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

AAE 320
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Agricultural and Applied Economics
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

- Corn: 39%
- Wheat: 27%
- Soybeans: 22%
- Grain Sorghum: 4%
- Other Commodities: 8%

Source: https://fas.org/sgp/crs/misc/R45165.pdf
Base Acres in 2015

 Gujarat

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

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<td>$9.47</td>
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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

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<tr>
<th>Crop</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<td>$3.36</td>
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<tr>
<td>Soybean</td>
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<td>$9.47</td>
<td>$9.33</td>
<td>$8.48</td>
<td>$8.57</td>
</tr>
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- 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

- 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

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<td>2015</td>
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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 farmer 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
  - One program for all 5 years,
  - 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)

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Year Paid</th>
<th>Corn ARC</th>
<th>Corn PLC</th>
<th>Soybean ARC</th>
<th>Soybean PLC</th>
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<td>2020</td>
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<td>1.090</td>
<td>0.484</td>
<td>---</td>
<td>0.049</td>
<td>1.654</td>
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ARC and PLC Payments by Crop and Year

ARC PLC ARC PLC ARC PLC
Corn Soybean Wheat

Payments ($ Billion)

ARC and PLC Payments by Year in Wisconsin

$381 million total over 6 years
Figure 2. 2014 ARC-CO County Payments for Corn Per Base Acre

$3.745 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.

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

$0.189 Billion

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

$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.

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

$0.484 Billion

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** =
  - \[(\text{Corn Acres/Total Acres}) \times \text{Corn Benchmark Revenue} + (\text{Soy Acres/Total Acres}) \times \text{Soy Benchmark Revenue}\]
- **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 1\textsuperscript{st} 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 15\textsuperscript{th} 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?  
   \[ \text{MAL} = 6.20/\text{bu} \times 5,000 \text{ bu} = 31,000 \]

2. Suppose you pay back the MAL on Feb 1\textsuperscript{st} 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 15\textsuperscript{th} when the posted county price for soybean is $6.00/bu
   
   a. What is your Loan Deficiency Payment?  
   \[ 6.20 - 6.00 = 0.20/\text{bu} \times 5,000 \text{ bu} = 1,000 \]
   
   b. How much will you pay back?  
   \[ \text{Original loan} - \text{LDP} = 31,000 - 1,000 = 30,000 \]
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)