FARM ECONOMICS: *Facts & Opinions*
FARM BUSINESS MANAGEMENT
Department of Agricultural and Consumer Economics
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FEFO 09-11
July 20, 2009

HISTORICAL ANALYSIS OF ACRE

We conducted an historical analysis of the Average Crop Revenue Election (ACRE) program using data from 1977 through 2007. This analysis provides indications of:

The frequency of ACRE payments
The size of ACRE payments, and
The frequency farm triggers are met.

Historical analyses may not totally be reflective of future results as future economic conditions will not match historical conditions. However, historical analyses will provide useful gauges of ACRE performance. Analyses first will be presented for the size and frequency of state ACRE payments for corn, soybeans, and wheat. Then, analyses will be presented for the number of times the farm trigger are met for corn and soybeans.

State Guarantees and Payments

ACRE has a state trigger that must be met before ACRE payments are received. For the state trigger to be met, state revenue must be less than the state guarantee. The state guarantee equals the ACRE guarantee price x the benchmark state yield x .90. The guarantee price is the average of the previous two marketing year average prices for the nation. The benchmark yield is the Olympic average (eliminate the high and low yields) of the previous five state yields. The guarantee cannot move by more than 10% from the previous year's guarantee. State revenue equals the current year's market average price times the state average yield.

If the state trigger is met, there will be a "state Acre payment" equal to the difference between the state guarantee and state revenue, capped at 25% of the state guarantee. A farm's ACRE payment will vary from the state ACRE payment. The farm payment will equal the state ACRE payment times .833 (.85 in 2012) times the five-year farm's benchmark yield divided by the five-year state benchmark yield, given that the sum of planted acres on a farm is less than 1.2 times the base acres.

We estimated how often the state trigger would have been met and the size of ACRE payments for corn, soybeans, and wheat. Results are presented below.

Corn State Guarantee and Payments (Table 1): Table 1 presents results for corn in Illinois. Points are:

- The state level trigger would have been met for corn in Illinois in 10 out of 31 years, or 32% of the years. Because of higher price variability, it is likely that the payment percentage will be higher in the future than in the past.
- As a percent of the guarantee, the ACRE payment would have averaged 3.4%, including those years in which ACRE would not have made a payment. In years they occur, ACRE payments would have averaged 10.6% of the guarantee. The guarantee in 2009 will be about $650 per acre. Given that history holds, past performance indicates that the average ACRE payment in Illinois will average $18 per acre ($650 x .034 x .833). This assumes that the farm's average yield equals the state average yield. In years ACRE payment occurs, the payment would average $57 per acre ($650 x .106 x .833). These payments will vary across farms depending on the ratio of historical farm's yield to historical state yields. It is likely that payments will be higher in the future due to higher price volatility.
- The guarantee from one year to the next would have been capped at 10% in 18 out of 31 years.

Soybeans State Guarantee and Payments (Table 2): Points relative to soybeans in Illinois are:

- The ACRE state trigger would have been met in 5 out of 31 years, or 16% of the years. Because of higher price variability, it is likely that the payment percentage will be higher in the future than in the past.
- As a percent of the guarantee, the ACRE payment would have averaged 1.9%. In years they occur, ACRE payments would have averaged 11.8%. The guarantee in 2008 will be about $425 per acre. This would

result in an average payment across of $7 per acre ($425 x .019 x .833). In years the payment occurs, the payment would be $41 per acre ($380 x .118 x .833). Similar to corn, payments will vary across farms depending on the ratio of farm yields to state yields. It is likely that payments will be higher in the future due to higher price volatility.

- The guarantee from one year to the next would have been capped at 10% in 12 out of 31 years.

Wheat State Guarantee and Payments (Table 3): Points relative to wheat in Illinois are:

- The ACRE state trigger would have been met in 8 out of 31 years, or 26% of the years. Because of higher price variability, it is likely that the payment percentage will be higher in the future than in the past.
- As a percent of the guarantee, the ACRE payment would have averaged 4.9%. In years payments occur, ACRE payments would have averaged 19.1%. The guarantee in 2008 will be about $365 per acre. This would result in an average payment across all years of $15 per acre ($365 x .049 x .833). In years the payment occurs, the payment would be $58 per acre ($365 x .191 x .833).
- The guarantee from one year to the next would have been capped at 10% in 20 out of 31 years.

Farm triggers

To be eligible for ACRE payments, a farm trigger must be met. The farm trigger is met when farm revenue is less than a farm guarantee. Farm revenue equals the farm's yield times the market-year-average price. The farm guarantee equals a five-year Olympic average yield for the farm times the ACRE guarantee price plus farmer-paid insurance premium.

Tables 4 and 5 shows the percent of farms enrolled in FBFM meeting the guarantee in Northern, Central, and Southern Illinois for corn and soybeans. Given no insurance payment, between 78 and 86 percent of farms meet the farm trigger criteria for corn (Table 4). These percents increase between 5 and 10% when a $20 crop insurance payment is included in the guarantee. Given no insurance payment, between 81 and 93 percent of farms meet the farm trigger criteria for soybeans (see Table 5). Percentages increase to between 90 and 98 percent if a $20 per acre insurance premium.

Summary

Given historical conditions, ACRE would have made sizable payments. For a typical Illinois farm, these payments would have averaged $18 per acre for corn, $7 per acre for soybeans, and $14 per acre for wheat. These average payments exceed what a typical farm has to give up in direct payments to enroll in ACRE.

Currently, projections of commodity prices are below benchmark prices. This suggests that the chance of ACRE payments in 2009 is higher than the above historical averages. It also suggests that 2009 could be a high payment year for ACRE.

Acknowledgements
Data used in this study comes from the local Farm Business Farm Management (FBFM) Associations across the State of Illinois. Without their cooperation, information as comprehensive and accurate as this would not be available for educational purposes. FBFM, which consists of 6,000 plus farmers and 60 professional field staff, is a not-for-profit organization available to all farm operators in Illinois. FBFM field staff provides on-farm counsel with computerized recordkeeping, farm financial management, business entity planning and income tax management. For more information, please contact the State FBFM Office located at the University of Illinois Department of Agricultural and Consumer Economics at 217-333-5511 or visit the FBFM website at www.fbfm.org.

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Table 1. Performance had ACRE Existed from 1977 through 2007, Illinois, Corn.

Year	MYA Price[1]	State Yield	ACRE Guarantee Price[2]	Benchmark State Yield[3]	State Guarantee[4]	Guarantee Movement Limited[5]	State Revenue[6]	State Avg. Payment as a % of Guarantee[7]
1972	1.57	106						
1973	2.56	100						
1974	3.03	78						
1975	2.54	113						
1976	2.15	104						
1977	2.02	103	2.35	103	242		208	14.0%
1978	2.25	108	2.09	102	218	Low	243	0
1979	2.48	124	2.14	105	202		308	0
1980	3.12	91	2.37	108	222	High	284	0
1981	2.47	123	2.80	105	244	High	304	0
1982	2.55	128	2.80	111	268	High	326	0
1983	3.21	76	2.51	118	267		244	8.6%
1984	2.63	111	2.88	113	293		292	0.3%
1985	2.23	132	2.92	108	284		294	0
1986	1.50	132	2.43	121	265		198	25.3%
1987	1.94	130	1.87	124	239	Low	252	0
1988	2.54	71	1.72	124	215	Low	180	16.3%
1989	2.36	121	2.24	124	237	High	286	0
1990	2.28	125	2.45	128	261	High	285	0
1991	2.37	105	2.32	125	261		249	4.6%
1992	2.07	147	2.33	117	245		304	0
1993	2.50	124	2.22	117	234		310	0
1994	2.26	154	2.29	123	254		348	0
1995	3.24	111	2.38	132	279	High	360	0
1996	2.71	134	2.75	127	307	High	363	0
1997	2.43	127	2.98	135	338	High	309	8.6%
1998	1.94	139	2.57	128	304	Low	270	11.2%
1999	1.82	138	2.19	133	274	Low	251	8.4%
2000	1.85	149	1.88	133	247	Low	276	0
2001	1.97	150	1.84	137	227		296	0
2002	2.32	133	1.91	142	244		309	0
2003	2.42	162	2.15	142	268	High	392	0
2004	2.06	179	2.37	146	295	High	369	0
2005	2.00	143	2.24	154	310		286	7.7%
2006	3.04	163	2.03	152	279	Low	496	0
2007	4.20	175	2.52	156	307	High	735	0

[1] Market year average price

[2] Equals average of previous two market year average price

[3] Equals the Olympic average of yields from the previous five years.

[4] Equals ACRE guarantee price times benchmark average year if the quantity is within a 10% bound of the previous year's guarantee.

[5] Indicates if this year's guarantee is limited by the 10% bound on the guarantee movement.

[6] Equals market year average price time state yield.

[7] Equals state revenue divided by guarantee when state revenue is less than guarantee.

Table 2. Performance had ACRE Existed from 1977 through 2007, Illinois, Soybean.

Year	MYA Price[1]	State Yield	ACRE Guarantee Price[2]	Benchmark State Yield[3]	State Guarantee[4]	Guarantee Movement Limited[5]	State Revenue[6]	State Avg. Payment as a % of Guarantee[7]
1972	4.37	34						
1973	5.68	31						
1974	6.64	24						
1975	4.92	36						
1976	6.81	33						
1977	5.88	38	5.87	33	194		223	0
1978	6.66	33	6.35	33	189		220	0
1979	6.28	39	6.27	34	192		245	0
1980	7.57	33	6.47	36	210		250	0
1981	6.07	38	6.93	35	218		231	0
1982	5.71	38	6.82	36	221		217	1.8%
1983	7.83	29	5.89	36	199	Low	227	0
1984	5.84	31	6.77	36	219		181	17.4%
1985	5.05	42	6.84	34	209		212	0
1986	4.78	40	5.45	36	188	Low	191	0
1987	5.88	38	4.92	36	169	Low	223	0
1988	7.42	27	5.33	36	173		200	0
1989	5.69	40	6.65	36	190	High	228	0
1990	5.74	39	6.56	39	209	High	224	0
1991	5.58	37	5.72	39	201		206	0
1992	5.56	43	5.66	38	194		239	0
1993	6.40	42	5.57	39	196		269	0
1994	5.48	45	5.98	40	215		247	0
1995	6.72	39	5.94	41	219		262	0
1996	7.35	40	6.10	41	225		294	0
1997	6.47	43	7.04	42	248	High	278	0
1998	4.93	44	6.91	42	261		217	16.9%
1999	4.63	42	5.70	42	235	Low	194	17.4%
2000	4.54	44	4.78	42	212	Low	200	5.7%
2001	4.38	45	4.59	43	191	Low	197	0
2002	5.53	43	4.46	44	177		238	0
2003	7.34	37	4.96	44	195	High	272	0
2004	5.74	50	6.44	43	215	High	287	0
2005	5.66	47	6.54	44	237	High	266	0
2006	6.43	48	5.70	45	231		309	0
2007	10.10	44	6.05	46	250		444	0

[1] Market year average price

[2] Equals average of previous two market year average price

[3] Equals the Olympic average of yields from the previous five years.

[4] Equals ACRE guarantee price times benchmark average year if the quantity is within a 10% bound of the previous year's guarantee.

[5] Indicates if this year's guarantee is limited by the 10% bound on the guarantee movement.

[6] Equals market year average price time state yield.

[7] Equals state revenue divided by guarantee when state revenue is less than guarantee.

Table 3. Performance had ACRE Existed from 1977 through 2007, Illinois, Wheat.

Year	MYA Price[1]	State Yield	ACRE Guarantee Price[2]	Benchmark State Yield[3]	State Guarantee[4]	Guarantee Movement Limited[5]	State Revenue[6]	State Avg. Payment as a % of Guarantee[7]
1972	3.95	42.7						
1973	4.09	28.1						
1974		29.0						
1975	3.56	37.7						
1976	2.73	38.0						
1977	2.33	40.9	3.15	35	110		95	13.6%
1978	2.97	33.4	2.53	35	99	Low	99	0
1979	3.80	41.0	2.65	36	89	Low	156	0
1980	3.99	48.1	3.39	39	98	High	192	0
1981	3.69	48.8	3.90	40	108	High	180	0
1982	3.45	42.2	3.84	43	119	High	146	0
1983	3.51	41.5	3.57	44	131	High	146	0
1984	3.39	39.1	3.48	44	138		133	3.6%
1985	3.08	43.2	3.45	44	137		133	2.9%
1986	2.42	27.8	3.24	42	123	Low	67	45.5%
1987	2.57	51.0	2.75	41	111	Low	131	0
1988	3.72	51.9	2.50	41	100	Low	193	0
1989	3.72	56.8	3.15	44	110	High	211	0
1990	2.61	43.3	3.72	49	121	High	113	6.6%
1991	3.00	27.2	3.17	49	133	High	82	38.3%
1992	3.24	42.8	2.81	49	124		139	0
1993	3.26	41.3	3.12	46	129		135	0
1994	3.45	43.8	3.25	42	123		151	0
1995	4.55	46.0	3.36	42	127		209	0
1996	4.30	25.3	4.00	43	140	High	109	22.1%
1997	3.38	57.8	4.43	43	154	High	195	0
1998	2.65	46.1	3.84	44	152		122	19.7%
1999	2.48	57.7	3.02	45	137	Low	143	0
2000	2.62	55.2	2.57	50	123	Low	145	0
2001	2.78	58.6	2.55	53	122		163	0
2002	3.56	46.8	2.70	57	134	High	167	0
2003	3.40	61.9	3.17	53	147	High	210	0
2004	3.40	58.8	3.48	57	162	High	200	0
2005	3.42	59.4	3.40	58	177		203	0
2006	4.26	66.9	3.41	59	181		285	0
2007	6.48	50.3	3.84	60	199	High	326	0

[1] Market year average price

[2] Equals average of previous two market year average price

[3] Equals the Olympic average of yields from the previous five years.

[4] Equals ACRE guarantee price times benchmark average year if the quantity is within a 10% bound of the previous year's guarantee.

[5] Indicates if this year's guarantee is limited by the 10% bound on the guarantee movement.

[6] Equals market year average price time state yield.

[7] Equals state revenue divided by guarantee when state revenue is less than guarantee.

Table 4. Percent of FBFM Farms that Would Have Met the Farm Trigger in ACRE, Corn.

Year	MYA Price[1]	State Yield[1]	State Avg. Payment as a % of Guarantee[1]	No Insurance Premium[3] Region[2] North	Central	South	$20 per acre Insure. Prem.[3] Region[2] North	Central	South
1977	2.02	103	14.0%	52%	98%	50%	72%	100%	88%
1978	2.25	108	0	9%	28%	17%	21%	51%	30%
1979	2.48	124	0	1%	1%	1%	2%	2%	5%
1980	3.12	91	0	4%	51%	47%	7%	58%	58%
1981	2.47	123	0	51%	36%	59%	73%	55%	71%
1982	2.55	128	0	50%	27%	30%	77%	45%	49%
1983	3.21	76	8.6%	53%	80%	86%	67%	86%	92%
1984	2.63	111	0.3%	79%	70%	69%	91%	82%	78%
1985	2.23	132	0	92%	60%	66%	96%	75%	83%
1986	1.50	132	25.3%	100%	100%	98%	100%	100%	100%
1987	1.94	130	0	30%	34%	4%	54%	56%	13%
1988	2.54	71	16.3%	73%	76%	27%	84%	84%	40%
1989	2.36	121	0	21%	50%	16%	36%	65%	28%
1990	2.28	125	0	71%	77%	86%	86%	90%	91%
1991	2.37	105	4.6%	72%	57%	81%	85%	70%	86%
1992	2.07	147	0	43%	13%	15%	61%	27%	30%
1993	2.50	124	0	29%	5%	13%	44%	12%	24%
1994	2.26	154	0	4%	6%	34%	8%	12%	54%
1995	3.24	111	0	8%	21%	23%	16%	34%	32%
1996	2.71	134	0	33%	37%	61%	52%	51%	72%
1997	2.43	127	8.6%	92%	98%	98%	97%	99%	99%
1998	1.94	139	11.2%	86%	98%	96%	96%	99%	99%
1999	1.82	138	8.4%	92%	88%	89%	97%	95%	97%
2000	1.85	149	0	36%	24%	13%	65%	49%	28%
2001	1.97	150	0	24%	10%	3%	42%	26%	9%
2002	2.32	133	0	20%	13%	50%	30%	23%	62%
2003	2.42	162	0	5%	2%	18%	10%	4%	26%
2004	2.06	178	0	42%	55%	32%	66%	76%	46%
2005	2.00	141	9.0%	95%	95%	86%	98%	98%	92%
2006	3.04	161	0	0%	1%	1%	0%	1%	2%
2007	4.35	173	0	0%	0%	0%	0%	0%	0%
Average in Years State Trigger is Met				79%	86%	78%	89%	91%	87%

[1] See Table 1 for definitions and calculations.

[2] Northern Illinois is roughly above Interstate 80, central is between I-80 and I-70, and south is below I-70.

[3] The farm guarantee includes per acre farmer-paid costs of insurance premiums. Including farmer-paid premiums will increase the percent of farms meeting criteria. The first three columns shows results with no insurance premiums. The later three include insurance payments of $20 per acre.

Table 5. Percent of FBFM Farms that Would Have Met the Farm Trigger in ACRE, Soybeans.

Year	MYA Price[1]	State Yield	State Avg. Payment as a % of Guarantee[1]	No Insurnace Premium[3] Region[2] North	Central	South	$20 per acre Insure. Prem.[3] Region[2] North	Central	South
1977	5.88	38	0	7%	17%	14%	25%	37%	29%
1978	6.66	33	0	26%	24%	38%	46%	57%	61%
1979	6.28	39	0	12%	27%	14%	33%	53%	32%
1980	7.57	33	0	8%	30%	39%	15%	51%	50%
1981	6.07	38	0	58%	78%	71%	81%	90%	88%
1982	5.71	38	1.8%	97%	90%	80%	99%	97%	92%
1983	7.83	29	0	9%	35%	78%	21%	49%	86%
1984	5.84	31	17.4%	98%	98%	93%	99%	100%	97%
1985	5.05	42	0	98%	78%	81%	100%	91%	92%
1986	4.78	40	0	90%	62%	42%	95%	88%	69%
1987	5.88	38	0	2%	10%	12%	5%	24%	30%
1988	7.42	27	0	54%	58%	28%	64%	74%	48%
1989	5.69	40	0	72%	75%	60%	88%	90%	82%
1990	5.74	39	0	77%	89%	88%	90%	97%	94%
1991	5.58	37	0	55%	52%	49%	68%	67%	70%
1992	5.56	43	0	50%	26%	13%	70%	48%	26%
1993	6.40	42	0	12%	3%	8%	24%	10%	15%
1994	5.48	45	0	30%	49%	46%	55%	76%	74%
1995	6.72	39	0	25%	40%	47%	43%	71%	69%
1996	7.35	40	0	24%	9%	17%	42%	19%	29%
1997	6.47	43	0	52%	73%	64%	71%	90%	83%
1998	4.93	44	16.9%	98%	99%	98%	99%	100%	100%
1999	4.63	42	17.4%	97%	96%	97%	99%	99%	99%
2000	4.54	44	5.7%	78%	69%	35%	93%	90%	60%
2001	4.38	45	0	69%	61%	43%	91%	87%	74%
2002	5.53	43	0	13%	3%	36%	29%	7%	50%
2003	7.34	37	0	38%	20%	12%	54%	36%	21%
2004	5.74	50	0	50%	49%	28%	73%	76%	52%
2005	5.66	46	0	73%	77%	69%	87%	91%	87%
2006	6.43	48	0	1%	4%	9%	4%	10%	19%
2007	10.00	43	0	0%	1%	6%	0%	1%	10%
Average in Years State Trigger is Met				93%	90%	81%	98%	97%	90%

[1] See Table 2 for definitions and calculations.

[2] Northern Illinois is roughly above Interstate 80, central is between I-80 and I-70, and south is below I-70.

[3] The farm guarantee includes per acre farmer-paid costs of insurance premiums. Including farmer-paid premiums will increase the percent of farms meeting criteria. The first three columns shows results with no insurance premiums. The later three include insurance payments of $20 per acre.