

December 23, 2005**FEFO 05-23****New Crop Budgeting Tools Released on *Farmdoc***

New crop budgeting tools have been released on *farmdoc*. These tools allow users to 1) compare revenue and costs over time, 2) compare projected returns from corn, soybeans, and wheat, 3) evaluate cash rent bids, and 4) modify defaults to more accurately reflect individual farm situations. Tools are available from the following input screen in the management section (www.farmdoc.uiuc.edu/manage/index.html):

Per Acre Revenue and Costs for Illinois Crops

Select one of the following budget tool options:

- 1 Returns and Costs Since 2000
- 2 Corn, Soybean, Wheat Budgets
- 3 Report

Shows per acre revenues and costs for Illinois. The first option compares corn or soybean returns over time. The second compares current crop returns for the current growing season. Analysis of crop economics is provided [here](#).

Pull-down boxes to the left of the screen give three options: “Return and Costs Since 2000”, “Corn, Soybean, Wheat Budgets”, and “Report”. These options are described in the following sections.

“Returns and Cost Since 2000”

This option allows a user to select from eight reports showing historical and projected results for corn or soybeans in northern, central, and southern Illinois. Central Illinois is further divided into categories for farms with high-productivity farmland and farms with low-productivity farmland. The Acrobat version of the December 2005 report for corn in central Illinois for high-productivity farmland is shown in Table 1.

This report shows revenues and costs for seven years from 2000 through 2006. Values for 2000 through 2004 (those without a “P” or “F” after the year) contain values representing averages of grain farms enrolled in Illinois Farm Business Farm Management (FBFM). The 2005 column is labeled as 2005P because values are preliminary. FBFM data is not available to complete the column; however, estimates of yields, prices, and costs have been obtained from a variety of sources. The 2006 column is labeled as 2006F as it contains forecast values.

This report allows comparisons across time. For example, direct expenses were \$134 per acre in 2000. Since 2000, direct expenses increased each year reaching \$167 in 2004. Further direct cost increases are projected to occur in 2005 and 2006, resulting in values of \$175 in 2005 and \$181 in 2006.

Table 1. "Corn Budgets, Central Illinois, High Productivity Farmland.

	Year						
	2000	2001	2002	2003	2004	2005P	2006F
Yield per acre	165	168	152	186	190	157	175
Price per bu	\$1.97	\$2.06	\$2.37	\$2.41	\$2.10	\$1.80	\$2.25
LDP per bu	0.23	0.14	0.00	0.00	0.26	0.35	0.00
Crop revenue	\$325	\$346	\$360	\$448	\$399	\$283	\$394
LDP revenue	38	24	0	0	49	55	0
Other gov't payments	50	44	22	22	40	45	27
Crop insurance proceeds	10	6	6	1	5	7	0
Gross revenue	\$423	\$420	\$388	\$471	\$493	\$390	\$421
Fertilizers	\$53	\$57	\$55	\$57	\$68	\$74	\$79
Pesticides	32	33	34	38	38	39	39
Seed	33	34	34	36	38	39	40
Drying	6	8	9	9	9	9	9
Storage	7	7	7	5	6	6	6
Crop insurance	3	5	7	6	8	8	8
Total direct costs	\$134	\$144	\$146	\$151	\$167	\$175	\$181
Machine hire/lease	\$7	\$7	\$7	\$7	\$8	\$8	\$8
Utilities	5	5	5	4	4	4	4
Machine repair	15	15	14	14	16	16	16
Fuel and oil	10	10	9	10	12	14	14
Light vehicle	2	2	2	2	2	2	2
Mach. depreciation	27	30	28	18	19	20	21
Total power costs	\$66	\$69	\$65	\$55	\$61	\$64	\$65
Hired labor	\$9	\$8	\$8	\$8	\$8	\$8	\$8
Building repair and rent	3	3	3	3	3	3	3
Building depreciation	5	5	5	3	3	3	3
Insurance	10	7	5	7	6	6	6
Misc	5	5	5	6	6	6	6
Interest (non-land)	18	16	13	14	12	11	13
Total overhead costs	\$50	\$44	\$39	\$41	\$38	\$37	\$39
Total non-land costs	\$250	\$257	\$250	\$247	\$266	\$276	\$285
Operator and land return	\$173	\$163	\$138	\$224	\$227	\$114	\$136
Land costs	132	137	137	140	143	145	148
Operator return	45	39	37	36	39	40	38
Net return	-\$4	-\$13	-\$36	\$48	\$45	-\$71	-\$50

The reports major headings of revenue and costs are:

1. **Gross revenue** includes crop revenue, loan deficiency payments (LDPs), direct and counter-cyclical payments, and crop insurance proceeds.
2. **Direct costs** are directly attributable to crop production and include fertilizer, pesticides, seed, drying, storage, and crop insurance.
3. **Power costs** relate to machinery and utilities. These costs include machine hire/lease, utilities, machinery repair, fuel and oil, light vehicle, and machinery depreciation. Depreciation is economic

depreciation, with machinery depreciated over a 10-year life. Generally, this economic depreciation will be slower than depreciation used to calculate taxes.

4. **Overhead costs** include hired labor, building repair and rent, building depreciation, insurance, misc., and interest (non-land). Interest (non-land) includes operating debt and machinery financing.

The major accounting principles and methods used in preparing these budgets are:

- Revenue and costs are accrued to the year of production. For example, the 2004 column gives values for production that occurs in 2004. Much of the revenue for the 2004 crop may be obtained in the 2005 as the crop is sold in the year following production. The revenue received in 2005 is stated in the 2004 budget. Similarly, some of the fertilizer for 2004 production could have been paid for in 2003. Again, these costs are stated in the 2004 production column.
- Only “financial” costs are included in direct, power, and overhead cost categories. These include operating expenses and depreciation. Not included are any opportunity costs for the farmer’s equity capital, unpaid labor, or management.
- Land costs are not included in direct, power, and overhead costs. Adding direct, power, and overhead costs together gives total non-land costs

Operator and land return equals revenue less non-land costs. This is the return available to pay for farmland and to provide the operator a return.

Operator and land return has a straightforward use when evaluating cash rent bids. The amount of operator and land return represents the amount available to split between the land owner and the farmer. If cash rents are below the operator and land return, positive returns are generated by the farmer. Conversely, the farmer generates negative returns when cash rents are above operator and land returns. Suppose that operator and land return is \$170 per acre. If cash rent is \$150 per acre, the farmer generates \$20 return ($\$170 - \150). The farmer generates a negative \$20 per acre if the rent is \$190 per acre.

After listing operator and land return, the report shows “land costs” and “operator return” (see Table 1). Land costs are represented by the average cash rent paid by the FBFM farmers. The operator return is an inputted charge for 1) the equity capital invested in the operation and 2) unpaid labor.

The net return then is operator and land return minus land costs minus operator return. Net return represents a return to management.

“Corn, Soybean, Wheat Budgets”

The second budgeting option, labeled “Corn, Soybean, Wheat Budgets” contains a pull-down menu allowing budgets for northern, central Illinois (high-productivity farmland), central Illinois (low-productivity farmland), and southern Illinois to be selected. Defaults show forecast revenues and costs for the upcoming production year. In December 2005, budgets are available for the 2006 year. During early fall in 2006, budgets will become available for the 2007 production year.

A partial example of a budget is shown in Figure 1. This budget has columns for corn-after-soybeans, corn-after-corn, soybeans, and wheat. The default values can be changed, thus allowing a user to tailor budgets for an individual farm situation. After changing an entry, calculation of all entries occurs when the “enter” key is depressed on the keyboard or the “calculate” button is hit on the budget screen.

Figure 1. Example of a Crop Budget for Northern Illinois.

Northern				
1	Northern	2 Submit		
Entries can be changed. Re-calculation occurs when "ENTER" is depressed on the keyboard OR the "Calculate" is depressed on the screen.				
				Calculate
	Corn after beans	Corn after corn	Soybeans	Wheat
Yield per acre	169	157	47	70
Price per bu	2.25	2.25	5.80	3.20
LDP per bu ¹	0.00	0.00	0.00	0.00
Revenue	----- \$ per acre -----			
Crop revenue ²	\$380	\$353	\$273	\$224

“Report”

The third option is “report”. One entry in the pull down menu is “Download Entire Report (pdf)”. This option will download an acrobat reader version of all the reports listed in the above two options. This is a 30 page report and the file is large. Download times will be long on slow internet connections.

Besides the above budgets, the report includes “per acre operator and farmland return reports” that show per acre value blended across crops. This report is useful to gain a feel for overall farm profitability. Table 2 shows the December 2005 example for central Illinois farms with high-productivity farmland. Operator and land return was \$179 per acre in 2000, \$153 in 2001, and \$155 in 2002. Returns then increased dramatically in 2003 (\$207 per acre) and 2004 (\$230). Returns then are projected to fall again in 2005 and 2006 roughly to 2000 to 2002 levels. Operator and land return is projected at \$150 in 2005 and \$164 in 2006.

Revisions

Data in the crop budgeting tool will be revised as new information becomes available. Major revisions will occur in late spring and early fall. In late spring, FBFM data becomes available and historic revenues and costs are finalized. In spring 2006, for example, values for 2005 will be finalized and the “P” will be taken off of the 2005 column. The fall revision will change the years in the tool. At that point in time, projections will be made for the upcoming projection year. In fall 2006, for example, values for 2000 will be eliminated and a column for 2007 projections will be added. In addition, “corn, soybean, and wheat” budgets will be changed from 2006 projections to 2007 projections.

Table 2. Per Acre Operator and Farmland Returns, Central Illinois, High Productivity Farmland.

	Year						
	2000	2001	2002	2003	2004	2005P	2006F
Crop returns	\$391	\$364	\$360	\$407	\$443	\$370	\$388
Livestock returns	0	0	0	0	0	0	0
Custom work	5	6	6	6	7	7	7
Other farm receipts	5	4	5	5	5	5	5
Gross revenue	\$401	\$374	\$371	\$418	\$455	\$382	\$400
Fertilizers	\$36	\$39	\$38	\$39	\$47	\$50	\$53
Pesticides	32	31	32	33	33	34	34
Seed	26	27	29	30	32	33	34
Drying	4	5	6	6	5	5	5
Storage	5	5	5	4	5	5	5
Crop insurance	3	4	5	5	7	7	7
Total direct costs	\$106	\$111	\$115	\$117	\$129	\$134	\$138
Machine hire/lease	\$7	\$7	\$7	\$7	\$7	\$7	\$7
Utilities	4	4	4	4	4	4	4
Machine repair	14	14	13	13	15	15	15
Fuel and oil	9	9	8	9	11	14	14
Light vehicle	2	2	2	2	2	2	2
Mach. depreciation	29	29	27	18	19	19	19
Total power costs	\$65	\$65	\$61	\$53	\$58	\$61	\$61
Hired labor	\$9	\$8	\$8	\$8	\$8	\$8	\$8
Building repair and rent	3	3	3	3	3	3	3
Building depreciation	5	5	5	3	3	3	3
Insurance	10	8	7	8	7	7	7
Misc	5	5	5	6	6	6	6
Interest (non-land)	19	16	12	13	11	10	10
Total overhead costs	\$51	\$45	\$40	\$41	\$38	\$37	\$37
Total non-land costs	\$222	\$221	\$216	\$211	\$225	\$232	\$236
Operator and land return	\$179	\$153	\$155	\$207	\$230	\$150	\$164
Land costs	132	137	137	140	143	145	148
Operator return	44	40	38	37	40	42	41
Net return	\$3	-\$24	-\$20	\$30	\$47	-\$37	-\$25

Summary

These crop budgeting tools are designed to aid farmers when making decisions regarding crop rotations and cash rent bids. Values will also be useful as farmers prepare cash flows and other budgets for their farms. Strengths and weaknesses of a farming operation may be identified by comparing individual farm results to values in these tools. Weaknesses may be identified if a farm has costs significantly above those in these tools. Conversely, strengths may be identified if a farm result is below the costs in these defaults.

Acknowledgments

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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