FARM BUSINESS MANAGEMENT

FARM ECONOMICS Facts & Opinions

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DO YOU REALLY NEED TO KNOW PRODUCTION COSTS?

Recently, a number of individuals have been stressing the need for farmers to know their per bushel costs of producing corn and soybeans. Much of this current emphasis revolves around developing marketing plans under which farmers set pricing objectives based on their break-even cost levels.

Break-even cost levels may aid in developing a marketing plan. However, there is a problem in that market prices may not reach break-even levels, as has happened with corn and soybeans over the past three years. Moreover, per bushel production costs are not known until after harvest when yields become known. Obviously, higher yields lead to lower production costs while lower yields cause higher production costs. Rather than basing it on production cost levels, a successful marketing plan is more likely based on assessments of current market conditions and risks.

Why Know Production Costs?

The benefits of knowing production costs accrue over time and impact farm businesses indirectly. Perhaps the most important reason for calculating production costs is to close the control loop. Many farmers prepare budgets prior to planting to aid in production planning. Determining how close actual costs come to budgeted costs needs to be done to see how well the planning process works. It might be possible, for example, to plan for a low corn herbicide cost of $20 per acre. If, however, corn had to be re-sprayed causing herbicide costs to rise considerably. In this case, the herbicide program becomes questionable, particularly if actual costs consistently exceed planned costs over several years.

Per acre production costs also vary considerably across farms. These variations are important when preparing projected cash flow statements. Most programs used to project cash flows rely on per unit production costs (e.g., per acre costs for fertilizer, seed, etc.). Using unreliable production cost estimates, such as those coming from averages across many farms, will result in faulty cash flow projections for an individual farm. Some of the most reliable costs estimates for an individual farm are the averages of that farm's previous years' costs, adjusted for changes in input prices and input usage.

The range in production costs across farms suggests that comparing actual farm results to averages from a group of farms or other benchmarks is useful. These comparisons will identify strengths and weaknesses of a farm operation.

Calculating Production Costs

Calculating production costs involves extensive calculations. Also, judgments on how to split machinery, overhead, and interest costs across enterprises must be made. A Microsoft Excel spreadsheet, called Enterprise Allocation (E-allocate), has been developed at the University of Illinois to aid with calculations and to provide guidance in splitting costs. E-allocate is available for download at farm.doc (www.farmdoc.uiuc.edu). It is in the finance section under FAST tools (http://www.farmdoc.uiuc.edu/finance/business.html).

E-allocate takes whole farm costs and aids users in allocating those costs to crop, livestock, custom farming/work, and other enterprises. E-allocate allows users to allocate dollar amounts directly to enterprises. E-allocate will also allows costs to be allocated to enterprises using indirect methods. Indirect methods for crops include allocations based on Illinois crop budgets, operator acres, tillable acres, and percent of revenue received from the crop. The final product of E-allocate is a series of reports listing revenues and costs for a farm's enterprises.

Average Costs for Corn and Soybeans

Average per acre costs of producing corn and soybeans are available for comparing to an actual farm's costs. These costs are summarized yearly from farms enrolled in Illinois Farm Business Farm Management (FBFM). Averages exist for different regions in the state:

1. Northern Illinois,
2. Central Illinois for farmland with high productivity,
3. Central Illinois for farmland with low productivity, and
4. Southern Illinois.

Tables showing these costs are at the end of this publication. Comparisons of actual to average costs will likely identify strengths and weaknesses of an operation.

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

Actual and Projected Revenue Less Variable Costs,
Northern Illinois, 1996 through 2001[1].

	Year					
	1996	1997	1998	1999	2000F	2001F
Panel A. Corn.						
Average yields (bu. per acre)	148	142	164	155	156	153
Price received (per bu.)[2]	$2.76	$2.49	$2.09	$1.95	$1.95	$2.20
Revenue per acre	$408	$354	$343	$302	$304	$337
Variable costs per acre						
Fertilizer and lime	$57	$57	$56	$49	$52	$63
Pesticides	35	36	35	32	32	32
Seed	29	32	35	35	35	34
Drying and storage	17	16	15	13	12	15
Machinery repair, fuel, and hire	36	36	34	35	38	42
Total variable costs	$174	$177	$175	$164	$169	$186
Revenue less variable costs	**$234**	**$177**	**$168**	**$138**	**$135**	**$151**
Panel B. Soybeans.						
Average yields (bu. per acre)	42	50	53	50	52	50
Price received (per bu.)[2]	7.54	6.48	5.45	5.45	5.45	5.45
Revenue per acre	$317	$324	$289	$273	$283	$273
Variable costs per acre						
Fertilizer and lime	$20	$20	$21	$18	$19	$19
Pesticides	36	37	36	33	33	33
Seed	15	16	18	18	19	19
Drying and storage	6	6	6	5	5	6
Machinery repair, fuel, and hire	30	30	29	29	31	34
Total variable costs	$107	$109	$110	$103	$107	$111
Revenue less variable costs	**$210**	**$215**	**$179**	**$170**	**$176**	**$162**
Difference (corn minus soybeans)	$24	-$38	-$11	-$32	-$41	-$11

[1] Data for 1996 through 1999 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Northern Illinois farms. Years 2000 and 2001 are projections. Revenues from AMTA, MLA, and soybean payments are not included.

[2] Prices for 1999 and 2000 are loan rate prices.

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

Actual and Projected Revenue Less Variable Costs,
Central Illinois, High Productivity Farmland, 1996 through 2001[1].

	Year					
	1996	1997	1998	1999	2000F	2001F
Panel A. Corn.						
Average yields (bu. per acre)	161	148	152	166	168	159
Price received (per bu.)[2]	$2.84	$2.50	$2.10	$1.95	$1.95	$2.20
Revenue per acre	$457	$370	$319	$324	$328	$350
Variable costs per acre						
Fertilizer and lime	$61	$62	$62	$53	$56	$66
Pesticides	33	34	33	31	31	32
Seed	28	31	33	34	34	34
Drying and storage	15	14	14	15	14	18
Machinery repair, fuel, and hire	28	29	27	27	30	34
Total variable costs	$165	$170	$169	$160	$165	$184
Revenue less variable costs	**$292**	**$200**	**$150**	**$164**	**$163**	**$166**
Panel B. Soybeans.						
Average yields (bu. per acre)	48	49	49	52	50	50
Price received (per bu.)[2]	7.57	6.60	5.45	5.45	5.45	5.45
Revenue per acre	$363	$323	$267	$283	$273	$273
Variable costs per acre						
Fertilizer and lime	$21	$22	$22	$19	$20	$20
Pesticides	34	35	34	32	32	32
Seed	16	18	19	19	20	20
Drying and storage	5	6	5	6	4	6
Machinery repair, fuel, and hire	24	25	23	24	26	29
Total variable costs	$100	$106	$103	$100	$102	$107
Revenue less variable costs	**$263**	**$217**	**$164**	**$183**	**$171**	**$166**
Difference (corn minus soybeans)	$29	-$17	-$14	-$19	-$8	$0

[1] Data for 1996 through 1999 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Central Illinois farms with high productivity farmland. Years 2000 and 2001 are projections. Revenues from AMTA, MLA, and soybean payments are not included.

[2] Prices for 1999 and 2000 are loan rate prices.

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Actual and Projected Revenue Less Variable Costs,
Central Illinois, Low Productivity Farmland, 1996 through 2001[1].

	Year					
	1996	1997	1998	1999	2000F	2001F
Panel A. Corn.						
Average yields (bu. per acre)	137	134	141	149	151	142
Price received (per bu.)[2]	$2.79	$2.49	$2.10	$1.95	$1.95	$2.20
Revenue per acre	$382	$334	$296	$291	$294	$312
Variable costs per acre						
Fertilizer and lime	$62	$63	$61	$52	$55	$65
Pesticides	31	33	33	29	29	30
Seed	29	32	35	34	34	34
Drying and storage	13	14	13	13	12	15
Machinery repair, fuel, and hire	30	31	29	29	31	35
Total variable costs	$165	$173	$171	$157	$161	$179
Revenue less variable costs	**$217**	**$161**	**$125**	**$134**	**$133**	**$133**
Panel B. Soybeans.						
Average yields (bu. per acre)	43	47	46	46	48	46
Price received (per bu.)[2]	7.54	6.50	5.45	5.45	5.45	5.45
Revenue per acre	$324	$306	$251	$251	$262	$251
Variable costs per acre						
Fertilizer and lime	$21	$21	$20	$17	$20	$20
Pesticides	32	34	34	30	30	30
Seed	14	16	18	17	18	18
Drying and storage	4	5	5	5	4	5
Machinery repair, fuel, and hire	25	26	24	24	26	29
Total variable costs	$96	$102	$101	$93	$98	$102
Revenue less variable costs	**$228**	**$204**	**$150**	**$158**	**$164**	**$149**
Difference (corn minus soybeans)	-$11	-$43	-$25	-$24	-$31	-$16

[1] Data for 1996 through 1999 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Central Illinois farms with low productivity farmland. Years 2000 and 2001 are projections. Revenues from AMTA, MLA, and soybean payments are not included.

[2] Prices for 1999 and 2000 are loan rate prices.

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

Actual and Projected Revenue Less Variable Costs, Southern Illinois, 1996 through 2001[1].

	Year					
	1996	1997	1998	1999	2000F	2001F
Panel A. Corn.						
Average yields (bu. per acre)	115	111	121	115	120	118
Price received (per bu.)[2]	$2.94	$2.52	$2.12	$1.95	$1.95	$2.20
Revenue per acre	$338	$280	$257	$224	$234	$260
Variable costs per acre						
Fertilizer and lime	$62	$63	$59	$54	$57	$63
Pesticides	34	31	32	30	30	31
Seed	29	30	31	32	32	32
Drying and storage	9	7	8	7	8	8
Machinery repair, fuel, and hire	35	33	32	31	34	38
Total variable costs	$169	$164	$162	$154	$161	$172
Revenue less variable costs	**$169**	**$116**	**$95**	**$70**	**$73**	**$88**
Panel B. Soybeans.						
Average yields (bu. per acre)	38	42	39	37	43	40
Price received (per bu.)[2]	7.54	6.57	5.45	5.45	5.45	5.45
Revenue per acre	$287	$276	$213	$202	$234	$218
Variable costs per acre						
Fertilizer and lime	$22	$23	$21	$20	$21	$21
Pesticides	36	33	33	30	30	30
Seed	18	19	18	20	20	20
Drying and storage	3	3	3	3	2	3
Machinery repair, fuel, and hire	31	29	28	28	30	33
Total variable costs	$110	$107	$103	$101	$103	$107
Revenue less variable costs	**$177**	**$169**	**$110**	**$101**	**$131**	**$111**
Difference (corn minus soybeans)	-$8	-$53	-$15	-$31	-$58	-$23

[1] Data for 1996 through 1999 are from Illinois Farm Business Farm Management (FBFM). Revenue and costs are given for Southern Illinois farms. Years 2000 and 2001 are projections. Revenues from AMTA, MLA, and soybean payments are not included.

[2] Prices for 1999 and 2000 are loan rate prices.

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