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## Revenue and Variable Costs for Corn and Soybeans in Illinois

Revenue and variable costs associated with producing corn and soybeans in Illinois for the years between 1997 through 2001 have been updated for northern, central (high productivity farmland), central (low productivity farmland), and southern Illinois using data from farms enrolled in the Illinois Farm Business Farm Management (FBFM) Association. In addition, projected revenue and variable costs for 2002 are shown. There are four tables showing these budgets at the end of this report. Tables also are available in the management section of farmdoc ([http://www.farmdoc.uiuc.edu/manage/enterprise\\_cost/crop\\_revenue\\_less\\_variable\\_cost.html](http://www.farmdoc.uiuc.edu/manage/enterprise_cost/crop_revenue_less_variable_cost.html)). Highlights of the updates are presented below.

### Inclusion of Effective LDP

Because of the importance of the Loan Deficiency Payment (LDP) and Marketing Loan programs, effective per bu. LDP rates have been calculated for 1998 through 2001. The effective LDP equals Illinois receipts during the market year from the LDP and Market Loan programs divided by total production. For corn, effective LDPs range from \$.11 per bu. in 1998 up to \$.26 in 2000. For soybeans, effective LDPs range from \$.46 in 1998 up to \$1.27 in 2001.

Effective per bu. LDPs in Illinois.		
Year	Corn	Soybeans
1998	0.11	0.46
1999	0.23	0.88
2000	0.26	0.94
2001	0.17	1.27

Effective LDPs are added to market prices to arrive at the per bu. total prices. Since 1998, total prices have been above loan rates. In southern Illinois, for example, the total price for corn is \$2.23 per bu. in 1998, \$2.27 in 1999, and \$2.17 in 2000. Total price for soybeans is \$5.55 in 1998, \$5.75 in 1999, and \$5.67 in 2000.

Total prices above loan rates occur because most farmers take LDPs relatively soon after harvest and price grain later in the marketing year. During the 2001 marketing year, for example, LDPs and Market Loan receipts have been taken on 76 percent of Illinois corn production and 90 percent of soybean production by the end of January. (In the 2000 marketing year, LDPs or market loans were taken on 93 percent of corn production and 99 percent of soybean production). For the last three years, prices usually have increased after harvest, resulting in market prices that average higher than prices used to determine LDPs.



This strategy has proven profitable in the last three years. However, the strategy does have risks. If prices decline after harvest, farmers could receive market prices below prices used to set LDPs. Hence, it is possible that total prices could average below loan rates.

### Variable Costs for 2002 Projected to Decline

Variable costs for 2002 are projected to decline from 2001 levels. Most of the reductions are due to declines in nitrogen fertilizer prices (reduces corn fertilizer costs by \$7 to \$8 per acre) and declines in fuel prices (reduce costs by about \$2 per acre). The only cost category projected to increase is seed, which is projected to increase by about 10 percent. Overall, cost reductions cause corn profitability to increase relative to soybean profitability.

Except in central Illinois on high productivity farmland, soybeans have been more profitable than corn in recent years. Revenue less variable costs average \$8 more per acre for soybeans than for corn in northern Illinois between 1997 and 2001, \$8 more for soybeans in Central Illinois (low productivity farmland), and \$8 more for soybeans in southern Illinois. Central Illinois with high productivity farmland average \$1 more for corn than for soybeans from 1997 through 2001 (see four tables in the back).

For 2002, soybeans are projected to be more profitable in northern Illinois by \$7 per acre, central Illinois (low productivity farmland) by \$12 per acre, and southern Illinois by \$12 per acre. In central Illinois (high productivity farmland), corn is projected more profitable than soybeans by \$5 per acre.

Corn yields in central Illinois (high productivity farmland) are higher relative to soybean yields than in other regions. The corn divided by soybean yield in central Illinois is 3.22 (161 / 50), compared to 3.12 in northern Illinois, 3.14 in central Illinois (low productivity farmland), and 3.11 in southern Illinois.

The following table shows breakeven corn yields given different soybean yields for a central Illinois (high productivity farmland) situation (e.g., corn price equals \$2.10, soybean price equals \$5.50, corn variable costs equal \$167 per acre, and soybean variable costs equal \$103 per acre).

**Breakeven Corn Yields Relative Relative to Soybean Yield**

Soybean Yield	Breakeven Corn Yield	Corn-to-soybean yield ratio
35	119	3.41
40	132	3.31
45	145	3.23
50	159	3.17
55	172	3.12

Some central Illinois farmers, and others who have high corn yields relative to soybean yields, may consider switching to more corn. Current projections of revenue less variable costs for 2002, however, do not suggest major changes in the crop rotation are warranted.

Issued by: Gary Schnitkey, Department of Agricultural and Consumer Economics



**Actual and Projected Revenue Less Variable Costs,  
Northern Illinois, 1997 through 2002<sup>1</sup>.**

	Year					
	1997	1998	1999	2000	2001F	2002F
<b>Panel A. Corn.</b>						
Average yields (bu. per acre)	142	164	155	156	153	156
Market price	2.49	2.09	1.95	1.96	1.95	2.00
Effective LDP <sup>2</sup>	0.00	0.11	0.23	0.26	0.17	0.10
Total price received (per bu.)	\$2.49	\$2.20	\$2.18	\$2.22	\$2.12	\$2.10
Revenue per acre	\$354	\$361	\$338	\$346	\$324	\$328
Variable costs per acre						
Fertilizer and lime	\$57	\$56	\$49	\$49	\$56	\$48
Pesticides	36	35	32	31	32	32
Seed	32	35	35	35	35	37
Drying and storage	16	15	13	12	14	14
Machinery repair, fuel, and hire	36	34	35	39	40	36
Total variable costs	\$177	\$175	\$164	\$166	\$177	\$167
<b>Revenue less variable costs</b>	<b>\$177</b>	<b>\$186</b>	<b>\$174</b>	<b>\$180</b>	<b>\$147</b>	<b>\$161</b>
<b>Panel B. Soybeans.</b>						
Average yields (bu. per acre)	50	53	50	46	49	50
Market price	6.48	4.96	4.82	4.83	4.43	4.40
Effective LDP	0.00	0.46	0.88	0.94	1.27	1.10
Total price received (per bu.) <sup>2</sup>	6.48	5.42	5.70	5.77	5.70	5.50
Revenue per acre	\$324	\$287	\$285	\$265	\$279	\$275
Variable costs per acre						
Fertilizer and lime	\$20	\$21	\$18	\$18	\$19	\$19
Pesticides	37	36	33	32	33	33
Seed	16	18	18	18	19	20
Drying and storage	6	6	5	4	5	5
Machinery repair, fuel, and hire	30	29	29	33	34	30
Total variable costs	\$109	\$110	\$103	\$105	\$110	\$107
<b>Revenue less variable costs</b>	<b>\$215</b>	<b>\$177</b>	<b>\$182</b>	<b>\$160</b>	<b>\$169</b>	<b>\$168</b>
Difference (corn minus soybeans)	-\$38	\$9	-\$8	\$20	-\$22	-\$7

<sup>1</sup> Data for 1997 through 2000 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Northern Illinois farms. Revenues from AMTA, MLA, and soybean payments are not included. Revenue and costs for 2001 and 2002 are projections.

<sup>2</sup> Represents the average per bu. receipt from Market Loan and Loan Deficiency Payment programs in Illinois.

Prepared by: Dale Lattz and Gary Schnitkey, Department of Agricultural and Consumer Economics, University of Illinois.

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**Actual and Projected Revenue Less Variable Costs,  
Central Illinois, High Productivity Farmland, 1997 through 2002<sup>1</sup>.**

	Year					
	1997	1998	1999	2000	2001F	2002F
<b>Panel A. Corn.</b>						
Average yields (bu. per acre)	148	152	166	165	165	161
Market price	2.50	2.10	1.97	1.91	1.95	2.00
Effective LDP <sup>2</sup>	<u>0.00</u>	<u>0.11</u>	<u>0.23</u>	<u>0.26</u>	<u>0.17</u>	<u>0.10</u>
Total price received (per bu.)	\$2.50	\$2.21	\$2.20	\$2.17	\$2.12	\$2.10
Revenue per acre	\$370	\$336	\$365	\$358	\$350	\$338
Variable costs per acre						
Fertilizer and lime	\$62	\$62	\$53	\$53	\$58	\$50
Pesticides	34	33	31	32	32	32
Seed	31	33	34	33	33	35
Drying and storage	14	14	15	13	16	16
Machinery repair, fuel, and hire	29	27	27	31	32	28
Total variable costs	\$170	\$169	\$160	\$162	\$171	\$161
<b>Revenue less variable costs</b>	<b>\$200</b>	<b>\$167</b>	<b>\$205</b>	<b>\$196</b>	<b>\$179</b>	<b>\$177</b>
<b>Panel B. Soybeans.</b>						
Average yields (bu. per acre)	49	49	52	49	50	50
Market price	6.60	5.09	4.84	4.77	4.47	4.40
Effective LDP <sup>2</sup>	<u>0.00</u>	<u>0.46</u>	<u>0.88</u>	<u>0.94</u>	<u>1.27</u>	<u>1.10</u>
Total price received (per bu.)	\$6.60	\$5.55	\$5.72	\$5.71	\$5.74	\$5.50
Revenue per acre	\$323	\$272	\$297	\$280	\$287	\$275
Variable costs per acre						
Fertilizer and lime	\$22	\$22	\$19	\$19	\$20	\$20
Pesticides	35	34	32	33	33	33
Seed	18	19	19	19	19	20
Drying and storage	6	5	6	5	6	5
Machinery repair, fuel, and hire	<u>25</u>	<u>23</u>	<u>24</u>	<u>27</u>	<u>28</u>	<u>25</u>
Total variable costs	\$106	\$103	\$100	\$103	\$106	\$103
<b>Revenue less variable costs</b>	<b>\$217</b>	<b>\$169</b>	<b>\$197</b>	<b>\$177</b>	<b>\$181</b>	<b>\$172</b>
Difference (corn minus soybeans)	-\$17	-\$2	\$8	\$19	-\$2	\$5

<sup>1</sup> Data for 1997 through 2000 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Central Illinois farms. Revenues from AMTA, MLA, and soybean payments are not included. Revenue and costs for 2001 and 2002 are projections.

<sup>2</sup> Represents the average per bu. receipt from Market Loan and Loan Deficiency Payment programs in Illinois.

Prepared by: Dale Lattz and Gary Schnitkey, Department of Agricultural and Consumer Economics, University of Illinois.

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**Actual and Projected Revenue Less Variable Costs,  
Central Illinois, Low Productivity Farmland, 1997 through 2002<sup>1</sup>.**

	Year					
	1997	1998	1999	2000	2001F	2002F
<b>Panel A. Corn.</b>						
Average yields (bu. per acre)	134	141	149	154	154	148
Market price	2.49	2.10	1.95	1.88	1.95	2.00
Effective LDP <sup>2</sup>	0.00	0.11	0.23	0.26	0.17	0.10
Total price received (per bu.)	\$2.49	\$2.21	\$2.18	\$2.14	\$2.12	\$2.10
Revenue per acre	\$334	\$312	\$325	\$330	\$326	\$311
Variable costs per acre						
Fertilizer and lime	\$63	\$61	\$52	\$52	\$57	\$50
Pesticides	33	33	29	29	29	29
Seed	32	35	34	35	34	37
Drying and storage	14	13	13	12	15	15
Machinery repair, fuel, and hire	31	29	29	32	33	30
Total variable costs	\$173	\$171	\$157	\$160	\$168	\$161
<b>Revenue less variable costs</b>	<b>\$161</b>	<b>\$141</b>	<b>\$168</b>	<b>\$170</b>	<b>\$158</b>	<b>\$150</b>
<b>Panel B. Soybeans.</b>						
Average yields (bu. per acre)	47	46	46	45	45	47
Market price	6.50	5.06	4.82	4.68	4.40	4.40
Effective LDP <sup>2</sup>	0.00	0.46	0.88	0.94	1.27	1.10
Total price received (per bu.)	\$6.50	\$5.52	\$5.70	\$5.62	\$5.67	\$5.50
Revenue per acre	\$306	\$254	\$262	\$253	\$255	\$259
Variable costs per acre						
Fertilizer and lime	\$21	\$20	\$17	\$17	\$18	\$18
Pesticides	34	34	30	30	30	30
Seed	16	18	17	18	18	19
Drying and storage	5	5	5	5	5	5
Machinery repair, fuel, and hire	26	24	24	27	28	25
Total variable costs	\$102	\$101	\$93	\$97	\$99	\$97
<b>Revenue less variable costs</b>	<b>\$204</b>	<b>\$153</b>	<b>\$169</b>	<b>\$156</b>	<b>\$156</b>	<b>\$162</b>
Difference (corn minus soybeans)	-\$43	-\$12	-\$1	\$14	\$2	-\$12

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<sup>2</sup> Represents the average per bu. receipt from Market Loan and Loan Deficiency Payment programs in Illinois.

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### Actual and Projected Revenue Less Variable Costs, Southern Illinois, 1997 through 2002<sup>1</sup>.

	Year					
	1997	1998	1999	2000	2001F	2002F
<b>Panel A. Corn.</b>						
Average yields (bu. per acre)	111	121	115	149	145	131
Market price	2.52	2.12	2.04	1.91	1.95	2.00
Effective LDP <sup>2</sup>	0.00	0.11	0.23	0.26	0.17	0.10
Total price received (per bu.)	\$2.52	\$2.23	\$2.27	\$2.17	\$2.12	\$2.10
Revenue per acre	\$280	\$270	\$261	\$323	\$307	\$275
Variable costs per acre						
Fertilizer and lime	\$63	\$59	\$54	\$56	\$62	\$56
Pesticides	31	32	30	30	31	31
Seed	30	31	32	33	33	35
Drying and storage	7	8	7	6	8	8
Machinery repair, fuel, and hire	33	32	31	37	38	33
Total variable costs	\$164	\$162	\$154	\$162	\$172	\$163
<b>Revenue less variable costs</b>	<b>\$116</b>	<b>\$108</b>	<b>\$107</b>	<b>\$161</b>	<b>\$135</b>	<b>\$112</b>
<b>Panel B. Soybeans.</b>						
Average yields (bu. per acre)	42	39	37	45	41	42
Market price	6.57	5.09	4.87	4.73	4.43	4.40
Effective LDP <sup>2</sup>	0.00	0.46	0.88	0.94	1.27	1.10
Total price received (per bu.)	\$6.57	\$5.55	\$5.75	\$5.67	\$5.70	\$5.50
Revenue per acre	\$276	\$216	\$213	\$255	\$234	\$231
Variable costs per acre						
Fertilizer and lime	\$23	\$21	\$20	\$21	\$22	\$22
Pesticides	33	33	30	30	31	31
Seed	19	18	20	20	21	22
Drying and storage	3	3	3	3	3	3
Machinery repair, fuel, and hire	29	28	28	32	33	29
Total variable costs	\$107	\$103	\$101	\$106	\$110	\$107
<b>Revenue less variable costs</b>	<b>\$169</b>	<b>\$113</b>	<b>\$112</b>	<b>\$149</b>	<b>\$124</b>	<b>\$124</b>
Difference (corn minus soybeans)	-\$53	-\$5	-\$5	\$12	\$11	-\$12

<sup>1</sup> Data for 1997 through 2000 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Southern Illinois farms. Revenues from AMTA, MLA, and soybean payments are not included. Revenue and costs for 2001 and 2002 are projections.

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