

Multiple Peril Crop Insurance

Department of Agricultural Economics



Kansas State University Agricultural Experiment Station and Cooperative Extension Service

G.A. (Art) Barnaby, Jr.
Agricultural Economist
Farm Management

The goal of the Crop Insurance Act of 1980 was to make Multiple Peril Crop Insurance (MPCI) 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 and catastrophic coverage. This worksheet does not cover private hail/fire crop insurance.

MPCI 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 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 (2002)

	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	2.46%	_____
= Dollar Premium per Acre	\$ 2.17	_____

Table 2. Example: Indemnity Payment for Central Kansas (2002)

	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 (\$1.68, up to \$2.80)	\$ 3.15	_____
= Indemnity Payment per Acre	\$ 56.70	_____
– Less Premium	\$ 2.17	_____
= Net Indemnity Payment per Acre	\$ 54.53	_____

MPCI WORKSHEET
Analysis of Per Acre Net Cash Flow
Crop: _____
Situation: _____

	Disaster Year Central Kansas		Typical Year		Disaster Year	
	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 bu	10 bu				
2. Enter Expected Market Price	\$ 3.15	\$ 3.15	\$	\$	\$	\$
3. Expected Sales: Line 1 × Line 2	\$ 31.50	\$ 31.50	\$	\$	\$	\$
4. Counter Cyclical Payments	\$ 6.46	\$ 6.46	\$	\$	\$	\$
5. Enter Other Receipts (Direct Payment, ¹ straw, etc.)	\$ 17.68	\$ 17.68	\$	\$	\$	\$
6. Total Receipts: Lines 3 + 4 + 5	\$ 55.64	\$ 55.64	\$	\$	\$	\$
MPCI Premium:						
7. Enter Insurance Yield	40 bu	XXX		XXX		XXX
8. Enter Level of Coverage (50%, 55%, 60%, 65%, 70%, 75%, 80% or 85%) .	70%	XXX		XXX		XXX
9. Enter Crop Price Election ²	\$ 3.15	XXX	\$	XXX	\$	XXX
10. Liability: Line 7 × Line 8 × Line 9	\$ 88.20	XXX	\$	XXX	\$	XXX
11. Enter Premium Rate for the Desired Level of Coverage ³	2.46%	XXX		XXX		XXX
12. Insurance Premium: Line 10 × Line 11	\$ 2.17	XXX	\$	XXX	\$	XXX
Projected Crop Cash Requirements:						
13. Enter Preharvest Cash Operating Expense ⁴	\$ 54.90	\$ 54.90	\$	\$	\$	\$
14. Enter Harvest Cash Expense per Acre	\$ 13.60	\$ 13.60	\$	\$	\$	\$
15. Enter Expenses/Bushel (\$0.24 × Yield) ⁵	\$ 2.40	\$ 2.40	\$	\$	\$	\$
16. Enter Debt Service, Family Living, and Other Fixed Cash Requirements ⁶	\$ 67.61	\$ 67.61	\$	\$	\$	\$
17. Total Cash Requirements: Line 13 + Line 14 + Line 15 + Line 16	\$ 138.51	\$ 138.51	\$	\$	\$	\$
Projected MPCI Payment Received:						
18. Enter Line 7 × Line 8	28 bu	XXX		XXX		XXX
19. Enter Line 18 – Line 1 (enter zero if answer is a negative number)	18 bu	XXX		XXX		XXX
20. Insurance Payment Received: (Line 19 × Line 9)	\$ 56.70	XXX		XXX		XXX
NET CASH FLOW:						
Line 6 – Line 12 – Line 17 + Line 20 ⁷	\$ –28.34	\$ –82.87	\$	\$	\$	\$

¹Direct payment is not subject to price or yield risk, but the counter cyclical payment is subject to price risk. ²Price elections for crop insurance are crop-specified and farmers must select a price between the minimum and maximum price. Price elections are available from local MPCI insurance agents. ³Premium rates for a specific farm and proven yield can be obtained from MPCI insurance agents. ⁴Obtain crop expense estimates from your records or 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. Includes family living charge of \$26.67 and a Land payment of \$7.68. 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.

Publications from Kansas State University are available on the World Wide Web at: <http://www.oznet.ksu.edu>
Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit G.A. Barnaby, Jr., *Multiple Peril Crop Insurance*, Kansas State University, October 2002.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-907

October 2002

It is the policy of Kansas State University Agricultural Experiment Station and Cooperative Extension Service that all persons shall have equal opportunity and access to its educational programs, services, activities, and materials without regard to race, color, religion, national origin, sex, age or disability. Kansas State University is an equal opportunity organization. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, Marc A. Johnson, Director.