

November 22, 2004**FEFO 04-19****2005 CORN AND SOYBEAN REVENUE AND COST ESTIMATES**

Forecasts of revenue less variable costs, hereafter referred to as returns, for corn and soybeans are forecast for the following four region and yield categories: 1) northern Illinois, 2) central Illinois with high productivity farmland, 3) central Illinois with low productivity Illinois, and 4) southern Illinois. Forecasts are compared to historical returns for Illinois Farm Business Farm Management grain farms from 2000 to 2003 along with preliminary estimates of 2004 returns. Returns are available from the *Historical Crop Costs* tool available in the management section of *farmdoc*

(http://www.farmdoc.uiuc.edu/manage/enterprise_cost/crop_revenue_less_variable_cost.html).

This *Facts and Opinions* article provides a summary of the 2005 forecasts. General observations are first made, followed by comments specific to the four region and yield categories. Methodologies used in preparing forecasts then are outlined.

General Observations

General observations are:

1. Returns in 2005 are forecast to be considerably below 2003 and 2004 returns and are near 1998, 1999, and 2000 levels. In northern Illinois, for example, the 2005 corn return is projected at \$170 per acre, \$67 lower than the 2004 return (see Table 1). Similarly, 2005 soybean return is forecast at \$119 per acre, \$46 less than the 2004 return. Lower effective prices (market price plus loan deficiency payments) and higher costs contribute to the 2005 return decreases. In addition, five-year yields are used in the 2005 forecasts. For corn, five-year average yields are lower than actual yields in 2003 and 2004.
2. Costs are projected higher in 2005. Major increases occur in fertilizer costs. For corn, variable costs are projected up by \$6 and \$9 per acre. For soybeans, variable costs are projected up by \$4 to \$5 per acre.
3. Corn is forecasted to be more profitable than soybeans. Corn returns are forecast to be \$51 per acre higher than soybean returns for Northern Illinois, \$53 for central Illinois with high productivity farmland, \$49 per acre for central Illinois with low productivity farmland, and \$29 for southern Illinois. In recent years, corn returns generally have been above soybean returns, particularly in northern and central Illinois. Some farmers are considering planting more corn and fewer soybeans as a means to increase profits. Methods for evaluating the advisability of planting more corn are covered in a forthcoming *Illinois Farm Economics: Facts and Opinions* article entitled "The Economics of Adding More Corn to Corn-Soybean Rotations."

Regional Estimates

Forecasts for **northern Illinois** are shown in Table 1. Per acre yields are forecast at 166 bushels for corn and 46 bushels for soybeans. Prices of \$2.20 per bushel for corn and \$5.10 per bushel for soybeans are used to determine revenue. Variable costs are forecast at \$195 per acre for corn and \$116 per acre for soybeans. Revenue less variable costs equal \$170 per acre for corn and \$119 per acre for soybeans. Corn has a \$51 higher expected return than soybeans.

Forecasts for **central Illinois with high productivity farmland** are shown in Table 2. Per acre yields are forecast at 173 bushels for corn and 49 bushels for soybeans. Prices of \$2.25 per bushel for corn and \$5.20 per bushel for soybeans are used to determine revenue. Variable costs are estimated at \$192 per acre for corn and \$111 per acre for soybeans. Revenue less variable costs are forecast at \$197 per acre for corn and \$144 per acre for soybeans. Corn has a \$53 higher expected return than soybeans.

Forecasts for **central Illinois with low productivity farmland** are shown in Table 3. Per acre yields are forecast at 164 bushels for corn and 46 bushels per acre for soybeans. Prices of \$2.25 per bushel for corn and \$5.20 per bushel for soybeans are used to determine revenue. Variable costs are estimated at \$193 per acre for corn and \$112 per acre for soybeans. Revenue less variable costs are forecast at \$176 per acre for corn and \$127 for soybeans. Corn has a \$49 higher expected return than soybeans.

Forecasts for **southern Illinois** are shown in Table 4. The 2005 per acre yields are forecast at 139 bushels for corn and 42 bushels for soybeans. Prices of \$2.30 per bushel for corn and \$5.30 per bushel for soybeans are used to determine revenue. Variable costs are estimated at \$182 per acre for corn and \$114 per acre for soybeans. Revenue less variable costs are forecast at \$138 per acre for corn and \$109 for soybeans. Corn has a \$29 higher expected return than soybeans.

Methodology

Forecasts of yields are based on averages of yields for the previous five years (2000 through 2004). Per bushel prices for corn and soybeans are projected based on futures prices available from 2005 harvest-time Chicago Board of Trade commodity contracts, minus usual differences between futures and cash prices. Variable costs are projected based on estimates of production inputs obtained during the fall of 2004. Return estimates only include variable costs. Not included are fixed costs such as interest and machinery depreciation.

As always, projections for next year's returns may differ dramatically from actual results. Throughout the year, return projections are updated and will be placed in the *Historical Crop Costs* tool.

Soybean return estimates do not include additional costs or lower yields because of the introduction of soybean rust. As of this writing, it seems premature to include soybean rust costs in projections because the probability and severity of soybean rust are not known. Moreover, production estimates as a result of the introduction of rust vary dramatically. A USDA study that compiled research on soybean rust indicated that yields from rust-treated acres may range from 9.5% lower to .9% higher than rust-free yields. The USDA estimates used an average fungicide and application costs of \$19 per treatment, although this cost could vary dramatically. The need for and the number of applications could vary depending on the timing of the rust outbreak (U.S. Department of Agriculture *Economic and Policy Implications of Wind-Borne Entry of Asian Soybean Rust into the United States*. OCS-03D-02, April 2004, available at <http://www.ers.usda.gov/publications/OCS/Apr04/OCS04D02/OCS04D02.pdf>).

**Table 1. Actual and Projected Revenue Less Variable Costs,
Northern Illinois, 2000 through 2005¹.**

	Year					
	2000	2001	2002	2003	2004F	2005F
Panel A. Corn.						
Average yields (bu. per acre)	156	159	154	174	185	166
Market price	1.97	2.08	2.35	2.40	2.05	2.20
Effective LDP ²	<u>0.26</u>	<u>0.14</u>	<u>0.00</u>	<u>0.00</u>	<u>0.25</u>	<u>0.00</u>
Total price received (per bu.)	\$2.23	\$2.22	\$2.35	\$2.40	\$2.30	\$2.20
Revenue per acre	\$348	\$353	\$362	\$418	\$426	\$365
Variable costs per acre						
Fertilizer and lime	\$49	\$56	\$51	\$53	\$55	\$61
Pesticides	31	33	34	40	41	42
Seed	35	34	35	37	38	39
Drying and storage	12	14	14	14	17	14
Machinery repair, fuel, and hire	<u>39</u>	<u>37</u>	<u>35</u>	<u>36</u>	<u>38</u>	<u>39</u>
Total variable costs	\$166	\$174	\$169	\$180	\$189	\$195
Revenue less variable costs	\$182	\$179	\$193	\$238	\$237	\$170
Panel B. Soybeans.						
Average yields (bu. per acre)	46	48	47	35	53	46
Market price	4.67	4.52	5.65	7.25	5.05	5.10
Effective LDP ²	<u>0.94</u>	<u>1.21</u>	<u>0.01</u>	<u>0.00</u>	<u>0.18</u>	<u>0.00</u>
Total price received (per bu.)	5.61	5.73	5.66	7.25	5.23	5.10
Revenue per acre	\$258	\$275	\$266	\$254	\$277	\$235
Variable costs per acre						
Fertilizer and lime	\$18	\$20	\$18	\$19	\$20	\$23
Pesticides	32	29	30	30	28	25
Seed	18	20	24	26	27	30
Drying and storage	5	6	5	5	6	5
Machinery repair, fuel, and hire	<u>29</u>	<u>31</u>	<u>30</u>	<u>30</u>	<u>31</u>	<u>33</u>
Total variable costs	\$102	\$106	\$107	\$110	\$112	\$116
Revenue less variable costs	\$156	\$169	\$159	\$144	\$165	\$119
Difference (corn minus soybeans)	\$26	\$10	\$34	\$94	\$72	\$51

¹ Data for 2000 through 2003 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Northern Illinois farms. Revenues from government programs other than loan deficiency payments are not included. Revenue and costs for 2004 and 2005 are projections.

² 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.

Updated: November 2005

**Table 2. Actual and Projected Revenue Less Variable Costs,
Central Illinois, High Productivity Farmland, 2000 through 2005¹.**

	----- Year -----					
	2000	2001	2002	2003	2004F	2005F
Panel A. Corn.						
Average yields (bu. per acre)	165	168	152	186	195	173
Market price	1.97	2.06	2.37	2.45	2.10	2.25
Effective LDP ²	<u>0.26</u>	<u>0.14</u>	<u>0.00</u>	<u>0.00</u>	<u>0.25</u>	<u>0.00</u>
Total price received (per bu.)	\$2.23	\$2.20	\$2.37	\$2.45	\$2.35	\$2.25
Revenue per acre	\$368	\$370	\$360	\$456	\$458	\$389
Variable costs per acre						
Fertilizer and lime	\$53	\$57	\$55	\$57	\$59	\$65
Pesticides	32	33	34	37	39	40
Seed	33	34	34	36	37	38
Drying and storage	13	15	16	14	16	16
Machinery repair, fuel, and hire	<u>31</u>	<u>31</u>	<u>30</u>	<u>30</u>	<u>32</u>	<u>33</u>
Total variable costs	\$162	\$170	\$169	\$174	\$183	\$192
Revenue less variable costs	\$206	\$200	\$191	\$282	\$275	\$197
Panel B. Soybeans.						
Average yields (bu. per acre)	49	50	52	41	53	49
Market price	4.70	4.53	5.72	7.35	5.10	5.20
Effective LDP ²	<u>0.94</u>	<u>1.21</u>	<u>0.01</u>	<u>0.00</u>	<u>0.18</u>	<u>0.00</u>
Total price received (per bu.)	\$5.64	\$5.74	\$5.73	\$7.35	\$5.28	\$5.20
Revenue per acre	\$276	\$287	\$298	\$301	\$280	\$255
Variable costs per acre						
Fertilizer and lime	\$19	\$21	\$20	\$20	\$21	\$24
Pesticides	33	30	31	30	28	25
Seed	19	21	24	25	26	29
Drying and storage	5	5	5	5	5	5
Machinery repair, fuel, and hire	<u>27</u>	<u>27</u>	<u>26</u>	<u>26</u>	<u>27</u>	<u>28</u>
Total variable costs	\$103	\$104	\$106	\$106	\$107	\$111
Revenue less variable costs	\$173	\$183	\$192	\$195	\$173	\$144
Difference (corn minus soybeans)	\$33	\$17	-\$1	\$87	\$102	\$53

¹ Data for 2000 through 2003 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Central Illinois farms. Revenues from government programs other than loan deficiency payments are not included. Revenue and costs for 2004 and 2005 are projections.

² 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.

Updated: November 2005

**Table 3. Actual and Projected Revenue Less Variable Costs,
Central Illinois, Low Productivity Farmland, 2000 through 2005¹.**

	----- Year -----					
	2000	2001	2002	2003	2004F	2005F
Panel A. Corn.						
Average yields (bu. per acre)	154	157	151	173	185	164
Market price	1.96	2.06	2.39	2.45	2.10	2.25
Effective LDP ²	<u>0.26</u>	<u>0.14</u>	<u>0.00</u>	<u>0.00</u>	<u>0.25</u>	<u>0.00</u>
Total price received (per bu.)	\$2.22	\$2.20	\$2.39	\$2.45	\$2.35	\$2.25
Revenue per acre	\$342	\$345	\$361	\$424	\$435	\$369
Variable costs per acre						
Fertilizer and lime	\$52	\$60	\$56	\$59	\$60	\$66
Pesticides	29	33	33	39	40	41
Seed	35	33	34	36	37	38
Drying and storage	12	14	13	12	14	13
Machinery repair, fuel, and hire	<u>32</u>	<u>34</u>	<u>31</u>	<u>32</u>	<u>34</u>	<u>35</u>
Total variable costs	\$160	\$174	\$167	\$178	\$185	\$193
Revenue less variable costs	\$182	\$171	\$194	\$246	\$250	\$176
Panel B. Soybeans.						
Average yields (bu. per acre)	45	48	50	36	49	46
Market price	4.65	4.50	5.68	7.35	5.10	5.20
Effective LDP ²	<u>0.94</u>	<u>1.21</u>	<u>0.01</u>	<u>0.00</u>	<u>0.18</u>	<u>0.00</u>
Total price received (per bu.)	\$5.59	\$5.71	\$5.69	\$7.35	\$5.28	\$5.20
Revenue per acre	\$252	\$274	\$285	\$265	\$259	\$239
Variable costs per acre						
Fertilizer and lime	\$17	\$20	\$19	\$20	\$21	\$24
Pesticides	30	30	30	30	28	25
Seed	18	20	24	25	26	30
Drying and storage	5	5	4	4	5	4
Machinery repair, fuel, and hire	<u>27</u>	<u>29</u>	<u>26</u>	<u>27</u>	<u>28</u>	<u>29</u>
Total variable costs	\$97	\$104	\$103	\$106	\$108	\$112
Revenue less variable costs	\$155	\$170	\$182	\$159	\$151	\$127
Difference (corn minus soybeans)	\$27	\$1	\$12	\$87	\$99	\$49

¹ Data for 2000 through 2003 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Central Illinois farms. Revenues from government programs other than loan deficiency payments are not included. Revenue and costs for 2004 and 2005 are projections.

² 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.

Updated: November 2005

**Table 4. Actual and Projected Revenue Less Variable Costs,
Southern Illinois, 2000 through 2005¹.**

	----- Year -----					
	2000	2001	2002	2003	2004F	2005F
Panel A. Corn.						
Average yields (bu. per acre)	149	151	97	134	165	139
Market price	2.01	2.07	2.41	2.50	2.15	2.30
Effective LDP ²	<u>0.26</u>	<u>0.14</u>	<u>0.00</u>	<u>0.00</u>	<u>0.25</u>	<u>0.00</u>
Total price received (per bu.)	\$2.27	\$2.21	\$2.41	\$2.50	\$2.40	\$2.30
Revenue per acre	\$338	\$334	\$234	\$335	\$396	\$320
Variable costs per acre						
Fertilizer and lime	\$56	\$61	\$54	\$58	\$59	\$64
Pesticides	30	32	31	31	34	35
Seed	33	35	35	37	38	39
Drying and storage	6	7	6	7	8	7
Machinery repair, fuel, and hire	<u>37</u>	<u>39</u>	<u>35</u>	<u>33</u>	<u>35</u>	<u>37</u>
Total variable costs	\$162	\$174	\$161	\$166	\$174	\$182
Revenue less variable costs	\$176	\$160	\$73	\$169	\$222	\$138
Panel B. Soybeans.						
Average yields (bu. per acre)	45	45	34	39	46	42
Market price	4.75	4.55	5.69	7.45	5.20	5.30
Effective LDP ²	<u>0.94</u>	<u>1.17</u>	<u>0.01</u>	<u>0.00</u>	<u>0.18</u>	<u>0.00</u>
Total price received (per bu.)	\$5.69	\$5.72	\$5.70	\$7.45	\$5.38	\$5.30
Revenue per acre	\$256	\$257	\$194	\$291	\$247	\$223
Variable costs per acre						
Fertilizer and lime	\$21	\$23	\$20	\$22	\$22	\$25
Pesticides	30	28	27	26	25	23
Seed	20	21	23	24	24	27
Drying and storage	3	3	2	3	4	4
Machinery repair, fuel, and hire	<u>32</u>	<u>35</u>	<u>31</u>	<u>32</u>	<u>34</u>	<u>35</u>
Total variable costs	\$106	\$110	\$103	\$107	\$109	\$114
Revenue less variable costs	\$150	\$147	\$91	\$184	\$138	\$109
Difference (corn minus soybeans)	\$26	\$13	-\$18	-\$15	\$84	\$29

¹ Data for 2000 through 2003 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Southern Illinois farms. Revenues from government programs other than loan deficiency payments are not included. Revenue and costs for 2004 and 2005 are projections.

² 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.

Updated: November 2005

Acknowledgments

The authors would like to acknowledge that 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 62 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.

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