2012 Purdue Crop Cost & Return Guide

October 2011 Estimates

Both product prices and input prices may have significantly changed since these estimates were prepared.

Table 1. Estimated per Acre Crop Budgets for Low, Average, and High Productivity Indiana Soils

	Crop Budgets for Three Yield Levels[1]														
	Low Productivity Soil					Average Productivity Soil					High Productivity Soil				
	Cont. Corn	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**
Expected yield per acre[2]	122	130	39	62	23	153	163	49	70	29	184	196	59	84	35
Harvest price[3]	$5.40	$5.40	$11.60	$6.40	$11.60	$5.40	$5.40	$11.60	$6.40	$11.60	$5.40	$5.40	$11.60	$6.40	$11.60
Market revenue	$659	$702	$452	$397	$267	$826	$880	$568	$448	$336	$994	$1,058	$684	$538	$406
Less variable costs[4]															
Fertilizer[5]	$184	$165	$66	$95	$43	$197	$179	$80	$110	$52	$211	$193	$93	$137	$60
Seed[6]	87	87	62	41	72	107	107	62	41	72	107	107	62	41	72
Pesticides[7]	38	38	29	8	26	38	38	29	8	26	38	38	29	8	26
Dryer fuel[8]	32	26	N/A	N/A	4	40	32	N/A	N/A	4	49	39	N/A	N/A	5
Machinery fuel @ $3.70	27	27	12	17	12	27	27	12	17	12	27	27	12	17	12
Machinery repairs[9]	17	17	12	12	12	17	17	12	12	12	17	17	12	12	12
Hauling[10]	11	12	4	6	2	14	15	5	6	3	17	18	5	8	3
Interest[11]	12	12	6	6	6	14	13	7	6	6	7	6	7	7	6
Insurance/misc.[12]	32	33	23	3	4	32	33	23	3	4	32	33	23	3	4
Total variable cost	$440	$417	$214	$188	$181	$486	$461	$230	$203	$191	$505	$478	$243	$233	$200
Contribution margin[13] (Revenue - variable costs) per acre	$219	$285	$238	$209	$86	$340	$419	$338	$245	$145	$489	$580	$441	$305	$206

[1]Estimated yields and costs are for yields with average management for three different soils representing low, average, and high productivity. The high productivity soils represent soils capable of producing corn and soybeans with yields about 20% higher than average soils. Low productivity soils represent soils capable of producing corn and soybeans with yields about 20% lower than the average soils.

[2]These yields assume average weather conditions and timely plant/harvest date, except soybean double-crop yield, which is based on a July 1 planting date. Continuous corn, soybean, and wheat yields are a percent of rotation corn yield: continuous corn 94%; rotation soybeans 30%; wheat 48% on low productivity soil, 43% on average and high productivity soils; and double-crop soybeans 18%. Continuous corn yields assume a chisel plow tillage system. Double-crop soybean yields apply to central and southern Indiana. Rotation corn yields for average soils are based on the 20 year trend in state average yields reported by the Indiana office of the National Agricultural Statistics Service.

[3]Harvest corn price is December 2012 CME Group futures price less $0.25 basis. Harvest soybean price is November 2012 CME Group futures price less $0.35 basis. Harvest wheat price is July 2012 CME Group futures price less $.35 basis. Harvest prices were based on closing prices on September 30, 2011. These prices will change.

Table 1 (Continued)

[4]Input prices for variable costs reflect expected prices for 2011. These prices will vary by location and time of the year. Users need to adjust these prices to reflect their own expectations and price situation.

[5]Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Michigan Extension Bulletin E-2567, July 1995). Lime amounts represent the pounds of standard ag lime needed to neutralize the acidity from the nitrogen supplied from sources other than ammonium sulfate. Nitrogen application rate for corn is based on research from the Department of Agronomy, Purdue University. Anhydrous ammonia is used as the nitrogen source for corn. Urea is used as the nitrogen source for wheat. Pounds of N, P_20_5, K_20, and lime by crop and soil were as follows: continuous corn, 220-45-53-570, 220-56-61-570, 220-67-69-570; rotation corn, 180-48-55-480, 180-60-63-480, 180-71-72-480; rotation beans, 0-31-75-0, 0-39-89-0, 0-47-103-0; wheat, 61-39-43-183, 75-44-46-225, 100-53-51-299; double crop beans, 0-18-52-0, 0-23-61-0, 0-28-69-0. Fertilizer prices per lb.: NH_3 @ $0.54; urea @ $0.66; P_20_5 @ $0.74; K_20 @ $0.57; lime @ $19.00/ton spread on the field. 5-10% more nitrogen might be needed on poorly drained soils. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range. The economically optimal nitrogen rate for corn has been increased in this forecast relative to the 2011 crop costs and returns forecast (published in January 2011).

[6]Corn seed prices assume a biotech variety with multiple traits. A 20%-refuge is planted with varieties that do not contain insect resistant traits, but do include herbicide tolerance. According to the USDA's Agricultural Prices report for April 2010, biotech corn seed prices averaged 54% more than non-biotech corn seed, which was down from 69% more a year earlier. Seeding rates for corn are 27,000 seeds per acre on low productivity soils and 33,000 seeds per acre on average and high productivity soils. Soybean seed prices include Round-Up Ready® varieties. Rotation soybeans are drilled with a seeding rate of 169,000 seeds per acre with a 90% germination rate. Double-crop soybeans are drilled with a seeding rate of 195,000 seeds per acre. The seeding rate for wheat is two bushels per acre.

[7]Includes insecticides and herbicides. For corn, rootworm insecticide is applied to the refuge acres. In some areas of Indiana, this may not be required. These costs do not include the application of fungicide to corn. If fungicide is applied, this will add an additional $28 to $32 per acre for material and application. Pesticide costs can vary widely based on herbicides selected, required rate of application, and product pricing.

[8]Fuel used to dry crop to a safe moisture level for storage. For double-crop soybeans, the drying charge represents the drying of wheat in order to allow an earlier planting of soybeans.

[9]Repairs are based on approximately 5-year-old machinery. For older machinery, per acre repairs and downtime cost will be higher.

[10]Hauling charge represents moving grain from field to storage. (Based on Machinery Cost Estimates: Harvesting, University of Illinois, Farm Business Management Handbook, April 2010.)

[11]Interest is based on 6% annual rate for 9 months for seed, fertilizer, and chemicals, and for 6 months for half the machinery fuel and repairs, and all miscellaneous expenses.

[12]The cost of crop insurance represents the premium estimated for a Revenue Coverage (RP) policy at the 75% level. Since rates for the 2012 crop year are not available, estimates were based on rates in 2011. These revenue insurance rates contain a base price of $6.01 per bushel for corn and $13.49 per bushel for soybeans, which were the base prices for the 2011 crops. Per acre rates will change based on the price guarantees, volatility parameters, and level of protection selected for the 2012 crop year. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans. Revenue Protection coverage was new for 2011.

[13]Contribution margin is the return to labor and management, machinery services, and land resources.

Table 2. Estimated per Acre Government Payments, Overhead Costs & Earnings for Low, Average, and High Productivity Indiana Soils

	Low Productivity Soil				Average Productivity Soil				High Productivity Soil			
Farm Acres	900	1000	2700	3000	900	1000	2700	3000	900	1000	2700	3000
Rotation[1]	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b
Crop contribution margin[2]	$219	$262	$219	$262	$340	$379	$340	$379	$489	$511	$489	$511
Government payment[3]	$17	$17	$17	$17	$20	$20	$20	$20	$25	$25	$25	$25
Total contribution margin	$236	$279	$236	$279	$360	$399	$360	$399	$514	$536	$514	$536
Annual overhead costs:												
Machinery replacement[4]	$84	$76	$65	$59	$84	$76	$70	$63	$92	$83	$72	$65
Drying/handling	$19	$12	$19	$12	$19	$12	$19	$12	$19	$12	$19	$12
Family and hired labor[5]	$60	$52	$43	$38	$60	$52	$43	$38	$60	$52	$43	$38
Land[6]	$146	$146	$146	$146	$189	$189	$189	$189	$239	$239	$239	$239
Earnings or (losses)	-$73	-$7	-$37	$24	$8	$70	$40	$97	$104	$149	$142	$182

[1]Rotations are as follows: c-c = all of the farm acres in continuous corn; c-b = one-half of the farm acres in rotation corn and one-half in rotation soybeans.

[2]Crop's contribution margin is the per acre contribution margin from Table 1.

[3]Government payment includes only the direct payment with no participation in ACRE. The per bushel direct payment rate is $0.28 for corn and $0.44 for soybeans. These are the payment rates for 2012. Direct payment yields for corn were 94.5, 110.5, 136.6 on low, average, and high soils. Direct payment yields for soybeans were 31.7, 37.0, and 45.8 for low, average, and high soils. Base acres for the farm are assumed half corn and half soybeans. Federal regulations pertaining to payment limits may limit this payment to a smaller amount than is shown here. If a producer participates in the ACRE program, direct payment rates are reduced 20%. The decision about participating in the ACRE program will likely need to be made by June 1, 2012. An advantage of participating in ACRE is the possibility of receiving a more stable revenue for corn, soybeans, and wheat if crop prices decline. As grain prices decline, both the possibility of a payment and the size of the payment increases. Producers will need to review their revenue estimates for the state and their farms as the ACRE signup deadline approaches. Tools that can be used to estimate the potential payments from ACRE can be found at http://www.ag.purdue.edu/agecon/Pages/agpolicy.aspx.

[4]The same basic machinery set, which is timely for each rotation, is used for both the c-c and c-b rotation. The larger farm size requires larger, more expensive machinery. Corn production utilizes a chisel plow tillage system, and soybeans utilize no-till. Average annual replacement costs for the larger farm size were calculated using the Purdue Machinery Cost Calculator for a timely machinery set. Seven-year trading policy is assumed for combine and planter, 10-year policy for other field machinery. On livestock farms where fewer hours each day are available for crops, or on small farms, machinery costs and/or labor costs will be higher. On well-drained soils where more days are suitable for spring field work, machinery costs could be lower. The machinery costs for the smaller farm size were estimated using a machinery complement and cost estimates adapted from budgets published by The Ohio State University. A 10-year trading policy was assumed for all machinery on the smaller acreages. Machinery ownership costs are likely to vary widely from farm to farm.

[5]For the larger acreages, labor expense includes a family living withdrawal of $58,296 ($74,208 of family living expenses less $35,976 in net nonfarm income plus $20,064 in income and self-employment taxes) and a full-time employee with total compensation of $41,314. The balance is used for part-time hired labor. Family living withdrawal is from Farm Income & Production Costs for 2010, University of Illinois Extension, AE-4566, April 2011. Employee compensation is based on Wages and Benefits for Farm Employees, Iowa State University, University Extension FM 1862, July 2006 and adjusted for increases in wage rates. For the smaller acreages, labor expense includes the same operator costs plus part-time employee(s). The c-c rotation requires more total labor. Labor costs are likely to vary widely from farm to farm.

[6]Based on 2011 cash rent per bushel of corn yield reported in the artcile entitled "Indiana Farmland Market Continues to Sizzle," Purdue Agricultural Economics Report, August, 2011. The relatively large estimated contribution margins for 2012 will likely place upward pressure on 2012 cash rents.

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