

# 2020 USDA Farm Commodity Programs: Should I choose ARC-CO or PLC?



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# Goals for Today

- Revisiting ARC & PLC Programs
  - Sign-up deadlines, background, & past performance
- Things to consider in making the choice
  - **Punchline**: looks to be PLC for this part of the world (at least for corn in Eastern NC)
- Available on-line decision tools



# Commodity Programs

- Important enrollment information:
  - Need to enroll every year

Contract Year	Enrollment Dates
2019	September 3, 2019 through March 15, 2020
2020	October 7, 2019 through June 30, 2020
2021	October 2020 through March 15, 2021
2022	October 2021 through March 15, 2022
2023	October 2022 through March 15, 2023

- One ARC vs PLC choice for 2019 & 2020, with chance to change in 2021, 2022, & 2023 – more flexibility!

# Commodity Programs

- Agricultural Risk Coverage (ARC) and Price Loss Coverage (PLC) programs were re-authorized under the 2018 Farm Bill
  - ARC offers revenue protection
    - ARC-CO makes a payment on 85% of base acres when county revenue falls below the county revenue guarantee
    - ARC-I makes a payment on 65% of base acres when individual farm revenue falls below the individual revenue guarantee
  - PLC offers price protection
    - PLC makes a payment when effective price is below reference price

# Price Loss Coverage (PLC)

- Payments made when **Effective Price** falls below the **Reference Price**
  - Effective Price is the higher of **National Marketing Year Ave. Price (NMYAP)** or **Marketing Loan Rate (MLR)**

Commodity	Reference Price	Unit of Measure
Wheat	\$5.50	bushel
Corn	\$3.70	bushel
Grain Sorghum	\$3.95	bushel
Barley	\$4.95	bushel
Oats	\$2.40	bushel
Long Grain Rice	\$14.00	hundredweight
Medium Grain Rice	\$14.00	hundredweight
Soybeans	\$8.40	bushel
Other Oilseeds	\$20.14	hundredweight
Peanuts	\$535.00	ton
Dry Peas	\$11.00	hundredweight
Lentils	\$19.97	hundredweight
Small Chickpeas	\$19.04	hundredweight
Large Chickpeas	\$21.54	hundredweight
Seed Cotton	\$0.367	pound

# Price Loss Coverage (PLC)

- Recall:
  - $\text{PLC Payment} = 0.85 \times \text{Base Acres} \times \text{Payment Yield} \times \text{PLC Payment Rate}$ 
    - where:
      - $\text{PLC Payment Rate} = [\text{Ref. Price} - \text{NMYAP/MLR}]$
      - Base Acres = average acres of each program crop historically grown on a farm at first enrollment years ago
      - $\text{Payment Yield}$  = Historical average yield for program crops grown on an FSA farm
  - If choose PLC, **can** purchase SCO “shallow loss” crop insurance

# PLC Changes in 2018 Farm Bill

- PLC reference prices allowed to “float” up to 115% of reference price if Olympic average of the last 5-year NMYAPs is above PLC ref. price
  - But with low commodity prices, “float” prices will likely not become effective over the life of the bill
- Allowed for updates on Payment Yields based on 2013-2017 average

Crop	Ref. Price	Max “Float” price
Corn	\$3.70/bu	\$4.26/bu
Soybeans	\$8.40/bu	\$9.66/bu
Wheat	\$5.50/bu	\$6.33/bu
Sorghum	\$3.95/bu	\$4.54/bu
Peanuts	\$535/ton	\$615/ton
Seed Cotton	\$0.367/lb	\$0.422/lb



# ARC-CO Program

- Recall ARC-CO program:
  - Payments when **Actual County Revenue** < **County ARC Revenue Guarantee (CARG)**
  - Where:
    - **CARG** = 86% x **County Benchmark** (i.e., a revenue benchmark)
    - **County Benchmark** = 5-yr Olympic Ave. County Yield x 5-year Olympic Ave. NMYAP (i.e., like county average revenue)
    - **Actual County Rev.** = Actual County Yield x NMYAP
    - **ARC Payment Rate** = CARG – Actual County Rev
      - (up to 10% of county benchmark – “cap on ARC payment rate”)
    - **ARC Payment** = 85% x Base Acres x **ARC Payment Rate**



# ARC-CO Program

- County ARC varies by county, PLC does not
- Not eligible for SCO
- Main idea: like county-level revenue insurance (e.g., ARPI), with an 86% coverage level
- Difference from Crop Insurance:
  - Uses 5-Year Olympic Average prices and county yields to determine guarantee
  - Uses national marketing year average price as the actual price

# ARC-CO Changes in Farm Bill

- Upgrades in calculating **County Benchmark**
  - Low county yields for calculating Olympic average can be replaced by **80% of county T-yield** (instead of 75% in 2014 Farm Bill)
  - Use of **trend-adjustment factors** in benchmark and actual county yield calculations
  - PLC reference prices as min for calculating Olympic ave. prices
- These upgrades generally suggest an **increase** in ARC revenue guarantee
  - Increase likelihood of ARC payments

# ARC-CO Changes in Farm Bill

- ARC-CO payments based on **physical location** of the farm, not the **administrative county**
- Will offer ARC-CO for **irrigated vs dryland** practice
- FSA required to use RMA crop insurance data as main source of yield data (instead of NASS)
- **No payments** for base acres not planted to program crops in last decade
  - For example, those planted to grasses or pasture

# Participation in NC

- Should I choose ARC-CO, ARC-I, or PLC?
- Historical participation in NC:

Crop	% Farms Electing PLC	% Farms Electing ARC-CO	% Farms Electing ARC-I
Corn	4%	96%	0%
Soybeans	3%	97%	0%
Wheat	17%	83%	0%
Sorghum	12%	88%	0%
Peanuts	99%	1%	0%

Source: USDA FSA data

# Historical Payments

- Corn, Camden County (assume PLC Payment Yield = 180 bu/ac)

Year	PLC Revenue Payment Rate (Payment Yield x PLC Payment Rate) in \$/acre	ARC-CO Payment Rate (CARG- Actual Cty Rev or cap) in \$/acre
2014	0	61.60
2015	16.2	86.76
2016	61.2	43.90
2017	61.2	0
2018	16.2	0
2019P	0	0

# Historical Payments: PLC

- Corn, Camden County (assume PLC Payment Yield = 180 bu/ac)

Year	Ref. Price	Effec. Price (NMYP/MLR)	PLC Payment Rate (\$/bu)	PLC Rev. Pay. Rate (Pay. Yld. x Pay Rate) (\$/ac)
2014	3.70	3.70	0.00	0
2015	3.70	3.61	0.09	16.2
2016	3.70	3.36	0.34	61.2
2017	3.70	3.36	0.34	61.2
2018	3.70	3.61	0.09	16.2
2019P	3.70	3.85	0.00	0.00

# Historical Payments: ARC-CO

- Corn, Camden County

Year	Bench Price	Bench Yld.	Bench Rev.	CARG	Act. Price	Act. Yield	Act. Rev.	Calc. Pay. Rate	Final Pay. Rate
2014	5.29	164	867.56	746.10	3.70	145	684.5	61.60	61.60
2015	5.29	164	867.56	746.10	3.61	142	512.62	233.48	86.76
2016	4.79	164	785.56	675.58	3.36	188	631.68	43.90	43.90
2017	3.95	177	699.15	601.27	3.36	183	614.88	0	0
2018	3.70	185	684.50	588.67	3.61	168	606.48	0	0
2019P	3.70	195	721.5	620.49	3.85	180	693	0	0



# 2019 PLC Scenarios

- Corn, Camden County

- Assume: PLC Payment Yield = 180 bu/ac; Effective Price = \$3.70

2019 County Yld (bu/ac)	----- Assumed 2019 NMYAP Prices -----					
	\$3.00/bu	\$3.20/bu	\$3.40/bu	\$3.60/bu	\$3.80/bu	\$4.00/bu
140	126	90	54	18	0	0
150	126	90	54	18	0	0
160	126	90	54	18	0	0
170	126	90	54	18	0	0
180	126	90	54	18	0	0
190	126	90	54	18	0	0
200	126	90	54	18	0	0

# 2019 ARC-CO Scenarios

- Corn, Camden County

– Assume: Benchmark Rev = \$720.65 bu/ac; Effective Price = \$3.70

2019 County Yld (bu/ac)	----- Assumed 2019 NMYAP Prices -----					
	\$3.00/bu	\$3.20/bu	\$3.40/bu	\$3.60/bu	\$3.80/bu	\$4.00/bu
140	72.06	72.06	72.06	72.06	72.06	59.76
150	72.06	72.06	72.06	72.06	49.76	19.76
160	72.06	72.06	72.06	43.76	11.76	0
170	72.06	72.06	41.76	7.76	0	0
180	72.06	43.76	7.76	0	0	0
190	49.76	11.76	0	0	0	0
200	19.76	0	0	0	0	0

# 2019 Differences (ARC – PLC)

- Corn, Camden County

2019 County Yld (bu/ac)	----- Assumed 2019 NMYAP Prices -----					
	\$3.00/bu	\$3.20/bu	\$3.40/bu	\$3.60/bu	\$3.80/bu	\$4.00/bu
140	-53.94	-17.94	18.06	54.06	72.06	59.76
150	-53.94	-17.94	18.06	54.06	49.76	19.76
160	-53.94	-17.94	18.06	25.76	11.76	0
170	-53.94	-17.94	-12.24	-10.24	0	0
180	-53.94	-46.24	-46.24	-18.00	0	0
190	-76.24	-78.24	-54.00	-18.00	0	0
200	-106.24	-90.00	-54.00	-18.00	0	0

# Commodity Programs

- Important considerations:
  - Expected returns from ARC-CO vs PLC
    - Depends on individual expectations on prices and yields
  - Coverage preference
    - Revenue vs price protection
  - Payment caps & limits
    - ARC-CO limit at 10% of average county revenue; PLC is loan rate
    - \$125,000 payment limit on all payments from commodity programs
  - Preference for SCO “shallow loss” coverage
    - With ARC-CO, you cannot purchase SCO, but with PLC you can
  - Wait to enroll near deadline - reduce uncertainty

# Decision Tools

- Two simulation-based decision tools available:
  - U. of Illinois: <https://fd-tools.ncsa.illinois.edu/>
  - Texas A&M: <https://www.afpc.tamu.edu/tools/farm/farmbill/2018/>
- Illinois:
  - Focus on corn, soybeans, and wheat
  - 5 year payment estimates using 1000 model runs
- Texas A&M:
  - All commodity crops
  - 2 year payment estimates using 500 model runs

# Illinois Estimates

- Corn, Camden County

State

North Carolina

County

Camden

Crop

Corn

Reference Price

\$ 3.7

Forecast Model

Forecast

PLC Payment Yield \*

180

bushels/acre

ARC Trend Yield \*

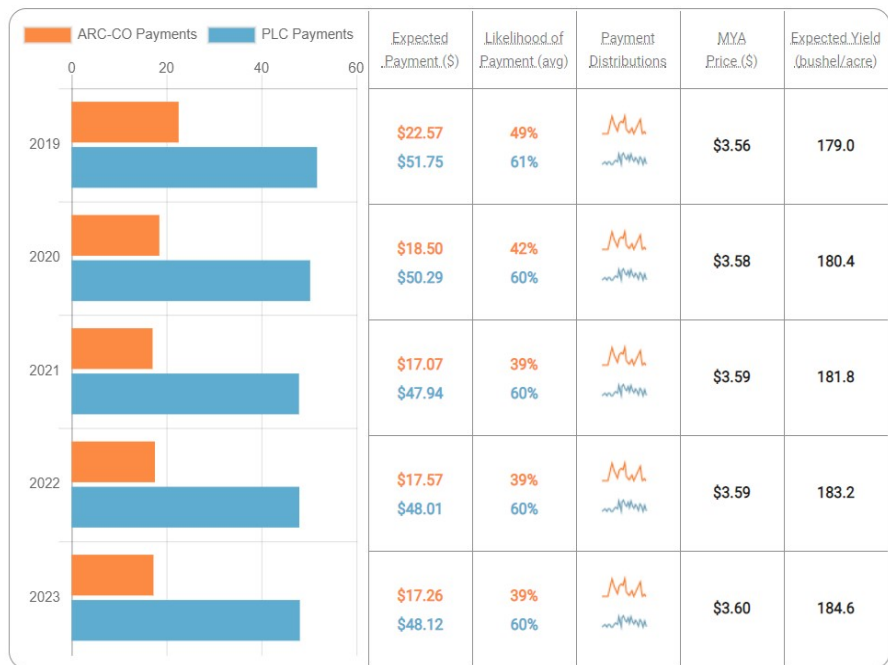
1.40

bushels/acre

ARC/PLC Program Inputs

ARC Coverage Level	86 %
ARC Coverage Range	10 %
Payment Acres	85 %

RUN MODEL



# Texas A&M Estimates

- Corn, Camden County

**FSN** 1  
**State** North Carolina  
**County** Camden  
**Crop** Corn

Base Acres

1

ac

## PLC Payment Yield

2019

180

bu/ac

2020

180

bu/ac

## Your Corn Expectations

### Your Expected Price

### Projected Prices, ⓘ

 Use These

2019

3.85

\$/bu

3.85

\$/bu

2020

3.75

\$/bu

3.75

\$/bu

☐ **Advanced Settings** (Not recommended for most users)

If you have experienced exceptional circumstances in your county or would like to customize your analysis, check here to enable additional settings.

 Recalculate

Crop	Program	2019	2020	Total
Corn	PLC	\$30	\$41	\$71
Corn	ARC	\$11	\$12	\$23



# Illinois Estimates

- Soybeans, Camden County

State  
North Carolina

County  
Camden

Crop  
Soybean

Reference Price  
\$ 8.4

Forecast Model  
Forecast

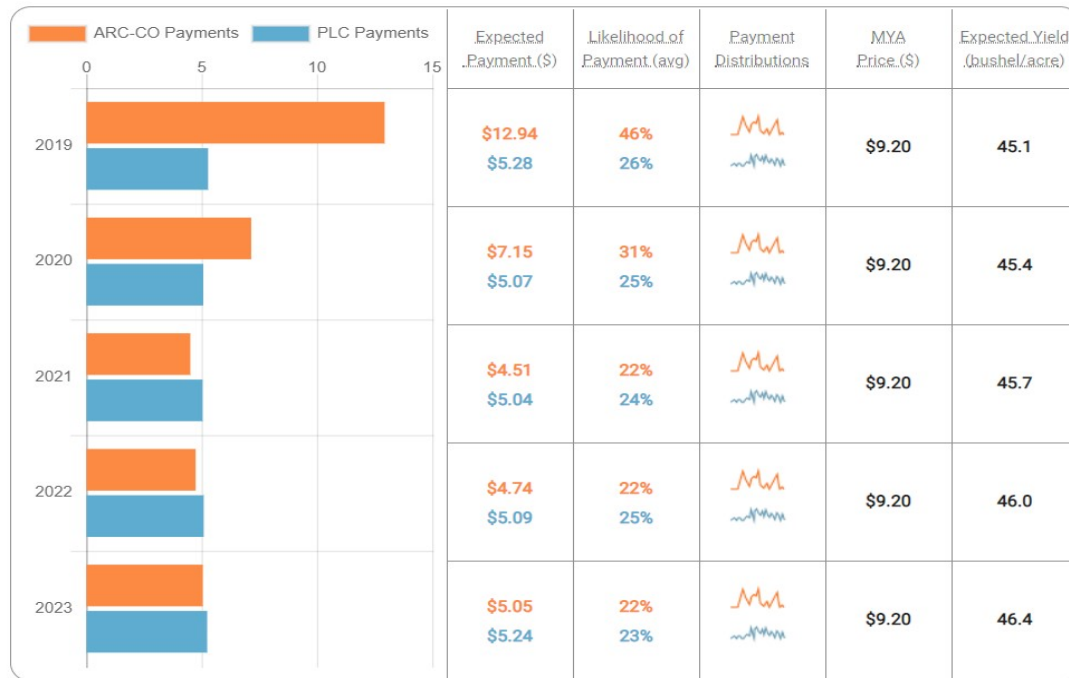
PLC Payment Yield \*  
43 bushels/acre

ARC Trend Yield \*  
0.32 bushels/acre

**ARC/PLC Program Inputs**

ARC Coverage Level	86 %
ARC Coverage Range	10 %
Payment Acres	85 %

**RUN MODEL**



# Texas A&M Estimates

- Soybeans, Camden County

**FSN** 1  
**State** North Carolina  
**County** Camden  
**Crop** Soybeans

Base Acres  ac

	PLC Payment Yield	
2019	<input type="text" value="43"/>	bu/ac
2020	<input type="text" value="43"/>	bu/ac

Your Soybeans Expectations

	Your Expected Price	Projected Prices	Use These
2019	<input type="text" value="8.85"/>	\$/bu	<input type="text" value="8.85"/> \$/bu
2020	<input type="text" value="9.03"/>	\$/bu	<input type="text" value="9.03"/> \$/bu

☐ **Advanced Settings** (Not recommended for most users)

If you have experienced exceptional circumstances in your county or would like to customize your analysis, check here to enable additional settings.

Recalculate				
Crop	Program	2019	2020	Total
Soybeans	PLC	\$15	\$14	\$30
Soybeans	ARC	\$16	\$10	\$26

# Texas A&M Estimates

- Grain Sorghum, Camden County

**FSN** 1  
**State** North Carolina  
**County** Camden  
**Crop** Grain Sorghum

Base Acres

1

ac

## PLC Payment Yield

2019

223

bu/ac

2020

223

bu/ac

## Your Grain Sorghum Expectations

### Your Expected Price

2019

3.40

\$/bu

2020

3.52

\$/bu

### Projected Prices ⓘ

Use These

3.40

\$/bu

3.52

\$/bu

☐ **Advanced Settings** (Not recommended for most users)

If you have experienced exceptional circumstances in your county or would like to customize your analysis, check here to enable additional settings.

Recalculate

Crop	Program	2019	2020	Total
Grain Sorghum	PLC	\$126	\$112	\$238
Grain Sorghum	ARC	\$.1	\$.3	\$4

# Decision Tools

- Two simulation-based decision tools available:
  - U. of Illinois: <https://fd-tools.ncsa.illinois.edu/>
  - Texas A&M: <https://www.afpc.tamu.edu/tools/farm/farmbill/2018/>

# Take Home Messages

- Take note of sign-up deadlines
  - March 15, 2020
    - Choice will apply for 2019 & 2020
  - Can change choice in 2021, 2022, 2023
- Choice between ARC-CO & PLC largely depends on yield and price expectations
  - Most analysis point to PLC for most commodities
    - But for corn & soybeans, price projections still above reference price at the moment -- may result in zero PLC & ARC-CO payments (if ave. or higher county yields)
    - ARC-CO will pay only with low yields



# Thank you!

- **Questions?**

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- **Websites:**

- **Agricultural Policy and Farm Bill Extension Website at NC Dept. of Ag. & Resource Economics:**

- <https://cals.ncsu.edu/are-extension/policy-and-regulation/agricultural-policy-and-farm-bill/>

- **FSA website:**

- [https://www.fsa.usda.gov/programs-and-services/arcplc\\_program/index](https://www.fsa.usda.gov/programs-and-services/arcplc_program/index)