Soybean Cost-Return Budget in North Central Kansas

Department of Agricultural Economics — www.agmanager.info

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While Kansas is not a leading soybean producing state, the total acreage of soybeans has grown considerably in recent years across the state and in north central Kansas. As with many north central Kansas crops, soybeans are produced using various crop rotation and tillage systems. This budget is based on soybean production in rotation using a no-till system.

Income Per Acre

Crop production costs per unit and net returns are highly dependent on yields. The following estimated budgets include three different yield levels, which are intended to represent expected yields for land of varying quality for a given level of management. Yield levels are based on historical data from Kansas Agricultural Statistics Service and the North Central Kansas Farm Management Association, adjusting for trends over time. Based on K-State research findings, this budget assumes a higher yield for soybeans in rotation than would be expected for continuous soybean production. Land values and government payments have been adjusted for alternative yield levels in this budget. In customizing a budget to your farm, attention should be given to using land values representative of your farm's productive capacity as well as government payments specific to your land.

Price per bushel represents an expected harvest price in Beloit, Kan., accounting for government marketing loan price support levels. Soybean producers in other areas of north central Kansas should use an expected price that is representative for their location. Typically, a reasonable forecast for price is to use the futures market adjusted by the historical basis for a particular location, where basis equals cash price minus futures price.

Table 1. *Production Inputs — Soybean*

	Yield Level (bu)			
Item	25	35	45	
Seed, 1,000/a*	140	140	140	$0.31/1,000
Fertilizer:				
N (anhydrous)	0	0	0	$0.24/lb
N	0	0	0	$0.39/lb
P	22	31	40	$0.44/lb
K	0	0	0	$0.59/lb
Lime	500	500	500	$0.01/lb
Herbicide				
Glyphosate + Ammonium Sulfate	1.0	1.0	1.0	$4.35/a
Glyphosate + Ammonium Sulfate	1.0	1.0	1.0	$4.35/a
Roundup Weather Max	22.0	22.0	22.0	$0.52/oz
+ Ammonium Sulfate	1.5	1.5	1.5	$0.34/lb

** Roundup Ready*

Table 2. *Machinery and Land Resources — Soybean*

	Yield Level (bu)			Custom
Item	25	35	45	Rate
Tillage/Planting/Chemical Applications:				
Chisel	0	0	0	$9.78/a
Disk	0	0	0	$7.88/a
Field cultivate	0	0	0	$7.82/a
No-till drill	1	1	1	$12.30/a
Anhydrous application	0	0	0	$8.91/a
Fertilizer application	1	1	1	$4.34/a
Herbicide application	3	3	3	$4.38/a
Insecticide/fungicide application	0	0	0	$4.43/a
Harvest				
Base charge	1	1	1	$23.13/a
Extra charge for yields exceeding	26	26	26	$0.180/bu
Hauling	25	35	45	$0.165/bu
Non-machinery labor	0.50	0.52	0.55	$13.00/hr
Land charge/rent	$45.60	$57.00	$68.40	
Interest on capital				7.5%

Crop insurance was not included as an input expense in this budget because yields reflect an average of all years (good and bad). If crop insurance is included as an input expense, then an expected value for indemnity payments should be included in the returns section.

Costs Per Acre

Production costs at the three yield levels are shown on lines 1 through 13. Kansas Custom Rates for specific field operations are used to represent fuel and labor costs as well as machinery repair, depreciation, and interest expenses. Table 1 identifies seed, fertilizer, herbicide, and insecticide requirements (rate and cost/unit) for soybeans. Fertilizer requirements (phosphorus) are adjusted up for the higher yields expected under rotation. Herbicide requirements include both pre-crop and in-crop treatments. Table 2 outlines the machinery and land resources used for soybeans in a no-till system.

COST-RETURN PROJECTION — SOYBEANS — NORTH CENTRAL KANSAS

	Yield Level (bu)			Your Farm
	25	35	45	
INCOME PER ACRE				
A. Yield per acre	25	35	45	
B. Price per bushel	$ 8.27	$ 8.27	$ 8.27	
C. Net government payment	$ 13.03	$ 14.16	$ 15.29	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 219.78	$ 303.61	$ 387.44	
COSTS PER ACRE				
1. Seed	$ 43.40	$ 43.40	$ 43.40	
2. Herbicide	20.65	20.65	20.65	
3. Insecticide / Fungicide				
4. Fertilizer and Lime	14.57	18.49	22.40	
5. Crop Consulting				
6. Crop Insurance				
7. Drying				
8. Miscellaneous	6.25	6.25	6.25	
9. Custom Hire / Machinery Expense	57.04	60.31	63.76	
10. Non-machinery Labor	6.44	6.81	7.20	
11. Irrigation				
a. Labor				
b. Fuel and Oil				
c. Repairs and Maintenance				
d. Depreciation on Equipment and Well				
e. Interest on Equipment				
12. Land Charge / Rent	45.60	57.00	68.40	
G. SUB TOTAL	$ 193.95	$ 212.90	$ 232.06	
13. Interest on ½ Nonland Costs	5.56	5.85	6.14	
H. TOTAL COSTS	$ 199.51	$ 218.75	$ 238.20	
I. RETURNS OVER COSTS (F - H)	$ 20.26	$ 84.86	$ 149.25	
J. TOTAL COSTS/BUSHEL (H ÷ A)	$ 7.98	$ 6.25	$ 5.29	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	13.32%	42.60%	66.96%	

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