

Grain Sorghum Cost-Return Budget in Northeast Kansas

Department of Agricultural Economics



Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Bradley D. Lubben
Agricultural Economist, NE

Scott A. Staggenborg
Crops and Soils, NE

Kansas consistently ranks as the number one grain sorghum producing state in the nation. Although it is not the leading crop, grain sorghum is an important crop in northeast Kansas. As with many northeast Kansas crops, grain sorghum is produced using various crop rotation and tillage systems. This budget is based on grain sorghum 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 Northeast Kansas Farm Management Association, adjusting for trends over time. Based on K-State research findings, this budget assumes a higher yield for grain sorghum in rotation than would be expected for continuous grain sorghum 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 Topeka, Kan., accounting for government marketing loan price support levels. Grain sorghum producers in other areas

Table 1. Production Inputs — Grain Sorghum

Item	Yield Level (bu)			
	61	76	90	
Seed, lbs*	4.67	4.67	4.67	\$2.69/lb
Fertilizer:				
N (anhydrous)	32	48	61	\$0.20/lb
N	8	10	12	\$0.28/lb
P	27	34	41	\$0.23/lb
K	0	0	0	\$0.15/lb
Lime	500	500	500	\$0.01/lb
Herbicide				
Bicep II Magnum (PRE)	1.6	1.6	1.6	\$10.24/qt
Buctril + Atrazine	2.0	2.0	2.0	\$5.34/pt
Insecticide / Fungicide				

* Concep/Gaucho treated

of northeast 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 2. Machinery and Land Resources — Grain Sorghum

ITEM	Yield Level (bu)			Custom Rate	Farm Rate
	61	76	90		
Tillage/Planting/Chemical Applications:					
Chisel	0	0	0	\$7.61	\$9.76/a
Disk	0	0	0	\$6.34	\$8.13/a
Field cultivate	0	0	0	\$6.16	\$7.90/a
No-till plant	1	1	1	\$9.91	\$12.71/a
Anhydrous application	1	1	1	\$5.90	\$7.57/a
Fertilizer application	1	1	1	\$3.58	\$4.59/a
Herbicide application	2	2	2	\$3.81	\$4.89/a
Insecticide / fungicide application	0	0	0	\$3.90	\$5.00/a
Harvest					
Base charge	1	1	1	\$14.68	\$18.82/a
Extra charge for yields exceeding	35	35	35	\$0.130	\$0.167/bu
Hauling	61	76	90	\$0.126	\$0.162/bu
Non-machinery labor	0.76	0.82	0.87		\$10.00/hr
Land value/acre	\$793	\$991	\$1,189		5.75%
Interest on capital					7.0%

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 grain sorghum. Fertilizer requirements are adjusted up for the higher yields expected under rotation, allowing for a 30-pound-per-acre nitrogen credit following soybeans. Herbicide requirements include both pre-crop and in-crop treatments. Table 2 outlines the machinery and land resources used for grain sorghum in a no-till system.

COST-RETURN PROJECTION — GRAIN SORGHUM — NORTHEAST KANSAS

	Yield Level (bu)			Your Farm
	61	76	90	
INCOME PER ACRE				
A. Yield per acre	61	76	90	
B. Price per bushel	\$ 2.06	\$ 2.06	\$ 2.06	
C. Net government payment	\$ 15.40	\$ 16.74	\$ 18.08	
D. Indemnity payments	\$	\$	\$	
E. Miscellaneous income	\$	\$	\$	
F. Returns/acre ((A × B) + C + D + E)	\$ 141.06	\$173.30	\$203.48	
COSTS PER ACRE				
1. Seed	\$ 12.55	\$ 12.55	\$ 12.55	
2. Herbicide	27.06	27.06	27.06	
3. Insecticide / Fungicide				
4. Fertilizer and Lime	19.85	25.22	29.99	
5. Crop Consulting				
6. Crop Insurance				
7. Drying	7.93	9.88	11.70	
8. Miscellaneous	8.25	8.25	8.25	
9. Custom Hire / Machinery Expense	67.65	72.57	77.17	
10. Non-machinery Labor	7.64	8.20	8.72	
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	56.98	68.37	
G. SUB TOTAL	\$ 196.54	\$220.72	\$243.81	
13. Interest on 1/2 Nonland Costs	5.01	5.39	5.73	
H. TOTAL COSTS	\$ 201.54	\$226.11	\$249.54	
I. RETURNS OVER COSTS (F - H)	\$ -60.48	\$ -52.81	\$ -46.06	
J. TOTAL COSTS/BUSHEL (H ÷ A)	\$ 3.30	\$ 2.98	\$ 2.77	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-28.23%	-21.48%	-16.54%	

Publications from Kansas State University are available on the World Wide Web at: <http://www.oznet.ksu.edu>.

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Bradley D. Lubben and Scott A. Staggenborg, *Grain Sorghum Cost-Return Budget in Northeast Kansas*, Kansas State University, October 2003.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-573

October 2003

It is the policy of Kansas State University Agricultural Experiment Station and Cooperative Extension Service that all persons shall have equal opportunity and access to its educational programs, services, activities, and materials without regard to race, color, religion, national origin, sex, age or disability. Kansas State University is an equal opportunity organization. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, George E. Ham, Interim Director.