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CROP REVENUE COVERAGE INSURANCE PROVIDES ADDITIONAL RISK MANAGEMENT WHEAT ALTERNATIVES¹

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Managing Risk With Less Government Support. Because of reduced government support programs, growers and their lenders are assuming additional risks, yet most growers do not currently have a written marketing and yield risk management plan. The lack of a written plan does not eliminate price and yield risk. Growers who do not market their grain are simply saying they will accept whatever the market is offering at harvest, or will accept the price available when the payment of a note or other expense is due. These growers also have not identified how they will cover yield losses caused by weather factors other than hope the government will provide another ad hoc disaster program or depend on the limited coverage provided in the catastrophic crop insurance contract.

The Federal Agricultural Improvement and Reform Act (FAIR), better known as "Freedom to Farm" has now passed into law. The Market Transition Payment (MTP) is not subject to price or yield risk. However, this "fixed" 7 year payment does decline over the life of the Act.

Revenue Insurance. Because of reductions in the government "safety net" many growers are now willing to consider alternatives for managing risk. The Iowa Farm Bill Study Team suggested replacing current USDA farm programs with revenue "insurance" funded by government. Harrington and Doering have also proposed revenue insurance that would be partially funded by USDA, but later privatized.

Use of Private Markets. This paper will focus only on currently available risk management tools or those with approval pending. It is currently possible for individual growers to insure gross revenue. Many of the necessary parts already have been tested, i.e., forward contracts, hedge-to-arrive, minimum price contracts, futures, options, MPCI insurance, Crop Revenue Coverage (CRC) insurance, private hail insurance, private replacement coverage crop insurance (MVP), and grower education on insurance and marketing alternatives. Growers who combined Crop Revenue Coverage (CRC) or Market Value Protection (MVP)-MPCI replacement coverage crop insurance with a price "insurance" strategy have effectively guaranteed revenue. For example, growers who forward contract all of their bushels guaranteed under a CRC contract or MVP-MPCI replacement coverage contract will have guaranteed a minimum cash flow.

The Standard MPCI Coverage Does Not Guarantee Bushels. While the standard Multiple Peril Crop Insurance contract is often discussed in terms of bushels guaranteed, in fact it only guarantees bushels if the price equals the price election. For example, for each 10,000 bushels of guaranteed wheat production the grower will receive enough indemnity dollars to purchase 10,000 bushels only if the price equals \$3.85.² If prices were to increase to \$5.75 this same grower would only receive enough indemnity dollars to replace 6,696 bushels of wheat per 10,000 bushels guaranteed under the standard MPCI contract (figure 1).³ However growers who forward contracted those 10,000 bushels must either raise those 10,000 bushels or buy those 10,000 bushels at current market value to fill the contract. Therefore, the

remaining 3,304 bushels must be purchased from growers' equity or from borrowed funds, i.e. the cancellation penalty.

Congress has heard numerous complaints about the federal crop insurance program.⁴ Many growers would prefer a policy that provides dollar protection rather than bushels. In addition, many growers believe the current federal crop insurance program over compensates poor managers and under compensates the best growers.

Crop Revenue Coverage. The CRC contract was developed by the private sector to address many of those issues. CRC will cover revenue losses caused by either yield losses, low crop prices or a combination of low yields and low prices. In addition, CRC will automatically increase the coverage, if the market value of the crop increases, without payment of additional premiums.

If CRC had been available in 1996, a wheat grower with an average yield of 40 bushels could have purchased up to \$110.10 of coverage under CRC. Under a 1996 MPCCI contract this same grower would have been offered up to a 30 bushel guarantee with a price election of \$3.55 for a total of \$106.50 of coverage. If this insured grower had suffered a yield loss and produced only 10 bushels of wheat, the MPCCI contract would have paid 20 bushels times \$3.55 for a total of \$71.00 per acre.

Because the market increased over 49%, the CRC contract would have had its minimum dollar coverage guarantee automatically raised from \$110.10 to \$164.10, and the CRC insured grower would have generated \$54.70 of revenue (10 bu * \$5.47) to count against the higher guarantee of \$164.10 for a net payment of \$109.40 per acre⁵. Because of the increased market value of the crop, the CRC payment was 54% higher than the MPCCI payment. If one divides the \$109.40 indemnity payment by the current market price of \$5.47, it will replace all of the 20 bushels that were lost.

For 1997, CRC used 95% of the August 1996 average price for the KCBOT (Kansas City Board of Trade) July 1997 contract, resulting in a wheat market determined price of \$3.98. The above example grower would be able to buy up to \$119.40 of 75% CRC or \$103.48 of 65% CRC wheat coverage per acre on the 1997 crop. If the unit has an average yield of 15,385 bushels, then 65% CRC will replace 10,000 bushels at the current market value.

If the grower were to forward contract (or use other forward pricing tools) 10,000 bushels, then he/she must either produce the 10,000 bushels of inventory or he/she will receive enough indemnity dollars to replace the inventory at current market value. If the market price were to increase to \$5.75 (95% of the KCBOT price) and CRC insured growers lose their crop, they will receive enough **additional dollars to replace all 10,000 bushels (figure 2).**

Replacement MPCCI Endorsement. Currently, CRC is available only on Nebraska and Iowa corn and soybeans. CRC was approved for winter wheat in Kansas, Texas, Nebraska, South Dakota, Washington, Michigan and parts of Montana. CRC approval is now pending for other crops and in other states by the Risk Management Agency (RMA). However, growers of other commodities and in other states may guarantee their inventory with MVP replacement coverage. An MVP endorsement provides additional coverage that will make a basic MPCCI policy a replacement contract^{6,7}. A replacement contract sold under the trade name MVP-MPCCI guarantees all 10,000 bushels at their market value⁸. If prices increase then the grower's indemnity payment would also increase. For example, growers who lose their wheat crop and prices increase to \$5.75, their MPCCI policy combined with an MVP endorsement would provide enough indemnity dollars to purchase the guaranteed 10,000 bushels of wheat at current market value, not at a forecasted FCIC determined price election. Price increases often happen in years with low

production, such as 1996.

Income Protection (IP). The government is also offering its own version of revenue insurance titled Income Protection (IP). IP will be offered in a few selected counties for spring wheat, corn and cotton. However, while IP may appear to be similar to CRC, there are very real differences. Under IP the **indemnity payment falls as market prices increase!** For growers that only suffered losses in years like 1996 their IP insurance coverage would have fallen, at the very time growers need coverage. The IP program does not limit payment reductions caused by higher market prices, i.e. **the higher the price, the lower the payment.** The IP payment under most loss scenarios is reduced further because IP does not insure units or optional units independently but averages all of the grower's acres into one unit. Because the IP losses are averaged across the entire farm rather than a sub-farm unit, in most cases the IP indemnity payment will suffer further reductions in a loss year.

Assuming market prices increased to \$6.05, the 65% IP indemnity payment would have replaced only 6,546 bushels⁹. Most growers would have suffered additional IP payment reductions because losses would have been averaged across the entire farm rather than a single sub-farm unit.

Many of the very best growers producing in the best growing regions often expect that if they suffer a crop yield loss, their neighbors will also suffer a crop yield loss. Under those conditions growers often experience prices rising and under an IP program they would suffer lower indemnity payments in the very year they have the crop loss. While CRC does exactly the opposite, **CRC increases the indemnity payment when market prices are rising.** That is extremely important for growers that have already sold their inventory ahead of harvest, and are now faced with margin calls or cancellation penalties on forward contracts. It is the very time they need the protection of a larger indemnity payment.

If growers are insured with Income Protection, they will not receive enough indemnity payments to replace the inventory in a rising market (figure 3). In fact, the replacement coverage under IP is likely to be less because, IP has no units. IP averages the loss across all acres and a grower has only one enterprise unit.

Also, any production is valued at the higher current market value and counted against the IP guarantee and the result will be to replace even fewer of the lost bushels. Even with the CBOT price of \$6.05 (cash), the result is that IP will only replace 6,546 bushels of a 10,000 bushel loss (figure 4). MPCCI will replace 6,896 bushels of a 10,000 bushel loss. Only CRC or MVP-MPCI will replace all 10,000 bushels at current market price (figure 4).

Guaranteed Revenue With A Futures Hedge. Because "bushels" are necessary to maintain a hedge, the short futures position and CRC or MVP-MPCI replacement coverage guarantee must be based on the same market price, so there is no "slippage". If the yield were guaranteed based on a NASS seasonal average price, then the hedge price might not be offset completely. Therefore, it makes sense to use futures markets for price discovery to determine CRC or MVP-MPCI replacement coverage, because growers are selling their crop based on futures prices less basis¹⁰.

For example, growers who sell their wheat at \$4.05 on the board would expect \$3.85 locally with a 5% under basis. The lender's collateral is often the growing crop and it is worth \$3.85 per bushel. The growing wheat crop is insured under a standard MPCCI contract at the top price election of \$3.85 (figure 5)¹¹.

If the KCBOT market increases \$1.74, then these growers would receive a \$17,400 margin call, but the

growing crop also has increased in value by about \$17,000¹². However, under the standard MPCI contract, their crop insurance coverage does not increase. Some lenders may become concerned because **their collateral is now underinsured** (figure 6).

If the crop is insured at replacement value using either CRC or MVP-MPCI, then the insurance coverage will also increase, reflecting the higher crop value (figure 7). Both CRC and MVP-MPCI are based on the same market price that triggered the margin requirement.

As figure 7 shows, growers have guaranteed themselves about \$38,500. If prices increase, they will lose margin money, but their crop will sell for more in the cash market, offsetting (most of) the margin "loss". If they lose their crop, then CRC or MVP-MPCI will increase and cover both the margin "loss" and the crop loss. If prices decrease, growers will gain in their futures position, but their crop will sell for less in the cash market. Prices may increase or decrease or the crop may fail, but these growers will still net about \$38,500 in gross sales, assuming a 5% under basis.

CRC Also Covers Revenue Losses Caused By Low Prices.¹³ In addition, CRC also guarantees revenue losses caused by low crop prices. Growers who have already forward contracted their grain at a much higher price, will receive the full indemnity payment. This contract will reward the best producers and the growers that do the best job of marketing their grain because they will keep all of the market gain. There is no reduction in indemnity payments because of good management.

IP also covers losses caused by lower prices, but indemnity payments are likely to be less than CRC payments, because IP losses are averaged across the entire farm rather than an individual farm sub-unit.

CRC has the following features:

1. CRC covers losses caused by low yields, low prices or a combination of low yields and prices.
2. CRC coverages are based on individual farm yields and the market value of the insured crop.
3. CRC coverage automatically increases without charging growers additional premium when the market value of the crop increases as occurred in 1995 and 1996.
4. Coverage is quoted as dollars of coverage per acre.
5. Growers may receive a CRC payment caused by low prices without suffering an insurable yield loss.
6. CRC provides enough dollars to replace the inventory at current prices even when prices increase. That will help offset financial losses caused by the reduction in government payments, higher feed cost, margin calls, and or forward contract cancellation penalties.
7. All MPCI insurance companies are eligible to sell CRC but may choose not to offer the contract.
8. Based on 1997 fall market prices, winter wheat growers with a 30 bushel insurable yield were offered up to \$119.40 of coverage.
9. In states and on crops not covered by CRC, growers may purchase Market Value Protection (MVP-MPCI) that will replace lost bushels at the higher market value. However, MVP-MPCI does not cover downside revenue losses caused by low prices. MVP-MPCI, unlike CRC, requires an insurable yield loss before any indemnity payments are due.
10. Because CRC also covers some of the price risk in addition to yield risk, the premiums are about 30%-40% higher than base MPCI premiums (before subsidies). CRC will cost about \$2.50 (plus or minus 50 cents) an acre more than MPCI on wheat.

Cost Comparison. Table 1 shows a cost comparison for CRC, IP and MPCI. Because CRC coverage levels are always set by the market, 1997 CRC coverages were higher than MPCI.

The yield risk premium in CRC and the MPCCI are the same because CRC receives all of the subsidies provided in the MPCCI contract. The additional premium cost for CRC is to cover the revenue risk caused by price risk.

The additional cost to cover the price risk in the CRC contract was \$2.28 per acre or 8.8 cents per bushel for the example farm. The additional cost for price risk in the revenue contract is running about 8 to 11 cents per insured bushel.

The cost to cover price risk in the CRC revenue contract will seem reasonable for those who understand the cost of price risk insurance. An at-the-money March 97 wheat option currently cost about 25-30 cents per bushel. If the grower wanted to cover both upside and downside price risk, option cost would be nearly 60 cents per bushel.

Crop Revenue Coverage is **not a replacement for a put or call**. Crop Revenue Coverage does cover both upside and downside price risk but payments also factor in yield to determine indemnity payments based on lost revenue. **Lost revenue is not the same as a price decline**. Also CRC, does not pay on a spot price, because price is determined based on a monthly average. CRC has no exercise rights.

CRC and Marketing. CRC guarantees the inventory at replacement value. That will allow growers to sell the inventory when the price is good, rather than after the grain is harvested and put in storage. CRC will extend the marketing window up to two years before harvest. **Also, any indemnity caused by falling prices will not be reduced if the grower sells the crop at a higher price.** There is no penalty for doing a good marketing job.

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² USDA's top price election for 1997 wheat was \$3.85.

³ CRC and MVP limits coverage to a maximum price increase (decrease) of \$2.00 for wheat, \$1.50 for corn, \$0.70 for cotton and \$3.00 for soybeans.

⁴ The Federal Crop Insurance Corporation has been renamed Risk Management Agency (RMA).

⁵ The \$5.47 market price was 95% of the June average KCBOT July 96 price.

⁶ Beginning in the spring of 1994, RMA offered catastrophic reinsurance coverage for private insurance companies writing the replacement under the trade name MVP. While replacement coverage has been on the market for about 4 years, the RMA reinsurance is expected to cause more companies to offer the MVP-MPCI coverage and in more states. Currently, there are at least two companies writing replacement coverage and it is also sold under the trade name RC (Replacement Coverage).

⁷ Disclosure: Both CRC and MVP were developed by the author for American Agrisure, Council Bluffs, Iowa. However, the private sector brought the MVP contract to the market and have successfully sold MVP over a large part of production agriculture. MVP was approved by RMA for catastrophic reinsurance in 1994. RMA has also approved at least two new companies to sell MVP. One company is selling under the trade name RC-MPCI. CRC is currently available only in a few states. There are at least 5 private companies selling CRC. Therefore sales are likely to exceed estimates and new states are likely to be added.

⁸ Futures markets are used only for price discovery to determine the market value of indemnity bushels. Market value is defined as 95% of closing prices for the nearby contract during the harvest month. The selected month will vary by crop and location because harvest occurs at different times.

⁹ The 1997 MPCPI price election was \$3.85, IP fall price was \$3.96 (100% of the Chicago Board of Trade (CBOT) and CRC fall price was \$3.98 (95% of KCBOT). The actual harvest price for both IP and CRC is based on the respective June average prices for July 97 CBOT wheat and July 97 KCBOT wheat. Setting the harvest price equal to 100% of the CBOT price, lowers indemnity payments because the calculated revenue to count against the guarantee is higher. However, the fall guarantee was also set higher so there is little effect on the payment.

¹⁰ The author is not suggesting that supply and demand do not determine price. Futures markets capture supply and demand, but the market also anticipates changes in supply and demand. The local price offered by elevators is then based on prices discovered by futures markets, less basis. Basis will reflect local supply and demand conditions.

¹¹ The top MPCPI price election for 1997 wheat was \$3.85.

¹² The cash value of the crop would increase less than futures if the basis widens. The basis could also narrow. CRC does not guarantee the local cash basis.

¹³ MVP-MPCPI provides no protection from revenue losses caused by low market prices. CRC does not guarantee price, because a low price can be offset with a higher yield under a revenue contract.

Table 1. Example: Premium and Indemnity Payment for Wheat in Sumner County (1996)

	MPCPI	CRC High Price	CRC Low Price	IP High Price	IP Low Price
Average Yield for Insurance	40	40		40	
X Coverage Level	65%	65%		65%	
= Bushels per Acre Yield Guarantee	26				
X Wheat Price Election	\$3.85				
Projected Market Price		\$3.98		\$3.96	
Minimum Revenue Guarantee		\$103.48		\$102.96	
= Liability (Total Coverage)	\$100.10	\$155.48		\$102.96	
Effective Rate per \$100	2.98%	3.38%		1.01%	
Gross Premium per Acre	\$5.11	\$7.39		\$1.34	
Subsidy per Acre	\$2.13	\$2.13		\$0.30	
Farmer Paid Premium	\$2.98	\$5.26		\$1.04	
Indemnity Payment					
- Less Current Year's Crop (bu)	15	15	15	15	15
= Bushel Loss per Acre (bu.)	11				
X Price Election	\$3.85				
Harvest Market Price		\$5.80	\$3.00	\$6.04	\$3.09
Final Revenue Guarantee		\$150.80	\$103.48	\$102.96	\$102.96
Less Revenue to Count		\$87.00	\$45.00	\$90.62	\$46.41
= Indemnity Payment per Acre	\$42.35	\$63.80	\$58.48	\$12.34	\$56.55
- Less Premium	\$2.98	\$5.26	\$5.26	\$1.04	\$1.04
= Net Indemnity Payment per Ac	\$39.37	\$58.54	\$53.22	\$11.30	\$55.51

¹ The CBOT average 6.4 cents less than KCBOT and IP uses 100% of the CBOT average price during June.

Figure 1. Replacement Wheat Bushels Using 65% MPC1 with an Average Yield of 15,385 Bushels, assuming a \$3.85 price election and a Price Increase

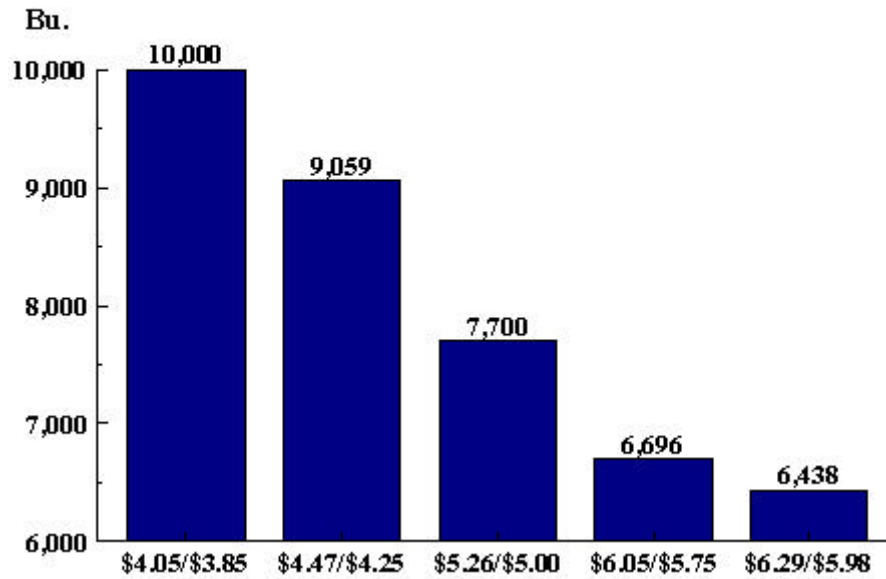


Figure 2. Replacement Bushels Using a 65% Crop Revenue Coverage Policy, a fall price of \$4.19 KCBOT (\$3.98 cash) with an Average Yield of 15,385 Bushels and a Price Increase

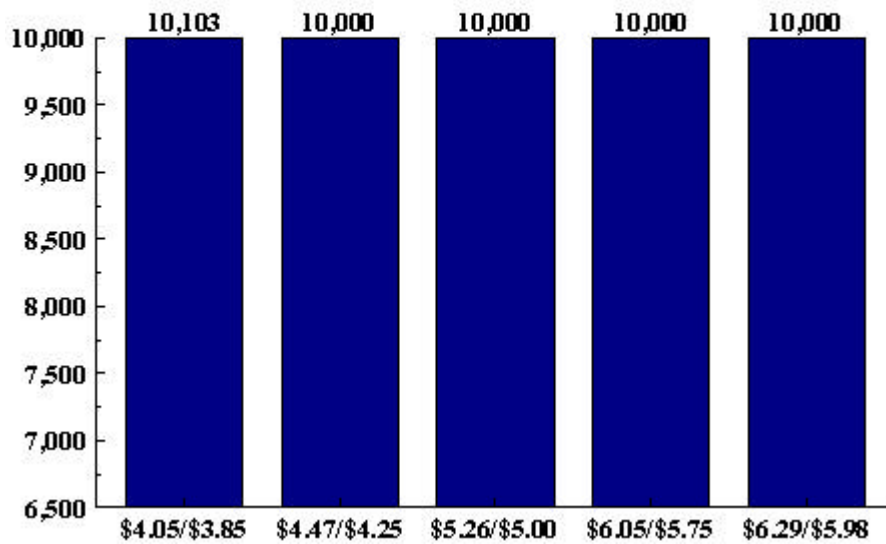


Figure 3. Replacement Wheat Bushels Using 65% Income Protection, fall price of \$4.96 CBOT with an Average Yield of 15,385 Bushels and a Price Increase

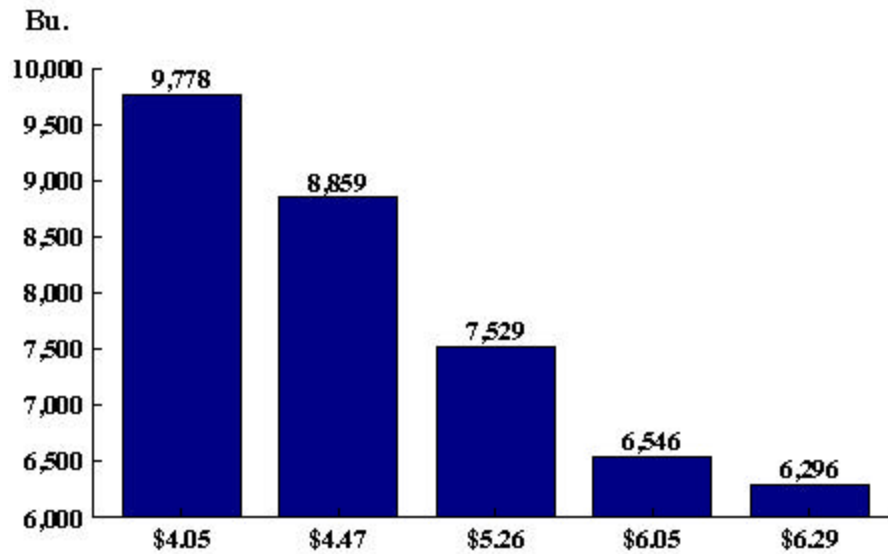


Figure 4. Compare Inventory Replacement with a 15,385 Bu. APH a CRC Coverage of \$102.96, IP Coverage of \$103.48, MPCJ Coverage of \$100.10, assuming 1996 price elections, (MPCJ \$3.85, CRC \$3.98, IP \$3.96), a zero yield, and a Price Increase to \$5.75 (\$6.05 KCBOT)

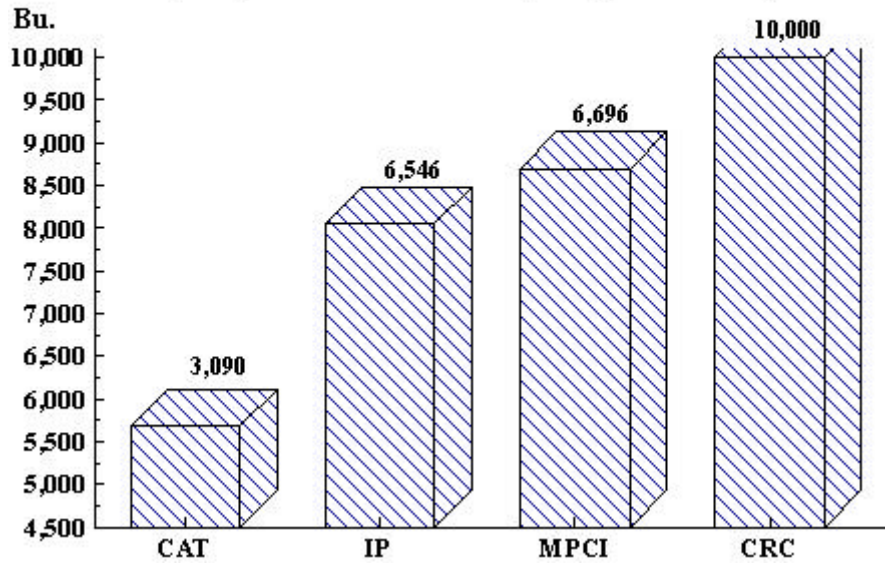


Figure 5. 1997, Sell 10,000 Bushels of Wheat with MPCJ Coverage

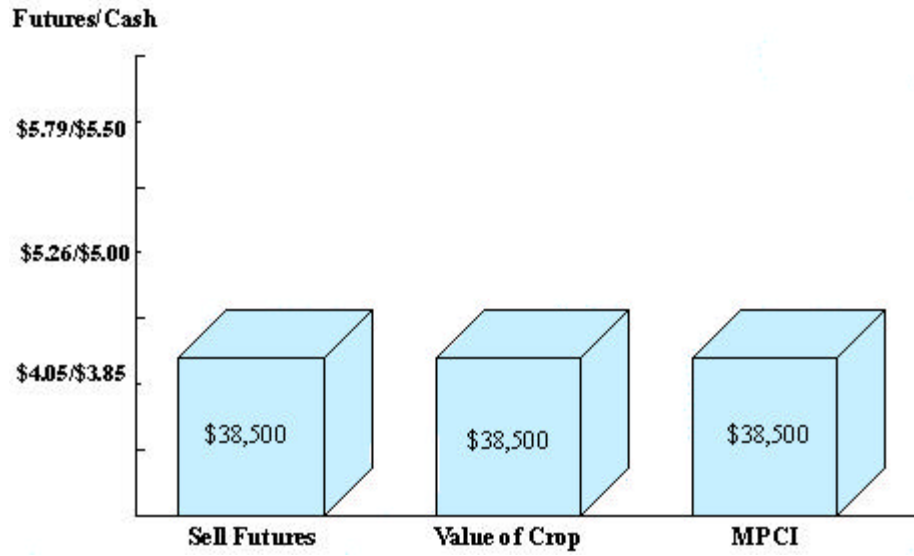
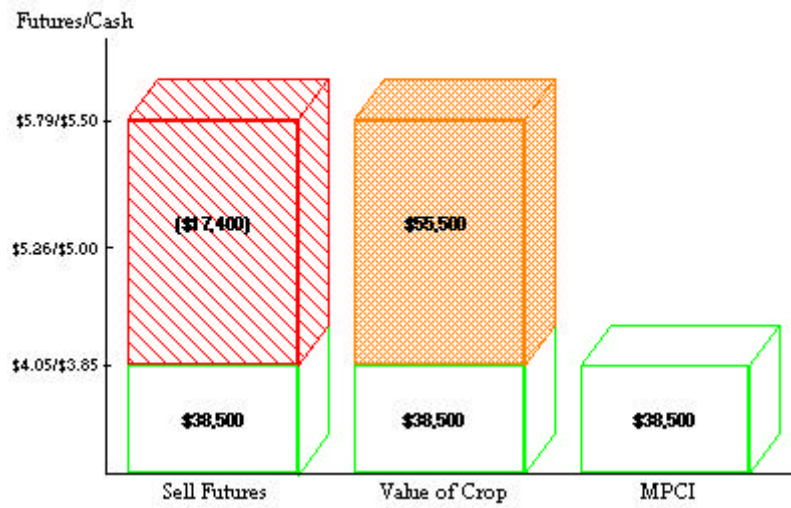


Figure 6. Sell 10,000 bushels of Wheat with MPCJ Coverage and Price Increases



**Figure 7. Sell 10,000 bushels of Wheat
with CRC and Price Increases**

