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Lower Price will Trigger Many Revenue Insurance Contracts¹

Because of the decline in grain prices Revenue Assurance (RA), Crop Revenue Coverage (CRC) and Group Risk Income Protection (GRIP) may provide indemnity payments. In table 1 is an example corn-soybean farm with equal acres and shares of each crop. The RA/CRC/GRIP soybean harvest price is based on the October average of November Chicago Board of Trade (CBOT) soybean futures closing prices. The CRC and GRIP have a downside price limit of \$3 so the final harvest price will be \$10.36 for soybeans. RA has no price limit and the current estimate is \$9.38 for soybeans and the CRC/GRIP harvest corn price estimate is \$4.23, so farmers don't have the final numbers yet.² The RA harvest price for corn is based on the November average of December Chicago Board of Trade (CBOT) corn futures closing prices rather than the October average used for CRC and GRIP.

CRC Payments? Based on current market prices, it will require a "small" yield loss for most CRC insured corn and soybean farmers to collect on their CRC policy.³ Because

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² The October price estimates are current as of October 17, 2008.

³ Based on current market prices, it will require no yield loss for 80% and 85% CRC coverage insured corn and soybean farmers to collect on their CRC policy. However, most CRC coverages are 75% or less.

there is no limit in RA, it will likely require an above average soybean yield for farmers not to have an RA soybean claim. The RA corn harvest price is the November average price so it is too early to guess about possible corn claims insured with RA that has no downside price limit.

GRIP Payments? The GRIP policy has a good chance of payment for both soybeans and corn. The GRIP harvest price for corn and soybeans is the October average CBOT price on the harvest contract. The county yield will need to exceed the RMA set trend adjusted county yield by as much as 16% on soybeans and 12% on corn to eliminate GRIP revenue insurance payments, assuming 90% coverage (Table 2). In Clay county Indiana both the corn and soybean county yields will need to exceed their 5 year average planted county yields to eliminate GRIP payments. Clay county historical planted county yields are presented in Table 3.

Yield loss is the major cause of revenue insurance payments. What is misunderstood is that most of the risk in CRC/RA is yield risk because yields are measured at the “field” (optional unit) level causing greater yield risk and generating a larger standard error. The larger standard error means yields can be above the mean too and in most cases that will eliminate or reduce RA/CRC payments. GRIP is based on county yields that have a smaller standard error, therefore there is less of a chance county yields will exceed the expected county yield by a large enough yield to eliminate GRIP payments and this causes more of the GRIP revenue risk to be price risk. If there were no county yield variability, GRIP would default in to price risk only (put option on price). Therefore in the lower risk Corn Belt counties the price risk represents a greater share of the GRIP revenue risk than is the case for the Great Plains. The reduced county yield risk combined with a 10% deductible (that is also disappearing) in GRIP will require only a “small” price decline to trigger payments. It will be a big surprise if there are not a number of counties generating GRIP payments this year because of the decline in grain prices. The key will be how “good” was the RMA formula used to set the expected county yield.

What about SURE payments? Many of the details and rules for the Supplemental Revenue (SURE) program have not been published. So it was necessary to make a number of assumptions on how SURE will be administered. The assumptions are based on current comments from Washington policy markers.

SURE is based on the Marketing Year Average (MYA) price rather than the revenue insurance defined harvest price based on futures markets. The MYA price will be published for 2008 fall harvested crops on about November 1 of 2009. This means farmers will not receive any SURE payments for 2008 crop year revenue losses until about November 1, 2009. However, assuming the MYA price is similar to the revenue harvest price then it is likely many farmers will also have a claim under SURE but they will need to wait on any payment.⁴

⁴ It will likely require their farm to be in a county that has the Secretary’s disaster declaration, otherwise they will need a 50% loss (yield or revenue?).

An example case problem is presented in table 4 that assumes a corn-soybean farm with equal acreage of both crops. The example farm assumes there were no low yields in the aph⁵ history that were replaced with 60% of T-yields and the MYA price is similar to the harvest price used to settle the revenue insurance claims. The example farm also assumes the farm is located in a county that has received the Secretary's disaster declaration or is in a contiguous county. It is likely the Secretary's disaster declaration will be required because most farms will not meet the 50% yield loss test unless located in flooded areas, such as parts of Iowa⁶. To receive a Secretarial disaster declaration it requires the county to demonstrate a 30% loss, but this includes all crops and crop mixes, so clearly some judgments are made by Farm Service Agency's (FSA) officials.

In addition the new technical correction Law includes a new rule that now requires farmers to suffer at least a 10% yield loss on one major crop⁷.

Because the example farm is a two crop farm only, it will be necessary for either the corn crop or the soybean crop to suffer a 10% yield loss in order to receive SURE disaster payments. If we assume the corn has a 10% yield loss then 75% coverage RA insured farmers would need their soybean yields to exceed their expected soybean yield by 43% in order not to collect SURE payments.

If we assume farmers suffer a 10% soybean loss then farmers would need their corn yields to exceeded expected yields by more than 13%. It is very unlikely that farmers would suffer a 10% yield loss on one crop and have the other crop produce bumper yields, when both crops are growing at the same time and under the same weather conditions. It is also likely if the county receives a Secretarial disaster declaration that many (most) farmers located in that county will be able to show a yield loss of at least 10% on one crop.

Should I change insurance types? That question will vary by the county and insurance plan. In many Kansas counties RMA has set the expected county yield for GRP and GRIP below the 30 year simple average yield by as much as 25%! If one believes this is the correct estimate of expected county yield then one would have to accept the premise there has been no technological improvements in crop yields in those counties. Under

⁵ APH was used to represent the insurance yield only product and aph is used to represent the historical proven yields for setting guarantees.

⁶ There is some thought the 50% test to meet SURE eligibility in a non-disaster county will be based on a 50% revenue loss rather than a 50% yield loss. A 50% revenue loss would be an easier test to meet in the current market than a 50% yield loss.

⁷ There is some thought the 10% test to meet SURE eligibility will be based on a 10% revenue loss rather than a 10% yield loss. These farmers would still need to be farming in a county with a Secretary's disaster declaration or is in a contiguous county in order to receive SURE payments.

these conditions a GRP or GRIP make absolutely no sense and farmers are better off to work with their agent to generate aph records. Farmers who are new to the insurance program often times have some records that will be acceptable for creating their aph.

However in some counties, especially in the Corn Belt, the RMA expected county yield is set substantially higher than the average county yield, coupled with only a 10% deductible is the reason some GRIP/GRP policies have paid when farmers did not have an individual loss. GRIP/GRP polices are more likely to be a benefit for farmers who are farming the very best soil types in the county. Clay county Indiana was not picked randomly. It has been suggested that some farmers were able to collect from GRIP without an individual farm level loss. This is possible for a Farmer located on the very best soil type while the rest of the county is “sandy soil” causing greater yield losses in dry years.

The other reason is University of Illinois website (<http://www.farmdoc.uiuc.edu/> then select crop insurance) has identified the counties that are most likely to generate GRIP/GRP payments for several Corn Belt states. For example, to be actuarially sound (1.0 loss ratio) Adams county Illinois farmers would expect to collect \$1.92 for every dollar paid in premiums (balance is subsidy). However, UI is estimating a loss ratio over 1.0 that would generate a 12% underwriting loss on GRIP for Adams county Illinois, which means farmers expect to collect \$2.17 for every dollar paid in premiums. Of course RMA disagrees with the University of Illinois analysis and the author will leave it to farmers in the Corn Belt to judge if Illinois has identified a potential method for adversely selecting on GRIP. If the University of Illinois is correct then one would expect to see greater sales of GRIP in the county’s UI has identified as likely to generate underwriting losses based on their modeling. The historical losses or Indiana by plan of insurance and years is presented in table 5.

Even if a farm is located in a county that has an expected GRIP loss ratio greater than 1.0 it may still not be the preferred policy for several reasons. One reason is any spot losses, such as hail damage, are clearly not covered by GRIP. In addition some lenders will not include GRIP or GRP in their borrowers’ collateral position. Also GRIP works best for really large farms. If one farms the whole county then one’s enterprise unit yield is the same as the county yield. If a super sized farm has farming interest in multiple counties then effectively they have multiple units under GRIP. If the farm crosses a large geographic region in multiple counties, then affectively their basis risk is spot losses that can be self-insured. GRIP may actually provide the very best protection for this type of operation. Also once farmers cross county lines they can select a different plan of insurance. For example they can select RA in one county and in another county select the GRIP contract.

The primary reason GRIP has been selected over aph based contracts is by farmers who think RMA has overstated the expected county yield or they think their production risk is lower than the average producer’s risk in the county. Farmers should check this assumption against real data to make sure they have lower risk than the average for the county. While many farmers think they are lower risk than the county, in many cases this

assumption is not true. The second reason is farmers with a low aph caused by multiple disaster years. This condition will lower their aph guarantee to the point farmers have very little guarantee left under aph contracts and switched to GRIP or GRP simply to get some protection.

In the Great Plains group GRP would appear to be a good alternative to declining yields that generates a low guarantee combined with a very high premium cost. However, RMA often sets expected county yields more than 20% below the 30 year simple average county yield in the very same counties where farmers with declining yields would benefit from GRP. Even if the producer selects a group policy in most cases their elderly landlords on crop share probably should be encouraged to remain on an aph product. Often farmers are giving power of attorney by crop share landlords with the simple instruction to make the same decision for the landlord's crop as they make for their crop. In many cases elderly landlords simply can't afford the basis risk in the GRIP contract and probably wouldn't understand a situation of a poor crop yield with no indemnity payments but still owing premiums. However grouping land from many different Landlords together will give the tenant a much larger farming unit that might be protected by GRIP but provide little protection for the typical landlords' situation that normally covers a much smaller farming unit.

Are there alternatives to GRIP? If a farmer has an exceptionally good aph relative to the county average yield, then buying higher levels of aph coverage often provide better coverage than available under GRIP. The higher aph coverage will also increase the SURE coverage. Those RA or CRC insured farmers with coverage over 80% will not need a yield loss below their aph to generate payments based on current prices.

Should one buy calls? The question has been raised if farmers should buy calls to lock in their RA corn insurance payments? Clearly one could lock in the payment because the main way farmers would lose their RA corn insurance payments is for November corn prices to increase. However, December calls are about ready to go off the Board so one would need to buy March calls. At-the-money calls currently cost about 40 cents. Therefore if one were to buy March calls, then one should sell them back on about November 15 and avoid the loss of additional time value. However, this is not something farmers should consider unless they have experience trading options. In any case the November prices could fall and make the RA insurance payments even larger and that will cause an increased net cost for the option.

Table 1. Breakeven Yields Necessary to Eliminate Indemnity Payments

RA	CRC	CRC	
Bean	Bean	Corn	
50.0	50.0	160.0	aph
75%	75%	75%	Coverage selected by farmer
\$13.36	\$13.36	\$5.40	CRC/RA Base Price (Feb average of Dec Corn)
\$501.00	\$501.00	\$648.00	Minimum RA/CRC revenue coverage
53.5	48.5	153.5	Farmer Bushels of Production in 2008
			4.06% Yield Corn Yield Loss Required
			3.00% Yield Soybean Yield Loss Required
			107.0% Sbean Yield > Expected Required
\$9.38	\$10.36	\$4.23	CRC/RA Harvest Price ¹
\$501.83	\$502.46	\$649.31	Revenue to count
\$0.00	\$0.00	\$0.00	Pay the difference between revenue guarantee and revenue to count

¹The harvest price used to settle CRC corn and grain sorghum contracts are based on the October average closing prices of December Chicago Board of Trade (CBOT) December corn futures. The harvest price used to settle RA corn contracts are based on the November average closing prices of December CBOT December corn futures. The harvest price used to settle CRC and RA soybean contracts are based on the October average closing prices of November Chicago Board of Trade CBOT November soybean futures. RA has no price limits but CRC has a \$1.50 limit below the planting price on corn and grain sorghum and a \$3.00 limit below the planting price on soybeans that was exceeded in 2008. For 2009 neither RA nor CRC will have a price limit on falling prices but both will have the same price cap of 2 times the planting price.

Table 2. Breakeven Yields Necessary to Eliminate GRIP Payments

GRIP	
Bean	Corn
47.3	155.3 RMA Expected Clay County Indiana Corn Yield
\$13.36	\$5.40 GRIP Base Price (Feb average of Dec Corn)
1.5	1.5 Coverage increaser
\$947.89	\$1,257.93 GRIP Guarantee
47.3	155.3 RMA Expected Clay County Indiana Corn Yield
\$13.36	\$5.40 GRIP Base Price (Feb average of Dec Corn)
90%	90% Coverage selected by farmer
\$568.74	\$754.76 Trigger Revenue
55	174.5 Clay County Indiana 2008 NASS Corn Yield
\$10.36	\$4.23 GRIP Harvest Price ¹
\$569.80	\$738.14 Reported County Revenue
0.00%	2.20% Percent of coverage paid (Trigger Revenue - Actual Revenue)/Trigger Revenue
	112.36% Corn Yield > Expected Required)
	116.28% Sbean Yield > Expected Required)
\$0.00	\$27.71 Example GRIP payment

¹The harvest price used to settle GRIP corn and grain sorghum contracts are based on the October average closing prices of December Chicago Board of Trade (CBOT) December corn futures. The harvest price used to settle GRIP soybean contracts are based on the October average closing prices of November Chicago Board of Trade CBOT November soybean futures. GRIP has a \$1.50 limit below the planting price on corn and grain and a \$3.00 cup below the planting price on soybeans that was exceeded in 2008. For 2009 the price limit on falling prices has been eliminated but GRIP will have the same price cap of 2 times the planting price.

Table 3. Clay County, Indiana, County Yields Based on Planted Acres

Year	Sbean Yield	Corn Yield	County
1980	37.3	98.7	Clay
1981	37.7	95.5	Clay
1982	34.7	112.9	Clay
1983	35.1	61.0	Clay
1984	32.0	109.8	Clay
1985	35.4	133.5	Clay
1986	38.6	129.8	Clay
1987	42.8	139.3	Clay
1988	35.6	89.5	Clay
1989	41.5	138.3	Clay
1990	44.1	127.9	Clay
1991	39.1	106.5	Clay
1992	44.1	145.7	Clay
1993	18.6	133.0	Clay
1994	48.9	143.8	Clay
1995	45.6	121.7	Clay
1996	44.4	105.8	Clay
1997	45.8	109.2	Clay
1998	49.9	103.1	Clay
1999	48.1	146.7	Clay
2000	48.9	152.9	Clay
2001	43.0	156.3	Clay
2002	41.0	132.8	Clay
2003	34.0	150.5	Clay
2004	47.0	172.7	Clay
2005	49.8	161.1	Clay
2006	49.2	150.5	Clay
2007	49.8	171.1	Clay
	46.0	161.2	5 Year Avg Yield
	46.1	149.8	10 Year Avg Yield

Table 4. Breakeven Yields Necessary to Eliminate SURE Payments

SURE	Sbean	Corn	
A 10% Corn Yield Loss (A 10% Loss on One Crop Required)			
\$1,321.35	\$576.15	\$745.20	Unadjusted SURE Guarantee
\$1,378.80	\$601.20	\$777.60	90% of Expected Revenue Cap
\$1,321.35			SURE Guarantee (lesser of SURE or Cap)
	71.5	144.0	Farmer Bushels of Production in 2008
\$1,279.79			Revenue to count ¹
\$6.90			15% of Direct Payments
\$38.88	\$0.00	\$38.88	Gross RA Indemnity Payment
\$0.00			Sure Payment
			143.0% Sbean Yield > Expected Required)
SURE	Sbean	Corn	
A 10% Soybeans Yield Loss (A 10% Loss on One Crop Required)			
	45.0	182.0	Farmer Bushels of Production in 2008
\$1,191.96			Revenue to count ¹
\$6.90			15% of Direct Payments
\$78.90	\$78.90	\$0.00	Gross Indemnity RA Payment
\$1.22			Sure Payment
			113.8% Corn Yield > Expected Required

¹Results assume the Marketing Year Average (MYA) price used to settle SURE claims is the same price used to settle revenue insurance contracts. This is very unlikely to be correct because revenue insurance settles claims based on futures prices while the MYA is the USDA national average cash price based on the marketing year that will end about a year after harvest.

Table 5. Indiana Historical Corn Crop Insurance Losses by Insurance Plan

Year	Crop	Ins Plan	Loss Ratio	Year	Crop	Ins Plan	Loss Ratio
2007 CORN		APH	0.24	2002 CORN		APH	2.49
2007 CORN		CRC	0.31	2002 CORN		CRC	1.63
2007 CORN		GRIP	0.36	2002 CORN		GRIP	0.92
2007 CORN		GRP	0.18	2002 CORN		GRP	2.94
2007 CORN		RA	0.24	2002 CORN		RA	1.74
2006 CORN		APH	0.28	2001 CORN		APH	0.11
2006 CORN		CRC	0.25	2001 CORN		CRC	0.18
2006 CORN		GRIP	0.00	2001 CORN		GRIP	0.19
2006 CORN		GRP	0.00	2001 CORN		GRP	0.05
2006 CORN		RA	0.42	2001 CORN		RA	0.08
2005 CORN		APH	0.25	2000 CORN		APH	0.16
2005 CORN		CRC	0.23	2000 CORN		CRC	0.34
2005 CORN		GRIP	0.60	2000 CORN		GRIP	0.93
2005 CORN		GRP	0	2000 CORN		GRP	0.03
2005 CORN		RA	0.27	2000 CORN		RA	0.11
2004 CORN		APH	0.31	1999 CORN		APH	0.50
2004 CORN		CRC	0.39	1999 CORN		CRC	0.74
2004 CORN		GRIP	1.66	1999 CORN		GRIP	2.02
2004 CORN		GRP	0	1999 CORN		GRP	1.02
2004 CORN		RA	0.56				
2003 CORN		APH	1.08				
2003 CORN		CRC	0.68				
2003 CORN		GRIP	0.01				
2003 CORN		GRP	0.02				
2003 CORN		RA	0.83				
Year	Crop	Ins Plan	Loss Ratio	Year	Crop	Ins Plan	Loss Ratio
2007 SOYBEANS		APH	0.46	2002 SOYBEANS		APH	1.26
2007 SOYBEANS		CRC	0.52	2002 SOYBEANS		CRC	0.99
2007 SOYBEANS		GRIP	0.20	2002 SOYBEANS		GRIP	0.09
2007 SOYBEANS		GRP	0.39	2002 SOYBEANS		GRP	1.11
2007 SOYBEANS		RA	0.74	2002 SOYBEANS		RA	1.56
2006 SOYBEANS		APH	0.20	2001 SOYBEANS		APH	0.22
2006 SOYBEANS		CRC	0.19	2001 SOYBEANS		CRC	0.18
2006 SOYBEANS		GRIP	0.00	2001 SOYBEANS		GRIP	0.07
2006 SOYBEANS		GRP	0.00	2001 SOYBEANS		GRP	0.04
2006 SOYBEANS		RA	0.24	2001 SOYBEANS		RA	0.13
2005 SOYBEANS		APH	0.18	2000 SOYBEANS		APH	0.37
2005 SOYBEANS		CRC	0.16	2000 SOYBEANS		CRC	0.48
2005 SOYBEANS		GRIP	0.02	2000 SOYBEANS		GRIP	0.03
2005 SOYBEANS		GRP	0	2000 SOYBEANS		GRP	0.08
2005 SOYBEANS		RA	0.13	2000 SOYBEANS		RA	0.47
2004 SOYBEANS		APH	0.25	1999 SOYBEANS		APH	1.11
2004 SOYBEANS		CRC	0.33	1999 SOYBEANS		CRC	1.01
2004 SOYBEANS		GRIP	1.19	1999 SOYBEANS		GRIP	0.48
2004 SOYBEANS		GRP	0	1999 SOYBEANS		GRP	1.42
2004 SOYBEANS		RA	0.41				
2003 SOYBEANS		APH	1.39				
2003 SOYBEANS		CRC	1.45				
2003 SOYBEANS		GRIP	0.00				
2003 SOYBEANS		GRP	3.06				
2003 SOYBEANS		RA	1.39				