The U.S. Crop Insurance Program: Recent Developments

March 2020

U.S. Department of Agriculture
Office of the Chief Economist
Risk Management Agency
Overview

• Overview of the U.S. Crop Insurance Program
  – History
  – Structure
  – Current status

• Recent developments
  – Legislative changes
  – New products/coverage
  – Improvements to current products
U.S. Crop Insurance Program

• What does it insure?
  – Natural causes of loss
  – Yield (e.g. bushels per acre)
  – Revenue (dollars per acre or “whole farm”)
  – Weather index

• Who sells it?
  – Private companies called Approved Insurance Providers (AIPs)

• Who underwrites it?
  – Federal Government: U.S. Department of Agriculture

• Who bears the risk?
  – AIPs, U.S. Government, and private reinsurers
• Agricultural Adjustment Act of 1938

• Crop Insurance Act of 1944

• Crop insurance amendment of 1980
  – Minor amendments in 1986, 1990, and 1993

• Crop Insurance Reform Act of 1994
  – Amendment in 1996

• Agricultural Risk Protection Act of 2000
  – Amendments in 2008, 2014, 2018
2000 to Present

• 2000: Agriculture Risk Protection Act
  – Increased government share of premium Schedule for higher levels of coverage
  – Assigned Yields and Actual Production History Adjustments
    • Decrease impact of a catastrophic year on average yield
  – Revision to prevented planting coverage
    • 65% reduction if farmer plants a second crop
  – Review and Adjustment in Rating Methodologies
2000 to Present

• 2000: Agriculture Risk Protection Act (cont.)
  – Research and Development
    • Increase the quality and quantity of new insurance products
    • Private development, RMA contracts for research and development (over 70 new products)
  – Pilot Programs – expanded pilot authorities, including coverage for livestock
  – Education and Risk Management Assistance – competitive grants to educate producers
  – Reduce fraud, waste and abuse
    • FCIC work with other USDA agencies to reconcile producer information on an annual basis
    • Investigating claims of waste, fraud or abuse
The Long View

Insured Acres by Insurance Type, 1948-2019

- Yield
- Revenue
- Area
- Index
- Other

Millions of Acres

• 2008 Farm Bill
  – Higher share of premium paid for ‘enterprise units’

• 2014 Farm Bill
  – Supplemental area-based coverage of deductible for individual policy
    • Supplemental Coverage Option (SCO)
    • Stacked Income Protection for cotton (STAX)
  – Whole Farm Revenue Protection

• 2018 Farm Bill
  – Research/Studies: extend crop insurance to underserved areas/crops
  – Greater emphasis on whole-farm coverage
## Enterprise Units

<table>
<thead>
<tr>
<th>Coverage Level</th>
<th>50%</th>
<th>55%</th>
<th>60%</th>
<th>65%</th>
<th>70%</th>
<th>75%</th>
<th>80%</th>
<th>85%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidy Rate for Optional Units (field level)</td>
<td>67%</td>
<td>64%</td>
<td>64%</td>
<td>59%</td>
<td>59%</td>
<td>55%</td>
<td>48%</td>
<td>38%</td>
</tr>
<tr>
<td>Subsidy Rate for Enterprise Units (crop level)</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
<td>77%</td>
<td>68%</td>
<td>53%</td>
</tr>
</tbody>
</table>
Percent of Acreage by Unit Structure
(Crops with EU Available)
Enterprise Unit Acreage Insured

Overall: 53%

*Crop with EU available. Includes enterprise by practice and multi-county EU.
Coverage Levels - Soybeans

Soybeans - Percent of Policies by Coverage Level
(Excludes Area-based Programs)
Average Buy-Up Coverage Level

Overall: 74%

Average Coverage Level:
- 50% to 60%
- 60% to 70%
- 70% to 75%
- 75% to 80%
- 80% to 85%

2019
Organic Coverage

- Organic Price Elections have grown from 4 crops in crop year 2011 to 57 crops in crop years 2016 and 2017

- Contract Price Option allows producers who receive a contract price for their crop to get a guarantee that is more reflective of the actual value of their crop
  - Available for 73 crop types
### Trend Adjusted APH

#### Acreage Insured with Trend Adjusted APH

- **Corn**
- **Soybeans**
- **Wheat**
- **All Others**

<table>
<thead>
<tr>
<th>Year</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>30.6M</td>
</tr>
<tr>
<td>2013</td>
<td>53.8M</td>
</tr>
<tr>
<td>2014</td>
<td>53.3M</td>
</tr>
<tr>
<td>2015</td>
<td>54.2M</td>
</tr>
<tr>
<td>2016</td>
<td>56.5M</td>
</tr>
<tr>
<td>2017</td>
<td>55.1M</td>
</tr>
<tr>
<td>2018</td>
<td>55.3M</td>
</tr>
<tr>
<td>2019</td>
<td>61.0M</td>
</tr>
</tbody>
</table>

- **2012** 76.2M
- **2013** 97.7M
- **2014** 104.9M
- **2015** 109.5M
- **2016** 113.8M
- **2017** 116.7M
- **2018** 119.3M
- **2019** 122.2M
Characteristics of US farm programs changing over time; crop insurance increasing in importance

10-year average = $18.7 billion per year
--- $6.2 billion from crop insurance

Data: USDA, fiscal year.
Crop insurance indemnities began to replace ad hoc assistance with ARPA in 2000.

Data: USDA FSA and RMA.
Crop Insurance Today

• Coverage available for over 540 varieties of crops
  – Up from 325 varieties of crops covered in 2000

• Most coverage purchased also includes price/revenue protection

• Premium cost is shared between farmers and government
  – $10.1 billion in premium
    • $3.7 billion paid by farmer
    • $6.4 billion paid by government (63%)
## Top 10 Crops by Liability 2019

<table>
<thead>
<tr>
<th>Rank</th>
<th>Crop</th>
<th>Liability ($ Billions)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corn</td>
<td>$43.0</td>
<td>40.0%</td>
</tr>
<tr>
<td>2</td>
<td>Soybeans</td>
<td>$24.0</td>
<td>22.3%</td>
</tr>
<tr>
<td>3</td>
<td>Wheat</td>
<td>$7.1</td>
<td>6.6%</td>
</tr>
<tr>
<td>4</td>
<td>Cotton</td>
<td>$5.3</td>
<td>5.0%</td>
</tr>
<tr>
<td>5</td>
<td>Pasture, Rangeland, Forage</td>
<td>$2.6</td>
<td>2.4%</td>
</tr>
<tr>
<td>6</td>
<td>Whole Farm Revenue Protection</td>
<td>$2.2</td>
<td>2.1%</td>
</tr>
<tr>
<td>7</td>
<td>Almonds</td>
<td>$2.2</td>
<td>2.0%</td>
</tr>
<tr>
<td>8</td>
<td>Grapes</td>
<td>$1.7</td>
<td>1.6%</td>
</tr>
<tr>
<td>9</td>
<td>Nursery (FG&amp;C)</td>
<td>$1.5</td>
<td>1.4%</td>
</tr>
<tr>
<td>10</td>
<td>Rice</td>
<td>$1.5</td>
<td>1.4%</td>
</tr>
<tr>
<td></td>
<td>All Other Crops</td>
<td>$16.3</td>
<td>15.1%</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>$107.6</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Data: USDA-RMA
Liability by County 2019

United States Department of Agriculture

[Map showing liability by county, with color codes indicating different liability ranges.]
Crop Insurance Market Share

• Principle field crops - 85 percent planted hectares insured
  – Barley, corn, cotton, grain sorghum, peanuts, potatoes, rice, soybeans, tobacco, and wheat

• Other field crops - 61 percent

• Fruit and Nuts - 74 percent

• Vegetables - 36 percent

• Pasture/rangeland/forage/hay - 12 percent
  – Low market penetration but third largest crop based on hectares insured
Share of Indemnity by Peril: 2001-19

- Drought: 45%
- Precip/Flood/Storm: 27%
- Price: 7%
- Cold: 6%
- Disease/Insects: 1%
- Other: 7%
- Hail: 7%
Crop Insurance Program Loss Ratio

20 Year Avg: 0.84
Rate and T-yield Reviews

- Generally occur every 3 years for APH programs
  - Approximately 1/3 of crop-programs reviewed each year.

- T-yield (average yield for county) based on most recent 10 year average of yields reported to RMA.

- Rates based on most recent 20 years of experience.

- Annual revisions in base rates reflect movement towards targets.
How much does the program cost?

Billion dollars

• Underwriting gain/(loss)
• Indemnities
• Premium subsidy
• Program delivery costs
• Total Premium

United States Department of Agriculture
2018 hurricanes caused increased indemnities in the southeast U.S.
…causing historically high indemnities in many counties.

2018 Indemnity Ranking within Last 10 Years
(excludes losses related to drought, freeze, and area plans)

Source: USDA-RMA
• “The Corporation shall carry out research and development . . . regarding a policy to insure crops (including tomatoes, peppers, and citrus) against losses due to a tropical storm or hurricane.”

• Coverage design principles
  – Focus on hurricane (wind); not specific for excess precipitation/flood
  – Simplicity of design (understandable to farmers, feasible for delivery system)
  – Timeliness of payments
  – Balance between meaningful coverage, affordability
  – Target 2020 hurricane season
Hurricane Insurance Protection

- Add specific coverage for hurricanes to an already-existing multi-peril crop insurance (MPCI) policy

- Cover part of the MPCI policy’s deductible

- If a hurricane occurs during insurance period, payment is made
  - Triggered by hurricane-force winds (118 km/h or greater) in a county
  - Data available from the National Hurricane Center
Hurricane Insurance Protection

• Crops: Covered by the Common Crop Insurance Provisions
  – Around 70 crops

• Area: Based on hurricane probability
  – At least a 2% probability (1-in-50)
• Where exactly are people buying PRF?

• Example of 2019 Jan-Feb interval with grid locations

• Blue dots = more acres
• Green dots = less acres
Pasture, Rangeland, Forage

- Rainfall Index
- March/April 2016
• Rainfall Index
• March/April 2017
Location/Density of Rain Gauges

Number of Gauges Inside Each 0.5x0.5 Grid Box on 05SEP2018
PRF is not ‘Drought insurance’

- Farmer/rancher confusion about what PRF covers
- Ideas for a drought endorsement or some new type of coverage?
  - Extra payment (how much?) based on some drought index at certain times of the year
  - Drought Monitor
  - PDSI.... Others drought metrics?
Dairy Revenue Protection

• Provides area-based revenue protection for dairy production
  – Similar to Area Risk Protection Insurance (ARPI) for other crops

• Approved by FCIC Board in February 2018

• Available for sale in October 2018
  – Fast implementation
  – Communication/cooperation between RMA, AIPs, and developer

• January 31, there were 9,379 endorsements covering over 30 billion pounds of milk (5,223,262 cows)
  – 14 percent of total production
### Dairy Revenue Protection (DRP) and Livestock Gross Margin-Dairy (LGM)

<table>
<thead>
<tr>
<th>Policies</th>
<th>2019 Policies Earning Premium</th>
<th>Quantity (Billion Pounds)</th>
<th>Percent of Estimated Production</th>
<th>2020 Policies Earning Premium</th>
<th>Quantity (Billion Pounds)</th>
<th>Percent of Projected Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRP</td>
<td>2,496</td>
<td>30.0</td>
<td>13.8%</td>
<td>1,755</td>
<td>34.2</td>
<td>15.5%</td>
</tr>
<tr>
<td>LGM</td>
<td>197</td>
<td>0.8</td>
<td>0.4%</td>
<td>150</td>
<td>0.9</td>
<td>0.4%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>2,693</td>
<td>30.8</td>
<td>14.1%</td>
<td>1,905</td>
<td>35.3</td>
<td>15.9%</td>
</tr>
</tbody>
</table>

Data: USDA-RMA, USDA-NASS
Whole Farm Revenue Protection

• Insure overall revenue from all crops
  – Includes livestock up to $2 million
  – Based on farm income tax form

• Premium discount based on number crop insured
  – Diversification Discount

• Can be purchased with underlying MPCI policies on individual crops
Insured Liability for Adjusted Gross Revenue/Whole Farm Revenue Protection

$ Millions

Other Developments

• Quality Loss Option
  – Allows farmers to reduce the impact of poor quality on insurance coverage

• Nursery Value Select policy
  – Improved version of current nursery policy
Other Developments

• APH Hemp Pilot Policy will cover fiber, grain, and CBD
  – Sales Closing Date March 15, 2020
  – Approved by FCIC Board in November 2019

• Offered in 21 states (where significant acres were reported to FSA)

• Implemented a little more than a year after industrial hemp provisions in 2018 Farm Bill enacted
Other Program Improvements 2019-20

• Cover crops

• Revised LRP policy

• EU/OU by FAC and NFAC for soybeans and sorghum

• Revised coverage for White/waxy corn types

• Implemented Intermittent Flood Irrigated Rice and Furrow Irrigated Rice

• Revised the yield cap on early harvest adjustments for sugarbeets

• Revised SCO/STAX to account for ARC/PLC participation
Other Program Improvements 2019-20

- Allow coverage levels by planting period for fresh market beans
- Revised sweet potato policy to allow optional units and other changes
- Revised pecan tree policy to improve marketability
- Implemented apple tree policy
- Expansion of sesame policy
- Revised high risk coverage options
Ongoing Research and Development

- Subsurface Irrigation
- Limited Irrigation
- Hops
- Batture Land
- Grain Sorghum
- Urban agriculture

- In general
  - Expand coverage for underserved areas and crops
  - Expand revenue coverage
Correlation between NCCPI and Yield

Correlation: 0.64
R squared: 0.40
Thank You!

www.rma.usda.gov