



Marketing and Crop Insurance Risk Model

Example of Output

**A Microsoft Excel spreadsheet
available for download from *farmdoc*
www.farmdoc.uiuc.edu**



GRAIN FARM RISK ASSESSMENT MODEL
Version 2.4



Main Menu Choices

Select county:	Logan
Select crop:	Corn
Beginning year of analysis:	1972
Ending year of analysis:	2004

Input

Use Defaults for all Inputs
Yields
Insurance Premium
Market

Yearly Prices

Insurance Reports

Yearly Insurance Payments
Yearly Gross Revenue
Summary

Marketing and Crop Insurance

What If

Developed by; University of Illinois, Department of Agricultural and Consumer Economics.
Illinois Farm Bureau
Farm Credit Services
U.S.D.A. Risk Management Agency

This spreadsheet is available for download from the *FAST* section of *farmdoc* (www.farmdoc.uiuc.edu).



Yields Used in the Analysis

[Use Defaults](#)

[Graph](#)

[Return](#)

Year	Farm Yields		Trend-Adjusted Farm Yield		Logan County Yields		Trend-Adjusted County Yield	
	Corn	Soybean	Corn	Soybean	Corn	Soybean	Corn	Soybean
1972	115	40	171	53	122	41	178	54
1973	113	37	167	49	122	39	176	51
1974	109	39	161	51	96	26	148	38
1975	129	39	180	50	136	40	187	51
1976	118	37	167	48	129	39	178	50
1977	147	47	194	58	126	42	173	53
1978	151	47	196	57	116	38	161	48
1979	135	44	179	54	132	42	176	52
1980	100	40	142	50	75	37	117	47
1981	139	44	179	53	135	42	175	51
1982	134	43	173	52	136	43	175	52
1983	112	39	149	47	96	36	133	44
1984	133	39	168	47	137	39	172	47
1985	143	49	177	57	155	50	189	58
1986	147	39	179	46	159	47	191	54
1987	143	39	173	46	146	40	176	47
1988	50	15	79	21	71	29	100	35
1989	161	54	188	60	139	48	166	54
1990	153	48	178	54	143	46	168	52
1991	162	53	186	58	146	49	170	54
1992	154	46	176	51	164	47	186	52
1993	150	46	170	51	149	46	169	51
1994	187	53	206	57	181	50	200	54
1995	134	45	151	49	118	43	135	47
1996	180	51	195	54	168	47	183	50
1997	111	38	124	41	137	45	150	48
1998	173	63	185	66	149	49	161	52
1999	161	51	171	53	158	50	168	52
2000	155	46	163	48	163	47	171	49
2001	163	50	170	52	151	47	158	49
2002	160	54	165	55	154	52	159	53
2003	189	44	192	45	189	40	192	41
2004	188	56	190	56	188	56	190	56
Average	142	45	171	51	139	43	168	50
Minimum	50	15	79	21	71	26	100	35
Maximum	189	63	206	66	189	56	200	58
Trend (bu/yr)	1.54	0.43			1.52	0.44		



Use Default Values

Return

Help - Farm Level Products

Help - Group Products

Example Insurance Premium per Product for Corn

Coverage Level	APH	RA-BP	RA-HP	CRC	GRP *	GRIP-BP	GRIP-HP *
55%	\$1.16			\$2.04			
60%	\$1.41			\$2.55			
65%	\$1.99	\$1.70	\$2.88	\$3.66			
70%	\$2.71	\$3.19	\$4.94	\$4.98	\$2.31	\$1.51	\$3.65
75%	\$3.95	\$5.67	\$8.33	\$7.32	\$3.14	\$2.84	\$5.50
80%	\$6.05	\$9.78	\$13.91	\$11.36	\$5.01	\$5.61	\$9.65
85%	\$9.66	\$16.51	\$22.91	\$18.35	\$6.45	\$8.56	\$13.90
90%					\$9.43	\$14.41	\$21.68

* Enter premiums at maximum protection levels.

Other Insurance Input

Corn	
APH yield	160 (Based on history of yields)
APH price	\$2.20 (Used to determine payment on yield shortfalls)
Base price	\$2.32 (Used to set revenue guarantees)
GRIP price	\$2.38 (Used to set revenue guarantees on GRIP)
Expected county yield	165.2 (Used on group products)
Max. GRP Prot. Level	\$582 (Max dollar amount on GRP)
Max. GRIP Prot. Level	\$590 (Max dollar amount on GRIP)
Protect. level election	100% (Percent choice on group products)
GRP Protection Level	\$582 (Max x protection level election)
GRIP Protection level	\$590 (Max x protection level election)

Guarantee Information for Insurance Products

Coverage Level	RA and CRC		GRIP	
	APH Yield Guarantee	Minimum Revenue Guarantee	GRP Yield Guarantee	Minimum Revenue Guarantee
55%	88	\$204		
60%	96	\$223		
65%	104	\$241		
70%	112	\$260	116	
75%	120	\$278	124	\$295
80%	128	\$297	132	\$315
85%	136	\$316	140	\$334
90%	--	--	149	\$354



Price

	Corn	Soybeans	Return
Futures price	\$2.38	6.18	(Enter prices for December Chicago Board of Trade contract for corn and November contract for soybeans.)
Basis	-\$0.30	-0.30	
Cash price	\$2.08	\$5.88	
Loan Rate	\$1.98	5.14	

Put premium

Corn			Soybeans		
Strike	Price	Premium	Strike	Price	Premium
\$2.10		\$0.0700	\$5.60		\$0.2540
\$2.20		\$0.1060	\$5.80		\$0.3400
\$2.30		\$0.1600	\$6.00		\$0.4400

Call premium

Corn			Soybeans		
Strike	Price	Premium	Strike	Price	Premium
\$2.40		\$0.1940	\$6.20		\$0.5200
\$2.50		\$0.1540	\$6.40		\$0.4440
\$3.00		\$0.0560	\$6.60		\$0.3900

Per Acre Insurance Payments By Year, Corn

Year	APH 75%	APH 85%	RA-BP 75%	RA-BP 85%	RA-HP 75%	RA-HP 85%	CRC 85%	GRP 90%	GRIP-BP 90%	GRIP-HP 90%	GRIP-HP 85%
1972											
1973											
1974								2.66		3.47	
1975											
1976											
1977									70.79	70.79	40.25
1978											
1979											
1980								124.01	2.82	158.99	124.45
1981			40.33	77.45	40.33	77.45	77.45		201.93	201.93	179.10
1982				30.07		30.07	30.07		108.56	108.56	80.24
1983								61.38		76.60	38.39
1984											
1985											
1986											
1987											
1988	90.20	125.40	54.04	91.16	116.44	161.88	161.88	190.56	116.48	230.51	202.65
1989									39.21	39.21	6.81
1990											
1991											
1992				9.28		9.28	9.28		50.38	50.38	18.64
1993											
1994											
1995								53.55		69.12	28.99
1996									4.17	4.17	
1997		26.40		24.12		28.20	28.20		2.26	2.26	
1998				8.42		8.42	8.42		144.39	144.39	118.18
1999									63.39	63.39	32.41
2000				2.56		2.56	2.56		42.58	42.58	10.38
2001									86.83	86.83	57.23
2002											
2003											
2004				34.32		34.32	34.32		121.15	121.15	93.57
Avg Payment	2.82	4.74	2.95	7.60	4.90	9.93	9.93	13.51	29.18	42.29	29.30
Premium	3.95	9.66	5.67	16.51	8.33	22.91	18.35	9.43	14.41	21.68	13.90
Net Position	-1.13	-4.92	-2.72	-8.91	-3.43	-12.98	-8.42	4.08	14.77	20.61	15.40

Return
Defaults

Per Acre Gross Revenue By Year, Corn

Year	APH 75%	APH 85%	RA-BP 75%	RA-BP 85%	RA-HP 75%	RA-HP 85%	CRC 85%	GRP 90%	GRIP-BP 90%	GRIP-HP 90%	GRIP-HP 85%
1972	364	358	362	351	359	345	349	358	353	346	354
1973	522	516	520	510	518	503	508	517	512	504	512
1974	440	435	439	428	436	421	426	438	430	426	430
1975	358	352	356	345	353	339	343	352	347	340	348
1976	327	321	325	314	322	308	312	321	316	309	317
1977	380	374	378	368	376	361	366	375	441	433	410
1978	396	390	394	383	392	377	381	390	385	378	386
1979	374	368	372	361	369	355	359	368	363	356	364
1980	381	375	379	368	376	362	366	499	373	522	495
1981	350	345	389	415	386	409	414	345	542	535	520
1982	339	333	337	356	334	350	354	333	437	429	409
1983	388	382	386	375	384	369	374	444	377	447	416
1984	329	323	327	316	324	310	314	323	318	311	319
1985	347	341	345	334	342	328	332	341	336	329	337
1986	350	345	349	338	346	332	336	345	340	333	341
1987	370	364	368	357	365	351	355	364	359	352	360
1988	287	316	249	275	309	340	344	382	303	409	389
1989	368	363	367	356	364	349	354	363	397	390	365
1990	348	343	347	336	344	330	334	343	338	331	339
1991	364	359	363	352	360	345	350	359	354	347	354
1992	345	339	343	341	340	335	339	339	384	377	353
1993	397	392	396	385	393	378	383	392	387	380	387
1994	404	398	402	391	400	385	390	398	393	386	394
1995	408	403	407	396	404	389	394	456	398	460	427
1996	382	376	380	370	378	363	368	377	376	369	372
1997	250	271	249	262	246	259	264	245	242	235	240
1998	362	357	361	358	358	352	356	357	496	489	471
1999	335	329	333	322	330	316	320	329	388	380	357
2000	319	313	317	309	314	302	307	313	351	344	319
2001	333	327	331	320	328	314	318	327	409	402	380
2002	362	357	361	350	358	343	348	357	352	345	352
2003	376	371	374	364	372	357	362	371	366	358	366
2004	372	367	371	394	368	388	392	367	483	476	456
Average	\$364	\$361	\$363	\$358	\$362	\$353	\$358	\$369	\$383	\$389	\$383
% of time revenue below:											
\$300	6%	3%	6%	6%	3%	3%	3%	3%	3%	3%	3%
\$325	9%	15%	12%	21%	15%	18%	18%	12%	12%	9%	12%
\$350	33%	39%	36%	39%	36%	52%	45%	36%	24%	33%	24%
Low revenue	\$250	\$271	\$249	\$262	\$246	\$259	\$264	\$245	\$242	\$235	\$240

Sort by: [Lowest revenue](#)

Sort

Return

Summary Revenues of Crop Insurance Products, Corn

Policy	Average	Lowest	Chance of per acre revenue below		
	Revenue	Revenue	\$300	\$325	\$350
	(\$ per acre)	(\$ per acre)	----- Percent -----		
GRIP-BP 70%	367	199	6	9	30
RA-BP 60%	366	201	6	9	27
RA-BP 65%	365	216	6	9	30
APH 55%	365	219	6	9	30
GRIP-BP 75%	370	220	6	9	30
CRC 55%	364	224	6	9	30
RA-BP 70%	364	233	6	9	33
GRIP-HP 90%	389	235	3	9	33
APH 60%	365	237	6	9	30
GRIP-HP 85%	383	240	3	12	24
GRIP-BP 90%	383	242	3	12	24
GRIP-HP 80%	375	245	3	12	27
GRP 90%	369	245	3	12	36
GRIP-BP 85%	379	246	6	15	24
RA-HP 75%	362	246	3	15	36
CRC 60%	365	246	6	9	33
CRC 75%	363	247	3	12	36
GRP 85%	369	248	3	9	36
RA-BP 75%	363	249	6	12	36
GRIP-BP 80%	373	249	6	9	30
GRIP-HP 75%	372	249	3	12	36
RA-HP 60%	367	249	6	9	27
GRP 80%	367	249	3	6	39
CRC 70%	364	249	6	9	36
RA-HP 70%	364	249	6	9	36
RA-HP 80%	359	250	3	18	39
RA-BP 80%	361	250	6	15	36
APH 75%	364	250	6	9	33
CRC 65%	364	251	6	9	33
GRIP-HP 70%	368	251	6	6	33
GRP 75%	367	251	3	9	33
RA-HP 65%	365	251	6	9	33
APH 70%	365	251	6	9	33
GRP 70%	366	252	6	9	30
APH 65%	365	252	6	9	30
CRC 80%	361	252	3	12	36
APH 80%	363	257	3	12	39
RA-HP 85%	353	259	3	18	52
RA-BP 85%	358	262	6	21	39
CRC 85%	358	264	3	18	45
APH 85%	361	271	3	15	39

[Compare Yearly](#)**Marketing and Crop Insurance Summary, Corn**[Return](#)

Insurance product	None	RA-BP 85%	RA-HP 85%	RA-HP 85%	GRIP-HP 90%
Bushels per acre marketed pre-harvest	0	0	0	100	0
Put option purchases					
Strike price	\$2.10	\$2.10	\$2.10	\$2.10	\$2.10
Bu. per acre	0	0	0	0	0
Call option purchases					
Strike price	\$2.40	\$2.40	\$2.40	\$2.40	\$2.40
Bu. per acre	0	50	0	0	0
Insurance cost	\$0.00	\$16.51	\$22.91	\$22.91	\$21.68
Marketing cost	\$0.00	\$9.70	\$0.00	\$0.00	\$0.00
Average and low revenues based on years between:		1972		2004	
Average revenue	\$366	\$356	\$353	\$363	\$389
Lowest revenue	\$201	\$253	\$259	\$256	\$235
Chance of revenue below:					
\$275	6%	3%	3%	3%	3%
\$300	6%	9%	3%	9%	3%
\$325	9%	24%	18%	21%	9%

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