

Multiple Peril Crop Insurance – Actual Production History

Department of Agricultural Economics — www.agmanager.info



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The goal of the Crop Insurance Act of 1980 was to make Multiple Peril Crop Insurance – Actual Production History (MPCI-APH) available to growers of major crops as a replacement for the USDA's low-yield disaster program. Crop insurance is marketed by local private crop insurance agents who, in most cases, sell crop insurance along with other lines of insurance.

Growers also may select catastrophic (CAT) coverage at the 50 percent level with 55 percent of the market price. The coverage is "free" but will require the grower to pay a \$100 processing fee. Growers who purchase coverage above CAT receive a higher dollar subsidy. Growers also pay a \$30 administrative fee.

The focus of this worksheet is to provide a method for farmers to evaluate MPCI-APH and catastrophic coverage. This worksheet does not cover private hail/fire crop insurance.

MPCI-APH insurable losses include: Drought, excessive moisture, hail, wind, frost/freeze, tornado, lightning, flood, insect infestation, plant disease, excessive temperature during pollination, wildlife damage, fire, and earthquakes.

MPCI-APH does not cover losses resulting from poor farming practices, low commodity prices, theft, and specified perils, which are excluded in a limited number of policies.

Crops insurable: The crops that are insurable (may vary by county) include barley, soybeans, corn, grain sorghum, and wheat. Other crops are covered only in selected counties.

Premium rates: *Premium percentage rates decline as the grower's insurance yield increases.* A grower with a top yield average for the county typically pays a premium rate of about one-third of the premium rate paid by a grower with a yield history well below county average. The premium rates also change to reflect the difference in crop production risk across the state of Kansas.

Coverage: Coverage is set at 50, 55, 60, 65, 70, 75, 80, or 85 percent of the individual grower's yield history. If the grower has less than four years of records, then adjusted

NASS yields are used for the missing years' records (this approach ended using county average yields to set the coverage for individuals).

Price election: Farmers may select any price election within a minimum and maximum price range set by RMA.

Table 1. Example: Premium for Central Kansas (2006)

	Example	Your Farm
Average Yield for Insurance	40 bu	_____
× Coverage Level (50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%)	70%	_____
= Bushels per Acre Yield Guarantee	28 bu	_____
× Wheat Price Election (\$1.89, up to \$3.15)	\$ 3.15	_____
= Liability	\$ 88.20	_____
× Rate	3.50%	_____
= Dollar Premium per Acre	\$ 3.09	_____

Table 2. Example: Indemnity Payment for Central Kansas (2006)

	Example	Your Farm
Average Yield for Insurance	40 bu	_____
× Coverage Level (50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%)	70%	_____
= Bushels per Acre Yield Guarantee	28 bu	_____
– Less Current Year's Crop Production (bu)	10 bu	_____
= Bushel Loss per Acre	18 bu	_____
× Price Election (\$2.10, up to \$3.50)	\$ 3.15	_____
= Indemnity Payment per Acre	\$ 56.70	_____
– Less Premium	\$ 3.09	_____
= Net Indemnity Payment per Acre	\$ 53.61	_____

MPCI-APH Worksheet **Analysis of Per Acre Net Cash Flow**

Crop: _____

Situation: _____

	Disaster Year Central Kansas With Insurance		Typical Year Central Kansas With Insurance		Disaster Year Central Kansas Without Insurance	
	With Insurance	Without Insurance	With Insurance	Without Insurance	With Insurance	Without Insurance
Projected Crop Sales and Other Cash Inflows						
1. Enter Yield per Planted Acre	10.0	10.0				
2. Expected Market Price + LDP	\$3.15	\$3.15				
3. Expected Sales: (Line 1 × Line 2)	\$31.50	\$31.50				
4. Counter Cyclical Payment	\$8.50	\$8.50				
5. Enter Other Reciepts (Direct Payment, ¹ straw, etc.)	\$14.14	\$14.14				
6. Total Receipts: (Line 3 + Line 4 + line 5)	\$54.14	\$54.14				
MPCI-APH Premium						
7. Average Yield for Insurance (APH)	40.0					
8. Coverage Level (50% 55% 65% 70% 75% 80% 85%)	70%					
9. Enter Price Election ²	\$3.15					
10. Liability: Line 7 × Line 8 × Line 9	\$88.20					
11. Enter Premium Rate for the Desired Level of Coverage ³	3.50%					
12. Insurance Premium: Line 10 × Line 11	\$3.09					
Projected Crop Cash Requirements						
13. Enter Preharvest Cash Operating Expense ⁴	\$56.75	\$56.75				
14. Enter Harvest Cash Expense per Acre	\$13.00	\$13.00				
15. Enter Expenses/Bushel (\$0.26 × Yield) ⁵	\$2.60	\$2.60				
16. Debt Service, Family Living Expense, and Other Fixed Cash Requirements ⁶	\$51.88	\$51.88				
17. Total Cash Requirements: (Sum Line 14 to Line 18) Line 13 + Line 14 + Line 15 + Line 16	\$124.23	\$124.23				
Projected MPCI-APH Payment Received						
18. Enter Line 7 × Line 8 (bu.)	28.0					
19. Enter Line 18 - Line 1 (enter zero if answer is a negative number)	18.0					
20. Insurance Payment Received: (Line 19 × Line 9)	\$56.70					
26. Net Cash Flow: (Line 5 - Line 12 - Line 19 + Line 25) ⁷	-\$16.48	-\$70.09				

¹Direct payment is not subject to price or yield risk but the counter cyclical payment is subject to price risk.

²Price elections and revenue prices are available from local insurance agents.

³Premium rates for a specific farm and proven yield can be obtained from insurance agents.

⁴Obtain crop expense estimates from your records or KSU Farm Management Association Summary. Use only cash expenses because this is a cash flow analysis.

⁵With a low yield, cash expenses of some harvest costs, such as trucking and storage, decline.

⁶Debt load, off farm income and/or livestock enterprises will affect cash requirements. Assumes \$41,000 for family living cost and 1,600 acres of crop land (Source: KSU Farm Management Association Summary).

⁷Net cash flow was used for the analysis because normally a farm will not be profitable when a crop disaster occurs. The farmer's short-term strategy is to cover cash flow requirements.

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