ABSTRACT

Changes to farm program support in the 2014 Farm Bill was driven by budgetary concerns and desire to place more emphasis on risk management. As a result, farmers and landowners in the US were faced with a set of decisions. Landowners were able to update payment yields and reallocate the base acres. Farm operators were given the choice of three different farm programs, with either price-based or revenue-based risk protection. These decisions led to some fairly significant changes in the way federal support will be provided to farmers of program crops. These decisions will impact all current and future landowners, farmers, farm managers, appraisers, and other downstream parties such as lenders and input suppliers.

An Overview of the Decisions and Changes Made in the 2014 Farm Bill

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The 2014 Farm Bill introduced large changes to farm commodity programs after more than two years of debate in Congress. Driven largely by efforts to reduce spending for deficit reduction assistance, the direct and countercyclical payment (DCP) programs were eliminated. They were replaced by new programs designed with a focus on risk management through either fixed price protection, or revenue protection that can change with market prices. Parties involved with farms that had base acreage established were faced with a set of three separate choices, all of which were made at the individual Farm Service Agency (FSA) farm unit level.

Landowners were given the option to:

- Update the program yields; and
- Reallocate the base acres on their FSA farms.

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Farmers were given the choice of three different farm programs to help them manage risk:

- Price Loss Coverage (PLC)
- Agriculture Risk Coverage at the county level (ARC-CO)
- Agriculture Risk Coverage at the individual farm level (ARC-IC)

In cases where the landowner is also the current farm operator, all decisions were made by the same individual or set of individuals. However, in rental situations, these decisions may have been made by different parties.

These decisions will remain attached to FSA farms at least until the end of the current Farm Bill, which runs through the 2018 crop year. This is true even if ownership of the farm changes and, in the case of rental situations, if a different tenant or set of tenants operates the farm at any point during this time period. Furthermore, with the last two Farm Bills being extended beyond their originally intended timeframes, and not being able to predict what sorts of changes to farm programs may be made in the future, there is the potential that these decisions could extend beyond 2018.

Therefore, it is important for all landowners, farmers, and farm managers to be aware of the decisions that were made for FSA farms on which they are currently involved, as well as for any farms they may become involved with over the next few years. Since the decisions that were made impact any farm program payments that may be received on that farm during this Farm Bill, it is also important that rural appraisers, agricultural lenders, insurance agents, input suppliers, and machinery dealers are familiar with the new programs so they have the necessary information to better serve their customers.

This article provides a brief overview of the decisions made by landowners and farmers as part of the 2014 Farm Bill, and summarizes the aggregate sign up data provided by the Farm Service Agency. Landowners actively made yield updating decisions which increased average payment yields for all crops across the US. Significant changes were also seen in the distribution of base acres across the program crops due to the base acre reallocation actions taken by landowners. In terms of program choice, the ARC program proved to be much more popular than the Average Crop Revenue Election (ACRE) program that was included as an alternative to the Countercyclical program (CCP) in the 2008 Farm Bill. Still, the revamped price protection program, PLC, remained the popular option for some crops. Thus, providing farmers with a set of farm programs to choose from did result in variations in program enrollment across crops and regions.

Program Yield Updating

Landowners had the option of updating program yields on their Farm Service Agency (FSA) farms. All farms which had been enrolled in farm programs in the past had existing program yields assigned to them based on historical production. These program yields were used to determine the size of CCP payments, if prices fell low enough to trigger payments.

In the new farm bill, landowners had the ability to update those yields to the average yield level over the 2008 through 2012 crop years (see Paulson, Coppess, and Kuethe, 2014 for more detail). This decision was relatively straightforward. If landowners could increase their program yields, they most likely decided to update. The yield update was a self-certified process where landowners simply supplied the yields over the 2008-2012

crop years on the farm for which they were updating. Documentation of historic yields was required by FSA, but only if the farm was selected for an audit. An audit may be conducted throughout the life of the 2014 farm bill.

Figure 1 shows the impact of program yield updating on national program yields for major program crops.[1] Data provided by FSA (FSAb, 2015) shows that the national average program yield for all major crops increased because of the ability to update. The largest relative program yield increases were seen for canola, oats, and rice. Peanuts, corn, and soybeans resulted in the smallest relative program yield increases among major program crops shown in Figure 1.

Program yields are only used by the PLC program. If prices fall below the fixed PLC reference price for that crop, the price difference is multiplied by the farm's payment yield to determine PLC payment levels. Thus, farms with larger payment yields will receive larger PLC payments in years when payments are triggered.

While payment yields do not impact ARC-CO or ARC-IC program payments, landowners were still advised to update their payment yields if they could achieve an increase and provide the necessary documentation in the event of an audit. This is because future Farm Bill programs may use payment yields, and an updating option may not be provided in the future. Payment yields were not updated on all farms. This could have been due to the yield history on the farm not resulting in a larger payment yield than was already established, or the landowner may not have been able to document the yield history. A yield update would also not have occurred if the landowner did not file the necessary paperwork with their county FSA office prior to the yield updating deadline of April 7, 2014. If program yields were not updated, the farm will continue to use the existing program yield levels for all crops with base acres on that farm.

Base Acre Reallocation

Landowners were also given the option of reallocating the base acres on their FSA farms. Similar to program yields, a farm's base acres were also established based on historical production, and have been used to determine the total farm program payment level received by the farmer for a farm each year.

The total number of base acres on the farm did not change if the landowner chose to reallocate. If the landowner chose to reallocate, the number of base acres in each program crop would change to reflect what crops were actually planted on the farm from 2009 through 2012, using planted acre ratios or percentages which were then applied to the farm's total number of base acres (see Paulson and Coppess, 2014 for more detail). The PLC and ARC-CO will continue to use base acres to determine payment levels in years when payments are triggered. The ARC-IC program will use planted acres to determine revenues guarantees, actual revenues, and payments, but payment acres will be limited to total base on all farms enrolled in ARC-IC.

The decision of whether to reallocate was not as straightforward as the yield update decision. Two major factors were likely the biggest for landowners in determining whether to keep the farm's current base or to reallocate. First, expected payment levels from farm programs for the different crops was likely considered. Landowners may have chosen to reallocate based on the set of base acres associated with the largest expected

farm program payments over the next five years. Second, landowners may have also aimed to match their base acres more closely with what crops will actually be planted on the farm over the next five years.

Because total base acres could not change through reallocation, increases in base for certain crops implies that base was reduced for other crops. Figure 3 shows the total change in base acreage for major program crops as a result of reallocation decisions. Corn base increased by 12.8 million acres (15%) and soybean base increased by over 4 million acres (9%). These were the largest base increases in absolute terms, but other major program crops had larger increases in percentage terms. These include canola, whose base acreage more than doubled (114% increase), and peanuts (38% increase). Wheat base acreage had the largest decline in absolute terms of nearly 10 million acres (13% decline). Base acreage for many small grains also had large percentage declines. These base acre reallocation decisions highlight the continuing trend within the US crop sector of specialization in corn and soybeans, with acreage in these crops expanding north and west from the Midwest, typically at the expense of wheat and small grain acreage. It is important to understand that farm program payments are tied to base acreage. This is true for all three new farm programs. Unless the farm has base acreage in a crop, the farmer will not receive PLC (price-triggered) or ARC-CO (revenue-triggered) payments even if that crop was planted that year. Similarly, farmers may receive payment for crops if the farm has base even in crop years when the crop is not planted on the farm. Payments for the ARC-IC program are based on the program crops planted in any given year.

Farm Program Enrollment Decision

The third decision in the new farm bill was the choice of three different commodity programs (see Paulson et al., 2015 for more detail). Price Loss Coverage (PLC) is a target price program whose design is very similar to the repealed counter-cyclical program (CCP). The main difference between PLC and CCP is that the target price support levels were increased for all crops, and are now referred to as reference prices. These reference prices are fixed by Congress for each program crop, and are not expected to change over the life of the 2014 Farm Bill. Payments are triggered by the PLC program if the actual marketing year average price for the crop is lower than the fixed reference price. The PLC payment rate is equal to the price difference multiplied by the crop's program yield on that farm. The payment rate is capped at the different between the reference price and loan rate for each crop. The total PLC payment is equal to the payment rate multiplied by 85 percent of the farm's total base acres.

Agriculture Risk Coverage at the county level (ARC-CO) is a county revenue program. ARC-CO will trigger a payment for a crop when actual revenue falls below that crop's revenue guarantee. Revenue guarantees are set at 86 percent of the crop's benchmark revenue. Benchmark revenues are based on the 5-year Olympic averages[2] of: 1) the crop's yield in that county; and 2) the crop's national marketing year average price. Each year, actual revenue is calculated as the product of the crop's national marketing year price and actual yield in the county. If actual revenue falls below a crop's revenue guarantee, the ARC-CO program triggers a per acre payment equal to the revenue shortfall. Like PLC, farms receive the payment on 85 percent of the crop's base acres in years when a payment is triggered.

Finally, the Agriculture Risk Coverage program was also available at the individual farm level (ARC-IC). ARC-IC is also a revenue program, but there are some important differences from ARC-CO. First, ARC-IC is based on individual farm yields to set benchmark revenues, revenue guarantees, and to determine actual revenue in any given year. Therefore, farmers would need to provide farm yield records to FSA to determine benchmark, guarantee, and payment levels each year. Second, ARC-IC is not a crop specific program. The revenue guarantee is a whole-farm measure based on all of the crops planted on the farm. Finally, if ARC-IC payments are triggered, they will be provided on just 65 percent of the farm's total base acres.

Current farm operators had the ability to make the farm program decision for each FSA farm. For farms where the landowner was also the farm operator, all three decisions were made by the same individual. However, in rental situations the parties making the farm program choice depended on the lease type. In the case of a share rental agreement, the landowner is considered by FSA to be sharing in the risk of production with the farm operator and was included in the program choice decision. For cash rent or flexible/variable leases, the farm operator had the right to make the farm program decision without consulting the landowner.

Overall, the majority of farms and base acres were enrolled in the ARC-CO program (FSAb). Across all crops, 76 percent of the base acreage in the US was enrolled in ARC-CO, compared with just 1 percent in ARC-IC, with the remaining 23 percent in the PLC program. However, there were differences in program enrollment for different crops.

Figure 4 summarizes the enrollment figures for program crops with at least one million base acres. Virtually all rice and peanut base acres were enrolled in the PLC program. These large percentages are not a surprise as studies suggested that PLC would make larger payments than ARC-CO for these crops (Schnitkey et al., 2015a). Reference prices for these crops are well above market-level prices, leading peanut and rice farmers to overwhelmingly choose PLC.[3]

Figure 5 presents state-level program enrollment of rice (Figure 5a) and peanut (Figure 5b) base acreage, respectively. Rather than illustrate regional variability in enrollment, Figure 5 illustrates that peanut and rice base acreage is concentrated in states that lie in the southern portion of the US. For rice, this includes California, the only state with PLC enrollment on rice base under 95 percent. Peanut base acreage is also concentrated in the southern US, extending eastward from New Mexico. All states had PLC enrollment rates for peanut base well above 90 percent.

In contrast, ARC-CO was the overwhelming choice for corn and soybean base. This represents a much larger preference for a revenue program design compared to when the ACRE program was included as an option in the 2008 Farm Bill. On corn, farmers used ACRE on just 8.1 percent of base acres in 2013. Revenue program use on corn base increased from 8.1 percent in 2013 up to 93 percent after 2014 program choices. Over 97 percent of soybean base acres were enrolled in ARC in 2014.

There are a number of factors that likely impacted this outcome (Schnitkey et al., 2015; Zulauf et al., 2015). First, to enroll in ACRE, an individual had to give up 20 percent of direct payments and loan rates were reduced by 30 percent. Since direct payments were eliminated and loan rates were not impacted by program choice in the 2014 Farm Bill, this tradeoff did not exist for ARC.

Furthermore, given the elimination of direct payments and the choices posed in the 2014 Farm Bill, farmers likely gave the choices more consideration in 2014. Second, ACRE was more complicated than ARC-CO, especially as ACRE required two triggers to be met before a farmer could receive payments. Third, farmers had to provide yield records to FSA when enrolling in ACRE. This was not the case for ARC-CO, and likely explains the very low enrollment in the farm-level ARC-IC option in 2014. Finally, price expectations were different in 2014 than when ACRE decisions were made, resulting in expectations for large ARC-CO payments relative to the PLC alternative for corn and soybeans.

Figure 6 shows state-level PLC enrollment rates for corn (Figure 6a) and soybeans (Figure 6b), respectively. Unlike rice and peanuts, corn and soybean PLC enrollment rates varied considerably geographically. PLC enrollment was lowest (ARC enrollment the highest) in the main production regions of the Midwest for corn, and the Midwest and Southeast for soybeans. The aggregate enrollment rates for corn and soybeans are highly skewed towards the ARC-CO program since the majority of corn and soybean base acreage are located in these regions.

For both crops, PLC enrollment rates were highest in the Mountain and Pacific Coast regions of the US. PLC enrollment rates were also well above the national average in states in the central, southern, and southeastern regions. Examples include Missouri (for corn), Texas, Oklahoma, Alabama, Georgia, and Florida.

PLC enrollment on corn base exceeds 40 percent in California, Idaho, Montana, Washington, and Texas, and is over 90 percent in Arizona. Corn base acreage in these states represents just three percent of total US corn base. PLC enrollment on soybean base exceeds 50 percent in 9 states including Montana and Texas. Soybean enrollment in PLC exceeds 90 percent in 4 states (not included in Figure 6b due to low base acreage) in the southwestern US. Soybean base acreage in states with PLC enrollment greater than 50 percent is very small, representing less than 1 percent of all US soybean base acreage.

Enrollment rates were split more evenly between ARC and PLC for many of the other major program crops (see Figure 4). These include crops like wheat and small grains with production areas and base acreage concentrated in the northern, western plains, and pacific coast regions of the US. Shown in Figure 7, PLC enrollment on wheat base exceeds 90 percent in Alaska (not pictured), Arizona, New Mexico, Utah, and Texas. These five states account for five percent of US wheat base acreage. PLC enrollment on wheat base was below ten percent in 11 states, including Indiana, Minnesota, Oregon, and Washington. This group of states account for 6.6 percent of total US wheat base acreage.

For the crops with more evenly split enrollment rates between PLC and ARC, there are a number of potential explanations for the regional variation. PLC enrollment does tend to be higher in Pacific Coast and Mountain regions. These areas tend to have more intensive use of irrigation for crop production, which can reduce yield variability. This might explain preferences leaning towards a price protection program such as PLC rather than revenue protection with ARC. PLC enrollment rates for most crops tend to be lower in the Midwest, where corn and soybeans are the dominant crops. Therefore, one could argue that program choice for all crops may have been driven by the choice made for the major crops in the region.

ARC-IC was used on the fewest program acres. Crops having the most use of ARC-IC include large chickpeas (11% of base acres), small chickpeas (9%), lentils (7%), dry peas (6%), mustard (6%), temperate japonica rice (4%), barley (4%), and safflower (3%). There is a geographical dimension to where these crops are raised, with most of the states being located in the northwest. Oregon had the highest share of base acres enrolled in ARC-IC, with 12 percent of base acres enrolled in ARC-IC. Oregon was followed by Montana (9%), Washington (4%), Idaho (4%), Wyoming (2%), Minnesota (2%), South Dakota (2%), North Dakota (1%), and Colorado (1%).

Discussion and Conclusions

The 2014 Farm Bill included three major decisions for farmers and landowners. Landowners were able to update program yields and reallocate base acres for program crops on their FSA farm units. Farmers were given the choice between three different farm programs to provide risk management support over the 2014 to 2018 crop years.

Yield updating resulted in fairly significant increases in program yields. While these will only be used if the crop base is enrolled in the PLC program, higher payment yields will be associated with larger PLC payments. The base reallocation decision resulted in some fairly significant reshuffling of base acres across program crops. Corn and soybeans had the largest absolute base acreage increases, but are also the largest program crops in terms of base acreage. Large relative increases were realized in canola, peanut, and rice base. Wheat had the largest absolute decline in base acreage. Base acreage of most small grains such as oats, barley, and sorghum also saw large reductions in percentage terms as a result of reallocation decisions. Since all farm program payments are tied to base acres, any changes to a farm's base acreage allocation will impact the size of program payments received by the farmer for an individual crop. Similarly, the overall shifts in base will impact how total program payments are distributed nationally across crops.

Farmers showed a higher interest in revenue-based support in 2014 as the majority of crop base acres were enrolled in the ARC program. However, enrollment rates varied by crop and region. Price-based support with the PLC program was the overwhelming choice for rice and peanut base, while ARC-CO was the program chosen for the vast majority of corn and soybean base acres. Enrollment rates for other crops were split more evenly among programs with a general pattern of a greater preference for PLC in the Mountain, Pacific, and Southern regions of the US, and higher enrollment in ARC-CO in the North and Midwest. Enrollment rates for the individual farm revenue program ARC-IC were quite low across all major crops and regions.

Even though farm program payments are received by the current farm operators, any changes that were made to FSA farms as part of the 2014 Farm Bill will also impact current and future landowners. This applies not only for landowners who are actively engaged on their farms, but also absentee landlords in cash rent and variable lease situations. All three of the decisions will remain with the farm at least until the end of this farm bill, the 2018 crop year. This is true even if there are changes to the tenant or structure of any farmland lease or if the farm changes ownership during this time period.

While there is no clear evidence that the decisions made in this farm bill will have any major impacts on farmland

values or rental rates, owners, tenants, and appraisers will want to be aware of the payment yields, base acres, and farm program option associated with a given farm. These will all affect any farm program payments for that farm in future years when prices or revenues are low. Everyone involved with a land appraisal, sale, or rental negotiation should make sure they understand the current status of the farm in question. This includes the base acreage, program yields, and program enrollment for all program crops with base on the farm.

Finally, the decisions and changes that were made in the 2014 Farm Bill are also important for all other parties who do business with farm operators. A main focus of the changes made in this Farm Bill was to provide farmers with expanded and more flexible risk management tools. In addition to crop insurance, the new programs will help to provide liquidity during periods of financial stress. However, the three new programs may provide support under different conditions. For example, the PLC program will only provide support during periods of low prices, where "low" is defined by the fixed reference prices for each commodity. In contrast, the ARC programs can trigger support from low revenues so that they also provide risk protection for yield losses. The definition of "low" revenues for the ARC program can evolve over time since the benchmark revenue and guarantees are based on the rolling Olympic average of marketing year prices and county or farm level yields, with a floor on the ARC benchmark price equal to the crop's reference price. Thus, all parties downstream from the farmgate may also be affected differently by the decisions made on individual farms. These include agricultural lenders, insurance agents, input suppliers and machinery dealers.

End Notes

1 In this article, "major program crops" refer to those program crops with at least one million base acres.

2 An Olympic average removes the lowest and highest values and takes the simple average of the remaining values. For example, the Olympic average yield over a 5-year period would remove the highest yield and the lowest yield and take the simple average of the 3 remaining yield values.

3 Surprisingly, ARC-CO was elected for a relatively high percentage of acres for Japonica rice (not pictured). ARC-CO was selected on 34 percent of Japonica rice base, ARC-IC was selected on 4 percent, and PLC for 62 percent. Note that yield and price dynamics are different for japonica rice than for long grain rice and Japonica's reference price was set at 115 percent of the long and medium grain reference price. Recent market prices for Japonica rice are notably above the reference price. Also, all Japonica rice base acres are located in California, and the drought situation may be playing a role in program choice.

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Figure 1. Percentage change in program yields due to yield updating.

Note: Only includes program crops with at least one million base acres.

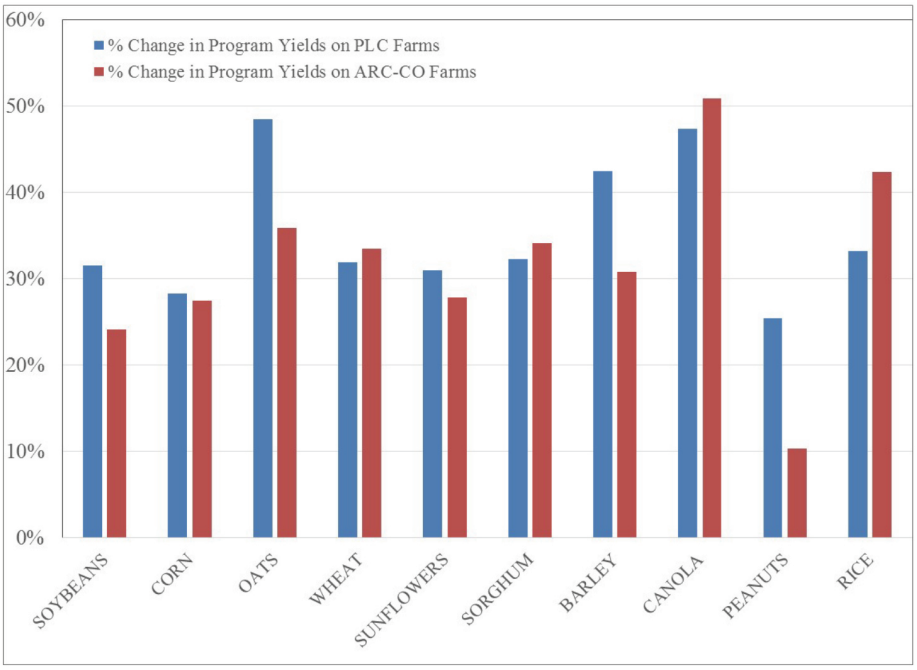

Figure 2. Percentage of enrolled base acres that updated program yields.

Note: Only includes program crops with at least one million base acres.

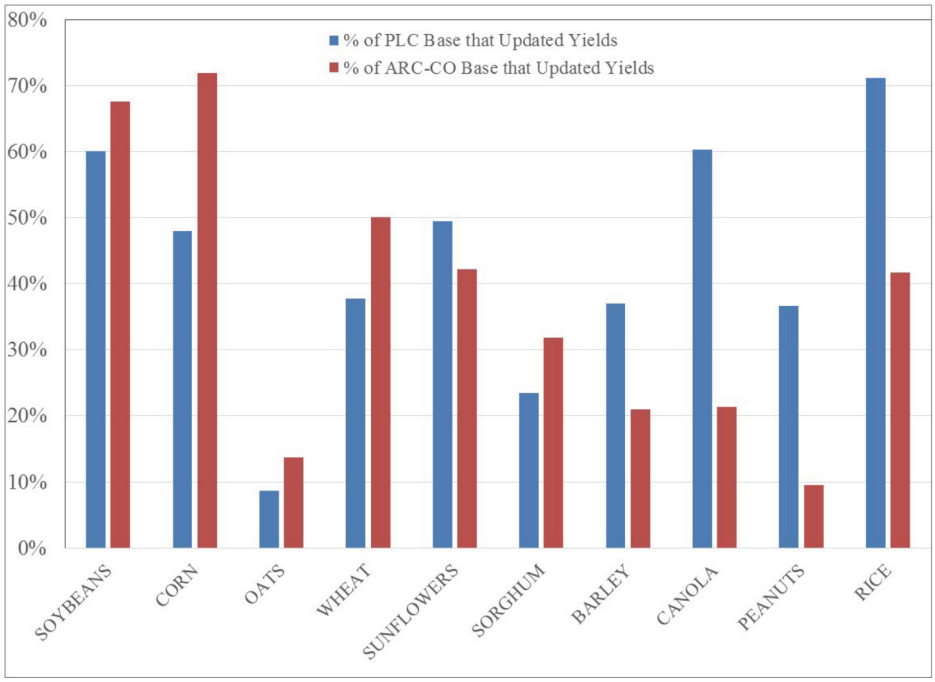

Figure 3. Change in base acreage by crop due to reallocation.

Note: Only includes program crops with at least one million base acres.

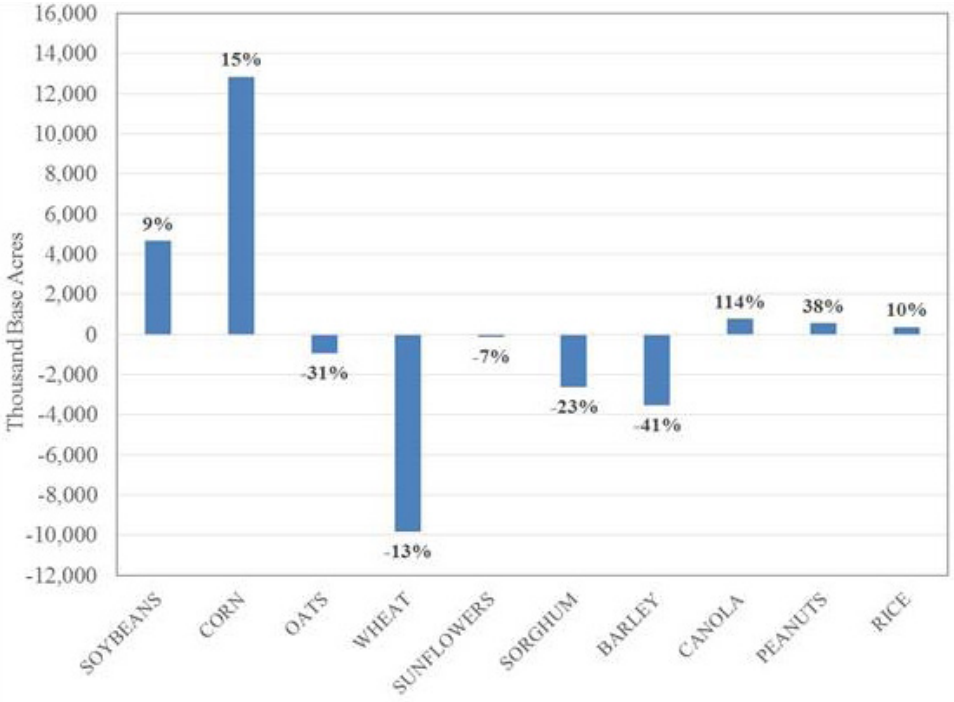

Figure 4. Percentage of base acres enrolled in each program by crop.

Note: Only includes program crops with at least one million base acres.

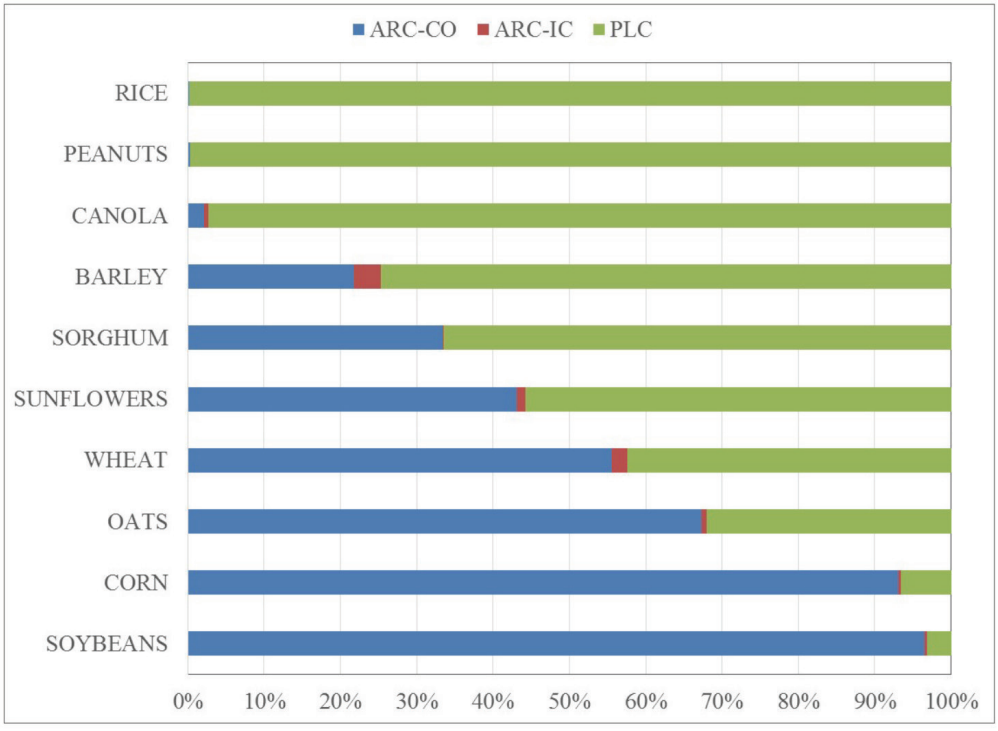

Figure 5a. Percentage of rice base acreage enrolled in PLC by state.
Note: Only includes states with at least 1,000 base acres or 25 FSA farms.

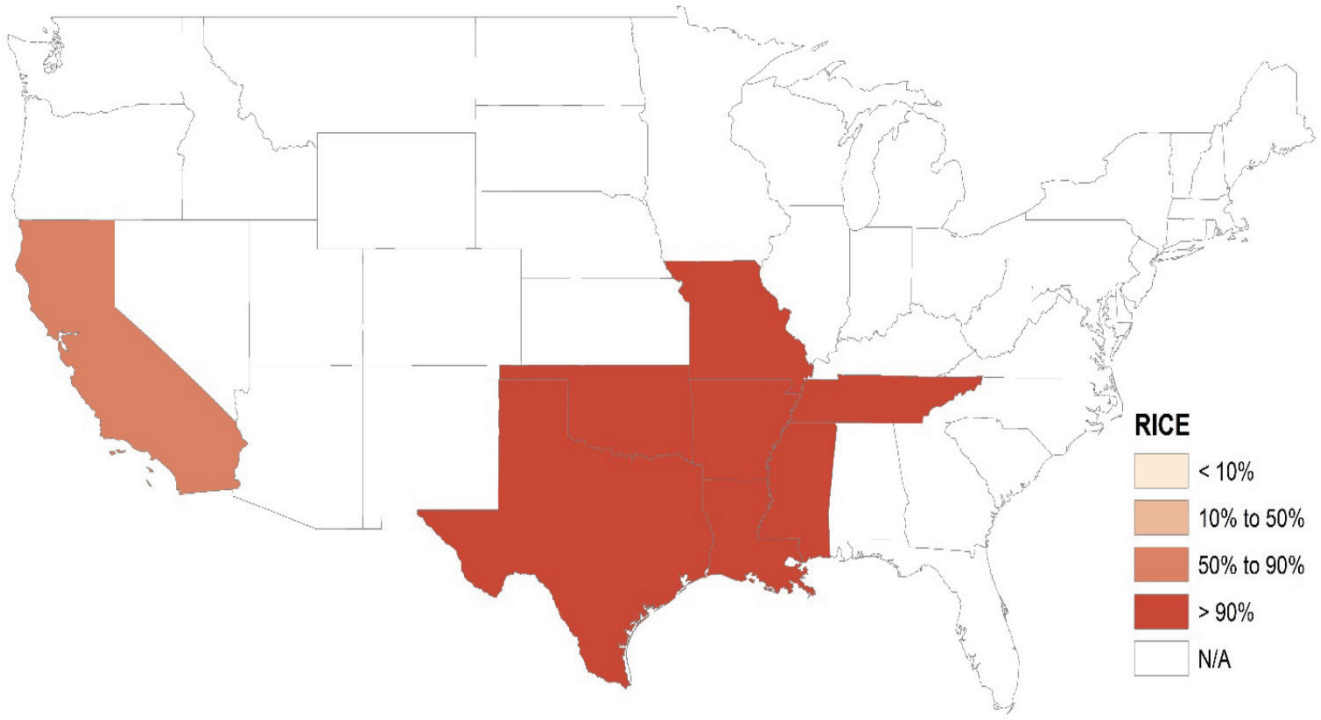

Figure 5b. Percentage of peanut base acreage enrolled in PLC by state.
Note: Only includes states with at least 1,000 base acres or 25 FSA farms.

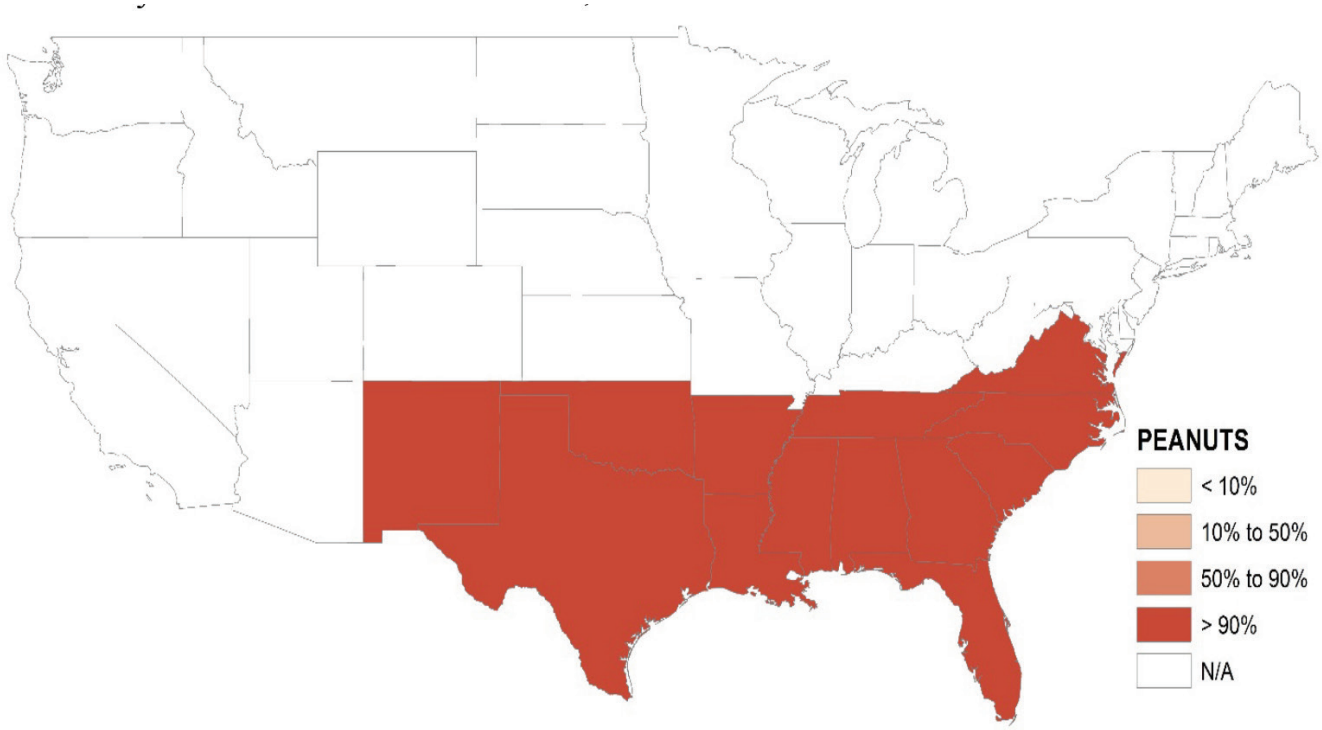

Figure 6a. Percentage of corn base acreage enrolled in PLC by state.
Note: Only includes states with at least 1,000 base acres or 25 FSA farms.

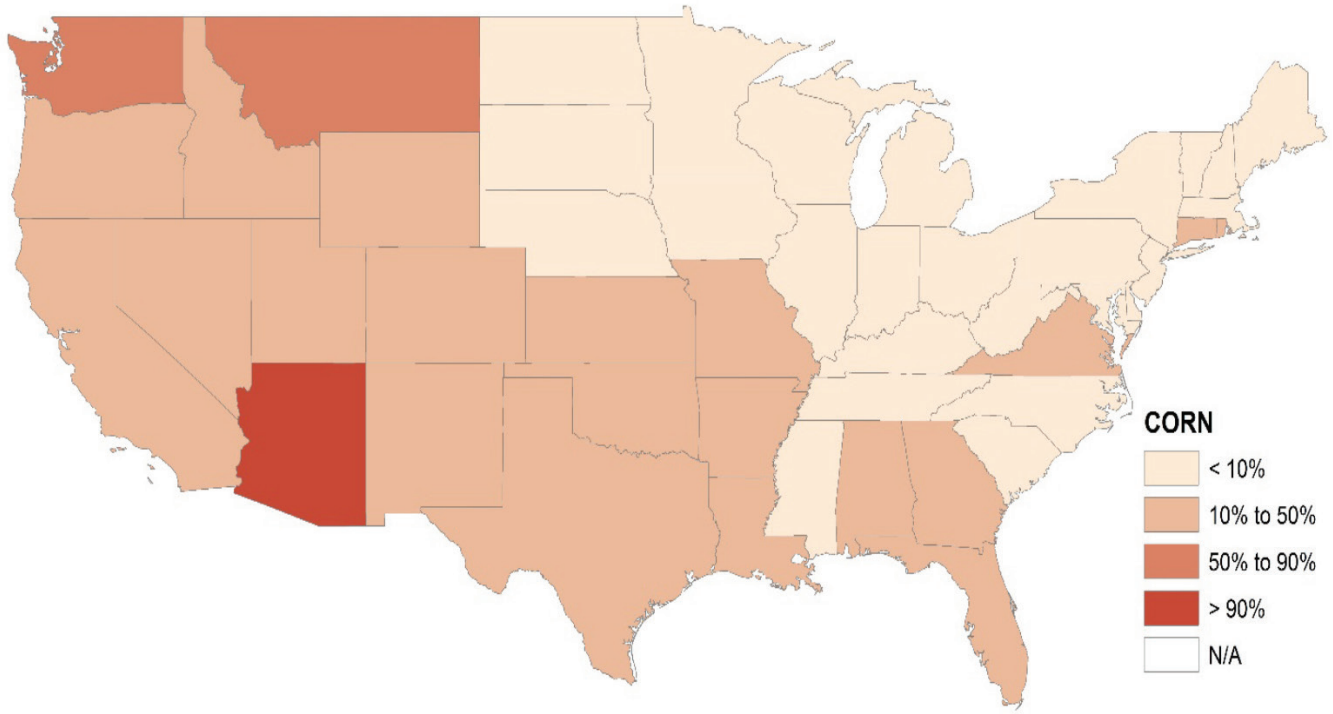

Figure 6b. Percentage of soybean base acreage enrolled in PLC by state.
Note: Only includes states with at least 1,000 base acres or 25 FSA farms.

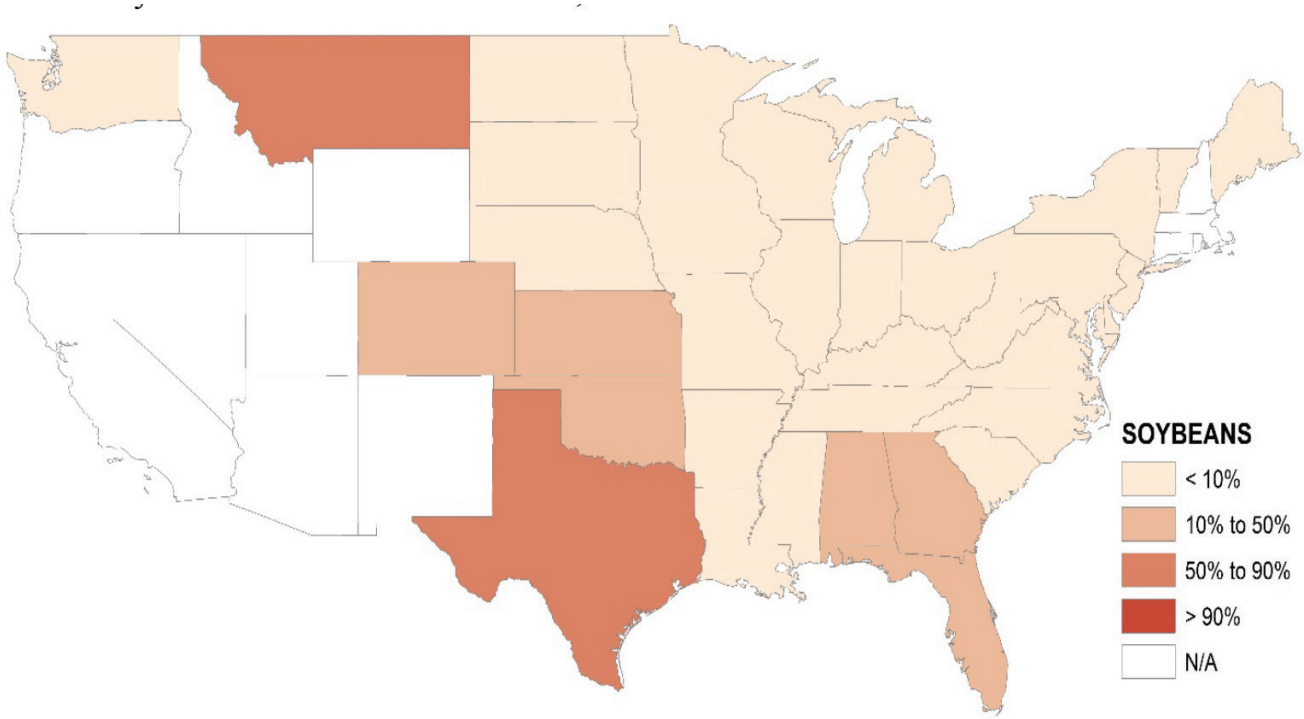

Figure7. Percentage of wheat base acreage enrolled in PLC by state.
Note: Only includes states with at least 1,000 base acres or 25 FSA farms.