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Replace Loan and Cover Put Sales with a Disappearing Deductible in RP[1]

Revenue Protection is a "near" replacement for the Loan Rate. The current national loan rate for corn is $1.95 or $1.37 if the grower elected ACRE. Effectively the loan rate is low enough that most would agree the loan rate will provide very little price risk protection in today's market. However, there is downside price protection in the new Revenue Protection (RP) contract that will simulate the loan rate.

RP provides an effective loan rate at the price level that will trigger payments with an "average" crop. Farmers who purchase 80% RP coverage will have an effective strike price at $4.81 (Projected Price $6.01 X 80% coverage). When prices fall below $4.81, 80% RP insured corn farmers will receive payments with an average crop and like the marketing loan there is no payment limit. However, the marketing loan targets payments to those farmers with a current year's bumper crop, i.e. the larger their crop the larger their payment. The effective strike price in RP targets payments to those farmers with an average crop for the current year and will reduce payments when the current yield exceeds the average yield.

Unlike the payment trigger price in the marketing loan that is fixed at a $1.95, the payment trigger price in RP is reset each year based on market conditions. For

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example if the projected corn price next year is a dollar lower, then the effective strike price for 80% RP coverage is $4.01 (80% X $5.01) but still much higher than the $1.95 marketing loan. The marketing loan payments are "free", while the loan replacement in Revenue Protection requires farmers to pay a significant share of the cost. In return for sharing the cost, farmers have some control over the effective strike price that replaces the loan rate. For example, corn farmers who purchased 50% RP coverage have an effective strike price of $3.01 while those who purchased yield protection have no protection against low prices with an average yield. By contrast farmers who purchased 85% RP coverage have an effective strike price of $5.11 for corn, $11.47 for soybeans, and $6.05 for KC winter wheat. The exact price will vary by state and crop and RP coverages below 85% will have lower effective strike prices. The focus of this paper will be to explain why the RP puts a floor in the price and the yield and will provide protection that will replace the loss of an effective marketing loan.

Starting in the fall of 2010, the Risk Management Agency (RMA) combined Actual Production History (APH), Income Protection (IP), Revenue Assurance (RA) and Crop Revenue Coverage (CRC) in to a single Common Crop Insurance Policy (CCIP). CCIP provides three types of coverages that include; 1. Yield Protection (YP), 2. Revenue Protection (RP), and 3. Revenue Protection with the Harvest Price Exclusion (RP-HPE).

Corn and soybean farmers who do not cancel or change their crop insurance coverage will have their prior year's coverage rolled in to the equivalent CCIP coverage. Those farmers with APH, aka MPCI, will have their coverage rolled to Yield Protection (YP) at the same percentage coverage level. Those farmers with CRC or RA with the Harvest Price Option will have their coverage rolled to Revenue Protection (RP) at the same percentage coverage level. Farmers with RA and no Harvest Price Option or IP will have their coverage rolled to Revenue Protection with the Harvest Price Exclusion (RP-HPE) at the same percentage coverage level.

Revenue and harvest price endorsements are "cheap" options. Because of the common Projected Price, the yield protection under CCIP is the same in all three contracts, YP, RP, and RP-HPE. Therefore, any additional premiums or additional indemnities that exceed those of YP are by definition for price risk only. RMA's new CCIP effectively uses the YP contract as the base contract. The YP contract plus the Yield Adjusted Asian (YAA) call or harvest price and a Yield Adjusted Asian (YAA) put or revenue endorsement, is equal to the Revenue Protection (RP) contract. Farmers are allowed to delete the harvest price and create the Revenue Protection with the Harvest Price Excluded (RP-HPE) contract that equals YP plus the YAA put only. Notice farmers are not allowed to eliminate the YAA put or revenue endorsement and retain the YAA call or harvest price endorsement.

The strike price for the options in RP is the average monthly price for new crop futures during the month prior to sales closing. For most of the country this is the February average futures price for December corn that sets the Projected Price. By contrast, the effective strike price is the YAA put payment trigger price with an average yield is equal to selected coverage percentage times Projected Price. For 80% RP coverage corn the effective strike price is $4.81 ($6.01 X 80%).

There are major differences between Board traded options and those built in to RP. Board traded options have a fixed yield of 5,000 bushels. The RP options are adjusted for yield and the major reason for their lower value and resulting premium. Board traded options are settled on a spot price while RP options are settled on a monthly average price at harvest time, i.e. the term Asian option. Board traded puts have a minimum value of zero, but the RP YAA put will assume negative values unless growers also purchase the YAA call (harvest price). RP options have no right to be exercised and can only be cashed in for their intrinsic value at harvest time. Board traded options' value will only equal their intrinsic value with zero time value at expiration. The RP options have only one strike price that is equal to the Projected Price and only on the harvest contract. Board traded options have multiple strike prices and the at the money strike price will adjust to the current market level during the life of the contract. The RP options are on the harvest contract month only, while Board options are on multiple contract months (Table 1).

Calculating Cost for YAA Options. RP-HPE has a YAA put cost per bushel equal to RP-HPE premium minus YP premium divided by guaranteed bushels. For example, RP-HPE premium = $13.15 minus YP premium = $12.85 equals a difference of $0.30 divided by 139 bushel = 0.2 cents per guaranteed bushel (Table 2). At coverage levels below 80%, effectively RMA is paying the grower to take the YAA put but the negative YAA put premiums only occur in low risk production areas. Also the effective strike price for the YAA put declines at lower coverage levels. For example at 70% RP coverage the effective strike price declines to $4.21 on corn.

RP's YAA call has a cost per bushel equal to RP premium minus RP-HPE premium divided by guaranteed bushels. For example, RP premium = $21.76 minus RP-HPE premium = $13.15 equals a difference of $8.61 divided by 139 bushel = 6.2 cents per guaranteed bushel for the YAA call for 80% coverage.

The yield protection is the "expensive" part of revenue insurance contracts. The YP premium for this example farm is $12.85 divided by the guaranteed bushels equals 15.7 cents per bushel for 80% coverage. Normally the yield coverage is not quoted in cost per insured bushel but this allows growers to separate the coverage provided by the YAA put, YAA call, and yield protection into a common unit. The crop insurance premium separated by type of coverage and expressed as cost per bushel then allows for a comparison with the premium cost of Board traded options.

Currently an at the money CME corn option is costing about 70-80 cents a bushel. If one were to buy both a call and a put it would cost about $1.60 per bushel (not recommended). RP provides both YAA options and in most locations for less than 10 cents per bushel for both YAA options.

<u>Example Farm Calculations.</u> A corn farm was created with the following values to compare the differences in indemnity payments for YP, RP, and RP-HPE, under different price and yield scenarios.

The example corn farm has the following values:

APH proven Yield	173.3
Coverage Level	80%
Guaranteed Bushels	139 bu.
Base (Planting) Price[1]	$6.01
Maximum Price	$12.02
Coverage	$835.39

[1]The Projected Price for Corn Belt states is the average of closing prices of the December 2011 CME corn contract for the trading days from February 1, 2011 through February 28, 2011. The example used the 2011 $6.01 Projected Price.

This grower's yield guarantee would equal 80% coverage times 173.3 bushel APH equals a 139 bushel guarantee (figure 1). A YP contract would require an insurable yield loss to trigger payments. For this example farm, it will require a yield below 139 bushels. If this corn farmer has a yield of 99 bushels, it would generate a yield loss of 40 bushels below the 139 bushel guarantee times a $6.01 Projected Price equals the indemnity payment of $240.40 (table 3). Notice that neither increasing nor decreasing prices have any impact on the YP indemnity payments. For this corn farmer the indemnity payment is $240.40, whether the current market price is $4.51 or $8.01 (table 3).

Moral hazard becomes a concern with YP when harvest prices are low, because prices below $6.01 will not affect the indemnity payment. However, the YP insurance contract will pay $6.01 for each indemnity bushel. Therefore, farmers insured at 80% coverage level and already have suffered a 20% yield loss; then have an economic incentive to lose the rest of the crop. These economic incentives can cause a difficult loss adjustment because some farmers may argue the "ground is too muddy" to harvest. If it is clear that harvest could have been completed, RMA/insurance company may deny the claim.

The moral hazard is less with revenue insurance products because if prices decline, farmers will be paid for the price loss even if they don't have a yield loss. Growers also need to remember that a low yield will show up in their future lower APH and cause a rate increase.

<u>Comparison of YP and RP.</u> Because the price elections are the same the comparison is straight forward. Revenue insurance was never intended to replace a good marketing plan. Once farmers plant their crop they have no choice but to sell it; one cannot store it forever! The YAA call will turn YP in to yield replacement coverage and prevents the YAA put from assuming negative values. This feature assures farmers who forward price corn and other grains using forward contracts, hedge to arrive, puts, windows, etc. will either have bushels or enough indemnity dollars to replace those guaranteed bushels at current market value to offset those marketing positions at harvest time.

The YAA call option (harvest price) attaches at zero yield (figure 1). The only point on the yield curve where the YAA call equals the value of a CME call is at zero yield and when the CME option expires with no time value remaining (figure 1). If the market were to increase from $6 to $7, the CME Board traded call with a $6 strike price would be worth $1 plus time value, irrespective of yield. The YAA call would be worth a dollar only at zero yield and has only intrinsic value with no time value. If the yield increases the YAA call loses value and expires worthless if the yield is greater than the guaranteed bushels (139 bushels in this example). Table 4 shows the value of the YAA call at different yields and prices.

For example if a CME call were purchased on the guaranteed bushels and the market increased one dollar, then the call would be worth $139 or 139 bushels times $1 at the expiration date (about the 3rd week of November for December corn futures). Because CME options trade in 5,000 bushel increments, it is unlikely that farmers can exactly match the guaranteed bushels in their YP contract.

The YAA put option (Harvest Price Exclusion) attaches at the guaranteed bushels (figure 1). If the market were to decrease from $6 to $5, the CME $6 put would be worth a $1 plus time value, irrespective of yield. The YAA put in RP would be worth a dollar only at the guaranteed bushels (139 bushels in this example) and has no time value.

Table 5 shows the additional payout from the YAA put in RP-HPE under different yields and prices. If the yield decreases the YAA put in RP will lose value and will be worthless at zero yield because at zero yield the YP protection will pay the entire loss. The indemnity payment for YP, RP-HPE, and RP are the same at zero yield and harvest price below $6.01; even though the premium for RP and RP-HPE is higher than the YP premium in nearly all cases. The YAA put in RP-HPE will lose value when yields increase above the bushels guaranteed and if yields are high enough the YAA put will also expire worthless (table 5).

A CME put option will expire worthless at expiration if prices increase. However, the YAA put in RP-HPE will take on **negative values** when yields are below the guaranteed bushels and prices increase. Because the YAA put will take on negative values when prices increase and yields are below the guaranteed bushels, is the reason that YP will pay more than RP-HPE under this scenario (table 5). If farmers don’t exclude the harvest price, then when yields are below the guaranteed bushels and prices increase the YAA call will kick in with higher payments. The combined payments for both the YAA put and call are presented in Table 6. Notice that when the YAA call is included it eliminates any negative values. If there is a yield loss the YP coverage built into RP would add additional payments to those calculated in table 6. Clearly the RP insurance has more risk protection than YP or RP-HPE, but is the YAA call in RP worth the extra premium?

Adding the YAA put and call to YP creates Revenue Protection and provides "low cost" price protection when compared with premiums for Board traded options. RP will reduce the risk of forward marketing grain and will likely improve access to credit for financing an aggressive marketing plan.

Selling Covered Put Options. Selling CME out of the money puts covered with the disappearing deductible is a method for growers to gain additional benefits from their RP crop insurance coverage. For example, corn growers with 80% RP coverage will have an effective strike price of $4.81 (80% X $6.01). These growers can sell out the money puts with a strike price of $4.81 and cover the sale with the deductible bushels in the RP coverage. If the harvest price is equal to or less than the "effective" strike price, then the deductible disappears and a claim does not require an insurable yield loss (loss of guaranteed bushels).

An 80% insured corn farmer's deductible will disappear if the harvest price falls below $4.81. If this farmer were to forward contract (HTA, futures) all of the guaranteed bushels (few farmers would be willing to forward price all guaranteed bushels), and sells 1/3 of their Yield Adjusted Asian (YAA) puts on the Board at a $5.10 strike price for 30 cents, then the contracted bushels and CME sold puts are covered with either insurance or bushels exceeding the APH yield (table 7). Note that the 30 cent CME put premium would fund the first dollar of margin loss on the sold $5.10 put. Then if production is equal to or less than the APH yield and a harvest price is below $4.81 that will trigger crop insurance payments. If production exceeds the APH then there are additional bushels to cover the net margin losses on the put. However, as the harvest price falls below $4.81 it will require even more bushels above the APH not to trigger crop insurance payments. For example at $4 the crop production will need to be more than 112% times the APH yield in order to avoid an insurance claim (table 8). If prices were to fall and cause net margin losses on the sold puts, then it is also more likely to generate ACRE and SURE payments from USDA.

If the harvest price is greater than $6.01 then either farmers will produce enough bushels to fill their forward contracts (HTA or futures) or the insurance will pay the production loss at the higher harvest price (in most states the harvest price for corn will equal the October average closing price of the December CME corn futures). In addition the sold CME puts will expire worthless and farmers would retain the put premium as additional profit. There is a small open coverage window on corn because in most states the RP YAA puts expire on November 1, while CME December corn options expire on about November 26. Revenue Protection YAA options and CME November Soybean options expire in the same month of October in most states.

Farmers with 80% RP coverage who produce an average crop (yield equals APH yield) and the harvest price falls below $6.01 but the harvest price is greater than $4.81, then the bushels that were contracted were sold at a price higher than the harvest price and farmers would retain put premiums from the sold CME put options that expired worthless as additional profits.

For farmers with option trading experience, this is an effective way to sell out of the money CME puts and be covered with either insurance or yields greater than their APH. Some farmers who plan to sell out of the money CME puts are considering increasing their RP coverage because that will also increase their "effective" strike price in RP. Selling puts does not limit any forward contract sales because those sales would have been sold at a higher price than the harvest price otherwise there would be no net margin losses on the sold puts. Out of money options trade in a "very thin" market, so one should only submit limit orders and never submit market orders.

Selling puts are covered but if one were to sell calls they are not covered if all of the guaranteed bushels have been forward contracted. Also CME calls have unlimited liability while the YAA calls in RP have a price limit equal to two times the base price, $12.02 for corn. If farmers want unlimited coverage they would need to purchase out of the money calls with a strike price equal to two times the Projected Price (2 x $6.01). Because yield and insurance units do not matter with a $12 CME call, would one buy calls on the entire guarantee? Only if a farmer expected to lose an entire crop on the farm, i.e. a total farm yield equal to zero.

Farmers who have no experience trading options should not consider selling covered puts. They have some "homework" to do first. First there are self study materials provided by the CME and a number of text books that have been written on options. Many University Extension Services and Community Colleges offer classes on options. KSU offers an all day RAMII workshop that allows workshop participants to make these crop insurance and option decisions in a simulated case farm study. Finally the best way to learn anything is to do it. Therefore, sell one option and tract all of the results. One can learn just as much selling one put option as they will selling 10 options. Farmers with no option trading experience should not bet the farm that they understand all of the risks of selling covered puts.

<u>Prevented Planting Peril.</u> The harvest price endorsement does not cover prevented planting. Farmers who purchase RP on March 15 (sales closing dates vary by crop and location) but later were prevented from planting will have their harvest price endorsement (YAA call) expire worthless, irregardless of market prices at harvest time. The harvest price coverage on the prevented planting peril was included in the old Revenue Assurance but the new RP policy eliminated the harvest price coverage on prevented planting starting in 2011.

Because yield is zero for prevented planting, the revenue endorsement (YAA put) will also expire worthless, irregardless of market prices at harvest time. The prevented planting payment will equal 60% (70% if farmers paid the higher premium at sales closing) times the YP coverage for all contracts. Farmers who paid higher premiums for RP and RP-HPE will receive the same indemnity payment for prevented planting as YP insured farmers who paid a lower premium. Because farmer paid premiums for RP are about double that for YP, there is a clear incentive for RP insured farmers to plant the crop.

Farmers in regions of the country that have a high risk for prevented planting will likely limit their sales of any new crop until the crop is planted. How much these growers would be comfortable selling before the crop is planted will depend on the individual farmer. It should be noted that it is the entire crop being considered. For example, farmers who have had prevented planting claims but were still able to plant half of their acres would be willing to forward price more of their crop prior to planting than those filing prevented planting claims for the entire crop.

Summary. The crop insurance example used in this paper was 80% RP. Farmers can increase their RP coverage level and increase their effective strike price in RP. That will allow farmers to sell covered CME puts at a higher strike price that will sell for a higher premium. Also price risk covers all production so the enterprise unit will have the same price losses as an optional unit. Because an enterprise unit has a larger share of the crop insurance premium paid by the Risk Management Agency combined with an additional enterprise unit premium discount, farmers can often increase their coverage level and pay less premium than they do for a lower coverage level with optional units. However, with an enterprise unit farmers reduce their deductible and increase their effective RP strike price. Often farmers will add additional private hail coverage when they purchase an enterprise unit. There are cases where the enterprise unit is not an effective alternative and is an insurance issue farmers should discuss with their agent.

Iowa corn farmers would likely expect corn market prices to increase if their crop fails and benefit from the harvest price endorsement but that is not true for Great Plains corn farmers. However, it eliminates the negative values in the revenue endorsement so Great Plains farmers will also benefit from the harvest price endorsement. Also farmers who forward price their grain will benefit from buying the harvest price. This will guarantee the expected corn bushels at their current market replacement value. This effectively expands the marketing window from 9 months or more before harvest to 9 months after harvest. Because basis is often weak at harvest, there has been a real advantage to having on farm storage as a part of the total risk management plan. However, farmers must first purchase the revenue endorsement (RP-HPE) before RMA will allow farmers to purchase the harvest price (RP).

The revenue endorsement does not require an insurable yield loss to trigger payments. It only requires prices to decline and there is no longer any limit on the downside price protection. The 2008 soybean contract paid on the revenue endorsement (YAA put) with yields greater than farmers' APH. For example, an insured with equivalent 80% RP a $13.36 Projected Price, 100,000 bushels APH a 2008 soybean yield of 80,000 bushels and a 2008 harvest price of $9.22 was paid $331,200, less premium ($4.14 X 80,000 bu.). The effective strike price was$10.69

for this example soybean grower. If the grower's actual yield was equal to the 100,000 bushel soybean APH, then the indemnity payment was $147,000 ($10.69 - $9.22 X 100,000 bu.). The indemnity payment was caused entirely by price loss, i.e. there was no yield loss. It would have required a current year's yield that was nearly 116% higher than the APH yield to eliminate the 2008 indemnity payment from RP.

Any indemnity payments paid to growers with a 2008 soybean yield greater than the guarantee was caused entirely by price loss and the equivalent YP contract would have expired worthless. The 2008 YAA call on soybeans also expired worthless.

While this low price scenario is unlikely to occur, it has happened in the past. Because of the "low" premium cost for the YAA put one only needs one catastrophic loss and it will require nearly 50 years for the insurance company to earn back the YAA put premium that covered the price loss. Even if one has already priced their new crop so they have no downside price risk, the revenue endorsement is still a "low cost" method to add additional price protection.

Figure 1. The attachment points on the yield curve for crop insurance yield coverage, yield adjusted Asian Put, and a yield adjusted Asian call.

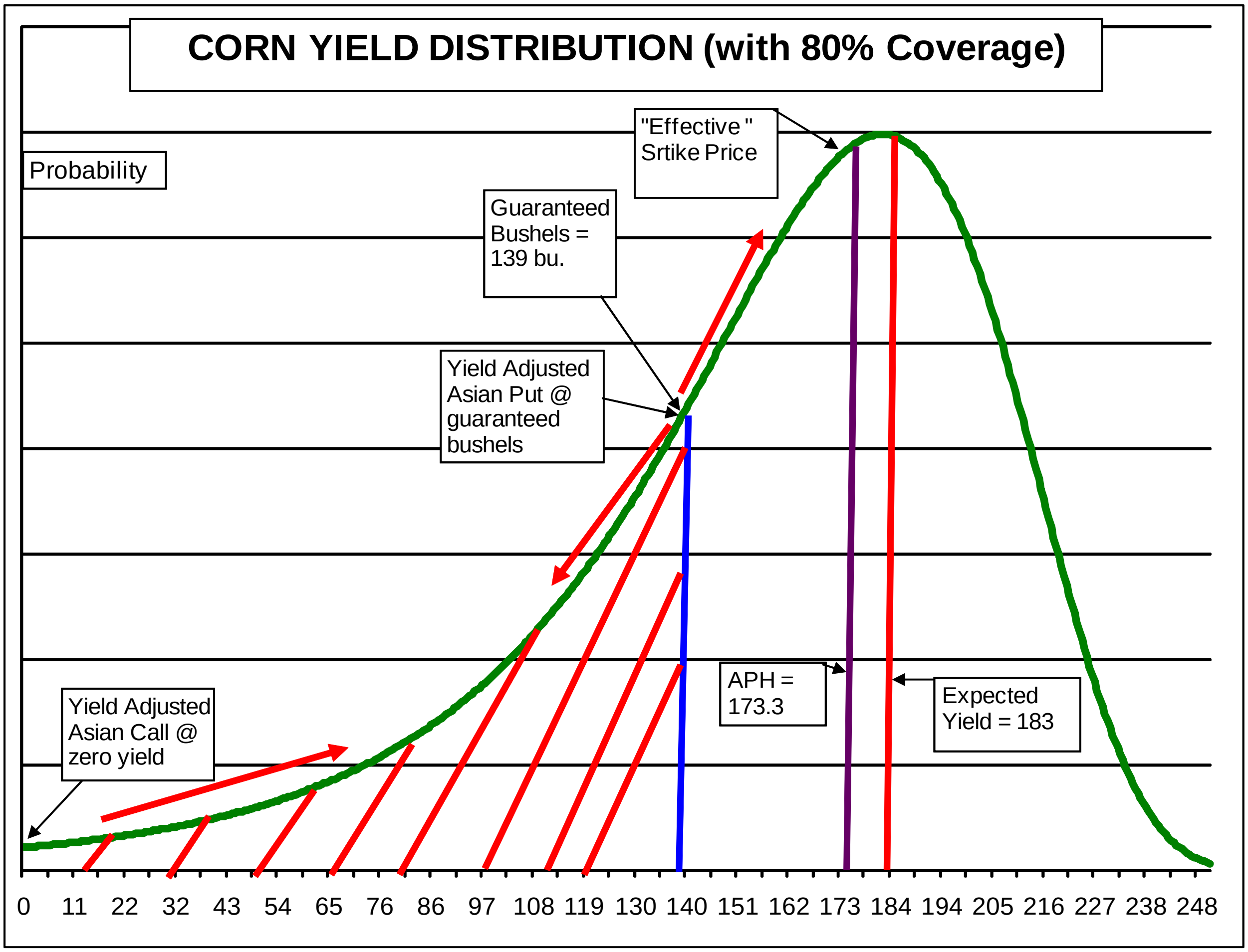

Table 1. Comparison of the YAA Options with Board Traded Options

Parameter	YAA Option	Board Traded Option
Strike Price	1 Strike equal to Projected Price	Multiple Strike Prices
Contract Months	Harvest Contract Only	Mutiple Contract Months
Settlement Price	RP Harvest Price, Monthly Average Price	Spot Price
Price Limit	Zero on YAA Put, 2 X the Projected Price on YAA Call	None on Call, Zero on Put
Yield	Higher Yields reduce Price Loss payments	Yield Fixed (5,000 bu.)
Exercise Rights	None	Right to Exercise Option
Time Value	None	Time value declines to zero at expiration
Minimum Put Premium	YAA Put takes on negative value when price increase	Zero
Minimum Put Premium	Zero and eliminates negative values in YAA Put	Zero

Table 2. Premium cost for Example Farm

Non Irrigated Corn		
Acres	578.0	
APH	173	
Price Election	$6.01	Price not final until March 1
Volatility	0.29	Volatility not final until March 1
Unit	Enterprise Unit	
Location	Western Corn Belt	

Coverage %	**85%**	**80%**	**75%**	**70%**	**65%**	**60%**	**55%**	**50%**
Crop Insurance per Acre								
$ Coverage	$883	$829	$781	$727	$673	$625	$571	$523
YP	$23.65	$12.85	$7.23	$4.82	$3.61	$2.72	$1.97	$1.38
RP-HPE	$24.41	$13.15	$7.13	$4.36	$3.33	$2.57	$1.81	$1.21
RP	$40.52	$21.76	$11.89	$7.44	$5.55	$4.15	$2.94	$2.04
Crop Insurance Cents per Bushel								
Total per bu.	27.6	15.7	9.2	6.1	4.9	4.0	3.1	2.4
Yield/bu.	16.1	9.3	5.6	4.0	3.2	2.6	2.1	1.6
YAA Put Cost/bu.	**0.5**	**0.2**	**-0.1**	**-0.4**	**-0.3**	**-0.1**	**-0.2**	**-0.2**
YAA Call Cost/bu.	**11.0**	**6.2**	**3.7**	**2.5**	**2.0**	**1.5**	**1.2**	**1.0**
Put Trigger Price if Actual Yield equals APH	**$5.11**	**$4.81**	**$4.51**	**$4.21**	**$3.91**	**$3.61**	**$3.31**	**$3.01**
Marginal Rate								
YP	20.0%	11.7%	4.5%	2.2%	1.9%	1.4%	1.2%	
RP-HPE	20.8%	12.5%	5.1%	1.9%	1.6%	1.4%	1.2%	
RP	34.7%	20.5%	8.2%	3.5%	2.9%	2.2%	1.9%	

Table 3. The YP indemnity payments for a corn farm with a $6.01 projected price, a 173.3 bushel APH, and 80% coverage under different price and yield scenarios.

Hvst Price	3.51	4.01	4.51	5.01	5.51	**6.01**	6.51	7.01	7.51	8.01
Yield										
199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
139	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
99	240.40	240.40	240.40	240.40	240.40	240.40	240.40	240.40	240.40	240.40
79	360.60	360.60	360.60	360.60	360.60	360.60	360.60	360.60	360.60	360.60
59	480.80	480.80	480.80	480.80	480.80	480.80	480.80	480.80	480.80	480.80
39	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00
19	721.20	721.20	721.20	721.20	721.20	721.20	721.20	721.20	721.20	721.20
0	835.39	835.39	835.39	835.39	835.39	835.39	835.39	835.39	835.39	835.39

Table 4. The additional indemnity payments generated from the yield adjusted Asian call in the Revenue Protection contract for a corn farm with a $6.01 projected price, a 173.3 bushel APH, and 80% coverage under different price and yield scenarios.

Hvst Price	3.51	4.01	4.51	5.01	5.51	**$6.01**	6.51	7.01	7.51	8.01
Yield										
199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
139	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119	0.00	0.00	0.00	0.00	0.00	0.00	10.00	20.00	30.00	40.00
99	0.00	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
79	0.00	0.00	0.00	0.00	0.00	0.00	30.00	60.00	90.00	120.00
59	0.00	0.00	0.00	0.00	0.00	0.00	40.00	80.00	120.00	160.00
39	0.00	0.00	0.00	0.00	0.00	0.00	50.00	100.00	150.00	200.00
19	0.00	0.00	0.00	0.00	0.00	0.00	60.00	120.00	180.00	240.00
0	0.00	0.00	0.00	0.00	0.00	0.00	**69.50**	**139.00**	**208.50**	**278.00**

Table 5. The additional indemnity payments generated from the yield adjusted Asian put in the Revenue Protection with Harvest Price Exclusion contract for a corn farm with a $6.01 projected price, a 173.3 bushel APH, and 75% coverage under different price and yield scenarios.

Hvst Price	3.51	4.01	4.51	5.01	5.51	**$6.01**	6.51	7.01	7.51	8.01
Yield										
199	136.90	37.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179	207.10	117.60	28.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
159	277.30	197.80	118.30	38.80	0.00	0.00	0.00	0.00	0.00	0.00
139	347.50	278.00	208.50	139.00	69.50	0.00	0.00	0.00	0.00	0.00
119	297.50	238.00	178.50	119.00	59.50	0.00	(59.50)	(119.00)	(120.20)	(120.20)
99	247.50	198.00	148.50	99.00	49.50	0.00	(49.50)	(99.00)	(148.50)	(198.00)
79	197.50	158.00	118.50	79.00	39.50	0.00	(39.50)	(79.00)	(118.50)	(158.00)
59	147.50	118.00	88.50	59.00	29.50	0.00	(29.50)	(59.00)	(88.50)	(118.00)
39	97.50	78.00	58.50	39.00	19.50	0.00	(19.50)	(39.00)	(58.50)	(78.00)
19	47.50	38.00	28.50	19.00	9.50	0.00	(9.50)	(19.00)	(28.50)	(38.00)
0	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	0.00	0.00	0.00	0.00	0.00

Table 6. The additional combined indemnity payments generated from the yield adjusted Asian put and call in Revenue Protection contract for a corn farm with a $6.01 projected price, a 173.3 bushel APH, and 80% coverage under different price and yield scenarios.

Hvst Price	3.51	4.01	4.51	5.01	5.51	**$6.01**	6.51	7.01	7.51	8.01
Yield										
199	136.90	37.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179	207.10	117.60	28.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
159	277.30	197.80	118.30	38.80	0.00	0.00	0.00	0.00	0.00	0.00
139	347.50	278.00	208.50	139.00	69.50	0.00	0.00	0.00	0.00	0.00
119	297.50	238.00	178.50	119.00	59.50	0.00	10.00	20.00	30.00	40.00
99	247.50	198.00	148.50	99.00	49.50	0.00	20.00	40.00	60.00	80.00
79	197.50	158.00	118.50	79.00	39.50	0.00	30.00	60.00	90.00	120.00
59	147.50	118.00	88.50	59.00	29.50	0.00	40.00	80.00	120.00	160.00
39	97.50	78.00	58.50	39.00	19.50	0.00	50.00	100.00	150.00	200.00
19	47.50	38.00	28.50	19.00	9.50	0.00	60.00	120.00	180.00	240.00
0	0.00	0.00	0.00	0.00	0.00	0.00	69.50	139.00	208.50	278.00

Table 7. Selling one third of the YAA puts on the Board

Out of Money Put		**$5.10**	
Policy Type	**YP**	**RP**	
APH	**100,000**	**100,000**	
Bu Guaranteed	**80,000**	**80,000**	
Revenue bu		**55,000**	
First $1+ Prem		**25,000**	**31.3% Puts Sold**
Crop Ins Premiu	**7,430**	**12,580**	
CME Puts sold		**7,500**	**30 Cents**
Premium	**7,430**	**5,080**	**$1 out of the money**

Table 8. Net returns/ losses from selling Covered Puts; Table does not include the sale of the grain

Production bu. **100,000** **Yield Per Ac.** **173.0 bu.**

Har-vest Price	**CME Put**	**Sold Put Prem**	**Net Prem**	**CME Put Prem Earned**	**YA-Put**	**YA Put $ on Sold Puts**	**Net CME Sold Put + YA-Put**	**YA Put $ on Un-Sold Puts**	**Yield Loss**	**Net CME Put + YA-Put + RP**
Bushels				25,000		25,000		55,000		
$5.10	0.00	0.3	$0.30	7,500	**$0.00**	0	7,500	0	0	7,500
$4.90	$0.20	0.3	$0.10	2,500	**$0.00**	0	2,500	0	0	2,500
$4.70	$0.40	0.3	($0.10)	(2,500)	**$0.13**	3,366	866	7,405	0	8,271
$4.50	$0.60	0.3	($0.30)	(7,500)	**$0.38**	9,616	2,116	21,155	0	23,271
$4.30	$0.80	0.3	($0.50)	(12,500)	**$0.63**	15,866	3,366	34,905	0	38,271
$4.10	$1.00	0.3	($0.70)	(17,500)	**$0.88**	22,116	4,616	48,655	0	53,271
$3.90	$1.20	0.3	($0.90)	(22,500)	**$1.13**	28,366	5,866	62,405	0	68,271

Production bu. **80,000** **Yield Per Ac.** **138.4 bu.**

Har-vest Price	**CME Put**	**Sold Put Prem**	**Net Prem**	**CME Put Prem Earned**	**YA-Put**	**YA Put $ on Sold Puts**	**Net CME Sold Put + YA-Put**	**YA Put $ on Un-Sold Puts**	**Yield Loss**	**Net CME Put + YA-Put + RP**
Bushels				25,000		25,000		55,000		
$5.10	$0.00	0.3	$0.30	7,500	**$0.91**	22,741	30,241	50,030	0	80,271
$4.90	$0.20	0.3	$0.10	2,500	**$1.11**	27,741	30,241	61,030	0	91,271
$4.70	$0.40	0.3	($0.10)	(2,500)	**$1.31**	32,741	30,241	72,030	0	102,271
$4.50	$0.60	0.3	($0.30)	(7,500)	**$1.51**	37,741	30,241	83,030	0	113,271
$4.30	$0.80	0.3	($0.50)	(12,500)	**$1.71**	42,741	30,241	94,030	0	124,271
$4.10	$1.00	0.3	($0.70)	(17,500)	**$1.91**	47,741	30,241	105,030	0	135,271
$3.90	$1.20	0.3	($0.90)	(22,500)	**$2.11**	52,741	30,241	116,030	0	146,271

Table 8 Continued. Net returns/ losses from selling Covered Puts; Table does not include the sale of the grain

Production bu.			40,000		Yield Per Ac.		69.2 bu.			
Har- vest Price	CME Put	Sold Put Prem	Net Prem	CME Put Prem Earned	YA- Put	YA Put $ on Sold Puts	Net CME Sold Put + YA-Put	YA Put $ on Un- Sold Puts	Yield Loss	Net CME Put + YA-Put + RP
Bushels				25,000		25,000		15,000		
$5.10	$0.00	0.3	$0.30	7,500	**$0.91**	22,741	30,241	13,645	240,400	284,286
$4.90	$0.20	0.3	$0.10	2,500	**$1.11**	27,741	30,241	16,645	240,400	287,286
$4.70	$0.40	0.3	($0.10)	(2,500)	**$1.31**	32,741	30,241	19,645	240,400	290,286
$4.50	$0.60	0.3	($0.30)	(7,500)	**$1.51**	37,741	30,241	22,645	240,400	293,286
$4.30	$0.80	0.3	($0.50)	(12,500)	**$1.71**	42,741	30,241	25,645	240,400	296,286
$4.10	$1.00	0.3	($0.70)	(17,500)	**$1.91**	47,741	30,241	28,645	240,400	299,286
$3.90	$1.20	0.3	($0.90)	(22,500)	**$2.11**	52,741	30,241	31,645	240,400	302,286

Production bu.			110,000		Yield Per Ac.		190.3 bu.			
Har- vest Price	CME Put	Sold Put Prem	Net Prem	CME Put Prem Earned	YA- Put	YA Put $ on Sold Puts	Net CME Sold Put + YA-Put	YA Put $ on Un- Sold Puts	Yield Loss	Net CME Put + YA-Put + RP
Bushels				25,000		25,000		55,000		
$5.10	$0.00	0.3	$0.30	7,500	**$0.00**	0	7,500	0	0	7,500
$4.90	$0.20	0.3	$0.10	2,500	**$0.00**	0	2,500	0	0	2,500
$4.70	$0.40	0.3	($0.10)	(2,500)	**$0.00**	0	(2,500)	0	0	(2,500)
$4.50	$0.60	0.3	($0.30)	(7,500)	**$0.00**	0	(7,500)	0	0	(7,500)
$4.30	$0.80	0.3	($0.50)	(12,500)	**$0.00**	0	(12,500)	0	0	(12,500)
$4.10	$1.00	0.3	($0.70)	(17,500)	**$0.00**	0	(17,500)	0	0	(17,500)
$3.90	$1.20	0.3	($0.90)	(22,500)	**$0.27**	6,843	(15,657)	15,054	0	(603)