailed records are needed to verify production of all ACRE-eligible crops on the farm for the previous 5 years or an ACRE county yield may be used. The ACRE county yield is 95 percent of the county average yield, which may have been significantly lower than the average yield for the farm.
- Electing to participate in ACRE is an irreversible decision. Once a farm is enrolled in ACRE, it must remain in the program through 2012.
- ACRE may be attractive for some crops, but not for all crops (see discussion of a representative Southeastern cotton/corn farm, table 6, p. 20).
- Direct payments on ACRE farms are reduced 20 percent and the marketing assistance loan rates for crops produced on ACRE farms are reduced 30 percent. They are no longer eligible for counter-cyclical payments, a fact that likely limited participation by upland cotton producers.
- ACRE payments are not paid until the end of the marketing year. This timing of the receipt of payments could affect cash flow and producers’ ability to pay bills in the short run.
- Producers may not have valued the risk management benefits of ACRE highly.
- Finally, producers who have not yet enrolled in ACRE will have an option to elect ACRE in a subsequent year. Some may have decided to see how the program performs this year before committing.

Table 8
Aggregate costs for ACRE program for three crops, 2009¹

| | Base case | Revenue reductions from base case | |
|------------------------|-----------|-----------------------------------|----------------------|
| | | 5-percent reduction | 10-percent reduction |
| <i>Million dollars</i> | | | |
| Corn | 67.0 | 239.1 | 530.9 |
| Soybeans | 41.3 | 113.5 | 217.5 |
| Wheat | 331.3 | 389.1 | 451.1 |
| Total | 439.6 | 741.7 | 1,199.5 |

¹Assumes planted acreage enrolled in ACRE and that all regions experience identical percentage-yield reductions.

Source: USDA, Economic Research Service calculations using data from USDA, Farm Service Agency, and USDA, National Agricultural Statistics Service.

Conclusion

The ACRE program interacts with many variables at both the State and farm levels. Thus, the farmer's decision to enroll is a complicated one, and the overall budgetary implications of the program are difficult to predict.

Initial 2009 enrollment data indicate that about 8 percent of farms with almost 13 percent of eligible base acres elected to participate in ACRE. This initial number is less than expected given price- and yield-based analysis indicating that other costs to producers, namely initial learning and negotiation costs, may be large relative to expected ACRE payments.

The choice to enroll involves a farmer's best estimate of the market and localized trends. The ACRE program will be most attractive to producers whose crop yields are strongly correlated with State yields and to producers of crops with market prices not likely to fall below the marketing-loan rate. Corn, wheat, soybeans, and rice are the most likely crops to match those specifications.

An important difference between the ACRE program and 2002 Farm Act commodity programs is that ACRE payments can occur at much higher market prices than counter-cyclical payments and marketing-loan benefits. The change in prices or yield from previous years, not the absolute level, is the relevant factor for determining ACRE payments.

The ACRE program has potential for substantial payments in years of a large revenue decline. Unlike programs with legislated rates, the ACRE revenue target is not fixed, but rather is based on a moving average of national prices and State- and farm-level yields. These moving averages adjust ACRE payments with current market prices and yields, which both provides some insulation from persistent large payments due to declines in revenue in subsequent years and reflects changes in farm productivity.

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Appendix A—Program Details

Participants in the ACRE program are eligible for State-based revenue coverage that reflects recent yields and recent national prices for designated program crops. ACRE payments can be triggered by a decrease in national prices or reported State yields (see fig. 4). Enrolled producers will receive ACRE payments when both State-level and farm-level payment triggers are met (see box, “ACRE Definitions,” p. 29).

Payment Calculations

Appendix table 1 provides a 1-year/1-crop hypothetical ACRE payment calculation. We assume the producer planted 100 acres of corn and has a 0.96 farm productivity ratio. On this hypothetical farm, planted acres = total tillable acres = base acres and the corn actual State revenue is below the corn State ACRE Guarantee. The ACRE guarantee price and benchmark State and farm yields are assumptions used to illustrate program operation. Due to relatively low prices and yields, the corn producer’s actual farm revenue is also less than the farm ACRE benchmark revenue. The combined State and farm revenue outcomes trigger a corn ACRE payment for the producer. In this example, the 2010 corn ACRE payment is \$2,879 (\$28.79 per planted acre). (For a more comprehensive discussion using a multi-crop, multi-year ACRE scenario analysis that explores different price and yield outcomes, see “Opportunity Costs and Payment Scenarios” chapter, pp. 5-13.)

The 1-year/1-crop example illustrates the intersection between the ACRE program and crop insurance. Producer-paid crop insurance premiums are a

Appendix table 1

Hypothetical ACRE payment calculation for 2010 corn¹

| State calculations | | Farm calculations | |
|---|--------|---|---------|
| <i>State ACRE Guarantee (SAG)</i> | | <i>Farm benchmark revenue</i> | |
| ACRE guarantee price | \$5.18 | ACRE guarantee price | \$5.18 |
| Benchmark State yield/planted acre | 166 | Benchmark farm yield/planted acre | 159 |
| | | Crop insurance premium/acre | \$30 |
| State ACRE guarantee | \$774 | Farm ACRE benchmark revenue | \$854 |
| <i>State actual revenue</i> | | <i>Farm actual revenue</i> | |
| ACRE price | \$4.50 | ACRE price | \$4.50 |
| Actual State yield/planted acre | 164 | Actual farm yield/planted acre | 150 |
| Actual State revenue | \$738 | Actual farm revenue | \$675 |
| 1. Is actual State revenue < State ACRE guarantee? Yes | | 2. Is actual farm revenue < farm ACRE benchmark revenue? Yes | |
| → <i>Producer IS eligible for 2010 corn ACRE payments.</i> | | | |
| | | ACRE payment calculation | |
| ACRE payment rate/acre | | ACRE payment | |
| 1: SAG minus actual | \$36 | ACRE payment rate/acre | \$36 |
| 2: 25 percent SAG | \$193 | Payment acreage (100 x 0.833) | 83.3 |
| Rate = lesser of 1 or 2 | \$36 | Farm productivity ratio | 0.96 |
| | | Total ACRE payment to producer | \$2,879 |

¹Calculated values may differ from those shown in the table due to rounding error.

Source: USDA, Economic Research Service calculations.

ACRE Definitions

ACRE payments are made to producers if a producer meets specific criteria at the State and farm level. Payment criteria and payment amounts are determined and calculated for each eligible commodity. Yield references within the ACRE program are per planted acre as reported, rather than per harvested acre. Calculations include:

State-level payment criterion

The Actual State Revenue must fall below the State ACRE Guarantee (SAG). These components are calculated as follows:

Actual State revenue = State yield per planted acre x ACRE price

State ACRE Guarantee = 90 percent x (benchmark State yield x ACRE guarantee price)

- The **benchmark State yield** equals the State Olympic average¹ yield per planted acre for the 5 previous crop years.
- The **ACRE guarantee price** equals the average national price for the 2 previous crop years
- The **ACRE price** is determined by USDA's Farm Service Agency, using National Agricultural Statistics Service prices and equals greater of:
 - the national average commodity market price received by producers during the 12-month marketing year; or
 - the reduced marketing assistance commodity loan rate.

Farm-level payment criterion

The actual farm revenue must fall below the farm ACRE benchmark revenue. The components are calculated as follows:

Actual farm revenue equals the reported commodity farm yield x ACRE price

Farm ACRE benchmark revenue equals (the 5-year Olympic average farm yield x ACRE guarantee price) + crop insurance premium (for the current year)

When both the State- and farm-level payment criteria are met, ACRE payments are calculated as discussed in the beginning of this chapter. The ACRE payment rate equals the difference between the State ACRE Guarantee and actual State revenue or 25 percent of the State ACRE Guarantee, whichever is less. This number is then multiplied by 83.3 percent (or 85 percent for 2012 crop year) and the farm productivity ratio.

Farm productivity ratio = Farm 5-year Olympic average crop yield per planted acre divided by the ACRE benchmark State yield

ACRE payment rate = [lesser of: (SAG-actual State revenue) or (0.25*SAG)] x 0.833 (0.85 for 2012) x farm productivity ratio

¹"5-year Olympic average" refers to the average yield over the previous 5 years, omitting the highest and lowest yields.

component of farm ACRE benchmark revenue. Inclusion of the crop insurance premium in the farm ACRE benchmark revenue calculation increases the likelihood of farm-level payments when the State-level criterion is met. This provision will have a greater impact in high-risk production areas (and for high-risk crops) because crop insurance premiums are larger for those locales and crops. High-risk production areas are geographic areas where crop yields vary more from year to year than in other parts of the United States, primarily due to unpredictable weather conditions such as in the Plains States.

Key Payment Details

Cap on State ACRE Guarantee fluctuations: The State ACRE Guarantee (SAG) for a crop year cannot change by more than 10 percent from the previous crop year SAG. For example, the 2010 SAG in appendix table 1 is \$774. Given the 10-percent variation restriction, the 2011 SAG will fall between \$851 and \$697, regardless of a larger change in prices or yields. Since the ACRE program starts with the 2009 crop year, this provision first applies for the 2010 crop year.

Irrigated land considerations: Separate SAGs will be calculated for irrigated and nonirrigated planted acreage within the State if each irrigated and nonirrigated planted acreage accounts for 25 percent or more of the State's eligible planted crop acreage. For example, if there is a 60/40 split across irrigated and nonirrigated planted corn acreage in the State, separate irrigated and nonirrigated SAGs will be calculated for the State.

Payment acreage restrictions: ACRE payments are calculated using planted acres for each commodity. However, payment acreage is limited to a farm's base acreage for all eligible commodities on the farm. Payments are limited to 83.3 percent of planted acres in 2009-11 and 85 percent of planted acres in 2012. If 83.3 percent (85 percent in 2012) of total acres planted to all eligible commodities on a farm exceed the farm's total base acreage, producers must designate which planted acres will be considered for payments in accordance with Farm Service Agency (FSA) reporting deadlines.

For example, a corn producer has enrolled an FSA farm composed of 150 total base acres (100 corn base acres and 50 oat base acres) in the ACRE program. USDA's Farm Service Agency maintains farm records based on smaller administrative units ("FSA farms") consisting of their respective owners and operators. (See box, "Enrolling a "Farm Service Agency (FSA) Farm" in ACRE.") If the producer plants 180 acres or more to corn, up to 150 acres ($180 \times 0.833 = 150$) on the farm can be designated for potential corn ACRE payments.

Payment limitations: Enrolled producers are subject to ACRE-specific payment limitations consisting of an ACRE and direct-payment limitation that applies to total payments received by each enrolled person. ACRE payments are limited to \$65,000 per person plus the 20-percent reduction in direct payments, which varies by base acreage. Direct payments are limited to \$40,000 per person minus the 20-percent reduction in direct payments.

Enrolling a “Farm Service Agency (FSA) Farm” in ACRE

Many agricultural producers farm combinations of owned and rented land. Together, the combinations comprise the total “farm operation.” Land is frequently rented from multiple landowners. If all ownership combinations were combined into a single unit, it would be difficult administratively to track program parameters such as base acres and program yields for the farm and for the landowner over time. Thus USDA’s Farm Service Agency maintains farm records based on smaller administrative units (farms) consisting of varying groups of owners and operators. Participation in USDA commodity programs applies to the unit of owners, operators, landlords, tenants, or sharecroppers.

A farmer may operate on a number of “FSA farms.” For example, Farmer Jones farms 380 acres of land on three FSA farms:

- Farm A consists of 75 acres of land leased by Farmer Jones but owned by brothers Bill and Jim Smith.
- Farm B consists of 50 acres owned by Farmer Jones, 25 acres leased from Mrs. Applebee, and 30 acres leased from John Applebee, Mrs. Applebee’s son.
- Farm C consists of 200 acres of land owned by Farmer Jones.

Each farm must be enrolled separately with FSA. When electing and annually enrolling in the ACRE program, farm operators such as Farmer Jones may treat each farm separately, enrolling one farm but not necessarily the other farms. All owners, operators, landlords, tenants, and sharecroppers must agree in writing to elect to participate in ACRE. Thus, it is likely that some farmers will not enroll their entire farm operation in ACRE. Farmers who elect ACRE are able to diversify their farm program portfolio by enrolling only a portion of their FSA farms in ACRE.

The ACRE program differs from other commodity programs in five key areas (see box, “2002 Farm Act Commodity Programs Continue in 2009-12, p. 33, for details on those programs).

- 1) The ACRE program gives eligible farmers a choice of commodity programs, but producers who enroll will need to weigh costs and benefits across options.** Enrolled producers are eligible for ACRE payments, direct payments, and marketing-loan benefits. As a condition for participation in ACRE, direct payments are reduced by 20 percent and marketing loan rates for commodities eligible for ACRE payments are reduced by 30 percent. After electing ACRE, the farm is no longer eligible to receive counter-cyclical payments. Producers who elect not to participate in ACRE remain eligible for 2002 Farm Act commodity programs. The ACRE program will tend to complement producers’ crop insurance selections (Zulauf, Dicks, and Vitale, 2008). ACRE enrollment tradeoffs, particularly for marketing-loan benefits, will vary greatly among commodities, assuming USDA long-term price projections. Important producer-specific ACRE election costs, including learning costs associated with a new program option and negotiation costs between landowners and operators, will also carry weight in the ACRE election decision and could limit participation.

2) ACRE enrollment is optional. The producer may enroll in ACRE in any year from 2009-12, but once a farmer elects to participate in the overall ACRE program, the farm remains in the program through 2012, the ending year of the 2008 Farm Act. USDA extended the initial (2009) ACRE election and enrollment window from June 1 to August 14 to give producers more time to make an informed decision between remaining in the 2002 Farm Act programs or participating in ACRE for crop years 2009 through 2012.¹ If land is rented, all land-owners and operators must agree to elect ACRE. To be eligible for ACRE payments, producers elect ACRE once, then annually enroll the farm in the program (see box, “Enrolling a ‘Farm Service Agency (FSA) Farm’ in ACRE” for clarification).

3) ACRE payments are based on a moving average of market revenues (national prices and yields) instead of fixed target prices. State- and farm-level ACRE benchmark revenues for various commodities are moving averages based on national market prices and reported State and farm yields. Payments are made when benchmark revenues fall below actual revenues. If there is a significant period of falling (rising) prices, the State ACRE Guarantee will adjust downward (upward). In addition, the likelihood of an ACRE payment will adjust accordingly.

4) ACRE has a dual-payment trigger—both State- and farm-level declines are required for an ACRE payment. ACRE payments are based on State- and farm-level benchmark revenues for each commodity. The ACRE program provides benefits only if BOTH the State and the producer experience a revenue loss where actual revenues fall below benchmark revenues, by commodity and by farm. ACRE payments are triggered at the State level when the actual State revenue has fallen below 90 percent of the moving yield and price average. When the State-level payment criterion is met, it is likely that the ACRE actual farm revenue for the commodity also will fall below the farm ACRE benchmark revenue, and thereby meet the farm-level criterion for revenue loss.

5) ACRE payments are based on planted, not base, acres. Payments from counter-cyclical and direct payment programs use historical base acres. ACRE payments are based on 83.3 percent (85 percent in 2012) of planted acres of a commodity. Total ACRE payment acres cannot exceed total base acres on the farm. If ACRE payment acres exceed base acres, the farmer must designate the plantings eligible for payments each year by September 30.

¹USDA released ACRE enrollment data for 2009 on October 20, 2009. See pp. 22-25 for a discussion.

2002 Farm Act Commodity Programs Continue in 2009-12

Direct payments are made based on historical acreages (base acres) and yields (program yields). Direct payment rates, which vary from commodity to commodity, play a role in the calculation of other commodity program payments. Direct payments are similar to the production flexibility contract (PFC) payments that were made available in 1996-2001 for wheat, feed grains, rice, and upland cotton. The 2002 Farm Act replaced PFC payments with direct payments and added oilseeds to the list of eligible crops. The 2008 Farm Act leaves direct payment rates unchanged, but reduces eligible direct payment acres from 85 percent of base acres to 83.3 percent for crop years 2009-11.

The **nonrecourse marketing assistance loan program** provides commodity-secured loans to producers for a specified period of time (typically 9 months), after which producers must either repay the loan and accrued interest (if market prices are above the loan rate) or transfer ownership of the commodity pledged as collateral to the Commodity Credit Corporation as full settlement of the loan, without penalty. Alternatively, at any time during the loan period, if the loan repayment rate (posted county price or prevailing world market price) is below the loan rate plus interest, the farmer may repay the loan at that lower rate, thus obtaining a marketing loan gain.

Instead of taking out a commodity loan, eligible farmers may choose to receive marketing loan benefits through **loan deficiency payments (LDP)** when market prices are lower than commodity loan rates. The LDP option allows the producer to receive the benefits of the marketing loan program without having to take out and subsequently repay a commodity loan. The LDP rate is the amount by which the loan rate exceeds the loan repayment rate and, thus, is equivalent to the marketing loan gain that could be obtained for commodities under loan.

The 2008 Farm Act continues commodity loan programs for wheat, corn, grain sorghum, barley, oats, long- and medium-grain rice, soybeans, other oilseeds, upland cotton, extra-long staple cotton, peanuts, wool, mohair, honey, small and large chickpeas, lentils, and dry peas. The loan rates, specified in the legislation, are unchanged for crop year 2008, but will increase for wheat, barley, oats, other oilseeds, and wool for crop years 2010-12. Loan rates for dry peas and lentils will be lowered for crop years 2009-12.

Counter-cyclical payments (CCPs) were established under the 2002 Farm Act and were initially available for wheat, corn, grain sorghum, barley, oats, rice, upland cotton, soybeans, other oilseeds, and peanuts. The 2008 Act continues CCPs for these crops and adds dry peas, lentils, and chickpeas. The 2008 Act does not change the target prices through crop year 2009 for any commodity except upland cotton. For upland cotton, the target price is lowered to 71.25 cents per pound for crop years 2008-12. Target prices increase for wheat, grain sorghum, barley, oats, soybeans, and other oilseeds for crop years 2010-12. The amount of historical production to which the CCP rate is applied will remain at 85 percent for crop years 2008-12.

For additional program details, see Farm and Commodity Policy Briefing Room, Program Provisions at:

www.ers.usda.gov/Briefing/FarmPolicy/ProgramProvisions.htm/.

Scenario A: State-level yield shocks (national average market prices unaffected)¹

| State assumptions | Formula | State-level scenario A: State-level yield corn shocks in 2010 and 2011 | | | | State-level scenario A: State-level yield cotton shocks in 2010 and 2011 | | | |
|---|---|--|-----------------|-----------------|-----------------|--|-----------------|-----------------|-----------------|
| | | 2009 | 2010 | 2011 | 2012 | 2009 | 2010 | 2011 | 2012 |
| Actual State revenue (per acre): | | | | | | | | | |
| ACRE price | (actual avg. mkt price per bu/lb or loan rate, whichever is higher) | \$5.30 | \$5.35 | \$5.40 | \$5.23 | \$0.62 | \$0.60 | \$0.59 | \$0.58 |
| Actual national average price per bu/lb | | \$5.30 | \$5.35 | \$5.40 | \$5.23 | \$0.62 | \$0.60 | \$0.59 | \$0.58 |
| Reduced loan rate | (70 percent marketing assistance loan rate) | \$1.37 | \$1.37 | \$1.37 | \$1.37 | \$0.36 | \$0.36 | \$0.36 | \$0.36 |
| Actual yield/planted acre | (bu/lb per planted acre) | 165 | 105 | 98 | 172 | 900 | 500 | 600 | 964 |
| Actual State revenue | (=price*yield/planted (bu/lb per planted acre)) | \$874.50 | \$561.75 | \$529.20 | \$899.56 | \$558.00 | \$300.00 | \$354.00 | \$559.12 |
| State ACRE guarantee (SAG) (per acre): | | | | | | | | | |
| ACRE guarantee price | (2-yr moving national average price-based on the prior 2 years) | \$4.88 | \$5.28 | \$5.33 | \$5.38 | \$0.57 | \$0.59 | \$0.61 | \$0.60 |
| Guarantee yield/acre | (5-yr Olympic average) | 164 | 163 | 163 | 144 | 947 | 920 | 904 | 817 |
| State ACRE Guarantee² | (=price*yield/planted acre*.9) | \$719.55 | \$772.26 | \$779.58 | \$701.10 | \$483.68 | \$490.59 | \$496.30 | \$446.67 |
| ACRE Payment Trigger #1: | | | | | | | | | |
| Is actual State revenue less than State ACRE guarantee? | | No | Yes | Yes | No | No | Yes | Yes | No |
| Corn ACRE payment rate | | | | | | | | | |
| 1: SAG minus actual | | \$0 | \$211 | \$250 | \$0 | \$0 | \$191 | \$142 | \$0 |
| 2: 25 percent SAG | | \$179.89 | \$193.07 | \$194.90 | \$175.28 | \$120.92 | \$122.65 | \$124.07 | \$111.67 |
| Rate= lesser of 1 or 2 | (per acre rate) | \$0 | \$193.07 | \$194.90 | \$0 | \$0 | \$122.65 | \$124.07 | \$0 |
| Farm-level scenario A: State-level corn yield shocks in 2010 and 2011 | | | | | | | | | |
| Farm-level scenario A: State-level upland cotton yield shocks in 2010 and 2011 | | | | | | | | | |
| Farm assumptions | Formula | 2009 | 2010 | 2011 | 2012 | 2009 | 2010 | 2011 | 2012 |
| Actual farm revenue (per acre): | | | | | | | | | |
| Planted acreage | | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Actual FARM yield/planted acre | | 165 | 171 | 150 | 172 | 945 | 850 | 950 | 960 |
| ACRE price | | \$5.30 | \$5.35 | \$5.40 | \$5.23 | \$0.62 | \$0.60 | \$0.59 | \$0.58 |
| Actual farm revenue (per acre) | | \$872.75 | \$914.85 | \$810.00 | \$899.56 | \$585.90 | \$510.00 | \$560.50 | \$556.80 |
| Farm ACRE benchmark revenue (per acre): | | | | | | | | | |
| ACRE guarantee price | (2-yr moving national average price-based on the prior 2 years) | \$4.88 | \$5.28 | \$5.33 | \$5.38 | \$0.57 | \$0.59 | \$0.61 | \$0.60 |
| Benchmark farm yield/acre | (5-yr Olympic average) | 164 | 162 | 165 | 165 | 938 | 929 | 913 | 946 |
| Crop insurance premium | | 30 | 30 | 30 | 30 | 24 | 24 | 24 | 24 |
| Farm ACRE benchmark revenue | | \$827.90 | \$886.35 | \$908.64 | \$916.89 | \$556.05 | \$574.31 | \$580.91 | \$586.77 |
| ACRE Payment Trigger #2: | | | | | | | | | |
| Is actual farm revenue less than farm ACRE benchmark revenue?: | | No | No | Yes | Yes | No | Yes | Yes | Yes |
| Does this producer receive an ACRE payment? | | No | No | Yes | No | No | Yes | Yes | No |

—Continued

Scenario A: State-level yield shocks (national average market prices unaffected)¹—Continued

| Farm assumptions | Formula | Farm-level scenario A: State-level corn yield shocks in 2010 and 2011 | | | | Farm-level scenario A: State-level upland cotton yield in 2010 and 2011 | | | |
|----------------------------------|--|---|-------------------|--------------------|-------------------|---|--------------------|--------------------|---------------------|
| | | 2009 | 2010 | 2011 | 2012 | 2009 | 2010 | 2011 | 2012 |
| | | Corn ACRE payment | | | | Cotton ACRE payment | | | |
| ACRE payment rate | | \$0 | \$193.07 | \$194.90 | \$0 | \$0 | \$122.65 | \$124.07 | \$0 |
| Payment acreage | | 83.3 | 83.3 | 83.3 | 85 | 83.3 | 83.3 | 83.3 | 85 |
| Farm productivity ratio | | 0.998 | 0.998 | 1.014 | 1.146 | 0.990 | 1.010 | 1.010 | 1.157 |
| Farm ACRE payment | | \$0 | \$0 | \$16,467.90 | \$0 | \$0 | \$10,314.26 | \$10,437.80 | \$0 |
| | | Corn ACRE participation tradeoffs | | | | Cotton ACRE participation tradeoffs | | | |
| | | <i>Direct payments (DPs)</i> | | | | | | | |
| Marginal DP rate | | \$0.060 | \$0.060 | \$0.060 | \$0.060 | \$0.013 | \$0.013 | \$0.013 | \$0.013 |
| DP payment acres | | 83.3 | 83.3 | 83.3 | 85 | 83.3 | 83.3 | 83.3 | 85 |
| DP yield | | 121 | 121 | 121 | 121 | 650 | 650 | 650 | 650 |
| Marginal DP tradeoff | | \$604.76 | \$604.76 | \$604.76 | \$617.10 | \$722.29 | \$722.29 | \$722.29 | \$737.04 |
| | | <i>Counter-cyclical payments (CCPs)</i> | | | | | | | |
| CCP rate | (Target rate-DP rate-national avg. market price) | \$0 | \$0 | \$0 | \$0 | \$0.0258 | \$0.0458 | \$0.0558 | \$0.0658 |
| CCP base acres X .85 | | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| CCP yields | | 156 | 156 | 156 | 156 | 825 | 825 | 825 | 825 |
| Total CCPs | | \$0 | \$0 | \$0 | \$0 | 1,809.23 | \$3,211.73 | \$3,912.98 | \$4,614.23 |
| | | <i>Marketing loan benefits (MLBs)</i> | | | | | | | |
| | | At the assumed price levels, it is unlikely that marketing loan benefits will be available for corn. The likelihood of marketing loan benefits for cotton is less clear. If marketing loan benefits are available for either crop, the maximum loan rate for enrolled producers is \$1.37 for corn and \$0.3634 for cotton. | | | | | | | |
| Net ACRE monetary benefit | | \$(604.76) | \$(604.76) | \$15,863.14 | \$(617.10) | \$(2,531.52) | \$6,380.24 | \$5,802.53 | \$(5,361.27) |

¹Calculated values may differ from those shown in the table due to rounding error.

²SAG is limited to 90 percent of the prior year's SAG.

Source: USDA, Economic Research Service calculations.

Scenario B: Falling market price scenario¹

| State assumptions | Formula | State-level scenario B: Expect falling corn prices | | | | State-level scenario B: Expect falling cotton prices | | | |
|---|---|---|-----------------|-----------------|-----------------|---|-----------------|-----------------|-----------------|
| | | 2009 | 2010 | 2011 | 2012 | 2009 | 2010 | 2011 | 2012 |
| Actual State revenue (per acre): | | | | | | | | | |
| ACRE price | (actual avg. mkt price per bu/lb or loan rate, whichever is higher) | \$5.05 | \$4.50 | \$4.00 | \$3.75 | \$0.62 | \$0.58 | \$0.52 | \$0.47 |
| Actual national average price per bu/lb | | \$5.05 | \$4.50 | \$4.00 | \$3.75 | \$0.62 | \$0.58 | \$0.52 | \$0.47 |
| Reduced loan rate | (70 percent marketing assistance loan rate) | \$1.37 | \$1.37 | \$1.37 | \$1.37 | \$0.36 | \$0.36 | \$0.36 | \$0.36 |
| Actual yield/planted acre | (bu/lb per planted acre) | 165 | 168 | 172 | 170 | 970 | 964 | 975 | 978 |
| Actual State revenue | (=price*yield/planted (bu/lb per planted acre)) | \$833.25 | \$756.00 | \$688.00 | \$637.50 | \$601.40 | \$559.12 | \$507.00 | \$461.54 |
| State ACRE guarantee (SAG) (per acre): | | | | | | | | | |
| ACRE guarantee price | (2-yr moving national average price-based on the prior 2 years) | \$4.88 | \$5.15 | \$4.78 | \$4.25 | \$0.58 | \$0.59 | \$0.60 | \$0.54 |
| Guarantee yield/acre | (5-yr Olympic average) | 164 | 163 | 165 | 167 | 947 | 943 | 962 | 970 |
| State ACRE Guarantee² | (=price*yield/planted acre*.9) | \$719.55 | \$753.96 | \$709.09 | \$640.05 | \$493.48 | \$503.03 | \$519.48 | \$471.26 |
| ACRE Payment Trigger #1: | | | | | | | | | |
| Is actual State revenue less than State ACRE guarantee? | | No | No | Yes | Yes | No | No | Yes | Yes |
| Corn ACRE payment rate | | | | | | | | | |
| 1: SAG minus actual | | \$0 | \$0 | \$21.09 | \$2.55 | \$0 | \$0 | \$12.48 | \$9.72 |
| 2: 25 percent SAG | | \$179.89 | \$188.49 | \$177.27 | \$160.01 | \$123.37 | \$125.76 | \$129.87 | \$117.81 |
| Rate= lesser of 1 or 2 | (per acre rate) | \$0 | \$0 | \$21.09 | \$2.55 | \$0 | \$0 | \$12.48 | \$9.72 |

| Farm assumptions | Formula | Farm-level scenario B: Expect falling corn prices | | | | Farm-level scenario B: Expect falling cotton prices | | | |
|--|---|--|-----------------|-----------------|-----------------|--|-----------------|-----------------|-----------------|
| | | 2009 | 2010 | 2011 | 2012 | 2009 | 2010 | 2011 | 2012 |
| Actual farm revenue (per acre): | | | | | | | | | |
| Planted acreage | | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Actual FARM yield/planted acre | | 178 | 164 | 170 | 169 | 989 | 1,000 | 1,020 | 1,010 |
| ACRE price | | \$5.05 | \$4.50 | \$4.00 | \$3.75 | \$0.62 | \$0.58 | \$0.52 | \$0.47 |
| Actual farm revenue (per acre) | | \$898.90 | \$738.00 | \$680.00 | \$633.75 | \$613.18 | \$580.00 | \$530.40 | \$474.70 |
| Farm ACRE benchmark revenue (per acre): | | | | | | | | | |
| ACRE guarantee price | (2-yr moving national average price-based on the prior 2 years) | \$4.88 | \$5.15 | \$4.78 | \$4.25 | \$0.58 | \$0.59 | \$0.58 | \$0.51 |
| Benchmark farm yield/acre | (5-yr Olympic average) | 164 | 164 | 165 | 168 | 938 | 938 | 968 | 987 |
| Crop insurance premium | | 30 | 30 | 30 | 30 | 24 | 24 | 24 | 24 |
| Farm ACRE benchmark revenue | | \$827.90 | \$872.91 | \$816.82 | \$742.10 | \$566.83 | \$579.49 | \$585.18 | \$527.23 |
| ACRE Payment Trigger #2: | | | | | | | | | |
| Is actual farm revenue less than farm ACRE benchmark revenue?: | | No | Yes | Yes | Yes | No | No | Yes | Yes |
| Does this producer receive an ACRE payment? | | No | No | Yes | Yes | No | No | Yes | Yes |

—Continued

Scenario B: Falling market price scenario¹—Continued

| Farm assumptions | Formula | State-level scenario B: Expect falling corn prices | | | | State-level scenario B: Expect falling cotton prices | | | |
|----------------------------------|--|---|-------------------|-------------------|-------------------|---|---------------------|---------------------|---------------------|
| | | 2009 | 2010 | 2011 | 2012 | 2009 | 2010 | 2011 | 2012 |
| | | Corn ACRE payment | | | | Cotton ACRE payment | | | |
| ACRE payment rate | | \$0 | \$0 | \$21.09 | \$2.55 | \$0 | \$0 | \$12.48 | \$9.72 |
| Payment acreage | | 83.3 | 83.3 | 83.3 | 85 | 83.3 | 83.3 | 83.3 | 85 |
| Farm Productivity ratio | | 0.998 | 1.006 | 0.999 | 1.001 | 0.990 | 0.994 | 1.006 | 1.018 |
| Farm ACRE payment | | \$0 | \$0 | \$1,754.24 | \$217.04 | \$0 | \$0 | \$1,045.59 | \$840.57 |
| | | Corn ACRE participation tradeoffs | | | | Cotton ACRE participation tradeoffs | | | |
| | | <i>Direct payments (DPs)</i> | | | | | | | |
| Marginal DP rate | | \$0.060 | \$0.060 | \$0.060 | \$0.060 | \$0.013 | \$0.013 | \$0.013 | \$0.013 |
| DP payment acres | | 83.3 | 83.3 | 83.3 | 85 | 83.3 | 83.3 | 83.3 | 85 |
| DP yield | | 121 | 121 | 121 | 121 | 650 | 650 | 650 | 650 |
| Marginal DP tradeoff | | \$604.76 | \$604.76 | \$604.76 | \$617.10 | \$722.29 | \$722.29 | \$722.29 | \$737.04 |
| | | <i>Counter-cyclical payments (CCPs)</i> | | | | | | | |
| | (Target rate-DP rate-national avg. market price) | | | | | | | | |
| CCP rate | | \$0 | \$0 | \$0 | \$0 | \$0.0258 | \$0.1058 | \$0.1258 | \$0.1258 |
| CCP base acres X .85 | | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| CCP yields | | 156 | 156 | 156 | 156 | 825 | 825 | 825 | 825 |
| Total CCPs | | \$0 | \$0 | \$0 | \$0 | \$1,809.23 | \$7,419.23 | \$8,821.73 | \$8,821.73 |
| | | <i>Marketing loan benefits (MLBs)</i> | | | | | | | |
| | | At the assumed price levels, it is unlikely that marketing loan benefits will be available for corn. The likelihood of marketing loan benefits for cotton is less clear. If marketing loan benefits are available for either crop, the maximum loan rate for enrolled producers is \$1.37 for corn and \$0.3634 for cotton. | | | | | | | |
| Net ACRE monetary benefit | | \$(604.76) | \$(604.76) | \$1,149.48 | \$(400.06) | \$(2,531.52) | \$(8,141.52) | \$(8,498.43) | \$(8,718.20) |

¹Calculated values may differ from those shown in the table due to rounding error.

²SAG is limited to 90 percent of the prior year's SAG.

Source: USDA, Economic Research Service calculations.