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Farm Sizes Impacted by a $40,000 Crop Insurance Premium Support Limit

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Proposals have been made to limit the amount of Federally-paid crop insurance premiums on a per farm basis. A $40,000 limit was proposed in the last farm bill and the 2016 Trump budget included this limit as well. The sizes of corn and soybean farms that reach a $40,000 limit are examined for two counties in Illinois: a low risk county (McLean County) and a higher risk county (Saline County). For the low risk county, the farm size impacted by the limit is near 3,000 acres, not a particularly large farm. In the higher risk county, the farm size impacted by the limit is near 1,000 acres, a farm size that is relatively small by commercial grain farm standards. The 3,000 and 1,000 acre benchmarks assume 100% of share in crop production on farmland. Use of share rent agreement increases proportionally the acres necessary to reach the limit.

Background

The Federal government subsidizes a portion of the total premium of Federal crop insurance policies and this premium support represents a large portion of total Federal outlays associated with crop insurance. An often-made proposal has been to limit Federal premium support on a per farm basis. A crop insurance subsidy limit has some precedence in that commodity title programs have had limits throughout history (see *farmdoc daily*, March 24, 2017). Except for peanuts, program crop payments under the 2014 Farm Bill are limited to $125,000 per individual (*farmdoc daily*, August 21, 2014). Limits generally arise from equity concerns about individuals receiving too large benefits from the government. An often-discussed limit on crop insurance subsidies is $40,000 per farm. Once a farm reaches the $40,000 limit, all remaining premium would be paid entirely by the farmer. The remainder of this article shows farm sizes at which the $40,000 limit is reached.

Low Risk County

Table 1 reports farmer-paid, Federally-paid, and total premiums associated with a Revenue Protection (RP) policy for corn sold in McLean County, Illinois. McLean is a county in central Illinois that would generally be viewed as having low risk. These premiums are calculated using 2018 rates, a $3.96 projected price and a .19 volatility. The $3.96 projected price and .19 volatility are 2017 values. The values for 2018 will be known at the end of February. Premiums in Table 1 are for a 100 acre enterprise unit given a trend adjusted yield of 190 bushels per acre. RP is by far the most popular product sold for corn. In 2017, 95.2 percent of the acres in McLean County were insured using RP (Summary of Business data from the Risk Management Agency). Additionally, the most popular coverage level is 85%, which was used to insure 62.5% of the corn acres in McLean County.

Table 1. Estimated 2018 Revenue Protection (RP) Premium for Corn in McLean County, Illinois[1]

Coverage Level	Premium: Farmer-Paid [2]	Premium: Federally-Paid [3]	Premium: Total [4]
	$/acre	$/acre	$/acre
50%	0.39	1.56	1.95
55%	0.56	2.24	2.80
60%	0.81	3.24	4.05
65%	1.25	5.00	6.25
70%	1.82	7.28	9.10
75%	3.17	10.61	13.78
80%	6.84	14.54	21.38
85%	15.78	17.79	33.57

[1] Premium are given using 2018 rates, a $3.96 projected price, .19 volatility, a 100 acre enterprise unit, a 180 bushel APH yield, and a 190 bushel TA-APH yield.

[2] The portion of the premium that is paid by the farmer.

[3] The portion of the premium that is Federally supports.

[4] Total premium is the sum of farmer-paid and Federally-paid premium

The total premium for the 85% coverage level RP policy is $33.57 per acre. This total premium is set by the Risk Management Agency (RMA). RMA sets premiums so that expected payments (indemnities) over time from a policy will approximately equal total premium. In other words, the expected payment for the 85% coverage level is $33.57 per acre. In central Illinois, these payments will not occur every year. Rather, most years will have no payments or small payments. There will be a number of years with larger payments. Very occasionally, there will be a drought year like 2012 when large insurance payments will occur. Over that variety of possible years, RMA estimates that the total payment for these policies will be $33.57 per acre.

Farmers do not pay the total premium. The Federal government pays a portion of the premium as a means to encourage crop insurance use. The proportion of total premium paid by the Federal government varies by coverage level. For enterprise units, the proportion paid by the Federal government is 80% for 70% and lower coverage levels, 77% for 75% coverage levels, 68% for 80% coverage levels, and 53% for 85% coverage levels (see *farmdoc daily*, May 5, 2016 for rates on other insurance units). In Table 1, the portion of total premium paid by the Federal government for the 85% coverage level is $17.79 per acre. The $17.79 per acre value equals the 53% of the premium paid by the government at an 85% coverage level times the total premium of $33.57. The farmer then pays the remainder, or $15.78 ($33.57 total premium - $17.79 Federally-paid premium).

It is important to realize that the Federally-paid portion of the premium does not flow directly to the farmer. The final destination of the Federally-paid portion is influenced by a complex set of factors that include losses of crop insurance policies in a state relative to premium, decisions made by private crop insurance companies, and a "standard reinsurance agreement" that controls how losses are shared between the private crop insurance companies and the Federal government. The final destination of the Federally-paid portion could be to farmers as crop insurance indemnity payments when losses are experienced, to private crop insurance companies as underwriting gains, or it could be retained by the Federal government.

The Federally paid portion of the premium is the focus of proposals to limit premium support, such as the $40,000 limit. This limit would restrict Federally-paid premium to $40,000 per farm. If a farm in McLean County, Illinois only insured corn, the $40,000 limit would be reached with 2,247 acres at an 85% coverage level (2,247 = $40,000 limit / $17.79 Federally-paid premium). A further analysis of limits will be shown for a blended corn and soybean acres below.

Higher Risk County

McLean County, Illinois would generally be viewed as a relatively low production risk area. The $40,000 limit will be reached at a much lower acreage level in a higher risk area because per acre premiums are higher in these higher risk areas. To illustrate, corn premiums are also shown for Saline County, Illinois for a farm with a trend adjusted yield of 152 bushels per acre (see Table 2). Saline County is located in southern Illinois and is a riskier region than central Illinois.

Table 2. Estimated 2018 Revenue Protection (RP) Premium for Corn in Saline County, Illinois [1]

	Premium		
Coverage Level	Farmer-Paid [2]	Federally-Paid [3]	Total [4]
	$/acre	$/acre	$/acre
50%	4.73	18.92	23.65
55%	5.90	23.60	29.50
60%	7.44	29.76	37.20
65%	9.20	36.80	46.00
70%	11.28	45.12	56.40
75%	16.05	53.73	69.78
80%	26.67	56.67	83.34
85%	46.35	52.27	98.62

[1] Premium are given using 2018 rates, a $3.96 projected price, .19 volatility, a 100 acre enterprise unit, a 143 bushel APh yield, and a 152 bushel TA-APH yield.

[2] The portion of the premium that is paid by the farmer.

[3] The portion of the premium that is Federally supports.

[4] Total premium is the sum of farmer-paid and Federally-paid premium

Note that total premiums are much higher for Saline County. The total premium for an 85% coverage level policy is $98.62 per acre (see Table 2). This $98.62 premium compares to a $33.67 premium in McLean County. The 85% premium in Saline County is almost three times that of McLean County. Because it's a higher total premium, the Federal-paid portion of the premium is higher. At an 85% coverage level, $52.27 per acre are Federally-paid. At an 85% coverage level, the $40,000 limit would be reached at 765 acres.

In practice, most Saline County farmers do not purchase crop insurance at an 85% coverage level. The most used coverage level in Saline County is the 75% coverage level. In 2017, 56.5% of the corn acres were insured using RP at the 75% coverage level. The 75% coverage level has a $16.05 farmer-paid premium and a $53.73 Federally-paid portion of the premium (see Table 2). Note that the Federally-paid premium is about the same at the 75% level ($53.73 per acre) compared to the 85% level ($52.27 per acre). While total premium is lower at the 75% level, the Federally-paid portion of the premium is higher at the 75% level as compared to the 85% level (77% at 75% versus 53% at an 85% coverage level). The higher percentage offsets the lower premium. At a 75% coverage level, the $40,000 limit is reached at 744 acres.

Premium Limits and Farm Size

Most farmer grow and insure both corn and soybeans. Soybean crops typically have lower risk than corn, resulting in lower premiums for soybeans. Those lower premiums will then impact acres required to hit the $40,000 limit. Table 3 shows Federally-paid premium for a blended acre of 50% corn and 50% soybeans, a fairly common crop rotation in Illinois. Corn premiums are those provided in Tables 1 and 2. Soybean premiums are shown in the Appendix Tables 1 and 2.

Table 3. Federally-Paid Premium Averaged Over Corn and Soybean Acres and Acres to Reach a $40,000 Limit

	McLean County		Saline County	
Coverage Level	Federally-Paid Premium [1]	$40,000 Limit Acres [2]	Federally-Paid Premium [3]	$40,000 Limit Acres [2]
	$/acre	acres	$/acre	acres
50%	0.88	45,198	13.30	3,008
55%	1.31	30,418	16.92	2,364
60%	1.94	20,672	21.56	1,855
65%	3.12	12,841	27.22	1,470
70%	4.62	8,658	33.74	1,186
75%	6.98	5,734	40.32	992
80%	10.13	3,950	43.02	930
85%	14.13	2,831	40.48	988

[1] Average of Federally-paid premium over corn acre (Table 1) and soybean acre (Appendix Table 1)

[2] Equals $40,000 divided by Federally-paid premium.

[3] Average of Federally-paid premium over corn acre (Table 2) and soybean acre (Appendix Table 2)

For the McLean County case, the most popular coverage option is 85%, and the $40,000 limit is reached at 2,813 acres. By way of comparison, average farm size in Illinois is 359 acres. The 359 acres include many farms that are small and receive a majority of their income from off-farm sources. The average grain farm size enrolled in Illinois Farm Business Farm Management is about 1,300 acres, representing a size that is closer to receiving more of their income from on-farm sources. There are many farms over 1,300 acres and a 2,813 acre would not be viewed as a particularly large farm.

For Saline County, the most popular coverage level is 75% and the $40,000 limit is reached at 992 acres. The 992 acres is below the average size for commercial grain farms in Illinois.

The above comparisons are based on farmers having a 100% share in the farmland. Under share rent situations, farmers would receive a portion of the crop and only insure a portion of the acreage. For example, a 50-50 share-rent arrangement would result in a 50% share in the crop. In this case, premiums costs (and resulting payments) to the farmer would be cut in half. If all farmland was 50-50 share rented, the values in table 3 would double. However, all farmland is not share rented on most farms. According to Illinois Farm Business Farm Management summaries, 46% of the farmland was share-rented in central Illinois and 37% was share rented in southern Illinois. Even after these considerations, farm sizes reaching those limits would not represent extremely large farms. Moreover, the proportion of land controlled under cash rent agreements tends to be greater on larger farms in IL, and there will be farms that have no share rented acres. Thus, the acreage limits listed in those tables would impact some farms.

Summary and Observations

Several observations from the above analysis:

- A $40,000 limit has the potential to impact many commercially-sized farms.
- The impacts will be larger in higher risk areas. Central Illinois is one of the lower risk areas of the United State (see Figure 2 of Taylor and Barnaby). Hence, the acreage limits to reach the $40,000 limit will be higher in central Illinois than in many other areas of the country.
- The exact nature of the $40,000 per farm limit is unknown. The limit could apply to an individual as it does in the case of commodity programs. Or there could be some entity definition. In either case, farms nearing limits could evaluate ways of restructuring the operation so as to avoid limits.
- A $40,000 limit would set into play a complex set of insurance decisions for those farms reaching the limit. Those farms reaching the limit likely would lower coverage levels and move to different plans of insurance. These changes would reduce the risk protection offered to those farms. Movements to share rent are possible as well.

References

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Apppendix Table 1. Estimated 2018 Revenue Protection (RP) Premium for Soybeans in McLean County, Illinois[1]

Coverage Level	Premium: Farmer-Paid [2]	Federally-Paid [3]	Total [4]
	$/acre	$/acre	$/acre
50%	0.39	1.56	1.95
55%	0.56	2.24	2.80
60%	0.81	3.24	4.05
65%	1.25	5.00	6.25
70%	1.82	7.28	9.10
75%	3.17	10.61	13.78
80%	6.84	14.54	21.38
85%	15.78	17.79	33.57

[1] Premium are given using 2018 rates, a $10.19 projected price, .16 volatility, a 100 acre enterprise unit, a 56 bushel APH yield, and a 58 bushel TA-APH yield.

[2] The portion of the premium that is paid by the farmer.

[3] The portion of the premium that is Federally supports.

[4] Total premium is the sum of farmer-paid and Federally-paid premium

Apppendix Table 2. Estimated 2018 Revenue Protection (RP) Premium for Soybeans in Saline County, Illinois[1]

Coverage Level	Premium: Farmer-Paid [2]	Federally-Paid [3]	Total [4]
	$/acre	$/acre	$/acre
50%	1.92	7.68	9.60
55%	2.56	10.24	12.80
60%	3.34	13.36	16.70
65%	4.41	17.64	22.05
70%	5.59	22.36	27.95
75%	8.04	26.92	34.96
80%	13.82	29.37	43.19
85%	25.44	28.69	54.13

[1] Premium are given using 2018 rates, a $10.19 projected price, .16 volatility, a 100 acre enterprise unit, a 56 bushel APH yield, and a 58 bushel TA-APH yield.

[2] The portion of the premium that is paid by the farmer.

[3] The portion of the premium that is Federally supports.

[4] Total premium is the sum of farmer-paid and Federally-paid premium