WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

FARM BILL CROP SUPPORT PROGRAMS: A FARMER PERSPECTIVE – PART 1

AAE 320

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AGRICULTURAL & APPLIED ECONOMICS
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Learning Goals

- To understand how these three commodity support programs operate at the individual farm level
  - Price Loss Coverage (PLC)
  - Agricultural Risk Coverage (ARC)
  - Marketing Assistance Loans (MAL)

Part 2 (separate slides)

- Dairy Margin Coverage (DMC)
- Market Facilitation Program (MFP) (brief)
- Coronavirus Food Assistance Program (CFAP, CFAP2)

Commodity Support Programs and the USDA Farm Service Agency (FSA)

- Programs administered by the USDA Farm Service Agency (FSA)
  - PLC, ARC, MAL, (plus DMC, MFP, CFAP, CFAP2)
- Each county has a county FSA office
- Farmers/landowners sign up each year: file specific forms for each program by specific dates
- Programs often have reporting requirements: acres of each crop planted, where planted, production (yield) reports

Eligibility for Commodity Support

- Farmer must operate Base Acres to be eligible for PLC/ARC (commodity support) subsidies
  - Do not need Base Acres for MAL or DMC (or MFP or CFAP)
- Officially designated by FSA Farm Serial Number
  - Farms often farm more than one FSA farm
  - Registered with FSA office in each county
  - Stays with the land, not the farmer
- Each FSA farm has Base Acres for each Program Crop with Program Yields used for PLC
  - “40 corn base acres with a 130 bu/ac yield”

Base Acres

- Average acres of each program crop historically grown on a “farm” at first enrollment in early 1980s
  - “50 base acres of corn and 30 base acres of soybean”
- Have not added Base Acres since early 1980s, but have allowed changing the mix of crops based on historical shares of crops planted on that FSA farm
  - Crops update in 2003 using 1998-2001 averages
  - Crops updated in 2014 using 2009-2012 averages
- Base Acres do not necessarily equal what is actually planted now
- Payments are “Decoupled” – not tied to how many acres and which crops are planted now, but to historical plantings

Payment Yield (or Program Yield or PLC Yield)

- Historical average yield for program crops grown on an FSA farm
  - Updated in 2014: 90% of 2008-2012 average
  - Previous update in 2003 using 1997-2001 yields
  - Next update in 2020 (based on 2018 Farm Bill)
- Payment Yields lower than farm's average yields
- Final outcome for each FSA farm: Base Acres for each Program Crop and associated Payment Yield
  - **Example: a 100 acre FSA farm has 50 corn base acres with a 155 bu/ac payment yield and 25 soybean base acres with a 38 bu/ac payment yield**

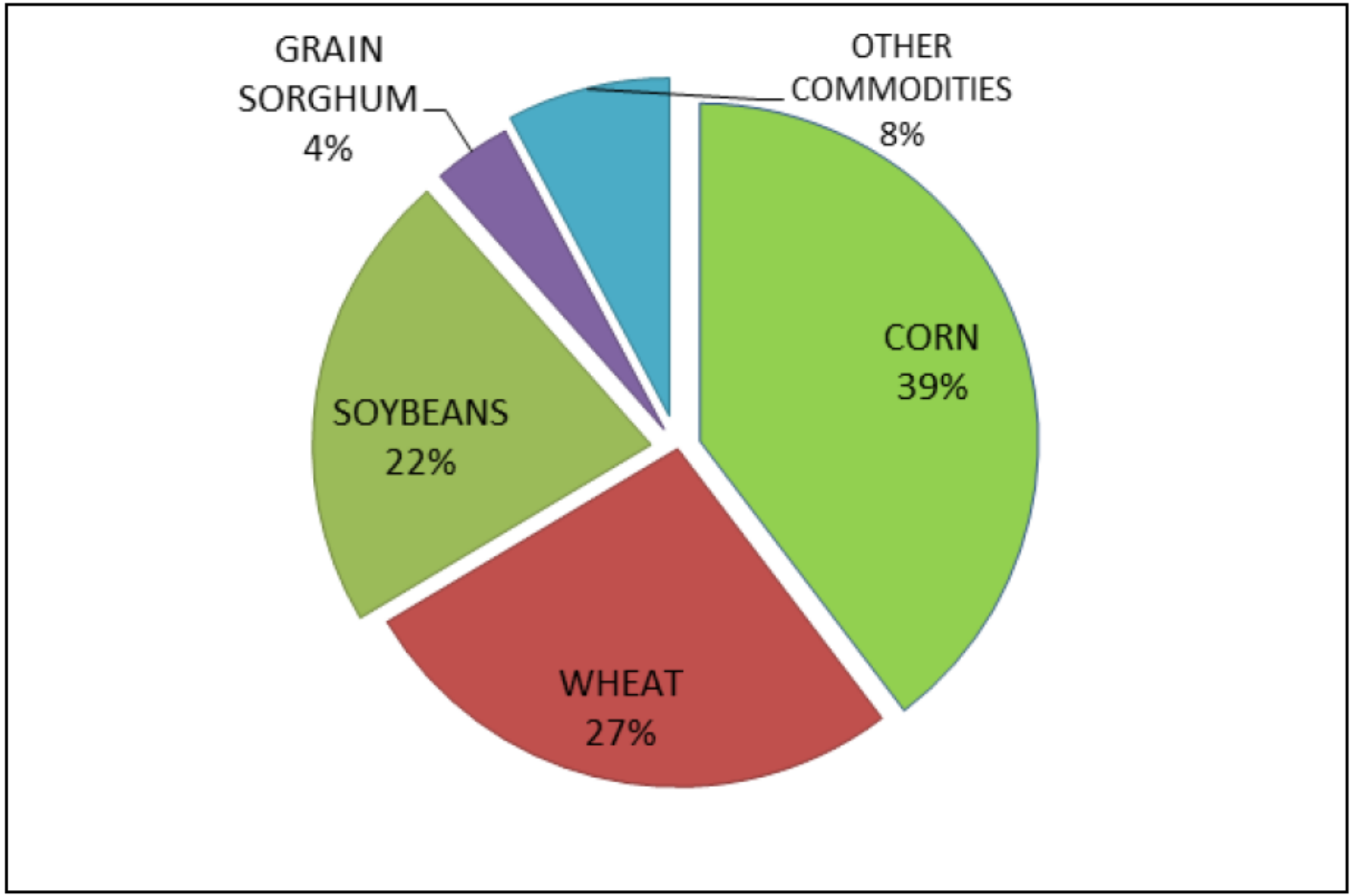
Base Acres and Payment Yields

- Over the years, Farm Bill commodity support has used Base Acres and Payment Yields
- The programs and acronyms have changed, but not use of Base Acres and Payment Yields
- Direct Payments (DP), Counter Cyclical Payments (CCP), ACRE (Average Crop Revenue Election) payments
- 2014 Farm Bill created ARC and PLC, again using Base Acres and Payment Yields
- Part of property characteristics now, just like soil quality, road access, and such, part of the land's price when sold

Program Crops

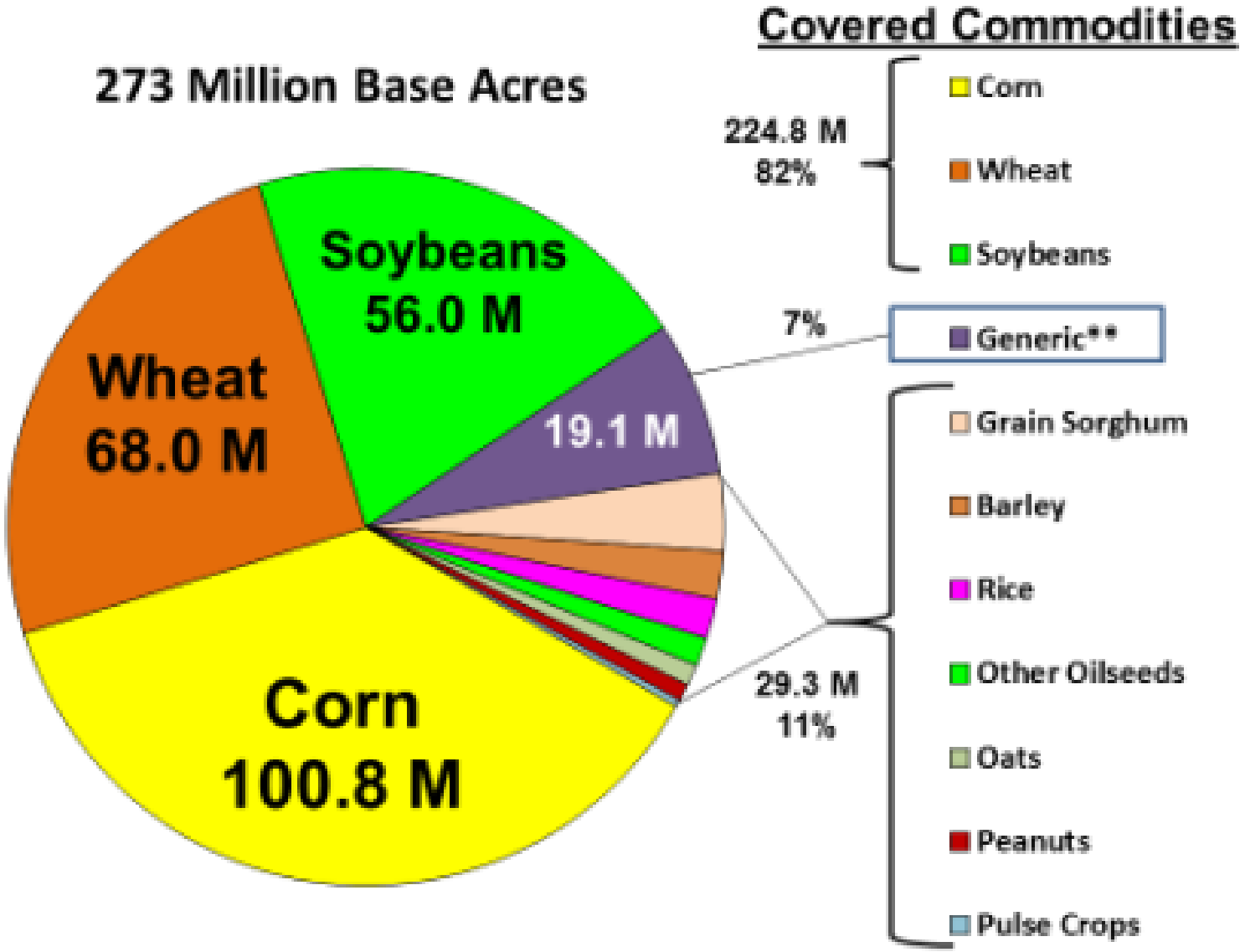
- Barley, Canola, **Corn** , Cotton, Crambe, Dry Peas, Flaxseed, Grain Sorghum, Chick Peas (Large and Small), Lentils, Mustard Seed, **Oats**, Peanuts, Rapeseed, Rice (Long Grain and Medium/Short Grain), Safflower, Sesame Seed, **Soybeans**, Sunflower Seed, **Wheat**
- Major WI Program Crops
  - Corn, Soybeans, Oats, Wheat (Barley, Sorghum, Sunflower)
  - Corn Silage is a type of corn
- **NOT** program crops
  - Alfalfa and Hay, fruits and vegetables (Potato, Sweet Corn, Snap Beans, Green Peas, Cranberry, Ginseng)

Figure 1. Percent of Base Acres by Commodity



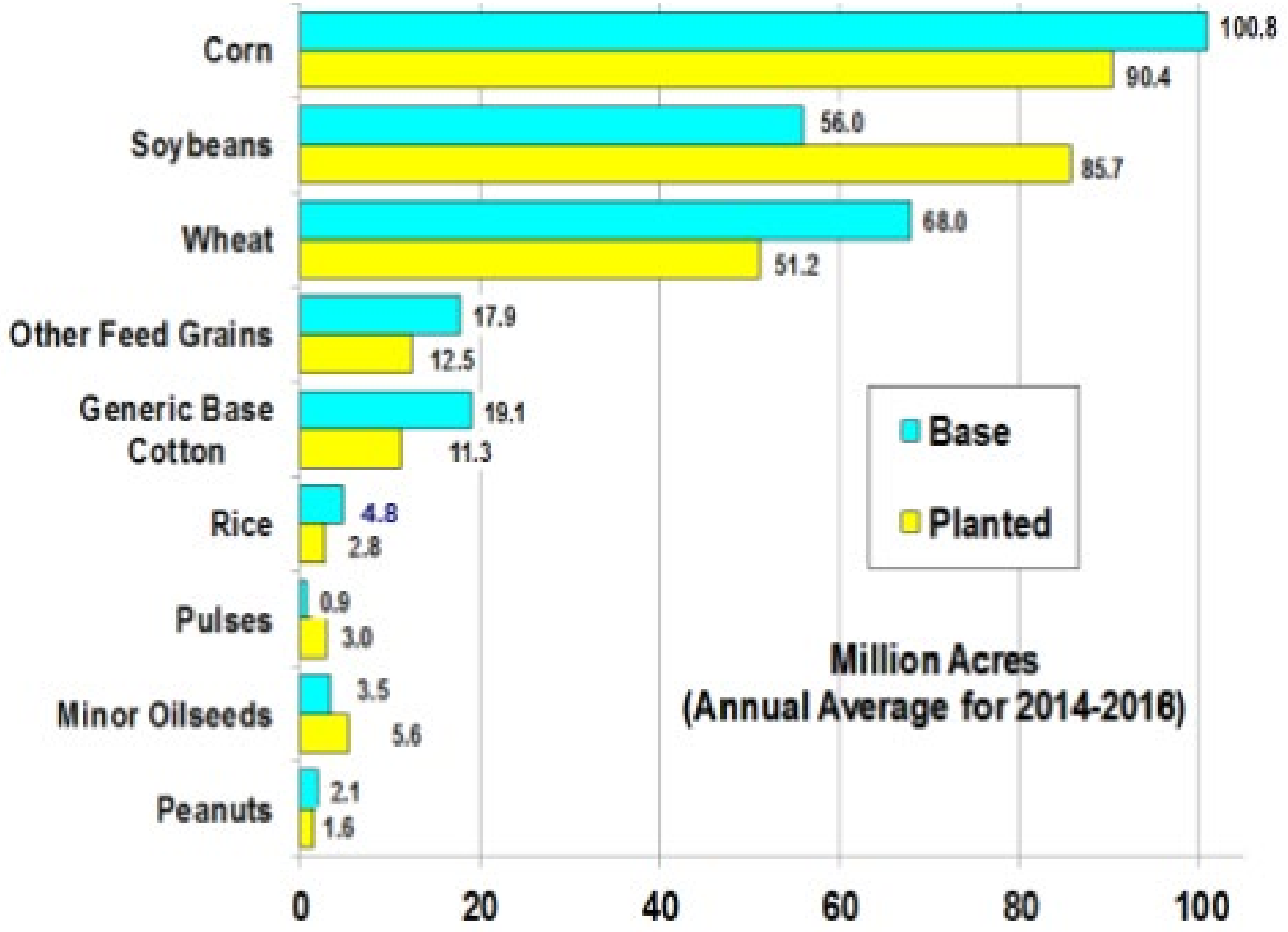
Source: https://fas.org/sgp/crs/misc/R45165.pdf

Base Acres in 2015



https://www.everycrsreport.com/reports/R45730.html

Base Acres vs Planted Acres, 2014-2018



https://www.everycrsreport.com/reports/R45730.html

Commodity Support Programs in 2018 Farm Bill

- Price Loss Coverage (PLC)
  - Establishes a price floor by crop based on the national marketing year average price
- Agriculture Risk Coverage (ARC)
  - County ARC: Establishes a revenue floor by crop based on county revenue
  - Individual ARC: Establishes a revenue floor for whole farm based on farm yields and national prices

Commodity Support Programs in 2018 Farm Bill

- Farmers have 3 Options
    1) Price Loss Coverage (PLC) by crop
    2) County ARC (ARC-CO) by crop
    3) Individual ARC (ARC-IC) for whole farm
- Our Focus: PLC and County ARC (ARC-CO)

  [ARC-IC less used and fairly complicated]
- ARC/PLC sign up happening right now for the 2021 crop, deadline is March 15, 2021
- Farmers & land owners choosing which program to use for 2021 season crop payments

Price Loss Coverage (PLC)

- Each program crop has a set “Reference Price”
  - Corn $3.70, Soybeans $8.40, Wheat $5.50, Oats $2.40
- If the National Marketing Year Average Price is less than the Reference Price, PLC payments are made
  - PLC PaymentRate = ReferencePrice – MYAPrice
  - PLC Payment = 85% x BaseAcres x PaymentYield x PLC PaymentRate
- Corn/Soy marketing year: Sept 1 - Aug 31
- Wheat/Oats marketing year: June 1 - May 31

Simple PLC Example

- Suppose USDA announced 2019 National Marketing Year Average Price of corn was $3.56
- The corn Reference Price is $3.70, so PLC Payment Rate = $3.70 – $3.56 = $0.14/bu
- If you have 100 corn Base Acres with a Payment Yield of 140 bu/ac, then your PLC payment would be
- 85% x 100 ac x 140 bu/ac x $0.14/bu = $1,666
- USDA Announces MYA prices in Sep, payments Oct

Crop	2014	2015	2016	2017	2018	2019
Corn	$3.70	**$3.61**	**$3.36**	**$3.36**	**$3.61**	**$3.56**
Soybean	$10.10	$8.95	$9.47	$9.33	$8.48	$8.57

Think Break #12

- You have a farm with
  a) 30 corn base acres with a 130 bu/ac payment rate
  b) 20 soybean base acres with a 30 bu/ac payment rate
- You signed up for PLC and the national marketing year average price is $3.55 for corn and $8.50 for soybeans
- **What is your PLC payment?**

- Reference Prices: Corn = $3.70, Soybeans = $8.40
- PLC PaymentRate = ReferencePrice – MYAPrice
- PLC Payment = 85% x BaseAcres x PaymentYield x PLC PaymentRate

Think Break #12 Answer

- Corn PLC Payment Rate = 3.70 – 3.55 = 0.15
- Soybean PLC Payment Rate = 8.40 – 8.50 = -0.10
  - < 0, so no PLC payment for Soybeans
- PLC Payment = 85% x BaseAcres x PaymentYield x PLC PaymentRate
- = 85% x 30 x 130 x 0.15 = $497.25

PLC Comment: Decoupling

- Notice: PLC payments based on national marketing year average price, base acres, payments yields
- Not on the actual prices you sell crops for, your actual acres planted or yields
- Farmer could sell corn for $4.00/bu, but would still get a corn PLC payment using the national price of $3.55/bu
- Farmer could sell corn for $3.00/bu, but would still get a corn PLC payment using the national price of $3.55/bu
- Farmer could harvest 200 bu/ac (or 100 bu/ac), but would still get PLC payment using 130 bu/ac Payment Yield
- Farmer could plant 50 acres (or 10 acres) of corn, but would still get PLC payment using 30 corn Base Acres
- Payments are decoupled to reduce market distortions

2018 Farm Bill Changes

- PLC first started with the 2014 Farm Bill, small changes for 2018 Farm Bill
- “Effective” Reference Price used to calculate payments, not Reference Price
- “Effective” Reference Price can go higher, based on historical average prices
- Use 85% of the 5-year Olympic average of marketing year average price, but with a floor and cap
  - Floor: current Reference Price
  - Cap: 115% of Reference Price
- Olympic Average: drop the high and the low
- For “Effective” Reference Price to increase for corn and soybeans, the 5-year Olympic average has to exceed $3.70 / 85% = $4.35 for corn and $8.40 / 85% = $9.88/bu for soybeans

5-Year Olympic Average of Prices

Crop	2015	2016	2017	2018	2019
Corn	~~$3.61~~	~~$3.36~~	$3.36	$3.61	$3.56
Soybean	$8.95	~~$9.47~~	$9.33	~~$8.48~~	$8.57

- Corn: Drop $3.61 (hi) and $3.36 (lo)
  - Average ($3.36, $3.61, $3.56) = $3.51
  - 85% of $3.51 = $2.98
  - Corn Effective Reference price stays at $3.70
- Soybean: Drop $9.47 (hi) and $8.48 (lo)
  - Average ($8.95, $9.33, $8.57) = $8.95
  - 85% of $9.25 = $7.61
  - Soybean Effective Reference price stays at $8.40

Agriculture Risk Coverage (ARC)

- County ARC payments made if Actual County Revenue is less than the County Guarantee
- County Benchmark = 5-Year Olympic Average County Yield x 5-Year Olympic Average National MYA Price
  - Use Effective Reference Price if higher than MYA Price
  - Use 70% County T Yield if higher than County Yield
- County Guarantee = 86% of County Benchmark
- Actual Revenue = County Average Yield x MYA Price
- ARC Payment Rate = County Guarantee – Actual County Revenue, up to 10% of County Benchmark
- ARC Payment = 85% x Base Acres x ARC Payment Rate

Farmer Perspective

- Your county has county revenue guarantee for each crop
  - Complicated process to get county guarantee, based on 5-year Olympic averages of county yields with caps and cups and national MYA prices, times 86%
- If actual county revenue falls below this guarantee, you receive payments = 85% x Base Acres x Revenue Loss, where the Revenue Loss = Guarantee – Actual
- Actual also uses average county yield and national MYA price
- Maximum ARC payment based on % of county guarantee

Unofficial Corn 2021 Example for Dane County

Year	Yield	Price
2019	180.9	3.56
2018	188.9	3.61
2017	191.4	3.36
2016	~~192.5~~	~~3.36~~
2015	~~183.7~~	~~3.61~~

- **Notice the years used, we do not have 2020 yields yet**
- Olympic Average Yield = 187.1
- Olympic Average Price = $3.51
- ARC County Benchmark = $3.51 x 187.1 = $656.72
- ARC Guarantee = 86% x $656.72 = $564.78
- Maximum ARC Payment = 10% x $656.72 = $65.67

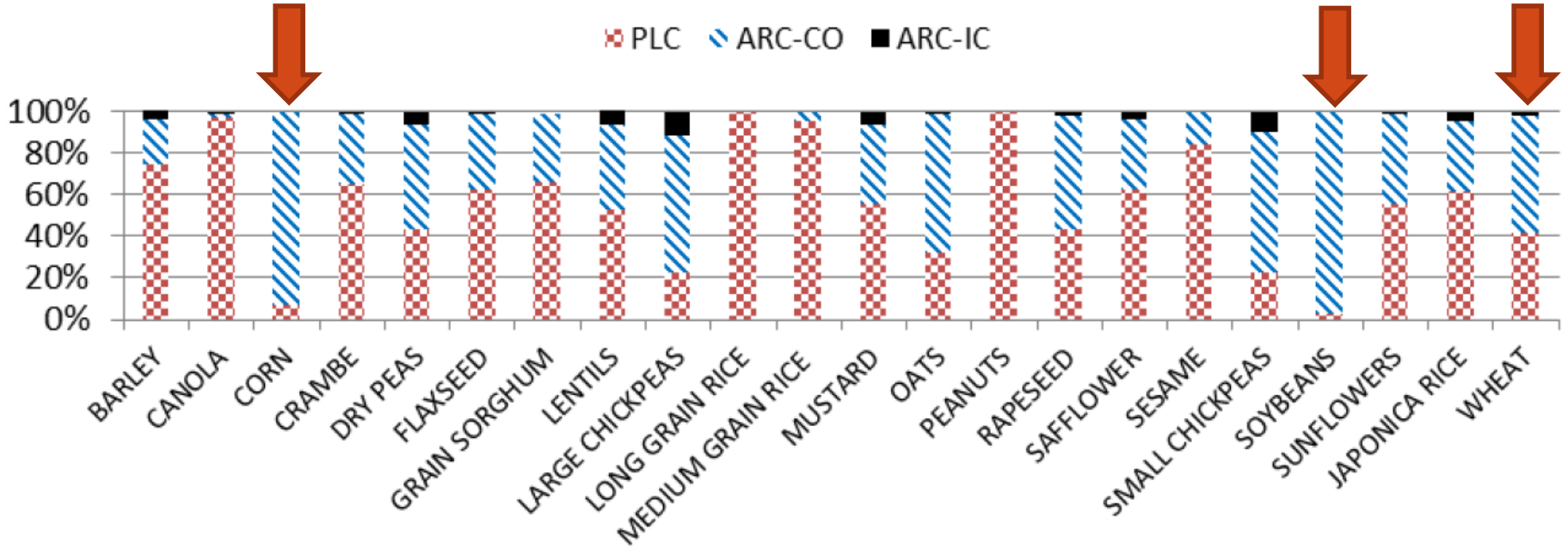
Unofficial Corn 2021 Example for Dane County

- Suppose 2020 County ARC Guarantee is $564.78 for corn in Dane County
- Suppose 2020 actual USDA yield in Dane County is 165 bu/ac and 2020 MYA corn price is $3.40
- Actual revenue = 165 x 3.40 = $561/ac, triggers payment
- ARC Payment Rate = 564.78 – 561.00 = $3.78/ac, well below max payment, so ARC Payment Rate = $3.78
- If famer has 50 corn base acres on an FSA farm, then
- ARC Payment = 85% x BaseAcres x ARC Payment Rate
- ARC Payment = 85% x 50 x $3.78 = $160.65
- Decoupled Payments: Farmer paid regardless of the price they actually sell their corn for, what their actual yields are and how many corn acres they plant

Farmers have to choose: ARC or PLC?

- 2014 Farm Bill required farms to make an irrevocable choice, ARC or PLC, by crop for 5 years (2014-2018)
  - We will look at choice and payment data
- 2018 Farm Bill: again, farmers have to choose ARC or PLC, by crop for 2 years (2019 and 2020)
- 2021, 2022, 2023: Annual choice by crop
- ARC/PLC signup for 2021 currently going on now until Mar 15, 2021
- Each crop on each FSA farm a farmer manages can differ for the same farmer: ARC for soybeans on one farm and PLC for soybean on another
- Major extension outreach (and media) efforts offering guidance on how to decide and what to decide

ARC vs PLC: 2014 Farm Bill

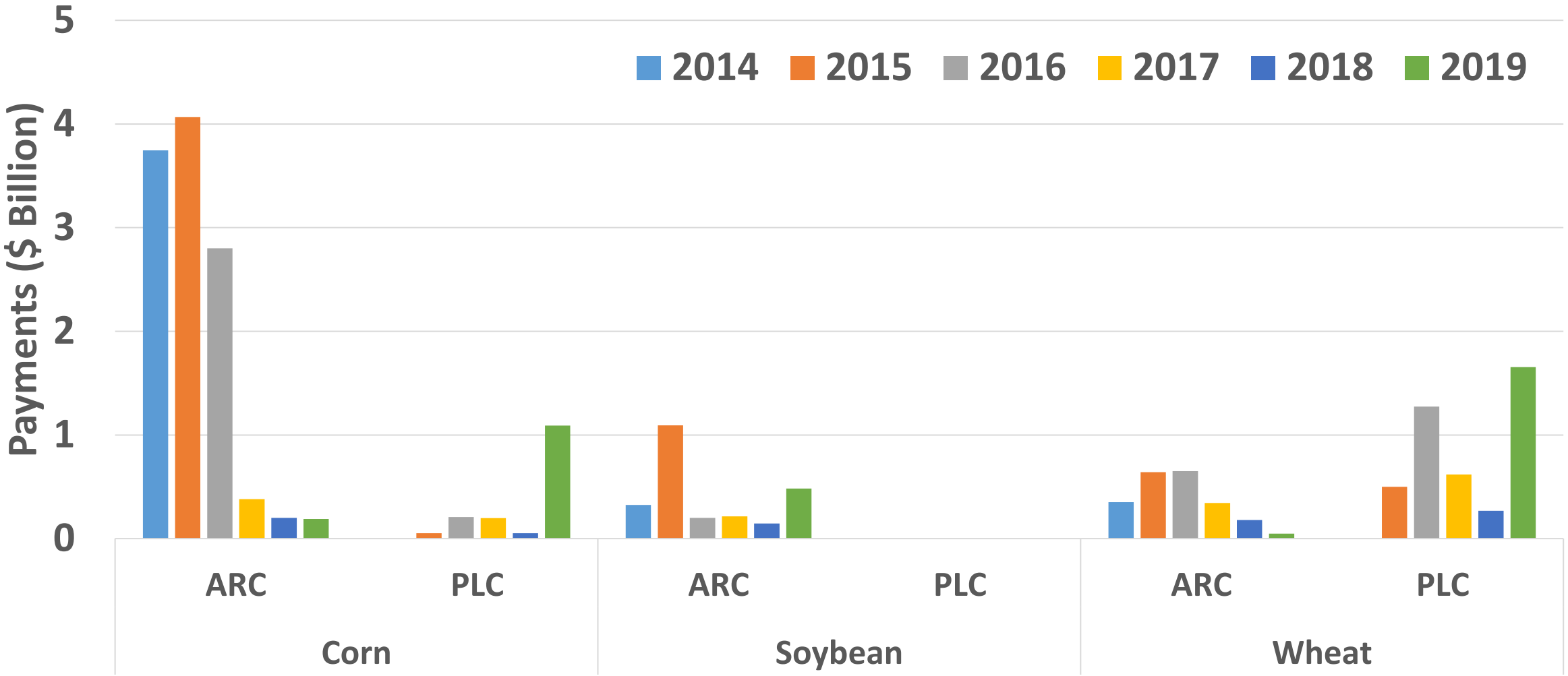


- Farmers and landowners had to choose ARC or PLC at signup in 2014
  - <u>One program for all 5 years,</u>
  - Could differ by crop, e.g., ARC for Corn, PLC for Wheat
- 95%+ farmers chose ARC for Corn and Soybean
- About 1/3 farmers chose PLC for Wheat

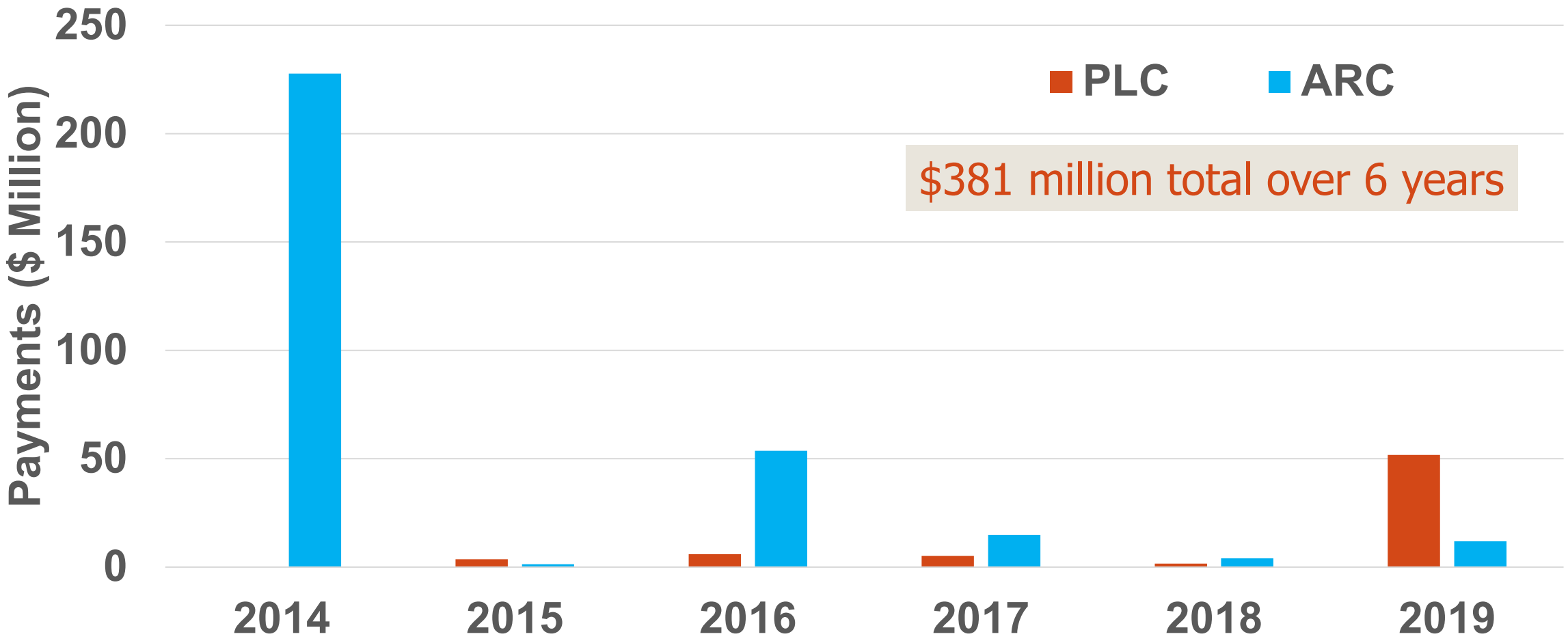
Total ARC and PLC Payments ($ Billion)

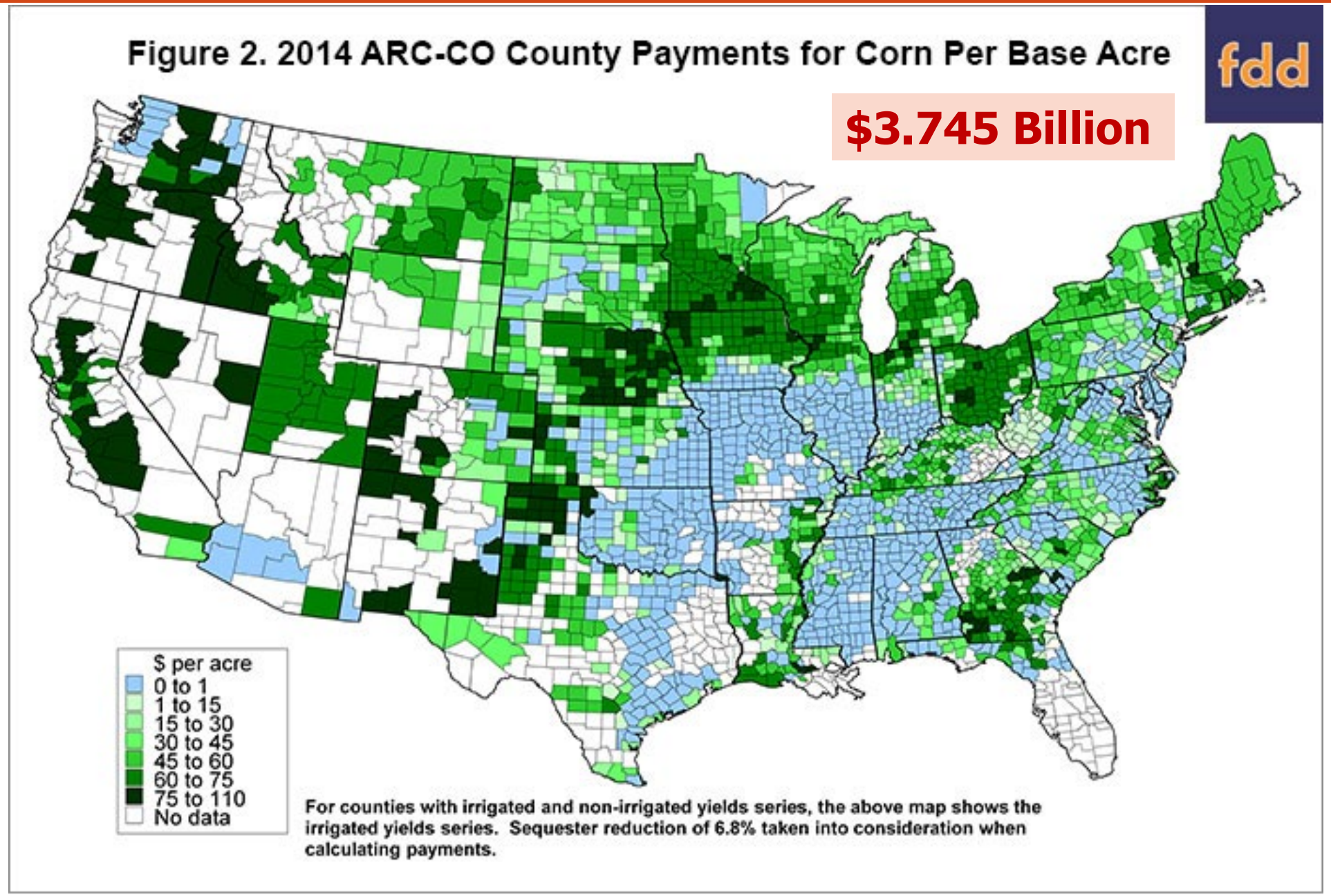
Crop Year	Year Paid	Corn		Soybean		Wheat	
		ARC	PLC	ARC	PLC	ARC	PLC
2014	2015	3.745	---	0.325	---	0.353	---
2015	2016	4.066	0.053	1.093	---	0.642	0.500
2016	2017	2.801	0.208	0.201	---	0.651	1.273
2017	2018	0.382	0.199	0.216	---	0.345	0.618
2018	2019	0.200	0.053	0.147	---	0.180	0.270
2019	2020	0.189	1.090	0.484	---	0.049	1.654

ARC and PLC Payments by Crop and Year



ARC and PLC Payments by Year in Wisconsin

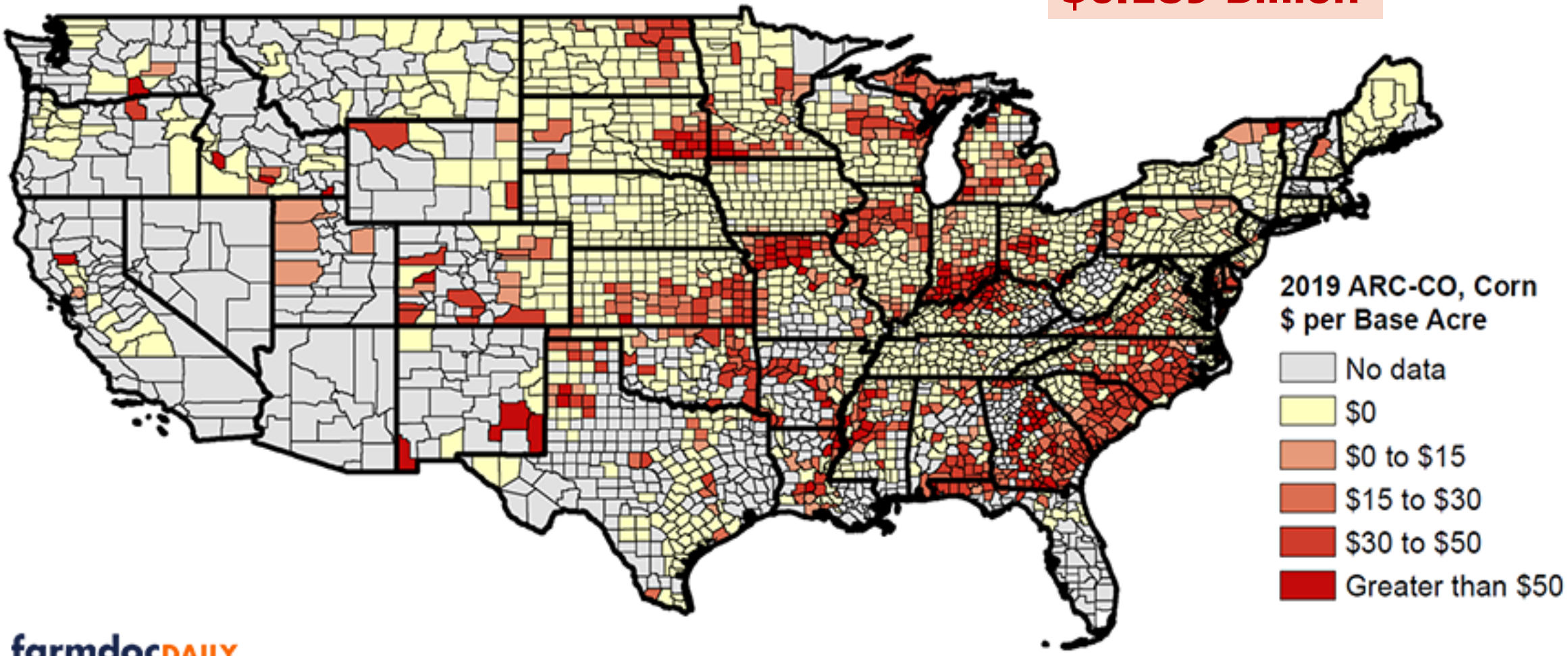




http://farmdocdaily.illinois.edu/2015/11/2014-arc-co-payments-release-county-yields.html

Figure 1. 2019 ARC-CO Payments on Corn Base Acres, US Counties

$0.189 Billion



https://farmdocdaily.illinois.edu/2020/10/2019-arc-co-payments-for-corn-and-soybeans-in-the-united-states.html

Figure 3. 2014 ARC-CO County Payments for Soybeans Per Base Acre

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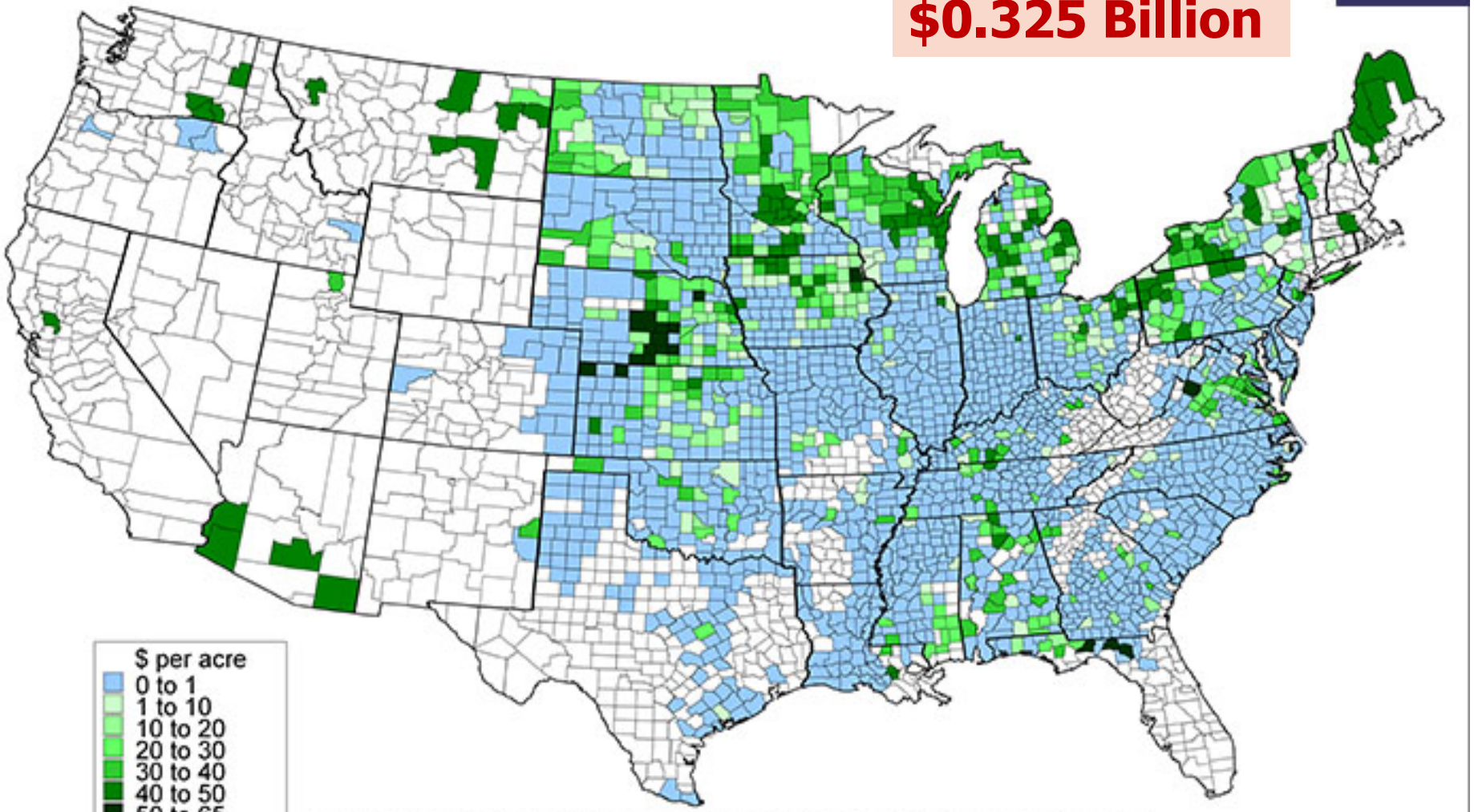
$0.325 Billion

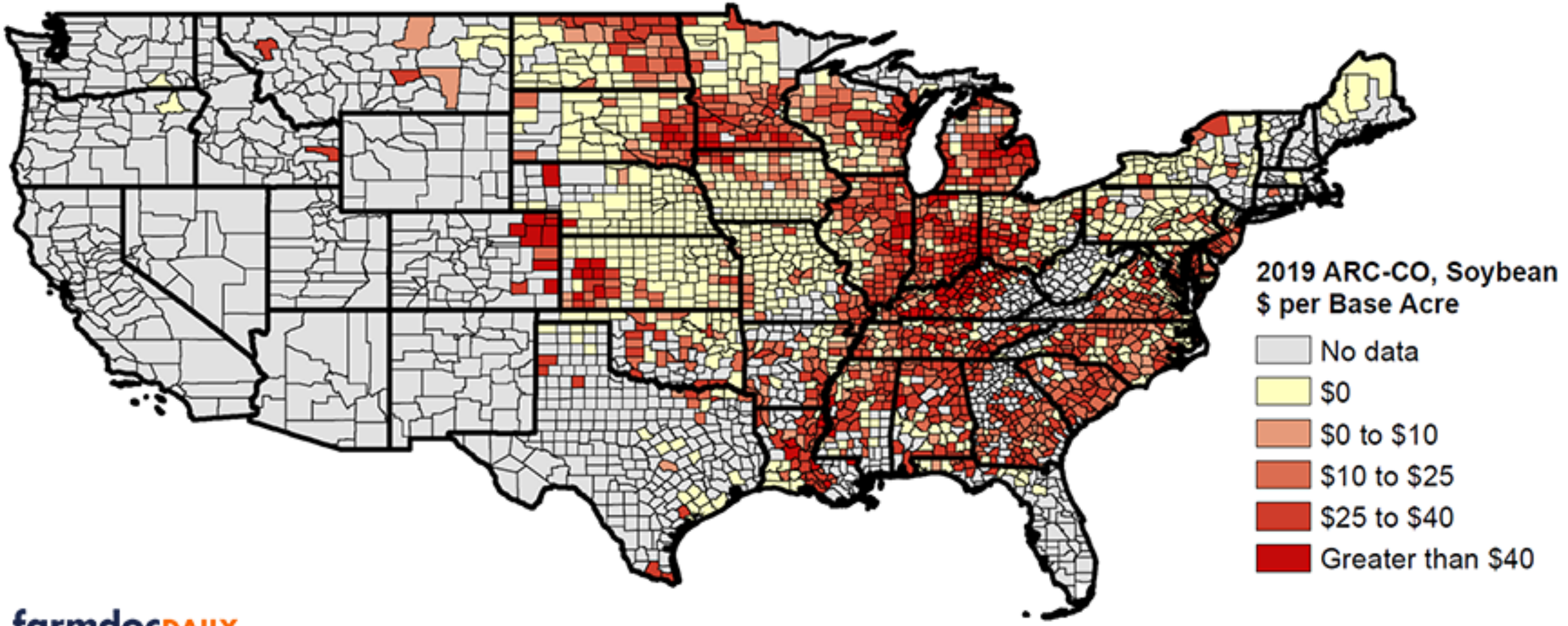


For counties with irrigated and non-irrigated yields series, the above map shows the irrigated yields series. Sequester reduction of 6.8% taken into consideration when calculating payments.

http://farmdocdaily.illinois.edu/2015/11/2014-arc-co-payments-release-county-yields.html

Figure 2. 2019 ARC-CO Payments on Soybean Base Acres, US Counties

$0.484 Billion



https://farmdocdaily.illinois.edu/2020/10/2019-arc-co-payments-for-corn-and-soybeans-in-the-united-states.html

Main Point

- County ARC payments vary by county and year
- Main idea: like county-level revenue insurance with an 86% coverage level
- Differences from Crop Insurance
  - Uses 5-Year Olympic Average of prices and yields to determine guarantee
  - Uses national marketing year average price for price history and as actual price
  - Uses county average yield for yield history and as actual yield

Agriculture Risk Coverage (ARC)

- Individual ARC based on revenue from all program crops as a whole for an FSA farm, not crop by crop
- For a simple hypothetical example, assume 2 program crops: corn and soybeans
- Benchmark Revenue by Crop = 5-Year Olympic Average of (Yield per Planted Acre x MYA Price)
- Individual Benchmark Revenue =

  (Corn Acres/Total Acres) x Corn Benchmark Revenue +

  (Soy Acres/Total Acres) x Soy Benchmark Revenue
- Individual Guarantee = 86% of Farm Benchmark Revenue

Agriculture Risk Coverage (ARC)

- Individual ARC Payment Rate = Farm Guarantee – Actual Farm Revenue, up to 10% of County Benchmark
- Individual ARC Payment = **65%** x Base Acres x Individual ARC Payment Rate
  - Maximum is 10% of County Benchmark
- Actual Revenue = (Corn Production x MYA Corn Price) + (Soy Production x MYA Soy Price) / Total Planted Acres
  - Use PLC Reference Price if higher than MYA Price
  - Use 70% County T Yield if higher than your Yield
- Almost no one signed up for ARC-IC for Corn & Soybeans for 2014 Farm Bill
- 2019 had greater ARC-IC signup due to extensive prevented plant and low farm yields expected for 2019 crops: Corn 5.9%, Soybean 6.2% of base acres

MARKETING ASSISTANCE LOANS (MAL) & LOAN DEFICIENCY PAYMENTS (LDP)

Marketing Assistance Loans (MAL) and Loan Deficiency Payments (LDP)

- MAL: low interest loans to help farmers manage cash flow (pay off operating loans), so can wait to sell grain when prices are higher
- LDP: Payments that give farmers a price floor equal to the Loan Rate
- MAL-LDP programs meant to work together
- **Not tied to Base Ares or Program Yields but actual production**

Marketing Assistance Loans

- Farmers receive a marketing assistance loan (MAL) from the Commodity Credit Corporation (CCC), using their harvested grain as collateral
  - Your harvested grain, no matter how many acres grown on
  - Receive $/bu in loan equal to the Loan Rate
  - National Loan Rates: Corn $2.20, Soybeans $6.20, Wheat $3.38
  - Each county's loan rates differ from these by a few cents
  - WI tends to be lower: 2020 Dane $2.15, $6.21, $3.87
- Must grow the grain yourself, can't buy from someone else and then enroll it in MAL
- MAL is for up to 9 months

MAL Payback

- Farmer picks a day to “sell” grain used as collateral and payoff loan
  - Actual physical sale may occur later, but not earlier
- Each day, there is a Posted County Price (PCP) for each commodity, official FSA estimate of local price
- If PCP > Loan Rate, farmer pays back MAL in full, plus small interest payment
- If PCP < Loan Rate, farmer pays back MAL at Marketing Loan Repayment Rate ≈ PCP
- Loan Deficiency Payment (LDP) = Loan Rate – PCP
- Simplification: Don’t take loan and pay it back, but receive LDP = Loan Rate – PCP, if PCP < Loan Rate
- Program used to be used a lot when lower prices

Think Break #13

1. Suppose planted and harvested 5,000 bu of soybeans and enroll all 5,000 bu for a Marketing Assistance Loan

- If soybeans has a $6.20/bu loan rate, so how much will your MAL be?

2. Suppose you pay back the MAL on Feb 1st when the posted county price for soybean is $7.00/bu

- What is your Loan Deficiency Payment?
- How much will you pay back?

3. Suppose instead you pay back the MAL on Feb 15th when the posted county price for soybean is $6.00/bu

- What is your Loan Deficiency Payment?
- How much will you pay back?

Think Break #13: Answer

1. How much will your MAL be? MAL = $6.20/bu x 5,000 bu = $31,000
2. Suppose you pay back the MAL on Feb 1st when the posted county price for soybean is $7.00/bu
   a. What is your Loan Deficiency Payment? $0
   b. How much will you pay back? $31,000
3. Suppose instead you pay back the MAL on Feb 15th when the posted county price for soybean is $6.00/bu
   a. What is your Loan Deficiency Payment?
      $6.20 – $6.00 = $0.20/bu x 5,000 bu = $1,000
   b. How much will you pay back?
      Original loan – LDP = $31,000 – $1,000 = $30,000

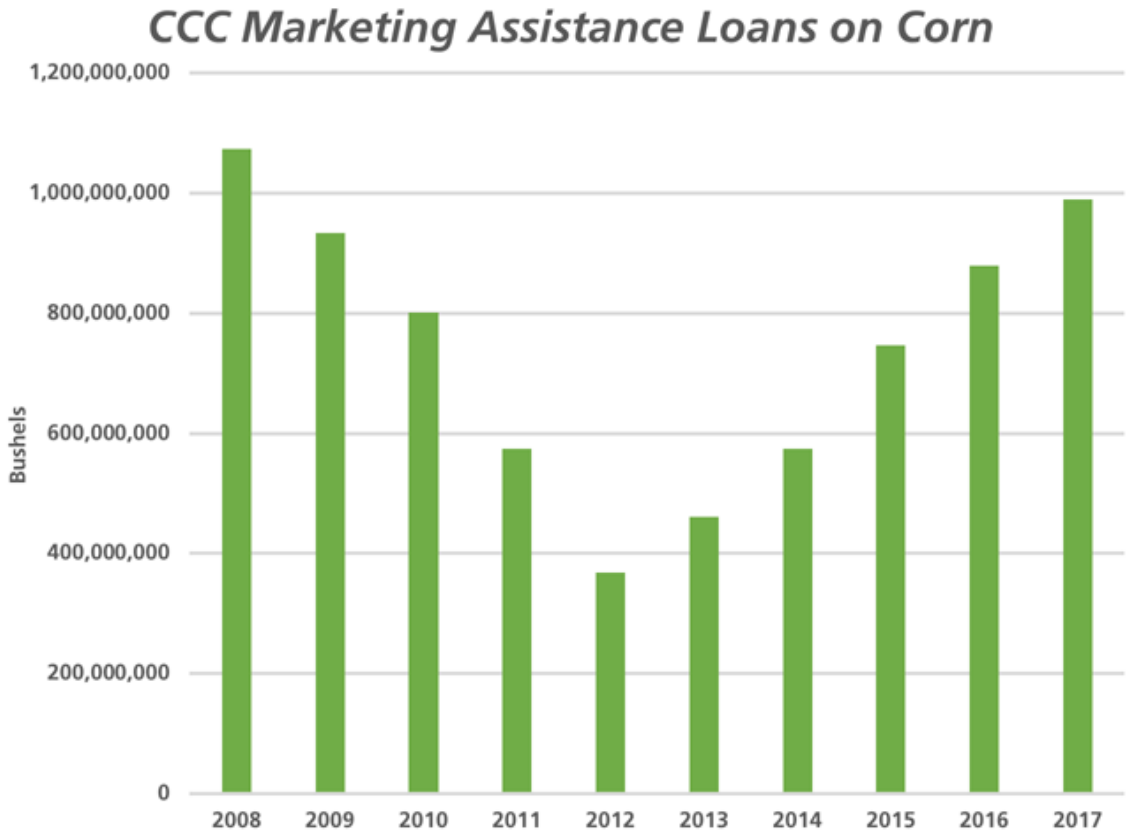
Marketing Assistance Loans (MAL) and Loan Deficiency Payments (LDP)

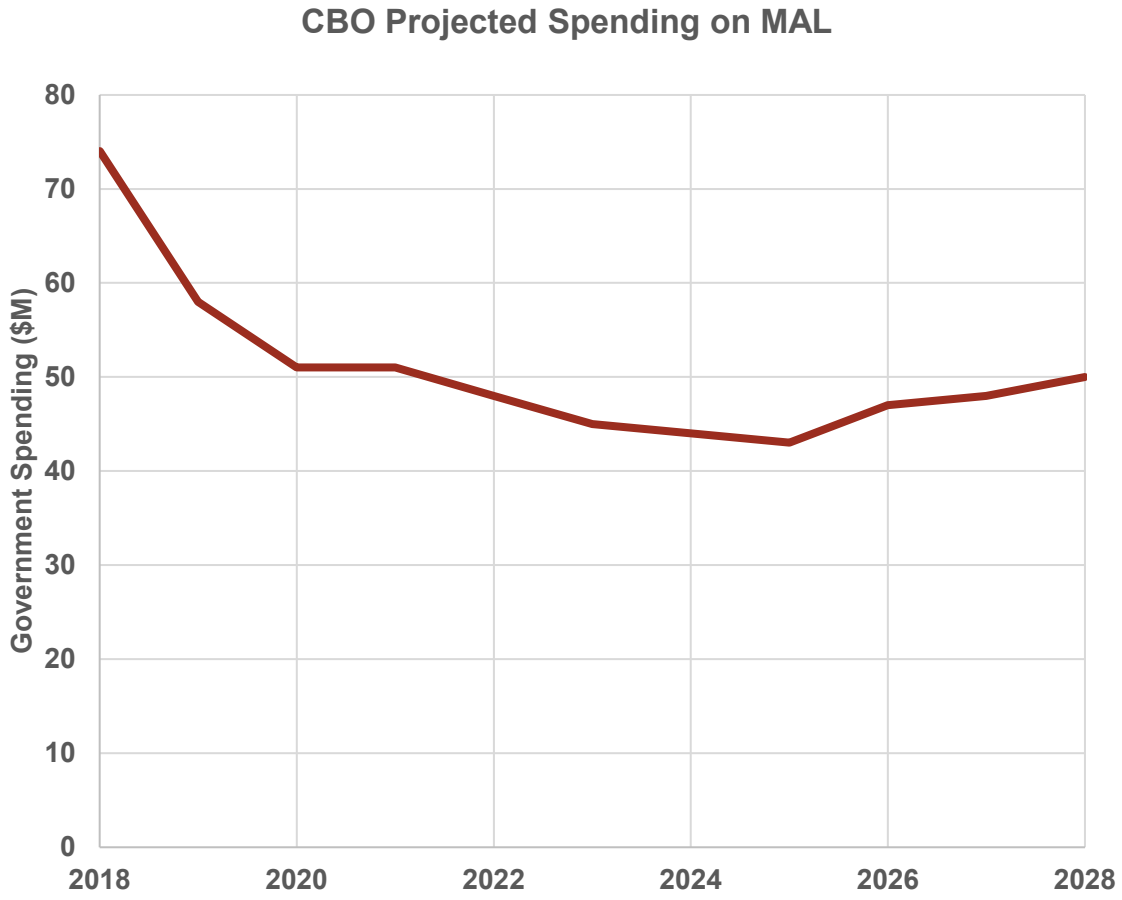
- Main idea: Program works to give farmers a price floor equal to the Loan Rate
  - Reality is that loan rates are so low for corn soybeans and wheat that generally no one expects LDPs, just use MALs as a cheap loan program
- LDPs have been paid in recent years for some classes of wheat and "Southern" crops (peanuts, cotton, rice)
- Based on actual farmer harvested production and local prices (but not actual price you sell for)
  - **MAL/LDPs do not use National MYA prices, Base Acres or Program Yields, but the loan rate, posted county price and actual production**

Summary of Loan Deficiency Payments (LDP)

- LDP ($/harvested bushel)
  - LDP = Loan Rate – PCP, if PCP < Loan Rate
- Depends on local Posted County Price when you "sell" the crop (may not be price actually received when physical sale occurs)
- Can use the grain to feed your livestock after pay back loan
- Depends on how many bushels harvested, not acres harvested
- Gives farmers Loan Rate as minimum price on all bushels enrolled
  - ~ Corn $2.20, Soybeans $6.20, Wheat $3.38

MAL Used for ~1 Billion bu in 2017 (~ 7% of production) but actual government cost is far below ARC+PLC cost





Summary of Farm Bill Crop Support Programs

- Learning goal: To understand how these three commodity support programs operate at the individual farm level
  - Price Loss Coverage (PLC)
  - Agricultural Risk Coverage (ARC)
  - Marketing Assistance Loans (MAL)
- Administered by USDA-FSA in each county

- Next up: Dairy Margin Coverage (DMC)
- Market Facilitation Program (MFP) (brief)
- Coronavirus Food Assistance Program (CFAP, CFAP2) (brief)