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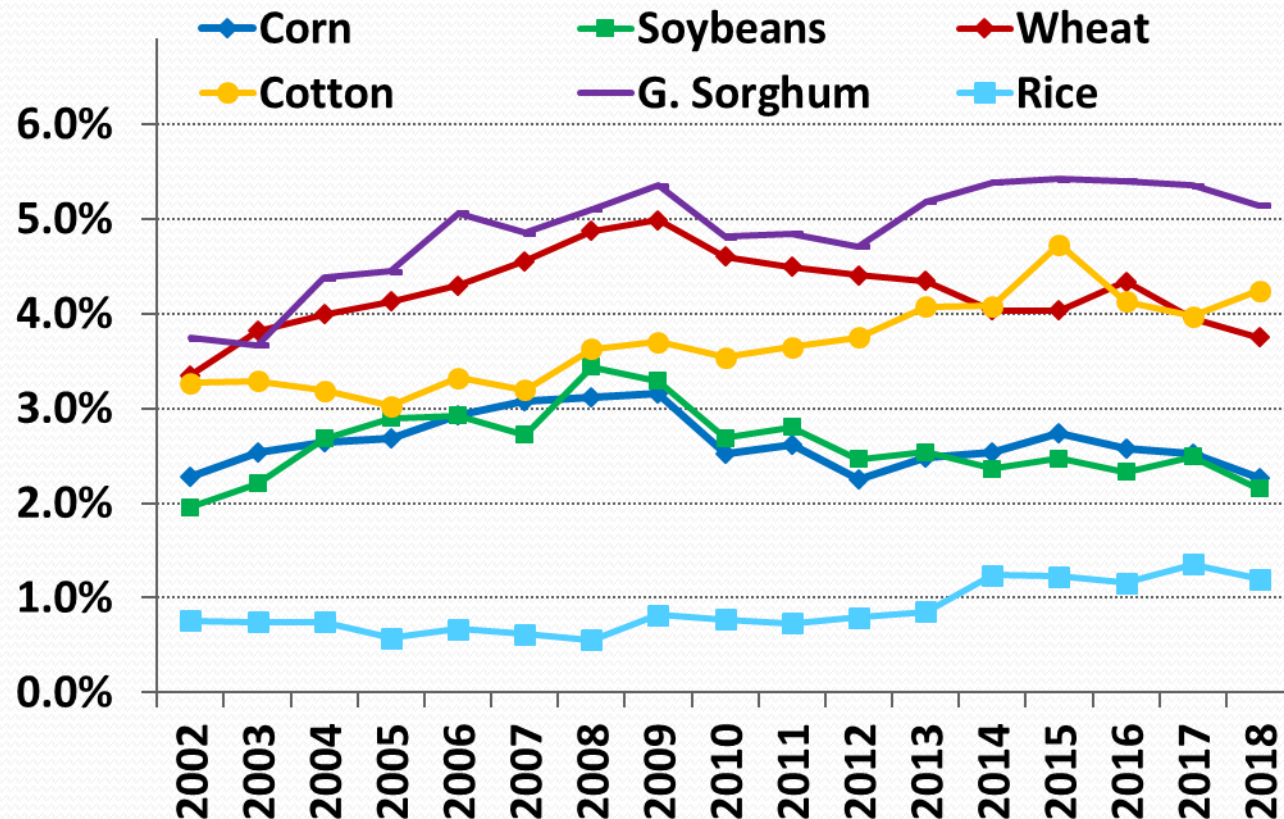
# The Impact of Enterprise Unit Policy Change on the Quantity Demanded for Crop Insurance\*

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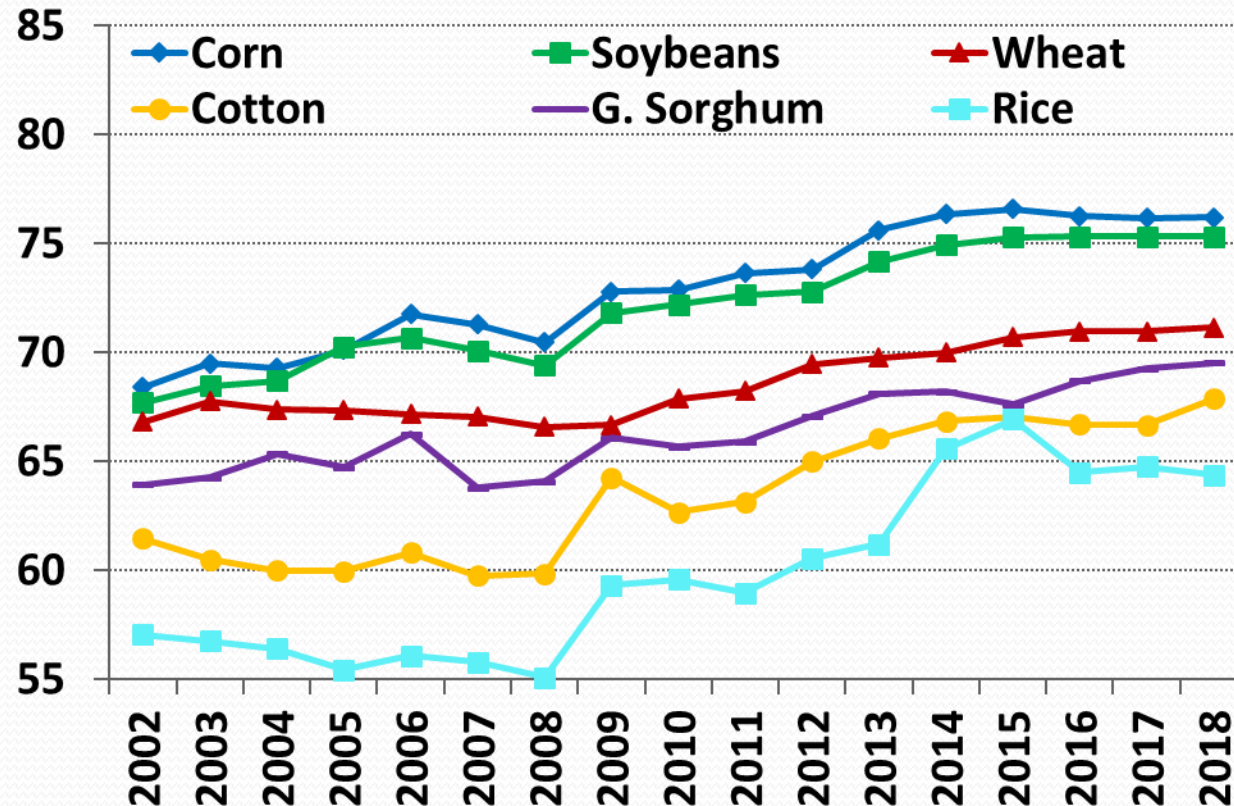
*\* Prepared for Presentation at the 2019 SCC-76 Risk Group Conference, Kansas City, MO, April 4-6.*

# Budget Shares: Producer Paid Premium Per Acre (PPP) with respect to Expected Crop Value Per Acre (ECV) Over Time



**Note:** Both the PPP and ECV amounts are calculated from RMA's Summary of Business tables. ECV amounts are based on buy-up acres only. PPP amounts are based on catastrophic (CAT) and buyup acres and do not include administrative fees for CAT coverage.

# Average Coverage Levels Over Time

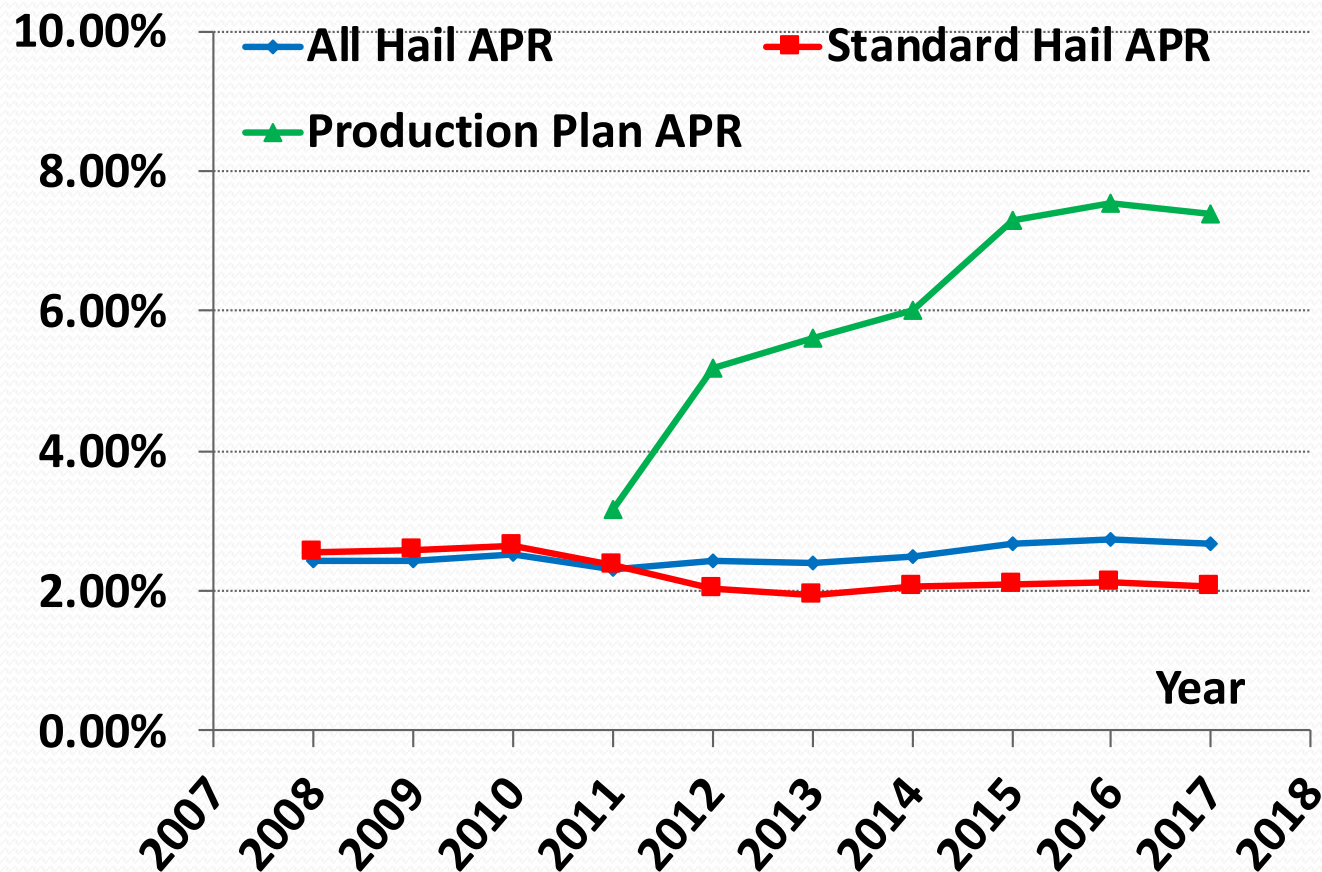


**Note:** Includes acres for CAT and buyup coverage. The average coverage level for each crop in a given year is the weighted average of coverage levels, where the weights acres insured at each coverage level.

# Objective and Prior Work

- Does the data provide an indication that the policy change in enterprise units in 2009 impacted the quantity-demanded for crop insurance?
- The analysis covers three major crops (corn, soybeans and wheat) grown in six economic regions (Midwest, Mountain, Northeast, South, Plains, and West) and compares the insurance experience between 2008 and 2015.
- In line with Bulut (2018, *AFR*), assume that a farmer has an objective of “obtaining some overall coverage under a given budget”. Then lower premium rate with enterprise units as well as lower premium rate (if any) with crop hail would be a consideration.
- Coble (2017) provides an overview of the RMA participation data from 2009 to 2016 by looking at the farmers’ choices for six major row crops and points out that enterprise units have been more popular with corn and soybeans than wheat.
- Schnitkey and Sherrick (2014) point out that the Midwest had mainly higher coverage levels (that exceeded 75%), while the Great Plains and the South had mainly lower coverage levels (that were at 70%, or below).

# Crop Hail: Average Premium Rates, 2008-2017



**Note:** The average premium rate trended downwards over 1980-2007 with the mean of 3.07%, while it trended upwards over 2008-2017 with the mean of 2.51%.

Source: NCIS Crop Hail Database. “All Hail APR” includes Standard Hail, Production Plan, Wind and Other perils. See also Schnapp (2011, Crop Insurance TODAY, 44(3)).

# A Summary of Findings (2008 to 2015)

- The share of enterprise unit acres within buyup acres surged.
  - 49, 51, and 31 ppts for corn, soybeans, and wheat, resp.
- The share of acres under catastrophic coverage declined.
  - 5, 8, and 4 ppts for corn, soybeans, and wheat, resp.
- The share of acres in high buyup coverage (at least 75%) was up.
  - 37, 33, and 26 ppts for corn, soybeans, and wheat, resp.
- MPCl acres (normalized by planted acres) increased.
  - 10.4%, 11.6%, and 10.9% for corn, soybeans, and wheat, resp.
- Crop hail acres (normalized by planted acres) increased.
  - 40%, 42%, and 5% for corn, soybeans, and wheat, resp.
  - Mixed results for wheat: Midwest (+43%), West (+19%), South (+18%), and Mountain (+12%); Northeast (-38%) and Plains (-11%).

**Note:** Sources: RMA's Summary of Business tables, NCIS Crop Hail Database, and the NASS Quick Stats. The 2007 information was used in unit level analysis.



# Planted Acres: Change 2008 to 2015

Region	Corn	Soybeans	Wheat
Midwest	2.0%	3.0%	-39.3%
Mountain	-9.5%	a	0.6%
Northeast	-1.4%	14.5%	-0.9%
Plains	8.3%	24.2%	-10.8%
South	-2.9%	10.3%	-16.9%
West	-17.3%	b	-12.6%
U.S.	2.4%	9.2%	-13.5%

**Note:** a, b Data was not available.

Source: NASS Quick Stats.



# Acres under MPCl Coverage (Normalized by Planted Acres): Change 2008 to 2015

Region	Corn	Soybeans	Wheat
Midwest	10.7%	14.5%	45.2%
Mountain	20.3%	135.2% <sup>b</sup>	3.1%
Northeast	10.2%	8.3%	24.6%
Plains	4.8%	5.3%	4.8%
South	19.3%	10.2%	15.3%
West	30.9%	<sup>a</sup>	16.9%
U.S.	10.4%	11.6%	10.9%

**Note:** <sup>a</sup> For soybeans in the West, there were no MPCl acres between 2008 and 2015.

<sup>b</sup> For soybeans in the Mountain region, insured acres were **not** normalized since the planted acres were not available.

Source: RMA's Summary of Business tables and the NASS Quick Stats.

# Acres under Crop Hail Coverage (Normalized by Planted Acres): Change 2008 to 2015

Region	Corn	Soybeans	Wheat
Midwest	53.1%	53.9%	43.4%
Mountain	53.9%	-19.6% <sup>b</sup>	11.8%
Northeast	196.6%	-38.9%	-38.4%
Plains	11.4%	15.6%	-10.6%
South	48.9%	116.1%	17.8%
West	-11.5%	<sup>a</sup>	19.1%
U.S.	40.1%	42.3%	5.3%

**Note:** <sup>a</sup> For soybeans in the West region, there were no planted, or crop-hail acres between 2008 and 2015. <sup>b</sup> For soybeans in the Mountain region, MPCI insured acres were used in normalization since the planted acres were not available. Source: NCIS Crop Hail Database, RMA's Summary of Business, and NASS Quick Stats.

# Share of Enterprise Unit Acres within Buyup

## Acres: Change 2007 to 2015

Region	Corn	Soybeans	Wheat
Midwest	52.0	50.1	46.2
Mountain	17.7	9.6	15.7
Northeast	59.6	48.8	46.9
Plains	43.3	47.3	29.9
South	51.3	61.7	53.5
West	25.0	<sup>a</sup>	18.5
U.S.	49.1	50.8	31.3

**Note:** <sup>a</sup> For soybeans in the West, there were no MPCI acres between 2007 and 2015.

Source: RMA's Summary of Business tables.

# Share of Acres under Catastrophic Coverage: Change 2008 to 2015

Region	Corn	Soybeans	Wheat
Midwest	-5.0	-5.9	-9.1
Mountain	-1.5	0.1	-0.9
Northeast	-11.0	-10.8	-9.2
Plains	-1.5	-1.7	-1.1
South	-16.6	-22.4	-15.2
West	-30.3	<sup>a</sup>	-9.7
U.S.	-5.4	-7.7	-4.4

**Note:** <sup>a</sup> For soybeans in the West, there were no MPCl acres between 2008 and 2015.

Source: RMA's Summary of Business tables.

# Share of Acres under High (At Least 75%) Coverage Within Buyup Acres: Change 2008 to 2015

Region	Corn	Soybeans	Wheat
Midwest	31.5	31.0	38.0
Mountain	23.9	7.1	12.4
Northeast	42.7	41.9	28.1
Plains	44.8	42.3	29.1
South	38.0	27.8	27.2
West	25.6	<sup>a</sup>	14.8
U.S.	35.6	32.7	26.1

**Note:** <sup>a</sup> For soybeans in the West, there were no MPCl acres between 2008 and 2015.

Source: RMA's Summary of Business tables.

# Concluding Thoughts and Future Directions

- Regional differences in crop insurance uptake poses a long-term challenge since the MPCl program needs a critical mass of farmers with sufficiently high coverage to negate ad hoc disaster aid.
- Possible room for improvement in coverage levels wheat in the Northeast and corn in the West as the average budget shares for the respective crops are lower than the Midwest.
- Together with crop hail suite of products, Enterprise Units worked well for certain regions. A similar innovation in other regions may be needed.
- The findings may have implications for the econometric studies of crop insurance demand.
- Include more years of data to check the robustness of the findings and employ an econometric analysis to control for other factors.