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Update Crop Insurance Experience with 2007 Rates ¹

In this KSU analysis the historical crop insurance loss ratios were adjusted for the 2007 crop insurance premium rates on 75% coverage that includes APH, CRC, and RA on Kansas wheat and Iowa corn. The expected Average Crop Revenue (ACR) average payment per acre that is proposed as a 2010 option in the Farm Bill is also included in the analysis.

RMA has dramatically increased the wheat rates since 2001 (Table 1). This is rate per \$100 of coverage. Dollars premium paid per acre is based on the RMA set rate times the aph times price election times percent coverage. If the price increases, that alone will increase premium cost per acre but it will also increase the size of any indemnity payment. RMA could have cut a rate but a farmer may still pay a higher premium cost simply because of higher commodity prices. Since 2001, RMA has increased the 75% coverage Kansas wheat APH rate by 10%, CRC by 31% and RA by 44% (rate on line) (Table 1). The historical premiums were adjusted for the higher 2007 premium rates and loss ratios were then recalculated.

The RMA reported historical 28 year loss ratio includes all insurance products sold on Kansas wheat (includes the 2007 wheat losses). In the early years only APH was offered at 50%, 65%, and 75% coverage levels. In later years RMA added additional coverage

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levels, CAT, group policies and revenue insurance. One really doesn't have a crop insurance program with 27 observations; it is 27 "different crop insurance programs" with 1 observation.

The historical RMA reported 28 year Kansas wheat all combined insurance product ratio was 1.22. If the 2007 crop losses were not included the 27 year loss ratio was 1.12. A single year increased the long run Kansas wheat loss ratio by 10 points. The 1989-2007 data is less aggregated and requires fewer estimates of missing data, so that loss experience was presented separately. The historical 19 year Kansas wheat all combined insurance product ratio was 1.34 (Table 2).

The KSU estimated 75% coverage loss ratio includes all APH, CRC, and RA policies adjusted to current 2007 premium rates. The 28 year 75% coverage loss ratio based on the current 2007 rates decline from 1.11 to 1.0, the RMA targeted loss ratio. If the 1980-88 data is not included the loss ratio declines from 1.34 to 1.08 (Table 2). It would be difficult to argue that the current RMA rates are actuarially unsound. If Kansas wheat is underrated; it is probably more in the range of 10% than some of the higher reported estimates.

Over the last 28 years there have been 3 major loss years on Kansas wheat with loss ratios over 3.0; 1989 (5.12); 1996 (3.24) and 2007 (3.94) (Table 2). There has also been 3 major hits on Iowa corn over the past 27 years; 1983 (3.12); 1988 (4.63) and 1993 (4.96) (Table 3). The three major yield loss years on Kansas wheat have all occurred after 1988 that has less aggregated data while 2 of the 3 major yield loss years for Iowa corn occurred prior to 1989. The data for 1980-88 is the combined APH at all coverage levels (there were only 3 levels) which makes it more difficult to estimate the loss ratio after premiums have been updated to 2007 levels. However, if one ignores the 1980-88 data then one will seriously underestimate the Iowa crop risk.

The historical RMA reported 27 year Iowa corn all combined insurance product ratio was 0.77 (year 28 is being settled now). The 1989-2006 data is less aggregated and requires fewer estimates of missing data, so that loss experience was presented separately. The historical 18 year Iowa corn all combined insurance product loss ratio was 0.57 (Table 3).

The KSU estimated 75% coverage loss ratio includes all APH, CRC, and RA contracts adjusted to current 2007 premium rates. The 27 year 75% coverage Iowa corn loss ratio based on the 2007 rates increased from 0.77 to 1.02, the RMA targeted loss ratio. If the 1980-88 data is not included the loss ratio increased from 0.57 to 0.78.

Clearly RMA could make a strong argument their rate for Iowa corn is actuarially sound at the 75% coverage level, if one includes the 1980-1988 data. It would be difficult to argue the current RMA rates are actuarially unsound by ignoring the 1980-88 data that has 2 of the 3 major Iowa corn yield losses. However, the data does raise some questions. The APH rates have been reduced and because the 1980-88 data was APH only the lower rate applied to all of the 1980-88 coverage. Only when the 1980-88 data

was included did the RMA premium cuts cause the 27 year loss ratio to increase to the target loss ratio level of 1.0.

However, most of the coverage has shifted to revenue insurance in recent years and away from APH. The Iowa corn RA rates (rate on line) have been increased by over 32% since 2001 (Table 4). The current 2007 rates generated loss ratio would appear to be near or at the 1.0 target, so one could understand why corn growers might question the increased RA rates. When one includes the 1980-88 data and applies the 2007 rates it is difficult to support claims that Iowa corn is overrated by some of the larger estimates; at best one might argue 10% overrated. However, a future “1988 type loss” year would likely add 10 to 15 points to the Iowa corn loss ratio, as was the case with the Kansas wheat loss ratio increasing by 10 points because of 2007 losses. But it is also difficult to explain why RMA increased the RA rates on Iowa corn.

The APH rates have declined as expected but why did RMA increase Iowa RA corn rates at 75% coverage by more than 32% since 2001? The author is not claiming that RMA has overrated RA rates because additional analysis with less aggregated data is necessary to make that claim, but the RA rate increase was unexpected. This is a good argument for why a rate review by a board certified actuary that was proposed by Senator Nelson’s (D-NE) but eliminated in the current Bill would have been useful.

There may be reasons for the rate increase but a rate review by a board certified actuary would give more confidence in the rates. This does not suggest RMA rating methods are incorrect but an independent review would increase the comfort level of many policy makers. A review by a board certified actuary may confirm RMA’s rating methods.

The rates in table 1 and 4 are the average premium rate paid per \$1 of coverage by Iowa corn and Kansas wheat farmers. This is premiums paid based on the contracts selected by Iowa and Kansas farmers at the 75% level. The reported rates were not generated from a rate table. Without making any judgments, some of the reasons RMA might have increased the RA Iowa corn rate include:

1. The Harvest Price Option (HPO) was introduced as an endorsement on RA in 2000. It is possible that fewer farmers selected the HPO in 2001 than in 2007, but unlikely. The RA rate is lower before 2000 because there was no HPO. The aggregated public data does not contain the practice variable so it is not possible to separate the RA contracts without the HPO nor the irrigated/non-irrigated acres.
2. RMA uses the current volatility that might account for some of the RA rate increase. The CRC rates before 2003 used long run yield and price change to set rates. Therefore, the rates were tied to long run price risk not current price risk.
3. The 2002 year was the last year the author set the CRC rate. The CRC rates were a function of the APH rate and long run price risk. The author has had no participation in setting CRC rates after 2002.

4. In 2003 and later years RMA changed the CRC rating to a function of the RA rates rather than APH rates. The CRC rates declined but that might be adverse selection between RA-HPO where farmers would only select the CRC if it were cheaper than RA-HPO. RMA rates CRC as a function of the RA rates. So it is unlikely that RMA would have cut CRC rates.
5. The 1997 CRC rate was increased after rate issues were raised by several nationally known Ag Economists who convinced RMA, the CRC rate should be increased by 50%. The company objected to the rate increase and a compromise was reached with RMA and the result was an increase from 7.87% to 8.37% (all of the RMA representatives are now retired).
6. Perhaps RMA is catastrophe loading RA for the unlimited liability.

Roberts' (R-KS) Amendment. Combining the crop insurance program and Average Crop Revenue (ACR) program was in the original proposal. Insurance companies would pay any crop insurance indemnity payments. If there was an ACR payment, the ACR payment would reimburse the insurance company for the indemnity payment. This would have the effect of reducing the farmers' indemnity payment by a dollar for each dollar paid by ACR. Reimbursing the insurance company would reduce the effective indemnity payments and lower premium rates.

The estimated premium reduction for Kansas wheat was 2 to 8 percent and 19 to 23 percent for Iowa corn. The rate reduction for replacing indemnity payment with ACR payments is probably over estimated for two reasons. First, it is likely the historical price yield correlation have changed so that a similar state yield loss today would cause a higher price increase and eliminate the ACR. In the past when a low state yield occurred there were more bushels in storage that limited any price increase.

The second reason is there was no way to measure the severity of loss. For example, in 1993 the average Iowa ACR corn payment was \$103.95 while the average indemnity payment was \$76.65. The model assumes the insurance company was reimbursed \$76.65 and the balance of the ACR payment of \$27.30 was paid to the farmer (Table 3). This suggests a zero loss ratio for the insurance company, a very unlikely outcome. There would have been some individual crop insurance claims that would have exceeded the ACR payments and therefore, the insurance company would not have been reimbursed for the full crop insurance loss as suggested in the model. In the "real world" the reduction in indemnity payments would not be as great as the model would suggest. If there were a payment limit on the ACR, that would also limit the amount of reimbursement to the insurance company because it would limit the amount of reduction in indemnity payments. Senator Roberts' (R-KS) amendment would eliminate the combining of crop insurance and ACR payments.

ACR Program. Many analysts expect the strike price to be higher on the ACR in 2010 than the effective target price strike. Therefore, one would expect ACR to be the

preferred option, especially if it does not reduce farmers' crop insurance indemnity payments. It is a choice but not necessarily a good choice. So the issue is the expected state yield. The change from an Olympic average yield to a trend yield is a major change in public policy therefore, the years selected to calculate the trend yields is the key variable.

It makes sense to use a long run set of years to set trend yield, because the longer time line will increase the number of observations, and reduce the impact of a single year or two. Eliminating the 1980 yield from the 27 year base and calculating the trend yield on 26 years will decrease the 2010 Kansas expected corn yield by 3.1% while increasing the Iowa expected corn yield by 0.5% and increasing Kansas expected wheat yield by 0.9%. There is nothing special about 27 years. Why not 30 years or 35 years?

Irregardless of the base years selected there will be some states/crops with negative trend yields. If a state has a 27 year negative trend yield and the Secretary sets the state expected yield at the 27 year average yield, then one is assuming no improvement in technology in nearly 30 years. Under the ACR, farmers in those states are locked into "no improvement" in the state expected yield over the life of the Farm Bill and likely in the next Farm Bill. It is easy for a reasonable observer to understand why wheat and grain sorghum growers have not been supporters of the ACR policy because those crops have had more of the negative trend yields. But that does not mean wheat and grain sorghum growers will not enroll in ACR because the author agrees the market is likely to be high enough in 2010 that the current counter-cyclical marketing loan program is irrelevant on wheat, soybeans and feed grains. Many farmers will also shift some acres to corn based on the ACR program because the ACR is paid on the crop planted not the historical base, but the 2010 market prices will have greater impact on the selection of crop to plant than any government program (except for ethanol policy).

The reason ACR is of limited help for farmers with crop losses are because it reduces insurance payments a dollar for each ACR dollar paid (without the Roberts Amendment). For example on the 2007 Kansas wheat loss there were farmers in central Kansas with no yield and many northwest Kansas wheat farmers with a bumper crop. If there had been an ACR payment (there was no payment because of the negative price-yield correlation) then farmers with crop insurance payments would have had their crop insurance indemnity payments reduced by the amount of the ACR payment but they will still have the deductible loss (normal 30% or more).

The worst loss is a half of a crop with all of the harvest expenses. The farmer would receive a "small" indemnity payment that would be reduced by the amount of the ACR payment so the net dollars from crop insurance and ACR would not change. However, farmers with a bumper crop would have received the ACR payment on top of selling a bumper crop because there is no cap that limits payments to the expected crop revenue for the farm as there is with ad hoc disaster aid. The ACR policy will reduce payments to farmers with losses and pay farmers with a bumper crop. This is the same issue in the current counter cyclical-marketing loan program. Was that the intent of policy makers?

The policy makers could limit the loss of ACR payments in the catastrophic yield loss years by simply capping the harvest price at the lesser of the harvest or the planting time strike price in ACR. Congress could prevent “over” payments with a per acre cap on payments similar to the cap currently in the Ad Hoc disaster program. One word of caution, if the per acre limit is too restrictive it may encourage farmers to depend on government payments rather than farmers paying a share of their risk management costs. More details on the Ad Hoc per acre payment limit is posted on AgManager.Info at: http://www.agmanager.info/crops/insurance/risk_mgt/rm_html07/ABpaycap.asp

Another way to reduce the duplication of payments is to allow farmers to buy the yield adjusted Asian call option in the RA-HPO and CRC contracts without first requiring farmers to buy the yield adjusted Asian put option that is the more expensive of the two options. Most of the duplication of payments occurs when prices fall so the duplication comes from the revenue option not the replacement option in CRC/RA-HPO. Allowing farmers the choice would eliminate the revenue guarantee and just guarantee yield and reduce the chances of farmers collecting twice. The APH is often described as a yield guarantee but it only guarantees yield if and only if the price forecast is correct. Allowing farmers to select either endorsement or both endorsements could be done administratively by including the endorsement choice in RMA’s Combo Policy that has had its release date delayed until 2010.

The big risk in revenue insurance is not the insured revenue, it is the yield replacement feature caused by adding the Harvest Price Option to RA (CRC always included the replacement coverage). The developers of GRIP have even added the Harvest Revenue Option to the GRIP contract that already has more systemic risk than aph contracts.

I am told about 80% of the RA contracts are purchased with the harvest price option but RMA does not report practice in their public data, so one cannot determine how many RA contracts have the HPO. This is the same reason independent analysts cannot separate irrigated from non-irrigated crop insurance statistics for corn.

Farmers have clearly shown a preference for replacement-revenue insurance because initially RA insured revenue only and RA sales were very limited. After 4 years the RA developers added the Harvest Price Option. Because RA-HPO has no price limit it is better than CRC (for farmers) but in many cases has a lower premium. Of course that RMA set rate makes no sense either.

The reason farmers prefer replacement revenue insurance is because all marketing plans assume production. Otherwise why bother to farm, just trade the Board.

Marketing Plans:

1. A farmer sells everything at harvest. CRC/RA-HPO replaces that lost inventory at current market value.

2. A farmer stores everything and sells out of the grain bin. CRC/RA-HPO replaces that lost inventory at current market value.
3. A farmer buys put options (or the loan rate in the past). If prices increase, the put expires worthless and the farmer loses the premium with nothing to sell. All hedges (puts, sell futures, forward contracts, in the old days, loan deficiency payments, etc.) assume bushels will be produced at harvest otherwise, it is a speculative position. CRC/RA-HPO replaces that lost inventory at current market value and maintains the hedge.
4. A farmer feeds his grain to hogs, cattle, dairy cows as his marketing plan. CRC/RA-HPO replaces the feed supply at current market value.

It has been suggested that if ACR payments were deducted from the crop insurance payments farmers would use the savings to buy higher coverage levels. It is very unlikely a larger number of farmers would purchase higher coverage levels because the premiums increase at an accelerated rate as one moves up each 5% of coverage. The effective rate increase for each additional 5% of coverage is even greater when considering farmer paid premiums because the subsidy rate declines e.g. the subsidy rate declines from 55% to 48% if farmers increase their coverage from 75% to 80% coverage.

Finally miss-rating of the rate relativity is one of the few RMA set rates that can be proven not to be correct and another reason for a board certified actuary rate review. There are locations and crops where if farmers increase their coverage from 75% to 80%, they will pay more than \$100 in premium for an additional \$100 of coverage. Even if one assumes a 100% underwriting loss this rate is over stated! A case of the additional coverage cost exceeding the maximum additional payment is documented in a paper posted on AgManager.info at:
http://www.agmanager.info/crops/insurance/risk_mgt/rm_pdf07/ABrates.pdf

Summary. The KSU analysis suggests Iowa corn may be overrated by a “small” amount, primarily because RA rates have been increased by 32% since 2001 based on rate on line. Additional analysis is necessary before any major rate changes should be made to Iowa corn rates. Any rating of Iowa corn must include the 1980-88 loss experience because 2 of 3 major crop losses occurred during that period of time.

In a low risk state with less variable yield, the catastrophe loading is more important in evaluating rate performance than loss cost or loss ratios. The KSU analysis did not consider the catastrophe loading or other levels of coverage such as 65%. A large number of contracts are written at the 70% coverage level but the data series for 70% coverage is very short.

Clearly historical Kansas wheat rates were not sufficient to cover losses. However, RMA has increased the Kansas wheat rates significantly and any suggestion that current Kansas rates are significantly underrated cannot be supported by the data, especially since the analysis includes the 2007 wheat loss. The 2007 wheat loss was 1 of the 3 major losses

over the past 28 years. The 2007 wheat loss was under revenue insurance while all of the major Iowa crop losses were under APH only. If the 2007 Kansas wheat loss had been under APH only, those lost bushels would have been paid at a rate of \$3.90 rather than \$6.02.

The KSU estimated reduction in Kansas wheat rates by combining ACR and crop insurance are really “small”. Reductions in Iowa rates were in the 18-23% range but none of the 3 major Iowa corn yield losses were under revenue insurance. A major crop loss in Iowa will likely cause a commodity price increase that will eliminate the ACR payment and simultaneously increase the revenue insurance payments. Therefore, the comment to the Senate Ag Committee by the USDA Chief Economist that any premium reduction resulting from combining ACR and crop insurance would be “small”, is reasonable. It would require additional analysis of less aggregated data to make any final recommendations on rate reductions from combining programs. If there is a payment limit on the ACR payment, this would further complicate the analysis of a rate reduction. Senator Roberts (R-KS) amendment would eliminate combining these two Federal programs.

Table 1. RMA Average Rate Changed on Kansas Wheat for 75% Coverage

	APH	CRC	RA
1989	8.96%		
1990	9.60%		
1991	9.00%		
1992	9.03%		
1993	9.00%		
1994	9.31%		
1995	10.37%		
1996	10.47%		
1997	11.42%	14.39%	
1998	10.53%	12.59%	
1999	11.00%	13.39%	
2000	9.92%	11.89%	
2001	10.91%	13.37%	14.55%
2002	11.06%	13.98%	13.65%
2003	11.53%	13.80%	15.83%
2004	11.77%	14.67%	17.37%
2005	12.29%	16.07%	19.61%
2006	11.79%	15.84%	19.72%
2007	12.00%	17.53%	20.95%
Rate change from 2001 vs. 2007	10.0%	31.1%	44.0%

Table 2. ACR Average Payment on Kansas Wheat and 75% Coverage Adjusted to 2007 Rates

Market- ing Year	KS ACR			RMA			Average Farm Level Pay- ment of claim	Average Indem- nity Pay- ment	KSU Estimat- ed 75% APH Loss/ Ratio	% Reduc- tion in Indem- nity Pay- ments			
	Plant Yield Per Acre (Bu.)	Expected Yield Per Acre (Bu.)	CRC Harv- est Price	Average All Crop Ins. Loss Ratio	Average Farm Level Pay- ment	Frequency of claim							
2006 Planted Ac.	(000)	9,800											
1980/81	32.3	29.5	4.09	3.27	86.71	132.02	0.00	0.56	0.00	20.8%	40.91	0.60	0.0%
1981/82	21.8	29.7	4.22	3.76	108.76	91.84	16.92	1.89	15.23	34.4%	59.55	1.42	25.6%
1982/83	32.5	30.0	3.64	4.56	123.21	118.39	4.82	0.94	4.34	24.7%	57.25	0.83	7.6%
1983/84	34.0	30.3	3.64	4.52	123.16	123.71	0.00	0.26	0.00	17.7%	45.05	0.41	0.0%
1984/85	32.4	30.5	5.76	4.20	115.33	186.72	0.00	1.56	0.00	31.0%	60.23	1.21	0.0%
1985/86	34.9	30.8	4.24	3.85	106.79	148.21	0.00	0.68	0.00	22.0%	62.79	0.67	0.0%
1986/87	29.3	31.1	3.37	3.48	97.26	98.49	0.00	1.58	0.00	31.2%	62.27	1.23	0.0%
1987/88	34.2	31.3	2.87	3.24	91.45	98.31	0.00	0.54	0.00	20.6%	52.92	0.58	0.0%
1988/89	31.7	31.6	3.59	3.08	87.72	113.78	0.00	0.74	0.00	22.6%	55.33	0.71	0.0%
1989/90	17.2	31.9	2.86	3.11	89.10	49.23	39.86	5.12	35.88	72.7%	52.14	4.39	68.8%
1990/91	38.1	32.1	3.29	3.27	94.56	125.16	0.00	0.25	0.00	9.2%	27.43	0.27	0.0%
1991/92	30.8	32.4	4.14	3.47	101.16	127.35	0.00	0.80	0.00	19.6%	28.98	0.67	0.0%
1992/93	30.3	32.7	3.79	3.37	99.13	114.97	0.00	2.02	0.00	28.3%	33.82	1.12	0.0%
1993/94	32.1	32.9	2.64	2.94	87.09	84.71	2.38	1.49	2.15	40.4%	33.22	1.58	6.5%
1994/95	36.4	33.2	2.44	2.64	78.78	88.65	0.00	0.36	0.00	6.5%	36.12	0.26	0.0%
1995/96	24.4	33.5	3.58	3.02	90.91	87.54	3.37	1.23	3.03	39.4%	30.34	1.26	10.0%
1996/97	21.6	33.7	3.65	3.47	108.46	78.92	29.53	3.24	26.58	37.1%	47.26	1.76	56.2%
1997/98	44.0	34.0	3.20	3.84	117.44	140.91	0.00	0.20	0.00	4.9%	29.67	0.12	0.0%
1998/99	46.3	34.3	3.04	3.85	118.62	140.56	0.00	0.30	0.00	4.5%	31.90	0.12	0.0%
1999/00	43.2	34.5	2.84	3.55	110.27	122.65	0.00	0.69	0.00	19.5%	50.79	0.84	0.0%
2000/01	35.5	34.8	3.02	3.48	109.08	107.18	1.90	0.45	1.71	20.6%	41.49	0.62	4.1%
2001/02	33.5	35.1	3.07	3.27	103.18	102.75	0.43	0.93	0.39	27.2%	51.24	0.85	0.8%
2002/03	27.9	35.3	3.09	3.33	105.91	86.20	19.71	1.63	17.74	41.4%	48.87	1.19	36.3%
2003/04	45.7	35.6	3.14	3.46	110.85	143.54	0.00	0.19	0.00	16.5%	40.29	0.34	0.0%
2004/05	31.5	35.9	3.77	3.49	112.65	118.57	0.00	1.07	0.00	42.2%	65.38	1.49	0.0%
2005/06	38.0	36.1	3.28	3.56	115.87	124.64	0.00	0.45	0.00	25.2%	36.13	0.48	0.0%
2006/07	29.7	36.4	4.81	3.49	114.43	142.93	0.00	1.12	0.00	48.8%	64.11	1.64	0.0%
2007/08	27.3	36.7	5.62	2.97	0.00	153.36	0.00	3.94	0.00	42.2%	86.87	1.48	0.0%

Loss Ratio Combined Insurance Products, All Coverage Levels for Kansas Wheat

28 Year Historical Loss Ratio	1.22
27 Year Historical Loss Ratio	1.12
19 Year Historical Loss Ratio	1.34

Loss Ratio for 75% Coverage Only, Includes APH, RA, and CRC for Kansas Wheat Based on 2007 Kansas Wheat Rates

28 Yr Loss ratio Simple / Weighted Average	1.00
19 Yr Loss ratio Simple / Weighted Average	1.08
Maximum Percent Reduction in Indemnity Payment	7.7%
Minimum Percent Reduction in Indemnity Payment	2.0%

Table 3. ACR Average Payment on Iowa Corn and 75% Coverage Adjusted to 2007 Rates

Market- ing Year	IA ACR			IA Expected			RMA Rep- orted			Average Farm Level	Average Indem- nity Pay- ment	KSU Estimat ed 75% APH Loss/ Ratio	% Reduc- tion in Indem- nity Pay- ments
	Plant Yield Per Acre (Bu.)	Yield Per Acre (Bu.)	CRC Harv- est Price	Strike Price	Guar- antee	Reve- nue to count	Ave- rage ACR pay- ment	All Crop Ins. Loss Ratio	Fre- quency of claim				
1980/81	104.5	97.8	3.61	2.66	234.03	377.15	0.00	0.80	0.00	16.8%	35.18	1.05	0.0%
1981/82	120.2	100.2	2.91	3.06	275.77	349.50	0.00	0.20	0.00	9.3%	27.54	0.36	0.0%
1982/83	114.8	102.6	2.20	3.30	304.31	252.32	51.99	0.26	46.79	10.1%	32.62	0.43	100.0%
1983/84	81.7	105.0	3.48	3.22	303.90	284.08	19.81	3.12	17.83	45.7%	65.53	3.73	27.2%
1984/85	107.8	107.4	2.78	2.91	281.65	300.15	0.00	0.67	0.00	15.2%	52.55	0.90	0.0%
1985/86	122.8	109.8	2.23	2.80	276.77	274.44	2.33	0.26	2.09	10.1%	37.19	0.43	5.6%
1986/87	132.3	112.2	1.69	2.54	256.68	223.99	32.69	0.33	29.42	11.0%	34.92	0.51	84.3%
1987/88	126.9	114.6	1.83	2.16	222.86	232.28	0.00	0.41	0.00	12.0%	33.52	0.60	0.0%
1988/89	79.5	117.0	2.89	1.99	209.28	229.59	0.00	4.63	0.00	64.6%	58.32	5.48	0.0%
1989/90	114.7	119.4	2.39	2.19	235.23	274.43	0.00	0.82	0.00	15.6%	62.73	1.02	0.0%
1990/91	122.1	121.8	2.30	2.45	268.60	280.49	0.00	0.30	0.00	6.5%	48.11	0.37	0.0%
1991/92	114.2	124.3	2.51	2.59	289.71	286.47	3.24	0.73	2.92	17.9%	56.58	1.17	5.2%
1992/93	144.2	126.7	2.09	2.59	295.14	301.26	0.00	0.17	0.00	4.8%	45.21	0.25	0.0%
1993/94	73.3	129.1	2.49	2.56	297.81	182.30	115.51	4.96	103.95	67.7%	76.65	5.79	100.0%
1994/95	148.5	131.5	2.16	2.59	306.96	320.61	0.00	0.05	0.00	1.8%	34.41	0.07	0.0%
1995/96	119.9	133.9	3.23	2.55	307.13	387.11	0.00	0.98	0.00	19.7%	64.52	1.45	0.0%
1996/97	134.7	136.3	2.84	2.78	340.70	382.38	0.00	0.24	0.00	10.9%	59.39	0.43	0.0%
1997/98	134.6	138.7	2.81	2.79	348.74	378.70	0.00	0.07	0.00	4.8%	51.61	0.19	0.0%
1998/99	141.5	141.1	2.19	2.88	366.22	309.46	56.76	0.41	51.09	16.2%	81.68	0.85	62.5%
1999/00	145.3	143.5	2.01	2.66	343.07	292.43	50.64	0.20	45.58	12.8%	52.78	0.43	86.4%
2000/01	140.5	145.9	2.04	2.58	339.22	286.83	52.39	0.11	47.15	11.4%	55.32	0.37	85.2%
2001/02	142.3	148.3	2.08	2.46	327.99	296.51	31.47	0.43	28.33	21.8%	57.66	0.72	49.1%
2002/03	158.3	150.8	2.52	2.43	329.69	398.98	0.00	0.11	0.00	6.1%	58.22	0.18	0.0%
2003/04	151.9	153.2	2.26	2.40	330.83	343.28	0.00	0.15	0.00	8.9%	34.65	0.14	0.0%
2004/05	176.7	155.6	2.05	2.52	353.30	362.29	0.00	0.09	0.00	7.7%	56.88	0.17	0.0%
2005/06	168.9	158.0	2.02	2.52	358.77	341.27	17.50	0.22	15.75	10.5%	59.14	0.29	26.6%
2006/07	162.7	160.4	3.03	2.58	372.42	493.00	0.00	0.20	0.00	5.8%	82.07	0.20	0.0%

Loss Ratio Combined Insurance Products, All Coverage Levels for Iowa Corn

27 Year Historical Loss Ratio	0.77
18 Year Historical Loss Ratio	0.57

Loss Ratio for 75% Coverage Only, Includes APH, RA, and CRC for Iowa Corn Based on 2007 Iowa Corn Rates

27 Yr Loss ratio Simple / Weighted Average	1.02
18 Yr Loss ratio Simple / Weighted Average	0.78
Maximum Percent Reduction in Indemnity Payment	23.4%
Minimum Percent Reduction in Indemnity Payment	18.7%

Table 4. RMA Average Rate Changed on Iowa Corn for 75% Coverage

	APH	CRC	RA
1989	4.73%		
1990	4.69%		
1991	5.23%		
1992	5.42%		
1993	5.35%		
1994	5.94%		
1995	6.29%		
1996	6.59%	7.87%	
1997	6.32%	8.37%	4.09%
1998	6.17%	8.49%	4.74%
1999	6.19%	8.27%	5.96%
2000	5.86%	7.88%	6.41%
2001	5.95%	8.04%	6.85%
2002	5.80%	7.80%	7.10%
2003	5.72%	9.47%	7.38%
2004	5.35%	7.80%	8.47%
2005	4.76%	7.30%	8.14%
2006	4.33%	7.06%	8.26%
2007	4.42%	7.25%	9.06%
Rate change from 2001 vs. 2007	-25.8%	-9.8%	32.2%