

# Insured Crop Losses: Just the Tip of the Iceberg

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When droughts or floods hit, insects invade, diseases, hurricanes, hailstorms, or tornados strike, or commodity prices tumble, the economic losses farmers face can be devastating. If the economic losses are severe enough, farms struggle to survive and in turn, the rural economy suffers.

Although economic crop loss caused by natural disasters or adverse market conditions cannot be entirely avoided, the adverse financial impact on farmers can be significantly reduced. Federal crop insurance, which is regulated by the United States Department of Agriculture (USDA), administered through the Risk Management Agency (RMA), and delivered by private-sector insurance carriers is the primary component of the farm safety net in the United States. As such, federal crop insurance (FCI) is typically a farmer's first line of defense for naturally occurring weather perils and adverse market conditions.

Federal crop insurance is available to farmers across the country at discounted premium rates to ensure that farmer premium is affordable and participation is sustained at high levels. An estimated 85 percent of planted acres for major crops is covered by FCI.<sup>1</sup> Farmers are also participating at high coverage levels, with 63 percent of acres insured at the 75 percent coverage level or above. Currently, farmers and taxpayers split the premium cost of FCI roughly 40 percent versus 60 percent, respectively, thereby sharing the risk of crop losses.

Opponents of farm policy in general and crop insurance in particular often argue that the level of premium support provided by taxpayers is overly generous. "It shouldn't be too much to ask for farmers who participate in the crop insurance



program to pay about half of the premiums for their own crop insurance policies."<sup>2</sup> The implication of this statement is that farmers shoulder less than half the risk at taxpayers' expense. The following discussion shows why statements such as these are misguided and misleading.

As with other forms of property insurance, FCI reimburses only those covered losses that exceed the policy's deductible and then only for the amount above the deductible.<sup>3</sup> Losses falling within the deductible are retained or 'self-insured' by the farmer. Because federal crop insurance policies have very large deductibles, ranging from 15 percent to 50 percent of the expected crop value, the proportion of crop losses covered by insurance is much smaller than one might expect. In comparison, on a homeowner's policy, the deductible typically falls between \$500 and \$2,500, the equivalent of 0.25 percent-1.25 percent of the value of a \$200,000 home. Were a homeowner's policy to have a deductible sim-

ilar to a typical FCI deductible of 15 percent to 50 percent, the homeowner would need to absorb out-of-pocket costs of \$30,000 ( $\$200,000 \times 0.15$ ) to \$100,000 ( $\$200,000 \times 0.50$ ) before insurance would begin to pay; an amount up to 200 times larger ( $\$100,000 / \$500 = 200$ ) than a typical homeowner's deductible. Clearly, the large deductibles on FCI policies force farmers to absorb a large amount of the overall risk.

So, how much of the financial risk for crop losses do farmers actually bear? Surprisingly, the answer ranges from nearly 100 percent in low loss years to well over half in catastrophic years, with a long-term average of about 76 percent on a countrywide basis, well above farmers' 40 percent share of the premium.

One way to think of the relationship between insured crop losses versus deductibles is as an iceberg. Insured crop losses can be likened to the visible part of an iceberg, the portion above the water, because they are captured in official

<sup>1</sup> RMA Quick Facts, [www.rma.usda.gov/pubs/rme/quickfacts.pdf](http://www.rma.usda.gov/pubs/rme/quickfacts.pdf)

<sup>2</sup> "Critical Amendments for the House Farm Bill", Daren Baskt, May 16, 2018, The Heritage Foundation. [www.heritage.org/agriculture/commentary/critical-amendments-the-house-farm-bill](http://www.heritage.org/agriculture/commentary/critical-amendments-the-house-farm-bill)

<sup>3</sup> CAT policies are an exception as only 55 percent of losses above the deductible are indemnified by the insurance policy.

**Table 1 CAT & Buy-Up Coverage** Data Valued 8/24/2018

Crop Year	FARMER SHARE OF PREMIUM				FARMER SHARE OF TOTAL LOSS					UNITS WITH INSURED LOSS		
	Farmer Paid Premium in \$MM	Premium Support in \$MM	Total Premium in \$MM	Farmer Paid Premium as % of Total Premium	Indemnity Paid by Insurance in \$MM	Loss within Deductible in \$MM	Total Loss in \$MM	Farmer Cost Share in \$MM	Farmer Cost Share % of Total Loss	Units Earning Premium	Units with Indemnity	% of Earned Units with Insured Loss
2000	1,192	1,348	2,540	46.9%	2,595	3,818	6,412	5,010	78.1%	3,046,928	612,215	20.1%
2001	1,188	1,774	2,962	40.1%	2,960	3,889	6,849	5,076	74.1%	3,080,139	674,973	21.9%
2002	1,175	1,741	2,916	40.3%	4,067	5,029	9,095	6,203	68.2%	3,058,549	958,765	31.3%
2003	1,389	2,042	3,431	40.5%	3,261	4,295	7,556	5,684	75.2%	3,075,001	778,372	25.3%
2004	1,709	2,477	4,186	40.8%	3,210	4,232	7,442	5,941	79.8%	3,076,029	664,462	21.6%
2005	1,605	2,344	3,949	40.7%	2,367	4,108	6,476	5,714	88.2%	3,021,985	525,555	17.4%
2006	1,898	2,682	4,580	41.4%	3,504	4,606	8,110	6,504	80.2%	2,941,703	671,621	22.8%
2007	2,739	3,823	6,562	41.7%	3,548	5,200	8,748	7,939	90.8%	2,966,080	569,074	19.2%
2008	4,160	5,691	9,851	42.2%	8,680	12,547	21,227	16,707	78.7%	3,023,074	1,048,585	34.7%
2009	3,524	5,427	8,951	39.4%	5,222	6,955	12,177	10,479	86.1%	2,729,436	594,886	21.8%
2010	2,883	4,712	7,595	38.0%	4,254	5,672	9,927	8,555	86.2%	2,572,207	464,585	18.1%
2011	4,509	7,463	11,972	37.7%	10,869	12,197	23,066	16,706	72.4%	3,321,716	955,031	28.8%
2012	4,138	6,979	11,117	37.2%	17,451	14,539	31,991	18,677	58.4%	2,529,096	917,369	36.3%
2013	4,511	7,297	11,808	38.2%	12,085	13,987	26,072	18,498	71.0%	2,583,808	883,227	34.2%
2014	3,858	6,215	10,073	38.3%	9,134	11,130	20,265	14,988	74.0%	2,539,404	799,234	31.5%
2015	3,678	6,087	9,765	37.7%	6,312	8,030	14,342	11,708	81.6%	2,546,625	617,102	24.2%
2016	3,462	5,865	9,327	37.1%	3,909	5,501	9,410	8,962	95.2%	2,441,182	392,225	16.1%
2017	3,717	6,354	10,071	36.9%	5,330	7,923	13,253	11,640	87.8%	2,369,009	542,783	22.9%
<b>Total</b>	<b>51,334</b>	<b>80,324</b>	<b>131,658</b>	<b>39.0%</b>	<b>108,758</b>	<b>133,658</b>	<b>242,416</b>	<b>184,992</b>	<b>76.3%</b>	<b>50,921,971</b>	<b>12,670,064</b>	<b>24.9%</b>

**Notes:**

(2) = (4)-(3)  
 (3), (4)-From Risk Management Agency's Summary of Business Report  
 (5) = (2)/(4) → Farmers' Share of Premium

(6) - From Risk Management Agency's Summary of Business Report  
 (7) - Derived from Risk Management Agency's Summary of Business Report  
 (8) = (6) + (7)  
 (9) = (7) + Lesser of (2) or (6)

(10) = (9)/(8) → Farmers' Share of Total Loss  
 (11), (12)-From Risk Management Agency's Summary of Business Report  
 (13) = (12)/(11)

statistics published by RMA. In contrast, crop losses within a policy's deductible do not appear anywhere within the official statistics, remaining as invisible as the portion of the iceberg below the surface. Government premium support constitutes roughly 60 percent of what can be seen above the waterline. In comparison, farmers pick up 40 percent of the topside risk as well as everything below the waterline. If the entire iceberg is considered, America's farmers absorb roughly 76 percent of the economic cost for crop losses on insured acres, while the Federal government's premium support is the remaining 24 percent (see Table 1). When viewed in the proper context, the government provides premium support only for a layer of excess insurance above farmers' large self-insured retentions.

### The Policy Context

Before proceeding with the analysis and results, it may be useful to provide some policy context explaining why crop insurance has be-

come the integral component of the farm safety net. Essentially, there have been two public policy mechanisms for spreading farmers' risk of financial loss in the U.S.: 1) government financed disaster relief; and, 2) crop insurance.

### Disaster Relief

Disaster relief occurs after the fact and leaves everyone scrambling. Not only are there unpredictable impacts on the Federal budget with the risk of drawn out political disagreements during the appropriations process, but there are also significant delays in delivering aid, as well as imprecise targeting of assistance not necessarily based on recipients' need. Disaster relief also differs from crop insurance in that recipients contribute nothing towards program financing. In addition, widespread crop damage is necessary to trigger disaster relief through the appropriations process, leaving farmers unable to transfer the risk of more localized disasters.

To avoid many of these drawbacks, a pub-

lic-private partnership was developed beginning in the 1980's where the Federal government sponsors and regulates federal crop insurance, which is sold and administered by private insurance companies in cooperation with independent insurance agents.

### Federally Regulated Crop Insurance

Crop insurance has some distinct advantages compared to *ad hoc* disaster relief. Farmers have some control over how much of their risk to keep and how much to transfer to third parties in exchange for a fixed premium payment.

One major advantage of crop insurance over *ad hoc* disaster relief is that, when a crop is damaged and losses exceed the policy deductible, the farmer receives an indemnity quickly. Other advantages include:

- The size of insurance indemnity payments is directly related to the damage each farmer incurs;

- Political considerations are removed from the process of aiding those in need;
- Those receiving assistance pay for a significant portion of the cost;
- Individual farm level 'disasters' are covered;
- Farmers can incorporate insurance into their overall risk management planning; and,
- In many instances, crop insurance is required to secure operating loans.

A further benefit of the program is that crop insurance is required by law to operate in an actuarially sound manner, meaning total premiums collected are sufficient to cover the cost of claims over the long run.<sup>4</sup>

## What do America's Farmers Pay for Crop Losses?

The purpose of the analysis presented here is to estimate the amount of economic loss found within the deductible layer of crop insurance policies. Why is this quantity of interest? The reason is that published crop insurance statistics tell only part of the story, because crop insurance only covers a portion of the risk of economic loss faced by farmers.

Conceptually, economic loss due to crop damage on insured acres falls into two layers, the deductible layer and the insured layer. Each crop insurance policy has a deductible, which excludes any loss less than this amount from insurance coverage. Farmers receive no insurance payment for losses within the deductible layer, which explains why deductible losses are also referred to as self-insured losses. In contrast, the insured layer consists of that portion of losses exceeding the deductible and for which farmers receive insurance payments.

Published statistics on their own only tell the story in the insured layer. To understand the risk of economic loss faced by farmers, the deductible layer cannot be ignored. As there are no published deductible layer statistics, this analysis estimates a portion of them based on the available insured layer statistics. The estimate provided here is conservative as it excludes a portion of the deductible layer losses, thus understating the true level of economic loss self-insured by farmers. Despite its conservative nature, our estimate provides valuable and surprising insight, which significantly weakens a number of arguments advanced by critics of crop insurance.

**In comparison, on a homeowner's policy, the deductible typically falls between \$500 and \$2,500, the equivalent of 0.25 percent-1.25 percent of the value of a \$200,000 home.**

## Methodology: Estimating Crop Losses on Insured Acres

Determining how much farmers pay for crop losses on acres covered by insurance seems straightforward; one might assume that since the current average premium support stands at just over 60 percent, farmers pay only 40 percent of the loss. However, this interpretation ignores some critical considerations: 1) FCI does not provide first dollar coverage; 2) farmers self-insure a larger share of crop losses as deductibles increase; and, 3) not all self-insured loss can be extracted from official statistics.

### Consideration 1: FCI Does Not Provide First Dollar Coverage

FCI does not cover every dollar of crop loss. Instead, FCI covers only that portion of crop loss in excess of a deductible, with farmers self-insuring the rest. Consequently, FCI premium reflects the expected loss in the layer above the deductible. Thus, farmers pay a much larger share of crop losses than their 40 percent share of premiums might lead one to believe.

### Consideration 2: Farmers Self-Insure a Larger Share of Crop Losses at Higher Deductibles

Regardless of whether a loss is large enough to trigger an insurance indemnity payment, some portion of every loss will fall into the deductible layer. For larger deductibles, farmers self-insure larger shares of the total crop loss. To illustrate, a deductible of \$0 implies none of the loss is self-insured, while a large enough deductible, or no insurance at all, implies all of the loss is self-insured.

### Consideration 3: Not All Self-Insured Loss Can be Extracted from Official Statistics

The methodology developed here to estimate farmers' self-insured loss in the deductible layer only includes the deductible portion of losses that were large enough to trigger an insurance indemnity payment. Although farmers also absorb loss amounts too small to have triggered an insurance indemnity payment, there is no way to reliably determine a farmer's loss in this situation, because the number and size of these losses are not reported in the official statistics. In addition, larger deductibles 'hide' more of the farmer's actual loss than smaller deductibles, because fewer claims will be large enough to exceed the larger deductible, triggering indemnity payments.

Due to the difficulty of estimating self-insured loss when the loss is smaller than the deductible, the term "loss within the deductible" as used in this article represents only the deductible portion of those losses which exceed the deductible, i.e. losses having an indemnity payment. The estimates developed here make no attempt to evaluate the amount of self-insured losses that were too small to trigger a claim. Consequently, the estimates of farmers' cost share in this article *understate* farmers' true cost share. The larger a policy's deductible, the larger this understatement is.

## Data: Risk Management Agency's Summary of Business

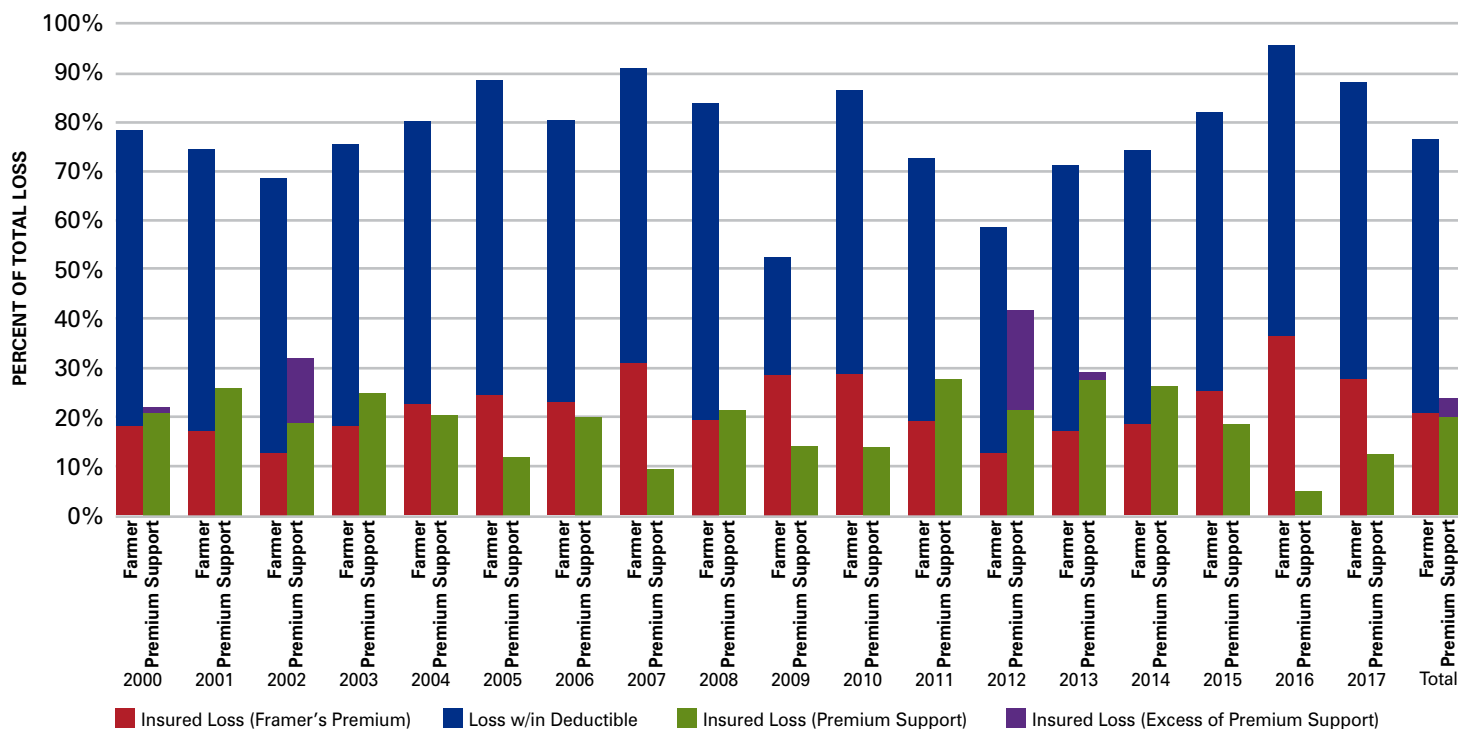
The data relied on for this analysis is publicly available on RMA's website. Fortunately, crop insurance is sold at a limited number of de-



<sup>4</sup> In contrast to all other lines of insurance, the definition of "premium" under the FCI program excludes all expenses. Instead, insurers writing FCI are reimbursed separately for their Administrative and Operating expenses by USDA.



**Figure 1 Federal Crop Insurance (CAT & Buy-Up) Crop Loss Cost-Share (Percent of Premium)**



ductibles, stated in terms of coverage level,<sup>5</sup> and RMA's Report Generator<sup>6</sup> can provide data summarized by coverage level.

The following data elements were extracted from RMA's Report Generator: Commodity Year, Coverage Level Percent, Delivery Type (Cat vs Buy-up Flag), Units Earning Premium, Units Indemnified, Liabilities (\$), Total Premium (\$), Premium Support (\$), and Indemnity (\$). The data underlying this analysis is valued as of August 24, 2018.

### Analysis: Estimating Losses in the Deductible Layer

Estimating loss within the deductible layer, based on RMA data, proceeds by observing that Liability represents that portion of the total crop value which is covered by insurance (the value of the crop in the insured layer). Mathematically,

#### Equation 1

$$Liability = \left[ \frac{Total\ Crop\ Value}{Insured} \right] \cdot \left[ \frac{Coverage\ Level}{Level} \right] \cdot \left[ \frac{Percent\ of\ Price}{Insured} \right]$$

Both Liability and Coverage Level are supplied

by RMA's Report Generator. Percent Price Insured is a function of Delivery Type, 55 percent for CAT coverage and 100 percent for Buy-Up Coverage. Given this, the above equation can be rearranged to calculate Total Crop Value Insured.

#### Equation 2

$$\left[ \frac{Total\ Crop\ Value}{Insured} \right] = \frac{Liability}{\left[ \frac{Coverage\ Level}{Level} \right] \cdot \left[ \frac{Percent\ of\ Price}{Insured} \right]}$$

The value of the crop in the deductible layer is the difference between Total Crop Value Insured and Liability (the value of the crop in the insured layer). The value of the crop in the deductible layer stems from all the insured Units Earning Premium during the insurance period, whether the crop was damaged or not.

As previously discussed, our objective is to estimate the amount of loss within the deductible layer, but only for those Units with damages large enough to trigger a claim. The frequency of Units with claims can be estimated as the ratio of Units Indemnified to Units Earning Premium. This frequency can then be used to estimate the value

of the crop falling within the deductible layer for those units with insurance claim payments. Since farmers self-insure the entire loss from first dollar up to the amount of the deductible, the loss within the deductible layer can be estimated as follows for each coverage level,

#### Equation 3

$$\left[ \frac{Loss\ in}{Deductible} \right] = \left[ \frac{Units\ Indemnified}{Units\ Earning\ Premium} \right] \cdot \left[ \frac{Value\ of\ Crop\ in\ Deductible\ Layer}{Layer} \right]$$

The above estimate effectively assumes each Unit Earning Premium has an equal share of the value of the crop; this is a consequence of the underlying data having been aggregated beyond the individual policy level.

### The Big Picture

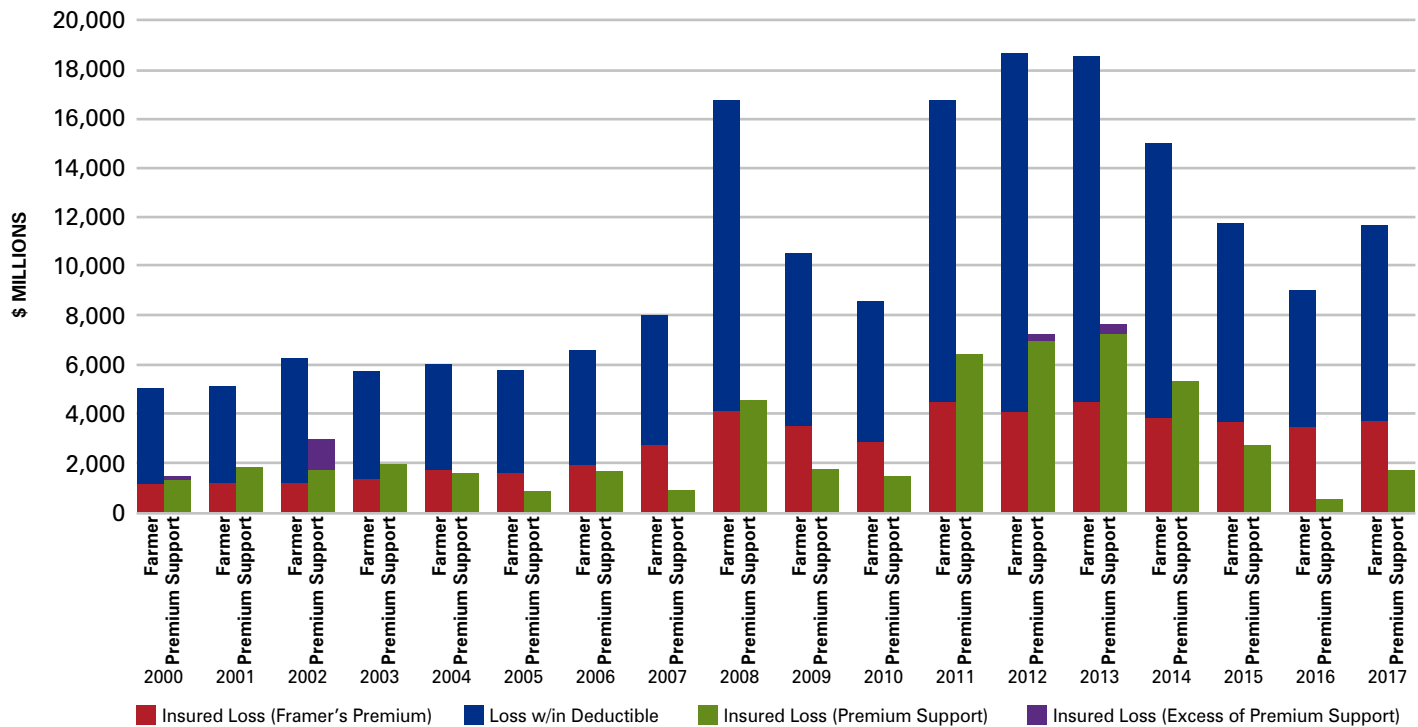
Putting the pieces together, Figure 1 (based on data in Table 1) reveals that, on average, farmers have borne 76 percent of the economic cost of crop losses on insured acres over the period from 2000-2017. Breaking this down to its components, farmers absorb 100 percent of the loss within the deductible layer (55 percent of the total loss falls

<sup>5</sup> Deductible = 100% - Coverage Level.

<sup>6</sup> <https://prodwebnlb.rma.usda.gov/apps/SummaryofBusiness/ReportGenerator>

<sup>7</sup>  $1.00 \times 0.55 + 0.46 \times 0.45 = 0.757$

Figure 2 Federal Crop Insurance (CAT & Buy-Up) Crop Loss Cost-Share (\$MM)



within the deductible layer) as well as 47 percent of the insured losses (45 percent of the total loss), through payment of farmer-paid premium.<sup>7</sup> It should be noted that the farmers' 47 percent share of insured losses exceeds their 40 percent share of premium because premium has exceeded insured loss on the time period included in the analysis.

Column (10) of Table 1 shows farmers' cost share by year. During favorable years, farmers have borne up to 95 percent of crop losses. In contrast, farmers' cost share in very unfavorable years, such as 2012, drops to just under 60 percent.<sup>8</sup> While critics of the program may argue that farmers should pay half of the premium for FCI, the reality is that roughly 76 percent of the total cost has come out of the farmers' own pockets over the long term. Farmers' cost-share includes 40 percent of the premium for the layer of coverage above the deductible, plus 100 percent of the cost of losses within the deductible. Even in those years with major crop failures when taxpayer assistance is needed most, farmers' cost-share is still nearly 60 percent.

The relative share of crop losses on insured acres borne by farmers is contained in Table 1 as displayed in Figure 2 in dollar terms.

Looking at CAT coverage (Table 2) is by

itself even more dramatic. The Federal government provides 100 percent of premium support for CAT coverage, column (5); however, these policies pay only 55 percent of a crop's price on losses above a 50 percent deductible. Despite paying none of the risk premium on CAT policies, column (10) shows that farmers' cost-share is 93.2 percent of crop losses. Due to the CAT policy's large deductible, very few indemnities are paid, and when a loss large enough to trigger a claim does occur, insurance only pays 55 percent of the loss above the deductible. The farmer absorbs the remaining 45 percent of loss within the insured layer as well as 100 percent of loss within the deductible layer out of his or her own pocket. As shown in column (10), insurance rarely covers more than 10 percent of total loss on CAT policies.

### Results: Farmers Bear Substantial Economic Loss Prior to Insurance

We can now turn to a detailed discussion of our results, as summarized in Table 1. Columns (2)-(4) are taken directly from RMA's Summary of Business. The essence of our results is column (7), which shows the estimated losses within the

deductible layer. For the period 2000-2017, total economic losses within the deductible are a bit more than \$133B. Compare this with column (6), indemnities paid by insurance, which is just under \$109B over the same time-frame. In turn, total economic loss, consisting of total indemnities plus deductible losses, exceeds \$240B, shown in column (8).

Column (9) provides an estimate of farmers' cost share of crop losses, or in the parlance, their "skin in the game". Column (9) equals column (2), farmer paid premium, plus column (7), losses within the deductible, totaling roughly \$184B; perhaps "hide in the game" comes closer to describing the situation than a thin layer of epidermis. These results speak to the true degree of farmer cost sharing taking place in the federal crop insurance program.

Table 1 also includes estimates of claims frequency, columns (11) through (13). Putting this into perspective, aggregate losses within the deductible of approximately \$133B are only measured on roughly 25 percent of Units Earning Premium, column (13). To be clear, the estimates presented here only capture losses within the deductible layer for those policies that are indemnified, i.e. have an insurance payment. While there

<sup>8</sup> The role of private insurers, the impact of the Standard Reinsurance Agreement, and Administrative & Operating reimbursements are ignored as the focus here is on determining the proportion of economic loss due to crop loss borne by farmers.

**Table 2 CAT Coverage ONLY** Data Valued 8/24/2018

Crop Year	FARMER SHARE OF PREMIUM				FARMER SHARE OF TOTAL LOSS					UNITS WITH INSURED LOSS		
	Farmer Paid Premium in \$MM	Premium Support in \$MM	Total Premium in \$MM	Farmer Paid Premium as % of Total Premium	Indemnity Paid by Insurance in \$MM	Loss within Deductible in \$MM	Total Loss in \$MM	Farmer Cost Share in \$MM	Farmer Cost Share % of Total Loss	Units Earning Premium	Units with Indemnity	% of Earned Units with Insured Loss
2000	0	265	265	0.0%	66	987	1,052	987	93.7%	470,457	32,464	6.9%
2001	0	246	246	0.0%	50	852	902	852	94.4%	361,682	21,093	5.8%
2002	0	231	231	0.0%	78	1,179	1,257	1,179	93.8%	320,249	32,184	10.0%
2003	0	226	226	0.0%	45	844	888	844	95.0%	267,510	16,464	6.2%
2004	0	242	242	0.0%	54	635	690	635	92.1%	242,026	9,964	4.1%
2005	0	237	237	0.0%	101	1,282	1,383	1,282	92.7%	214,141	11,612	5.4%
2006	0	214	214	0.0%	69	878	947	878	92.7%	188,598	11,696	6.2%
2007	0	274	274	0.0%	60	1,093	1,152	1,093	94.8%	186,534	13,883	7.4%
2008	0	336	336	0.0%	75	1,048	1,124	1,048	93.3%	186,729	11,943	6.4%
2009	0	308	308	0.0%	71	1,097	1,168	1,097	93.9%	148,275	11,734	7.9%
2010	0	267	267	0.0%	39	810	849	810	95.4%	124,272	9,414	7.6%
2011	0	291	291	0.0%	117	1,344	1,461	1,344	92.0%	147,494	15,999	10.8%
2012	0	265	265	0.0%	84	852	936	852	91.1%	104,640	8,785	8.4%
2013	0	260	260	0.0%	46	855	901	855	94.9%	92,520	7,374	8.0%
2014	0	244	244	0.0%	37	737	773	737	95.3%	82,387	5,009	6.1%
2015	0	138	138	0.0%	115	814	929	814	87.6%	71,733	6,056	8.4%
2016	0	110	110	0.0%	36	522	558	522	93.6%	64,125	4,207	6.6%
2017	0	104	104	0.0%	50	605	656	606	92.4%	57,283	4,808	8.4%
<b>Total</b>	<b>0</b>	<b>4,258</b>	<b>4,258</b>	<b>0.0%</b>	<b>1,192</b>	<b>16,435</b>	<b>17,627</b>	<b>16,435</b>	<b>93.2%</b>	<b>3,330,655</b>	<b>234,689</b>	<b>7.0%</b>

**Notes:**

(2) = (4)-(3)  
 (3), (4)-From Risk Management Agency's Summary of Business Report  
 (5) = (2)/(4) → Farmers' Share of Premium

(6) - From Risk Management Agency's Summary of Business Report  
 (7) - Derived from Risk Management Agency's Summary of Business Report  
 (8) = (6) + (7)  
 (9) = (7) + Lesser of (2) or (6)

(10) = (9)/(8) → Farmers' Share of Total Loss  
 (11), (12)-From Risk Management Agency's Summary of Business Report  
 (13) = (12)/(11)

are additional losses that are not large enough to penetrate the deductible, those losses are not considered in this analysis. What the analysis clearly demonstrates is that farmers, in aggregate, are exposed to a much higher degree of risk and economic loss than is captured by published statistics.

Perhaps most revealing is a year-by-year comparison of column (6), and (7), insurance indemnities relative to the deductible layer. Except for 2012, losses within the deductible exceed total indemnities paid out by the insurance system. For the period 2000-2017, this amount totals roughly \$25B. Again, this \$25B represents approximately 25 percent of insured Units on indemnified policies.

The fact that farmer self-insured deductible losses have outstripped insurance indemnities every year since 2000, except for 2012, shows just how deep the below-surface losses in our iceberg analogy can stretch. Even in 2012, which saw the worst drought in modern history, farmers invested more in the system, in terms of farmer-paid premium plus deductible loss, than was paid out in claims. That year, farmers spent \$4.1 billion to

purchase buy-up and catastrophic crop insurance coverage. Losses absorbed as deductibles totaled \$14.5 billion, bringing total farmer cost-share to \$18.6 billion. Insurance indemnified \$17.5 billion in losses, which was by far the highest amount the system has ever paid, but still below total farmer contribution.

### Conclusions

As illustrated by this analysis, farmers in aggregate bear substantial economic risk prior to collecting any insurance indemnities. The estimates of economic loss presented here are extremely conservative, thus representing a lower bound on the total risk absorbed by the farm sector. The reader should keep in mind that indemnities are paid on approximately 25 percent of the land Units insured. Further, in constructing these estimates, we are only measuring the losses occurring within the deductible for policies with an insurance payment.

Although government premium support does play a vital role in America's farm safety net, in

terms of who pays for crop losses on insured acres, premium support is only part of the story. In normal times, farmers shoulder roughly 76 percent of the financial burden of paying for insured losses, while in good times they pick more than 95 percent, and just over 58 percent in bad. It is important for readers to recall that only in 2012 did indemnity payments received by farmers exceed the economic losses within the deductible.

Opponents of the farm safety net and critics of crop insurance tend to ignore the actual economic risk borne by the farm sector. As a result, their view is that farmers' expected revenue is guaranteed, and collection of an insurance indemnity is a foregone conclusion. We believe the analysis presented here dispels this misguided thinking.

The farm sector serves a vital role in our economy; farming is also a risky business. Today's modern crop insurance system is a viable public/private partnership benefiting both the farm community and taxpayers.