



Base Acre and Yield Updating Tool: A Release of Spreadsheet to Aid in Making Farm Bill Decisions

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The *Base Acre and Yield Updating* spreadsheet is available on the *farmdoc* website (see [here](#) for download). This tool will aid in making the first two sets of Farm Bill decisions: 1) base acre allocation and 2) yield updating. It also makes comparisons of expected payments from Agricultural Risk Coverage – County Option (ARC-CO) and Price Loss Coverage (PLC) programs calculated by Agricultural Policy Analysis System (see [here](#)). The *Base Acre and Yield Updating* spreadsheet also prints the Farm Service Agency (FSA) form for reporting updated yields.

Program Inputs

The following inputs are needed for a Farm Service Agency (FSA) farm:

1. 2014 base acres. These are the current base acres on the farm. These will be the base acres for the farm if acres are not reallocated.
2. 2014 CC yields. These yields will be the program yields for determining Price Loss Coverage (PLC) payments, unless yields are updated to 90% of average yields from 2008 through 2012.
3. Planted, prevented, double, and subsequent acres for 2008 through 2012. These acres determine a) reallocated base acres by crop and b) whether yields for an individual year enters into yield updating.

This information was sent to each farmer and landowner in a letter from FSA received in August 2014. The spreadsheet includes an example of this information. See the FSA if this letter is no longer available.

Retained and Reallocated Acres

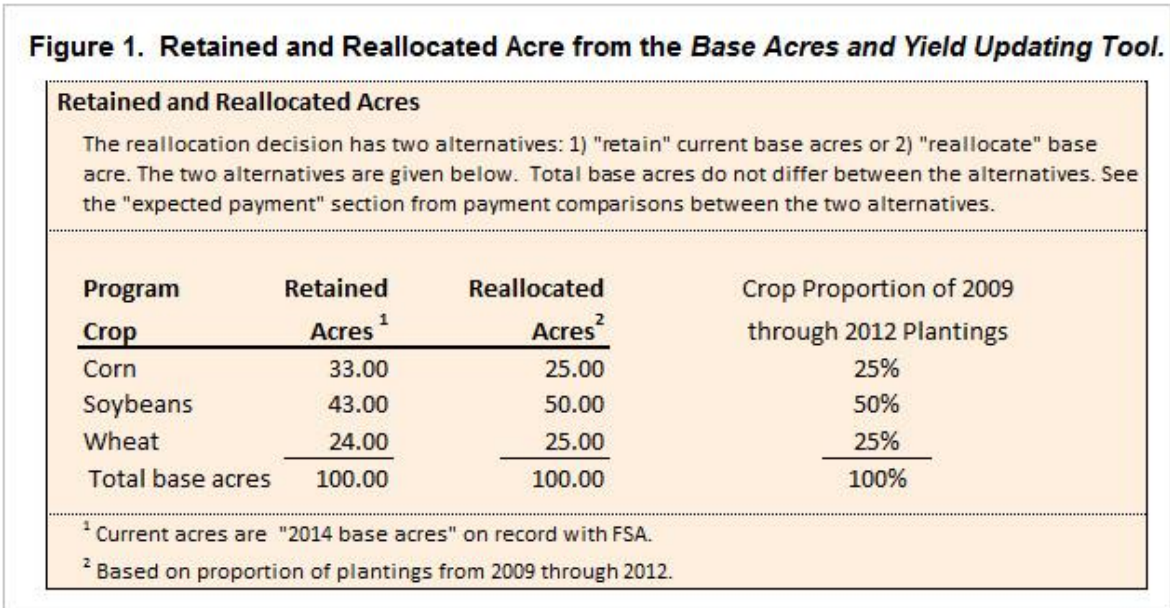
For each FSA farm, there will be two alternatives:

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1. Keep retained acres – The current acres reported in the August 2014 letter, or
2. Relocate base acres – These relocated acres are based on the proportion of plantings in program crops from 2009 through 2012.

Figure 1 shows these alternatives produced by the *Base Acre and Yield Updating* spreadsheet for a specific southern Illinois farm with 100 base acres. Note that total base acres stay the same between the alternatives, as is always the case. The allocation decisions only changes the allocation to program crops, not the total number of base acres.

The allocation alternative with the highest expected payments usually should be selected. See the “Expected Payments” section below for more discussion.



Yield Updating

The program allows entry of yields needed for updating yields (see Figure 2). For each crop, the choice of yields are:

1. Keep the current CC yield as the program yield. This was provided in the August 2014 letter, and
2. Update the yield. The updated yield equals 90% of average yields from 2008 through 2012. There may be a plug yield equal to 75% of the 2009-12 average county yield used in the calculation. A plug yield is used if 1) the actual yield is below the plug yield of 2) a yield is not given because documentation cannot be provided. In Figure 2, the actual corn yield of 42 bushels per acre in 2012 would be replaced by the plug yield of 86 bushels per acre.

Figure 2. Yield Updating Portion of *Base Acre and Yield Updating Tool*.

Yield input with yellow backgrounds are for years with planted or double crop acres. Yields in these years will impact "updated" yields. Enter yields in these boxes if you can provide yield documentation for an audit. The "plug" yield will be used for any yield left blank or that is below the plug yield.

	Year					Updated Yield ¹	Current Yield ²	Plug Yield ³	Use this
	2008	2009	2010	2011	2012				as Program Yield ⁴
Corn	146	136	127	107	42	108	103	86	Max
Soybeans	45	39	43	35	34	35	35	29	Max
Wheat		53	54	59	59	51	47	43	Max

¹ Updated yield equals 90% of average yield from 2008 to 2012, replacing yields below the plug yield with the plug yield. The plug yield will be used if no yield is entered.

² This is the "2014 CC yield" on record with FSA.

³ Yearly yields below this plug yield will be replaced by the plug yield.

⁴ This is the choice used for printing the yield choice form and for performing the analysis below. Choices are:
 1) Max -- automatically choose the option with the highest yield, 2) Current -- use the current yield, 3) Updated -- use the updated yield. The highest yield should be used in most cases.

Complete and Print Farm Service Agency Form for Updating Yields

In general, the highest yield should be select. Different choices can be made for each crop. Note that these program yields only impact PLC payments under the 2014 Farm Bill. When the updated yields are higher than current yields, we suggest updating yields even if ARC is chosen. These program yields may impact payments from future farm bills.

Once yields are entered, the *Base Acre and Yield Updating* tool can print form CCC-859, the form used to report yields to FSA. The user will have to indicate the form of documentation for each yield.

Expected Payments

The program also compares expected payments under retained or reallocated base acres using per acre expected payments from APAS (see [here](#)). Figure 3 shows the per acre expected payments for PLC and ARC-CO for Randolph County, Illinois.

Figure 3. Per Acre Expected Payments from Base Acre and Yield Updating Tool.

Price Series	Expected Payment ¹			Date of estimate 12/1/2014				
	PLC ²	ARC-CO ³	Max	Expected Prices by Year				
	\$/acre	\$/acre	Choice ⁴	2014	2015	2016	2017	2018
Corn	19	25	ARC-CO	3.50	3.89	4.02	4.10	4.10
Soybeans	4	17	ARC-CO	10.00	9.10	9.78	10.08	10.23
Wheat	12	13	ARC-CO	5.90	5.36	5.50	5.70	5.90

¹ These are expected payments. Actual payments will be zero in some years. In other years, payments will be those shown above. If the next five years could be repeated many times, payments would be close to the above values.

² Price Loss Coverage (see ARC-PLC Decision Steps at www.farmbilltoolbox.farmdoc.illinois.edu).

Expected payments do not include Supplement Coverage Option payments. SCO is only available without ARC.

³ Agricultural Risk Coverage at county level (see ARC-PLC Decision Steps at www.farmbilltoolbox.farmdoc.illinois.edu).

⁴ Indicates whether PLC or ARC-CO has highest expected return. Highest expected return may vary with price series.

NA under ARC-CO indicates insufficient data to estimate these payments.

In Figure 3, PLC has an expected payment of \$19 per year. This is an "average" over 2014 through 2018 across many yield and price scenarios. There will be many years in which those payments equal zero. Other years they will be above \$19 per acre. If 2014 through 2018 could be repeated many times, the average of the payments would equal these expectations. The actual results over the next five years will vary from these expectations.

Yields used in the calculation are based on county trend yields. There will be many yields used based on historical yield variability. Correlations between prices and yields are maintained when calculating expected payments.

These expected payments are dependent on the price scenario. There are three price scenarios in the *Base Acre and Yield Updating* spreadsheet:

1. USDA – usually the lowest prices,
2. FAPRI – a price series often between USDA and CBO prices, and
3. CBO – usually the highest prices.

For corn, FAPRI has expected prices of \$3.50 in 2014, \$3.89 in 2015, \$4.02 in 2016, \$4.10 in 2017, and \$4.10 in 2018 (see Figure 3). Based on historical variability, prices are varied around these expectation. The average equals the price given in Figure 3. For example, the average of price scenarios in 2015 equaled \$3.89. Some of the prices are below and some are above \$3.89. Some of the prices will be below the reference price of \$3.70. As a result, there will be expectations of PLC payments even when the expected price is higher than the reference price.

Based on per acre expected payments, the expected payments for each allocation are calculated (see Figure 4). These payments are given for:

1. all program crops are enrolled in PLC,
2. all program crops are enrolled in ARC-CO, and
3. the program (PLC or ARC-CO) is selected for each crop.

Figure 4. Expected Payments for Allocations from Base Acre and Yield Updating Tool.

Below are shown yearly, expected FSA farm payments for the retain or reallocate alternatives. They are estimated given expected payments for the price series selected above (USDA/FAPRI/CBO). Payments will vary with choice of price series.

	Base Acre		
	Retain ¹	Reallocated ²	
All PLC	\$1,087	\$975	All crops are enrolled in PLC.
All ARC-CO ³	\$1,868	\$1,800	All crops are enrolled in ARC-CO.
Max choice	\$1,868	\$1,800	Uses ARC-CO/PLC choice for each crop with highest payment.

¹ Retain the current base acres

² Reallocate base acres using planting from 2009 through 2012.

³ If a crop ARC-CO payment is "NA" a zero is placed in that crop's expected return.

Given the "price series" selected above, the choices that result in the highest expected payments are:

Acre Reallocation: Retain current base acres

Program choice for:

Corn: ARC-CO

Soybeans: ARC-CO

Wheat: ARC-CO

Check other price series to see if choices resulting in maximum payments differ.

Note that these estimates do not include estimates for Supplemental Coverage Option (SCO), a crop insurance alternative only available with PLC. SCO may provide additional payments not included in estimates.

The expected payments in Figure 4 are based on the FAPRI set of prices. The CBO and USDA prices could result in a different set of rankings. Therefore, comparing payment across the differing price sets is recommended.

We have done many comparisons of expected payments for Midwest farms with corn, soybeans, and wheat. Usually, the allocation with the lowest number of soybean acres results in the highest expected payments, regardless of price series selected.

Summary

This tool will be useful for individuals making base acre and yield updating decisions. More information on these decisions is available in the [Farm Bill Toolbox](#).