Economics Report

Farm Credit Administration Office of Regulatory Policy Agricultural and Economic Policy Team

September 28, 2017

Summary

An active hurricane season in 2017 reminds farmers and lenders that Federal crop insurance can offset part of the losses caused by bad weather. The amount of loss farmers absorb depends in large part on their use of crop insurance, both in terms of the area covered and the coverage they purchase (i.e., the deductible level).

For major crops, including corn, soybeans, and wheat, nearly 90 percent of the U.S. planted acreage is insured, and the weighted-average deductible for this set of crops is 26 percent. (The producer is indemnified for all losses beyond the deductible.) For fruits and nuts, and vegetables, a smaller share of acreage is insured (74 percent and 34 percent, respectively). Also, the average deductible is higher (41 percent and 35 percent), which means producers absorb a larger share of losses.

The level of purchased coverage depends on the trade-off between risk reduction and the policy's cost, as well as other risk management strategies employed on the farm.

Recent news reports indicate extensive damage to Puerto Rico's agriculture sector due to Hurricane Maria. The hardest hit crops were reportedly plantains, bananas, and coffee. Of the insurable crops in Puerto Rico, coffee has the highest value and 56 percent of the 2016 crop value was insured, according to USDA/RMA data. Almost threefourths of the coffee area was insured above the catastrophic level.

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Crop Insurance Covers Most Major Crops

The losses absorbed by farmers following a hurricane or other bad weather depend in large part on their use of crop insurance, both in terms of the area covered and the amount of coverage (i.e., deductible level) purchased by each producer. Insurance typically does not cover all costs, but indemnities plus other actions (e.g., maintaining working capital) can significantly reduce the impact on producers when weather damages crops.

For major crops like corn, soybeans, and wheat, most of the U.S. planted acreage is insured (first blue bar in chart below). As for coverage amount, the average deductible for this set of crops is 26 percent (first orange bar; average is weighted by amount of acreage at each deductible level). The producer is indemnified for all losses beyond this initial level. For fruits and nuts, and vegetables, a smaller share of acreage is insured, and the average deductible is higher, which means producers of these crops absorb a larger share of the losses.

The early development of crop insurance policies for the major crops and significant subsidies have resulted in widespread adoption of crop insurance by corn, soybeans, and wheat producers. Adoption has also increased for fruit/nut and vegetable crops as additional crop policies have become available. USDA has not developed policies for some commodities (particularly vegetables) because producers have feared that offering insurance could adversely affect the market if it reduces producer risk and encourages farmers to plant more acreage.

The level of purchased coverage depends on a farmer's trade-off between risk reduction and the policy's cost, as well as other risk management strategies employed on the farm. As a result, coverage can vary by region. For example, corn and soybean producers outside the Corn Belt (where yields are more variable) tend to purchase policies with higher deductibles because the premiums are more affordable. In North Dakota, the weightedaverage deductible for both corn and soybean policies is 27 percent, which is above the respective national averages of 23 percent and 25 percent. See charts in Appendix A for average deductibles by state for corn, soybeans, and wheat.





Source: USDA/RMA, <u>The Risk Management Safety Net</u>, September 2017; deductible calculated by FCA-ORP using RMA data. *Includes corn, soybeans, wheat, cotton, sorghum, barley, rice, peanuts, potatoes, and tobacco.

Major crops are widely insured

Most planted acreage for corn, wheat, soybeans, and other major crops is insured. About 90 percent of corn and soybean acreage is insured. Essentially all rice and cotton acreage is covered, while 73 percent of barley area is insured.

The weighted-average deductible across all the crops is 26 percent, with corn and soybeans having the lowest at 23 percent and 25 percent, respectively. The average deductible is higher for rice (33 percent), cotton (33 percent), and peanuts (32 percent). The highest average deductible is for potatoes (43 percent) because over half of insured potato acreage is covered by only catastrophic coverage, which has a deductible of 50 percent (i.e., the farmer absorbs a 50 percent loss before indemnification begins).

Major crops in 2015: Deductible percentage and insured share of U.S. crop acreage



Crop, ranked by insured acreage	Insured acreage (mil. acres)	U.S. acreage (mil. acres)	Insured share of U.S. crop acreage	Weighted- average deductible	"Catastrophic" share of insured acreage**
Corn	78.4	88.0	89%	23%	5%
Soybeans	74.5	82.7	90%	25%	6%
Wheat	46.8	55.0	85%	29%	7%
Cotton	8.8	8.7	100%	33%	12%
Grain Sorghum	6.8	8.5	80%	32%	12%
Barley	2.6	3.6	73%	30%	11%
Rice	2.6	2.6	100%	33%	32%
Peanuts	1.5	1.6	92%	32%	14%
Potatoes	0.8	1.1	79%	43%	63%
Tobacco*	0.3	0.3	93%	28%	7%
Total	223.3	252.1	89%	26%	7%

Source: USDA/RMA, <u>The Risk Management Safety Net: Market Penetration and Market Potential</u>, September 2017; last two columns calculated by FCA-ORP using RMA data.

*Calculations for deductible and "catastrophic" share are for burley tobacco. **Deductible is 50 percent.

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Insured acreage is also relatively high for other field crops

Crop insurance is also widely purchased for most other field crops. The insured share of plantings is at least 85 percent for canola, dry peas, sunflowers, sugar beets, sugarcane, and flax. The exceptions are hay/forage and oats, each with less than 20 percent of planted area.

Across all these crops, the weighted-average deductible (36 percent) is higher than for major field crops (26 percent in the table on the previous page). It is higher because most acreage for hay/forage and sugarcane is insured only at the catastrophic level (i.e., deductible of 50 percent).

Selected field crops in 2015: Deductible percentage and insured share of U.S. crop acreage



Crop, ranked by insured acreage	Insured acreage (1,000 acres)	U.S. acreage (1,000 acres)	Insured share of U.S. crop acreage	Weighted- average deductible	"Catastrophic" share of insured acreage**
Hay/forage*	4,707	54,447	9%	44%	68%
Canola	1,718	1,777	97%	28%	2%
Dry peas	1,718	1,670	99%	31%	8%
Sunflowers	1,698	1,859	91%	30%	3%
Dry beans	1,382	1,765	78%	30%	8%
Sugar beets	1,039	1,160	90%	31%	23%
Sugarcane	760	887	86%	48%	89%
Oats	539	3,090	17%	37%	26%
Flax	425	463	92%	32%	5%
Millet	363	445	82%	34%	27%

Source: USDA/RMA, <u>The Risk Management Safety Net: Market Penetration and Market Potential</u>, September, 2017; last two columns calculated by FCA-ORP using RMA data.

*Calculations for deductible and "catastrophic" share are for forage. **Deductible is 50 percent.

Crops insurance coverage varies widely for fruit and nut crops

Both the insured share of acreage and the weighted-average deductible vary widely for fruit and nut crops, as shown by the wide dispersion in the chart below. Also significant is the higher deductible (i.e., less insurance purchased) for most of these crops compared with field crops, with significant portions of insured acreage covered by policies with a 50 percent deductible (catastrophic coverage).



Selected fruit and nuts in 2015: Deductible percentage and insured share of crop acreage

Crop, ranked by insured acreage	Insured acreage (1,000 acres)	U.S. acreage (1,000 acres)	Insured share of U.S. crop acreage	Weighted- average deductible	"Catastrophic" share of insured acreage**
Almonds	737	890	83%	40%	42%
Grapes	663	1,023	65%	40%	49%
Oranges	498	576	86%	43%	55%
Apples	239	316	76%	46%	72%
Pecans	156	Not avail.	Not avail.	35%	26%
Walnuts	154	300	51%	46%	80%
Pistachios	106	233	45%	45%	66%
Cherries	89	128	69%	31%	11%
Blueberries	69	90	77%	47%	78%
Peaches	68	143	48%	41%	39%
Grapefruit	63	67	93%	36%	25%
Tangelos/mandarins	49	66	74%	44%	60%
Lemons	43	55	78%	45%	64%
Avocados	37	59	62%	47%	82%
Cranberries	33	41	80%	41%	51%
Pears	33	49	68%	43%	58%
Olives	26	36	73%	39%	33%
Strawberries	1	59	2%	39%	26%
All fruits and nuts*	3,160	4,285	74%	41%	51%

Source: <u>USDA/RMA;</u> last two columns calculated by FCA-ORP using RMA data.

*Total acreage includes other crops not listed. Not shown is that most orange and grapefruit trees are also insured, but the purchased level of coverage is relatively low—mostly catastrophic coverage. **Deductible is 50 percent.

A smaller share of vegetable acreage is insured

Compared with major crops and fruits/nuts, the share of vegetable acreage that is insured is relatively low at 34 percent. As with fruits/nuts, the insured share of vegetable acreage varies widely by crop. However, of the vegetable acreage that is insured, producers typically purchase coverage that is above the catastrophic level. Only 27 percent of purchased insurance for vegetables is at the catastrophic level compared with 51 percent for fruit/nut crops, on average.

For crops that are not insurable, similar coverage might be available through the USDA Farm Service Agency's noninsured crop disaster assistance program (NAP).

Vegetables in 2015: Deductible percentage and insured share of U.S. crop acreage



Crop, ranked by insured acreage	Insured acreage (1,000 acres)	U.S. acreage (1,000 acres)	Insured share of U.S. crop acreage	Weighted- average deductible	"Catastrophic" share of insured acreage**
Processing tomatoes	296.0	314.3	94%	35%	21%
Sweet corn	208.9	325.1	64%	31%	16%
Green peas	138.5	181.2	76%	30%	11%
Onions	102.9	144.6	71%	43%	59%
Processing beans	94.2	164.9	57%	35%	23%
Fr. market sweet corn	42.9	242.1	18%	39%	45%
Fr. market tomatoes	39.0	95.2	41%	45%	67%
Cabbage	13.5	59.5	23%	44%	64%
Pumpkins	8.0	Not avail.	Not avail.	24%	0%
Peppers	6.6	41.9	16%	45%	65%
Fresh market beans	4.5	77.7	6%	45%	54%
Chile peppers	1.9	19.4	10%	48%	88%
Total vegetables*	949.0	2,752	34%	35%	27%

Source: USDA/RMA, <u>The Risk Management Safety Net: Market Penetration and Market Potential</u>, September 2017; last two columns calculated by FCA-ORP using RMA data.

*Insured acreage excludes pumpkins; U.S. total includes other vegetable crops. **Deductible is 50 percent.

Nursery crops

For nursery crops, producers can purchase federal crop insurance to protect against a decline in value due to damage that caused a yield shortfall. USDA estimates that approximately 20 percent of the U.S. value of nursery production is insured. More than three-fourths of policies are purchased with catastrophic coverage (1,175 of 1,529 policies sold in 2015).

Crop insurance coverage in Puerto Rico

Recent news reports indicate extensive damage to Puerto Rico's agriculture sector due to Hurricane Maria. The hardest hit crops were reportedly plantains, bananas, and coffee. Dairy barns and poultry houses were also destroyed. Of the insurable crops in Puerto Rico, coffee has the highest value, and 56 percent of the 2016 crop value was insured. Almost three-fourths of the coffee area was insured above the catastrophic level.



United States Department of Agriculture A Risk Management Agency State Profile

2016 Crop Year

Puerto Rico Crop Insurance

Data as of February 2017

Insurable Crops	Coverage Value	Crop Value	Percent Insured	
Citron	0	0	NA	
Citrus	1,635,848	2,475,043	66%	
Coffee	8,594,863	15,425,400	56%	
Farinaceous	9,904,156	14,780,982	67%	
Fruit Orchards	547,599	838,218	65%	
Sugar Cane	2,025	2,700	75%	
Vegetables	898,579	1,947,351	46%	

Source: USDA/RMA; https://www.rma.usda.gov/pubs/2017/stateprofiles/puertorico16.pdf.

Appendix A –	Weighted	-average	deductible	by	state for 2	2015
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Source: FCA-ORP using USDA/RMA data.