Estimated 2016 ARC-CO Payments

Gary Schnitkey, Nick Paulson, Jonathan Coppess

Department of Agricultural and Consumer Economics
University of Illinois

Carl Zulauf

Department of Agricultural, Environmental and Development Economics
Ohio State University

Reasonably accurate estimates of 2015 ARC-CO payments are contained in May 27th *farmdoc daily* article. Compared to 2015 payment estimates, projections of 2016 ARC-CO payments are much less certain because little is known about how county yields will differ from expectations and a wide range of prices could occur in 2016 and 2017. Even given the uncertainties, we estimate 2016 ARC-CO payments because these payments could be important cash flows in 2017 if commodity prices remain low. Herein, ARC-CO payments for 2016 are projected using yields at trend levels and prices at the midpoint of World Agricultural Supply and Demand Estimate (WASDE) ranges. At trend yields and mid-point prices, significant payments will occur for corn, soybeans, and wheat across the United States. As described in the final commentary section, the reasons for these large payments are the current low estimates of prices for the 2016 marketing year.

Projected 2016 Corn ARC-CO Payments

Figure 1 shows the calculations of ARC-CO payments for LaSalle County, Illinois using the *ARC-CO PLC Payment Estimator*, a Microsoft Excel spreadsheet available in the FAST section of farmdoc (click here for download). The 2016 payment is estimated at $73.70 per base acre and is made using a:

- Yield of 183 bushels per acre. The 183 bushels per acre is the trend yield estimate for LaSalle County. If the 2016 year could be repeated many times, the average of the county yields would be close to 183 bushels per acre. The default 2016 through 2018 entries for county yields in the *ARC-CO PLC Payment Estimator* are trend yields.

- Market Year Average (MYA) price of $3.35 per bushel. This is the midpoint of the national, MYA price contained in the May report of World Agricultural Supply and Demand Estimates (WASDE).

The WASDE range is from $3.05 to $3.65. The default 2016 price entries in the *ARC-CO PLC Payment Estimator* are at WASDE mid-point prices.

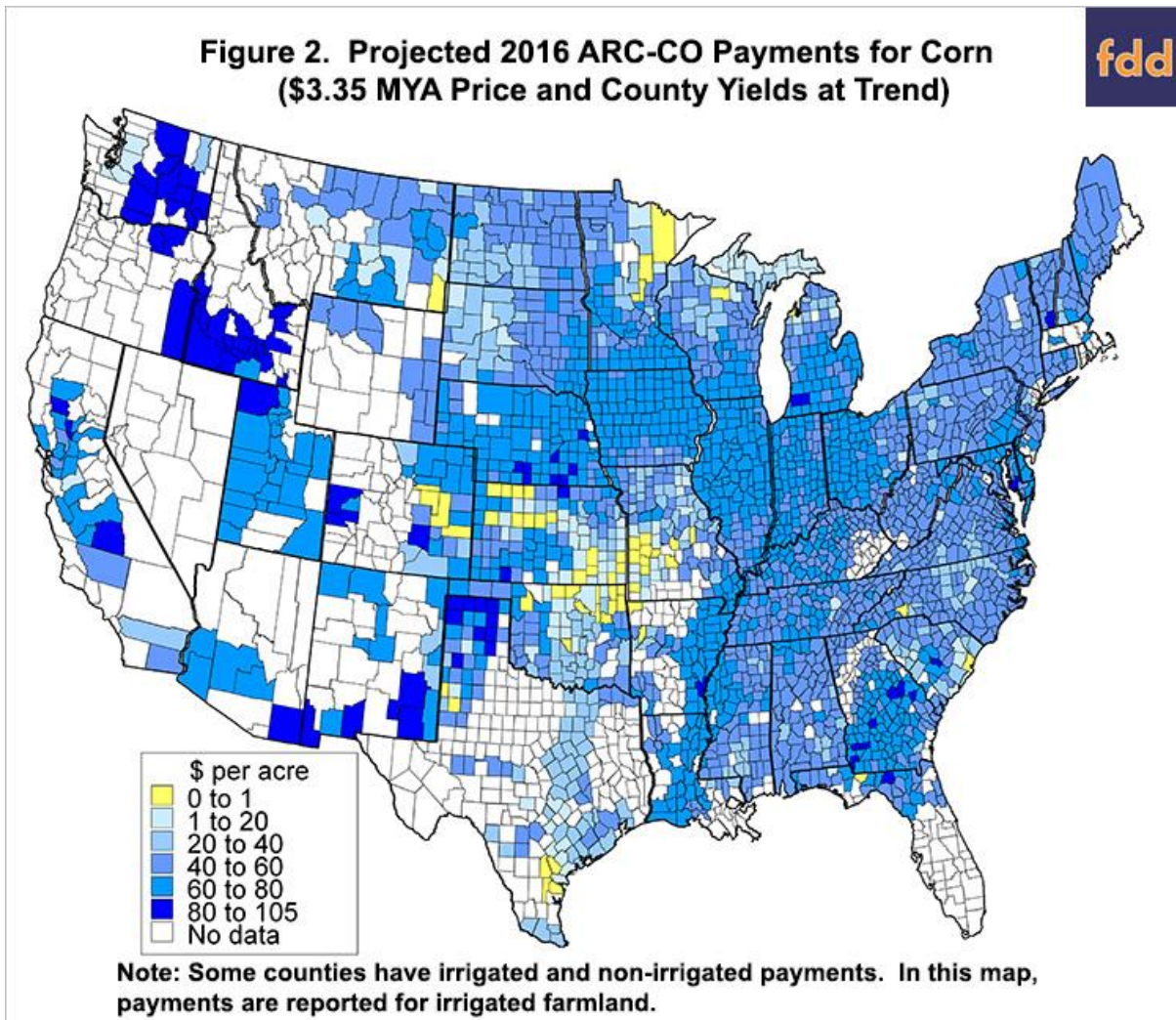The $73.70 projected 2016 payment is the maximum payment given a $746 county ARC guarantee. As a result, lowering the $3.35 MYA will not increase the 2016 ARC-CO payment.   At $3.65 – the high of the WASDE range -- the 2016 ARC-CO payment is reduced to $66.01 per base acre. For MYA prices above $4.00 per bushel, ARC-CO payments will be modest unless county yields are well below trend yields.

Figure 1. ARC-CO Payment Estimates from the ARC-CO PLC Payment Estimator in LaSalle County, Illinois, Corn

Input			Agricultural Risk Coverage (ARC) - County				Price Loss Coverage (PLC)
			Benchmark		ARC	ARC	
Year	County Yield	MYA Price[1]	Yield[2]	Price[3]	Guarantee[4]	Payment[5]	Payment[6]
2009	183	3.55					
2010	163	5.18					
2011	177	6.22					
2012	134	6.89					
2013	187	4.46				$/acre	$/acre
2014	198	3.70	174	5.29	792	46.74	0
2015 *	178	3.60	176	5.29	801	79.14	12
2016	183	3.35	181	4.79	746	73.70	42
2017	185	3.55	183	3.95	622	0.00	18
2018	187	3.75	185	3.70	589	0.00	0
					Five-Year Average	39.91	14

National loan rate equals: 1.95   Reference price equals: 3.70

2015 ARC and PLC payments
* A star next to the yield means this is a NASS yield. The yield FSA uses in calculating 2015 payments will be close to this yield. The FSA yield likely will be below this NASS yield.
2015 MYA price currently are based on estimates. These prices will be known at the end of the marketing year (end of August for corn and soybeans).
2014 payments were reduced 6.8% for sequester. This reduction is not included for 2015 payments.

2014 ARC and PLC payments:
2014 ARC-CO and PLC payments are estimated on a per base acre basis. Payments are adjusted to account for the fact that payments are made on 85% of base acres.
2014 payments are adjusted for a 6.8% sequester. The 2014 payment is multiplied by .932 (1 - .068).
NaN for 2014 yields mean that Farm Service Agency has not released county yield data.

[1] Market year average price which is a national price for a marketing year.

[2] Equals Olympic average of five-previous yields. Olympic averages eliminate high and low observations.

[3] Equals Olympic average of five-previous prices, price can not be less than reference price.

[4] Equals benchmark yield x benchmark price x .86.

[5] Equals .85 x minimum of (ARC guarantee - county yield x MYA price) or (10% of benchmark yield x benchmark price), when county revenue is less than ARC guarantee, zero otherwise.

[6] Equals (reference price - higher of MYA price or national loan rate) x PLC payment yield x .85.

fdd

At trend yields and a $3.35 price, most counties in the U.S. would receive ARC-CO payments (see Figure 2). ARC-CO payments from $40 to $80 per base acre would predominate across the United States. All counties use the same market year average prices in the revenue calculations, but county yields will vary from there historical averages. As a result of this variation, ARC-CO will vary across counties.

Figure 2. Projected 2016 ARC-CO Payments for Corn ($3.35 MYA Price and County Yields at Trend)

fdd

$ per acre
- 0 to 1
- 1 to 20
- 20 to 40
- 40 to 60
- 60 to 80
- 80 to 105
- No data

Note: Some counties have irrigated and non-irrigated payments. In this map, payments are reported for irrigated farmland.
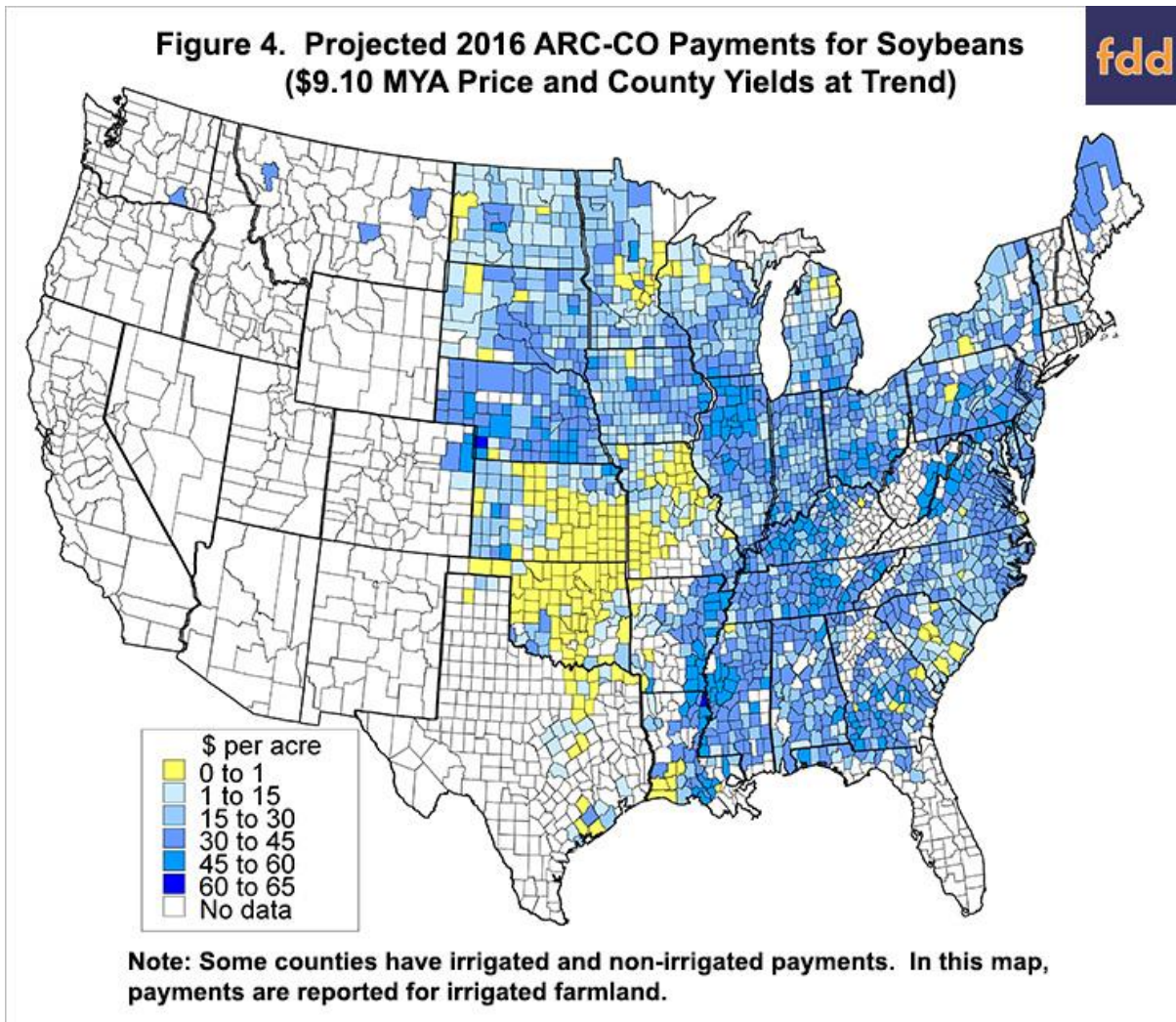
Projected 2016 ARC-CO Soybean Payments

The soybean trend yield in LaSalle County for 2016 is 57 bushels per acre. The mid-point of the WASDE soybean range is $9.10 per bushel. At those values, the 2016 estimated ARC-CO payment is $53.69 per acre (see Figure 3). At $8.35 per bushel – the low of the WASDE range – the 2016 ARC-CO payment would be $57.51. At $9.85 – the high of the WASDE range – the 2016 ARC-CO payment would be $17.36 per base acre. A $10 MYA price results in $10.09 per base acre of ARC-CO payments.

Figure 3. ARC-CO Payment Estimates from the ARC-CO PLC Payment Estimator in LaSalle County, Illinois, Soybeans

Input			Agricultural Risk Coverage (ARC) - County				Price Loss Coverage (PLC)
	County	MYA	Benchmark		ARC	ARC	
Year	Yield	Price[1]	Yield[2]	Price[3]	Guarantee[4]	Payment[5]	Payment[6]
2009	46	9.59					
2010	52	11.30					
2011	59	12.50					
2012	49	14.40					
2013	54	13.00				$/acre	$/acre
2014	60	10.10	52	12.27	549	0.00	0
2015 *	58	8.85	55	12.27	580	57.01	0
2016	57	9.10	57	11.87	582	53.69	0
2017	57	9.30	56	10.73	517	0.00	0
2018	58	9.50	57	9.50	466	0.00	0
					Five-Year Average 22.14		0
	National loan rate equals: 5.00				Reference price equals: 8.40		

2015 ARC and PLC payments

* A star next to the yield means this is a NASS yield. The yield FSA uses in calculating 2015 payments will be close to this yield. The FSA yield likely will be below this NASS yield.

2015 MYA price currently are based on estimates. These prices will be known at the end of the marketing year (end of August for corn and soybeans).

2014 payments were reduced 6.8% for sequester. This reduction is not included for 2015 payments.

2014 ARC and PLC payments:

2014 ARC-CO and PLC payments are estimated on a per base acre basis. Payments are adjusted to account for the fact that payments are made on 85% of base acres.

2014 payments are adjusted for a 6.8% sequester. The 2014 payment is multiplied by .932 (1 - .068).

NaN for 2014 yields mean that Farm Service Agency has not released county yield data.

[1] Market year average price which is a national price for a marketing year.

[2] Equals Olympic average of five-previous yields. Olympic averages eliminate high and low observations.

[3] Equals Olympic average of five-previous prices, price can not be less than reference price.

[4] Equals benchmark yield x benchmark price x .86.

[5] Equals .85 x minimum of (ARC guarantee - county yield x MYA price) or (10% of benchmark yield x benchmark price), when county revenue is less than ARC guarantee, zero otherwise.

[6] Equals (reference price - higher of MYA price or national loan rate) x PLC payment yield x .85.

fdd

At trend yields and a $9.10 MYA price, many counties in the U.S. would receive ARC-CO payments in 2016 (see Figure 4). Payments in the $30 to $60 per base acre range would predominate across the United States.

Figure 4. Projected 2016 ARC-CO Payments for Soybeans ($9.10 MYA Price and County Yields at Trend)

$ per acre
- 0 to 1
- 1 to 15
- 15 to 30
- 30 to 45
- 45 to 60
- 60 to 65
- No data

Note: Some counties have irrigated and non-irrigated payments. In this map, payments are reported for irrigated farmland.

Projected 2016 ARC-CO Wheat Payments

The wheat trend yield in LaSalle County for 2016 is 68 bushels per acre. The midpoint of the WASDE wheat ranges is $4.10 per bushel. At those values, the 2016 estimate ARC-CO payment is $39.30 per base acre (see Figure 5). The $39.30 is the maximum ARC-CO payment given an ARC county guarantee of $398 per acre. As a result, payments do not increase with lower MYA prices given that the county yield is at trend. At $4.50 per bushel – the high of the WASDE range – the 2016 ARC-CO payment still would be $39.30 per base acre, the maximum ARC-CO payment. The maximum payment would occur until the MYA price exceeds $5.16 per bushel.
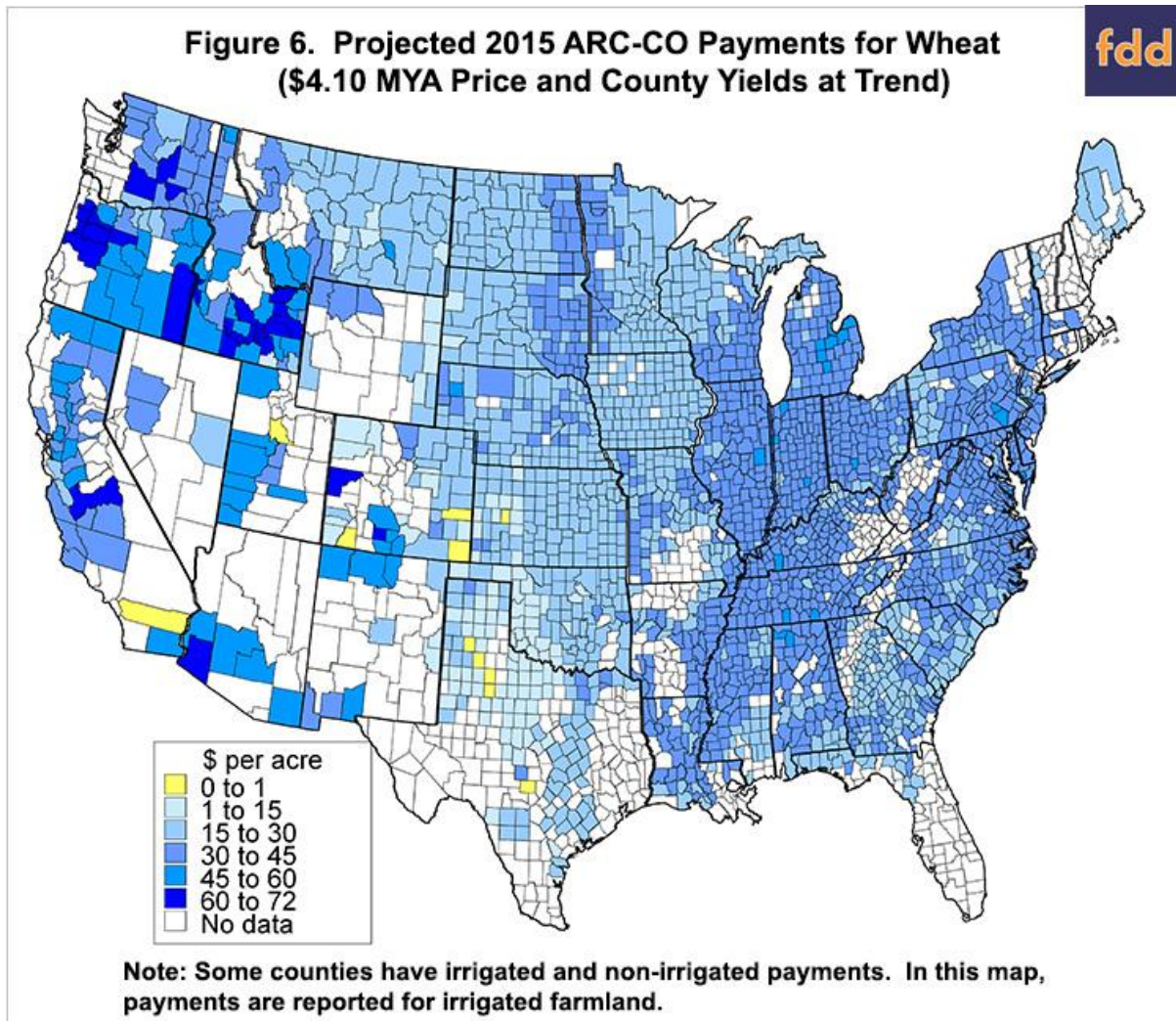
Figure 5. ARC-CO Payment Estimates from the ARC-CO PLC Payment Estimator in LaSalle County, Illinois, Wheat

Input			Agricultural Risk Coverage (ARC) - County				Price Loss Coverage (PLC)
			Benchmark		ARC	ARC	
Year	County Yield	MYA Price[1]	Yield[2]	Price[3]	Guarantee[4]	Payment[5]	Payment[6]
2009	74	4.87					
2010	57	5.70					
2011	73	7.24					
2012	80	7.77					
2013	68	6.87				$/acre	$/acre
2014	39	5.99	72	6.60	409	37.65	0
2015	67	4.90	66	6.70	380	37.59	31
2016	68	4.10	69	6.70	398	39.30	71
2017	68	4.30	68	6.12	358	35.38	61
2018	69	4.50	68	5.66	331	17.43	51
					Five-Year Average	33.47	43

National loan rate equals: 2.94   Reference price equals: 5.50

2015 ARC and PLC payments

* A star next to the yield means this is a NASS yield. The yield FSA uses in calculating 2015 payments / will be close to this yield. The FSA yield likely will be below this NASS yield.

2015 MYA price currently are based on estimates. These prices will be known at the end of the marketing year (end of August for corn and soybeans).

2014 payments were reduced 6.8% for sequester. This reduction is not included for 2015 payments.

2014 ARC and PLC payments:

2014 ARC-CO and PLC payments are estimated on a per base acre basis. Payments are adjusted to account for the fact that payments are made on 85% of base acres.

2014 payments are adjusted for a 6.8% sequester. The 2014 payment is multiplied by .932 (1 - .068).

NaN for 2014 yields mean that Farm Service Agency has not released county yield data.

[1] Market year average price which is a national price for a marketing year.

[2] Equals Olympic average of five-previous yields. Olympic averages eliminate high and low observations.

[3] Equals Olympic average of five-previous prices, price can not be less than reference price.

[4] Equals benchmark yield x benchmark price x .86.

[5] Equals .85 x minimum of (ARC guarantee - county yield x MYA price) or (10% of benchmark yield x benchmark price), when county revenue is less than ARC guarantee, zero otherwise.

[6] Equals (reference price - higher of MYA price or national loan rate) x PLC payment yield x .85.

fdd

At this point, there likely is some optimism that 2016 wheat yields will be above average. At the $4.10 mid-point price, the maximum ARC-CO price will be received until county yield is above 85 bushels per acre, 17 bushels higher than the 68 trend yield. County yield would have to be above 96 bushels per acre before an ARC-CO payment is not received at the $4.10 mid-point price.

At trend yields and a $4.10 MYA price, many counties in the U.S. would receive ARC-CO payments (see Figure 6). Payments in the $14 to $45 per base acres would be common.

Figure 6. Projected 2015 ARC-CO Payments for Wheat ($4.10 MYA Price and County Yields at Trend)

$ per acre
- 0 to 1
- 1 to 15
- 15 to 30
- 30 to 45
- 45 to 60
- 60 to 72
- No data

Note: Some counties have irrigated and non-irrigated payments. In this map, payments are reported for irrigated farmland.

Commentary and Summary

Continued decreases in prices are the main reason for the relatively high ARC-CO payment estimates. The $3.35 MYA price estimate for corn in 2016 is $.25 per bushel below the 2015 estimates of $3.60 per bushel. Higher prices will result in lower ARC-CO payments. Currently, the corn and soybean MYA prices are well below harvest-time bids for 2016 fall delivery grain. This suggests USDA is expecting price declines moving into the fall of 2016.

If payments occur, the 2016 ARC-CO payments projected in this article will be received in the fall of 2017. Much can happen between now and then. The 2016 MYA prices for corn and soybeans are determined based on average prices U.S. farmers receive from September 2016 through August 2017. Actual payment amounts will depend on the level of 2016 average county yields.

As occurred in 2014, ARC-CO payments will be impacted by county average yields. The maps shown in Figure 2, 4, and 6 suggest that payments will be relatively the same across counties. Our calculations use trend yields while actual yields will vary from trend yields even if the national yield is near trend. There will be variability in 2016 as there was in 2014 (click here for maps) and projected to be in 2015 (click here for maps). Those areas that experience higher yields relative to historical yields will receive relatively low

ARC-CO payments and some may not trigger payments if the yields lift actual revenue above the 86% guarantee. Those areas experiencing low yields relative to historical yields will receive higher payments.

Given the MYA used to generate ARC-CO payments, incomes will be very low. Negative 2016 incomes would result at these prices even considering 2016 ARC-CO payments (*farmdoc daily*, April 26, 2016). Therefore, these payments should not be viewed as eliminating the need to reduce cash flow now or through 2017. At best, these payments provide some temporary cushion as farmers continue to cut costs.

References

Schnitkey, G., N. Paulson, J. Coppess, and C. Zulauf. "2015 Estimated ARC-CO Payments." *farmdoc daily* (6):101, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, May 27, 2016.

Schnitkey, G. "2016 Net Farm Income Projections Under Different Price Scenarios." *farmdoc daily* (6):80, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, April 26, 2016.

Schnitkey, G., J. Coppess, N. Paulson, and C. Zulauf. "2014 ARC-CO Payments: Release of 2014 County Yields." *farmdoc daily* (5):209, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, November 10, 2015.