



Weekly Farm Economics: Choosing Between ARC-CO and PLC

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This article discusses four key elements to consider when choosing between Agricultural Risk Coverage at the County Level (ARC-CO) and Price Loss Coverage (PLC): 1) expected payments, 2) type of coverage, 3) payment limits, and 4) SCO availability. A detailed description of ARC-CO is available in a September 17th *farmdoc daily* article and PLC in a September 24th *farmdoc daily* article. Future articles will discuss ARC at the individual coverage level.

Commodity Title Choices

Farmers and landowners can choose between three commodity title alternatives under the 2018 Farm Bill:

1. Agricultural Risk Coverage at the County Level (ARC-CO) makes a payment when county revenue is below an ARC-CO guarantee. More detail on ARC-CO is given in a September 17th [farmdoc daily article](#).
2. Price Loss Coverage (PLC) makes a payment when the market year average (MYA) price is below the effective reference price. More detail on PLC is given in a September 24, 2019 [farmdoc daily article](#).
3. Agriculture Risk Coverage at the Individual Level (ARC-IC) makes a payment when a farm's revenue is below the ARC-IC guarantee.

In this article, we focus on the decision between ARC-CO and PLC. ARC-IC is not considered. To make an ARC-IC decision, first choosing between ARC-CO and PLC allows a more straightforward comparison to ARC-IC. Moreover, ARC-IC likely will not be chosen by many farmers and land owners. ARC-IC makes payments on 65% of base acres compared to 85% for PLC and ARC-CO. The 20% reduction in base acres cause ARC-IC to be less attractive to most situations, particularly in the Midwest. Future articles will deal with the ARC-IC decision.

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Elements of the Decision

The following points are important when considering the ARC-CO and PLC decision:

- **Decisions by FSA farm:** Commodity title decisions will be made on a Farm Service Agency (FSA) farm number basis. Decisions can differ across FSA farms.
- **Decisions by Crop:** Each FSA farm will have base acres associated with program crops. PLC and ARC-CO decisions can differ across crops. For example, a farm may have 60 base acres in corn and 40 base acres in soybeans. ARC-CO could be chosen for corn and PLC for soybeans, or vice versa. The decision can differ between the two base crops.
- **Base Acres Will Not Change:** Base acres in crops cannot be changed under the enrollment options offered by the 2018 Farm Bill (no updates or reallocations). The current base acres assigned to a farm will exist throughout the life of the 2018 Farm Bill.
- **Payments on Base Acres:** ARC-CO/PLC payments will be paid on base acres, not planted acres. Plantings during a year will not influence payments.
- **Initial Decision for 2019 and 2020 Program Years:** The initial decisions will be made for the 2019 and 2020 program year. The deadline for these decisions is March 15, 2020. After that, program decisions can be made every year for the 2021, 2022, and 2023 program years.
- **Yields and Prices on FSA Farms Do Not Matter:** Only county yields and MYA prices influence ARC-CO payments. Only MYA prices influence PLC payments.
- **Payment Limits:** There is a \$125,000 limit per payment entity on payments from the commodity title. This is a yearly limit and applies to all payments from the programs (ARC and PLC) but not to those from the marketing assistance loan program.

Considerations in the PLC/ARC-CO Choice

Four considerations are important when making the choices between PLC and ARC-CO (see Table 1).

Characteristic	ARC-CO	PLC
Expected Return (See <i>Gardner Program Payment Calculator</i> for Estimates)		
Coverage Type	County Revenue Coverage: Payments occur when county revenue is below a baseline	National Price Coverage: Payments occur when MYA price is below effective reference price
Cap on Payments	ARC-CO has a limit of 10% of its benchmark return	Effective reference price minus loan rate
Eligibility of SCO	Can not purchase SCO	Can purchase SCO

Expected Returns: The first is expected returns from the alternative programs. More than likely, preference will be given to the alternative with the highest expected payments. More on these expected returns will be covered in the following section.

Coverage Type: The second consideration is the coverage offered. ARC-CO provides protection for county revenue in a band from 86% of benchmark revenue to 76% of benchmark revenue. As yields enter into the calculation of revenue, ARC-CO will provide yield protection. PLC offers only price

protection. It will make payments when MYA price is below the effective reference price. Farmers seeking revenue protection likely will prefer ARC-CO while farmers seeking price protection will prefer PLC.

The distinction between yield and price protection could be important this year as many areas may have lower yields, particularly in the eastern Corn Belt. To illustrate, a corn example for Champaign County is shown in Table 2. The benchmark revenue is \$812.15 per acre (see September 17th *farmdoc daily* for derivation of benchmark revenue) and the PLC yield is 160 bushels per acre. Panel A shows ARC-CO payments for different possible prices and yields, Panel B shows PLC payments, and Panel C shows ARC-CO minus PLC payments. Note that ARC-CO payments exceed PLC payments when county yields are below 190 bushels per acre and MYA prices are at or above \$3.20 per bushel. It is quite possible that a yield and price combination could result in ARC-CO paying more than PLC this year.

Table 2. ARC-CO and PLC Payments for Corn in Champaign County, Illinois given Different County Yields and Market Year Average (MYA) Prices						
2019 County Yield	2019 Market Year Average Price					
	3.00	3.20	3.40	3.60	3.80	4.00
Panel A. ARC-CO Payments (\$812.15 Benchmark Revenue)						
	\$ per base acre					
160	81	81	81	81	81	58
165	81	81	81	81	71	38
170	81	81	81	81	52	18
175	81	81	81	68	33	0
180	81	81	81	50	14	0
185	81	81	69	32	0	0
190	81	81	52	14	0	0
195	81	74	35	0	0	0
200	81	58	18	0	0	0
Panel B. PLC Payments (\$.370 Effective Price, 160 Bushel per acre PLC Yield)						
	\$ per base acre					
160	95	68	41	14	0	0
165	95	68	41	14	0	0
170	95	68	41	14	0	0
175	95	68	41	14	0	0
180	95	68	41	14	0	0
185	95	68	41	14	0	0
190	95	68	41	14	0	0
195	95	68	41	14	0	0
200	95	68	41	14	0	0
Panel C. ARC-CO - PLC Payment						
	\$ per base acre					
160	-14	13	40	68	81	58
165	-14	13	40	68	71	38
170	-14	13	40	68	52	18
175	-14	13	40	55	33	0
180	-14	13	40	37	14	0
185	-14	13	29	19	0	0
190	-14	13	12	1	0	0
195	-14	6	-5	-14	0	0
200	-14	-10	-22	-14	0	0

Caps on Payment Rates: The payment rates for the two programs are subject to different caps or ceilings. As stated above, ARC-CO payments cannot exceed 10% of the benchmark revenue. PLC

payments are capped by the loan rate; an MYA average price below the national loan rate is replaced by the loan rate in payment calculations. When the MYA price falls below the commodity's loan rate, payments from the marketing loan assistance program would be triggered regardless of whether the farm is enrolled in ARC-CO or PLC.

Per bushel caps by crop for PLC in 2019 are:

Corn: \$1.40 per bushel (\$3.70 effective reference price - \$2.20 loan rate),

Soybeans: \$2.20 per bushel (\$8.40 effective reference price - \$6.20 loan rate), and

Wheat: \$2.12 per bushel (\$5.50 effective reference price - \$3.38 loan rate).

These caps will be illustrated for corn in Champaign County. ARC-CO benchmark revenue in 2019 is \$812.15, resulting in a cap for the ARC-CO payment rate of \$81.22 (10% of \$812.15). Since payments are received on 85% of base acres, the maximum ARC-CO payment then is \$69.03 per base acre. Average county yield in Champaign County is 160.5 bushels per acre (see Table 4 in the [September 24th article](#)). A 160.5 PLC yield results in a maximum PLC payment rate of \$191 per acre (.85 base acre factor x 160.5 PLC yield x \$1.40 maximum payment per corn bushel). In other words, ARC-CO maxes out at \$69.03 per acre while PLC does not max out until \$191 per acre. For this example, PLC payments will exceed the ARC-CO cap whenever MYA prices are below \$2.85 per bushel. Having corn prices below \$2.85 per bushel seems extremely unlikely, but it is still a possibility.

Farmers concerned about consistently low prices likely will prefer PLC for two reasons: (1) the guarantee is fixed at the statutory reference price and cannot fall below, while ARC-CO adjusts with the five-year Olympic average; and (2) the PLC payment rate cap is significantly higher than ARC-CO (\$191 per acre compared to \$69.03 per acre). One further factor not evaluated here are the statutory limits on payments. An individual is not permitted to receive more than \$125,000 in total payments (ARC and PLC) in any crop year. Given the much higher cap on PLC payments, it is possible for the payment limitation to become binding before the cap is reached. For example, it would take roughly 654 corn base acres to reach the payment limitation under a \$191 per base acre payment from PLC but approximately 1,811 of corn base acres to reach the payment limitation under the ARC-CO cap of \$69.03 per base acre. This issue, however, requires further analysis and is complicated by the provisions permitting additional payment limits for family members and the loopholes for managers of general partnerships.

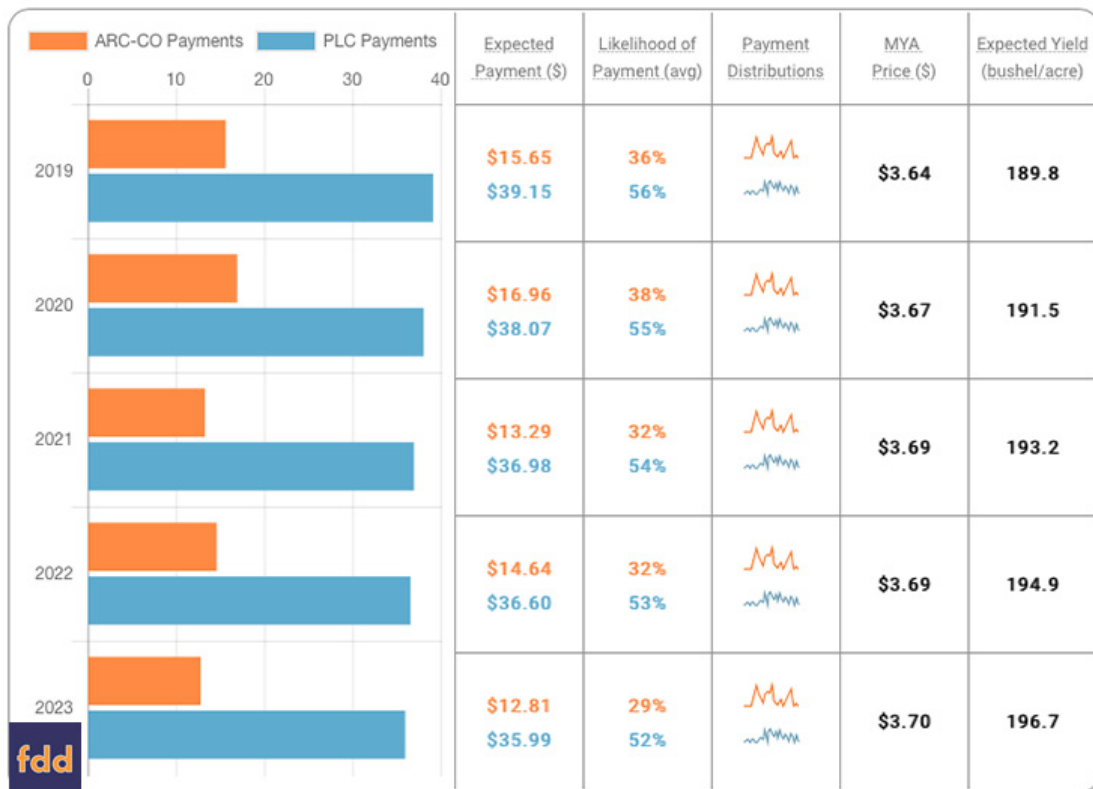
Eligibility for SCO: A final consideration is the eligibility for SCO (see [Supplemental Coverage Option for 2019](#) on *farmdoc* for a more complete description of SCO). SCO can be purchased if PLC is the commodity title choice while SCO is not available for farms enrolled in ARC-CO. Farmers wishing to purchase SCO need to choose PLC. Farmers who purchase Revenue Protection (RP) or other COMBO plans may find SCO useful, particularly if coverage levels are relatively low.

Expected Returns for PLC and ARC-CO

Many farmers and land owners likely will place a great deal of weight on expected returns for each farm program option when making decisions. The Gardner Policy Program at the University of Illinois has developed a *Gardner Program Payment Calculator* for evaluating the expected returns from the options. This payment calculator is available [here](#).

Figure 1 shows output from the payment estimator for corn in Champaign County, Illinois given a 160 bushel per acre PLC yield. Expected payments are given for ARC-CO (orange bars) and PLC (blue bars) for the years from 2019 to 2023. Farmers must lock in a farm program decision for the 2019 and 2020 years by the March 15, 2020 deadline. As a result, more focus should be given to the 2019 and 2020 results than 2021 through 2023 estimates, for which decision deadlines will be further into the future.

Figure 1. Gardner Program Payment Calculator

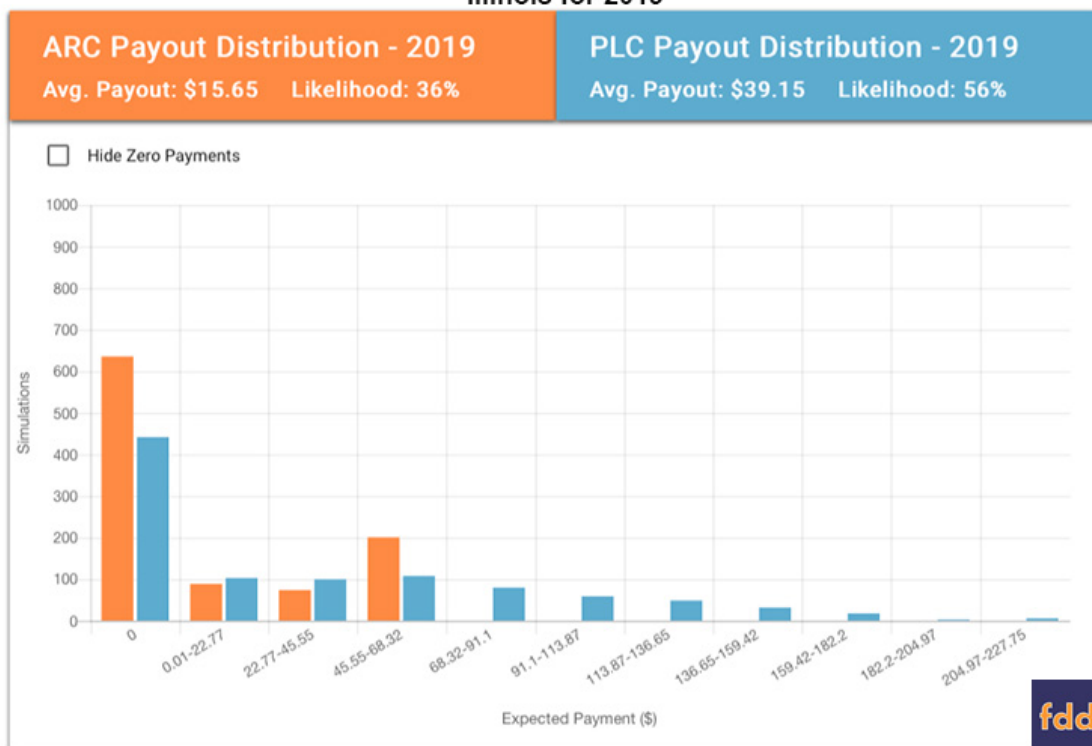


The payment calculator estimates ARC-CO and PLC payments given expectations of prices and yields. Currently, the 2019 expected MYA price for corn is estimated at \$3.64 per bushel and the expected yield for Champaign County is 189.9 bushels per acre (See Figure 1). At this point, neither the \$3.64 MYA price nor the 189.8 expected yield are known with certainty. The market year for 2019 corn and soybeans began in September and prices could vary from current expectations. Similarly, the actual yields could vary from 189.8 bushels per acre, and could quite possibly be lower. Different possible price and yield scenarios are considered in the model through the simulation of 1,000 possible outcomes based on historical changes in prices and yields. The expected payments shown in Figure 1 are averages of those 1,000 simulations.

For 2019, ARC-CO has an expected payment of \$15.65 per acre while PLC has an expected payment of \$39.15 per acre (see Figure 1). Based on our model, ARC-CO has a 36% chance of making a payment while PLC has a 56% chance of making a payment. Again, those estimates are based on an expected price of \$3.64 per bushel and an expected yield of 189.8 bushels per acre. In some sense, the ARC-CO and PLC payments shown in Figure 1 are like a weather forecast. We are giving expectations based on model projections.

In the *Gardner Payment Calculator*, the chance of different payments is given for each year by clicking on the jagged lines in the “Payment Distributions” box. Possible payments for 2019 are shown in Figure 2. Note that for ARC-CO, more than 600 out of the 1,000 simulated cases have zero payment, corresponding to the 64% likelihood of no payments under ARC-CO. Note also that PLC has some chance of higher payments while ARC-CO is cut off at roughly \$68 per acre. This occurs because of the ARC-CO payment limit of 10% of benchmark revenue while PLC has a much higher limit. PLC payments over \$68 per acre are associated with low MYA prices.

Figure 2. Payment Distributions for ARC-CO and PLC, Corn in Champaign County, Illinois for 2019



Price and Yield Expectations and the ARC-CO/PLC Choice

Given current benchmark prices for ARC-CO, PLC’s expected payments will increase relative to ARC-CO as the expectations of MYA prices declines, particularly if MYA price expectations (see Table 1). PLC will make payments when MYA prices are below 2020 Effective reference prices:

Corn: \$3.70 per bushel,

Soybeans: \$8.40 per bushel, and

Wheat: \$5.50 per bushel (see Table 1 of *farmdoc daily*, [September 24, 2019](#) for a complete list of reference prices).

At the beginning of 2019, PLC had higher expected payments than ARC-CO given price expectations at that point, particularly given the ongoing trade issues between China and the U.S. However, the 2019 growing season has been exceedingly unusual and it seems quite possible that many counties will have low yields. Low yields could trigger ARC-CO payments in many counties. Yields will come into clearer focus as harvest begins and progresses. Prices will react to yield reports. The yield and price expectations in the *Gardner Payment Calculator* will be updated as they become available. Those expectations likely will become clearer by the end of 2019.

Many farmers and land owners will place a high weight on expected returns between the alternatives when making the ARC-CO and PLC decisions. If expected returns are important, waiting to make decisions seems prudent. On the other hand, some farmers and land owners may have decided on their selection. In these cases, making elections at FSA offices can proceed.

Summary

Four considerations in choosing between ARC-CO and PLC are: 1) expected returns from the alternatives, 2) type of coverage offered by the alternatives, 3) limits on payments by the alternatives, and 4) availability of SCO. Expected returns from the alternatives will be updated as they become available. We suggest waiting to make a decision if expected return comparisons are important in decisions.

References

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