KANSAS FARM MANAGEMENT & MARKETING HANDBOOK

KSU Farm Management Guide MF-904

Grain Sorghum Cost-Return Budget (W-S-F Rotation) in Western Kansas

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Western Kansas grain producers enjoy near-complete planting flexibility under the 1996 Federal Agricultural Improvement and Reform Act. Despite this newly-obtained freedom to select from a vast array of choices to follow wheat in an intensive wheat summer crop-fallow program, grain sorghum is expected to continue as the number one choice of producers. Because of the arid nature of the area, grain sorghum has been an important crop to western Kansas for decades. Western Kansas farmers have increased nonirrigated grain sorghum acreage since 1980—an increase largely attributable to expanded use of intensive rotational cropping systems.

Yield Goals

Cost per bushel and net returns in crop production are highly dependent on yields. The following estimated budget includes three different yield levels. Yield goals vary for a number of reasons such as soil type/land quality, historical weather patterns, input levels, and management. Budgeting for alternative yield goals can help producers compare the profitability of crop enterprises on farmland tracts with varying yield potentials. Multi-peril crop insurance expenses are included in western Kansas crop budgets as a cost of managing production risk in an area prone to great yield variability.

Variable and Fixed Costs

Variable costs, such as fertilizer, repairs and fuel-oil, are costs that may vary with level of production. The cost columns show the interest on the variable costs (lines 1 through 13) for one-half year. Fixed costs do not vary with level of production and are incurred by virtue of owning assets such as land and machinery. Land values are not adjusted for alternative yield goals. In customizing this budget to fit your farm, attention should be given to using land values representative of your farm's productive capacity.

Profit and Return Factors

Projections of net percentage return on investment permit comparisons to be made among alternative enterprises or other investments. Asset turnover is the ratio of gross revenue to total investment in fixed assets. This financial measure represents the efficiency of capital use.

Table 1. Factors Used for Cost-Return Budget

Item	Yield Level (bu) 45	60	75	
Fertilizer:				
N (Anhy.)	40	40	60	$0.17/lb
N (Dry)	0	0	0	$0.30/lb
P	20	20	20	$0.28/lb
K	0	0	0	$0.13/lb
Lime	0	0	0	$0.005/lb
Seed, lbs	2	2	2	
Seed price, $/lb	$1.00	$1.00	$1.00	
Labor hours	1.20	1.20	1.20	
Labor price/hour				$9.00
Land value/acre*				$525
Land interest rate				6.00%
Land real estate tax rate				0.50%
Machinery investment**				$191
Machinery life				10 yrs
Salvage value				35.00%
Interest rate on machinery				10.00%
Insurance rate on machinery				0.25%
Interest on variable costs				10.00%

**All land costs were computed, and then mulitplied by a factor of 1.5 to account for fallow land (two crops every 3 years)*
***Investment required/crop and fallow acres.*

COST-RETURN PROJECTION — GRAIN SORGHUM — (W-S-F ROTATION) WESTERN KANSAS

	Yield Level (bu)			Your
	45	60	75	Farm
VARIABLE COSTS PER ACRE:[1]				
1. Labor	$ 10.80	$ 10.80	$ 10.80	
2. Seed	2.00	2.00	2.00	
3. Herbicide	15.05	15.05	15.05	
4. Insecticide	10.23	10.23	10.23	
5. Fertilizer and Lime	12.40	12.40	15.80	
6. Fuel and Oil	7.09	7.09	7.09	
7.				
8. Machinery and Equipment Repairs	12.40	12.40	12.40	
9.				
10. Crop Insurance	5.30	5.25	5.94	
11. Drying	4.50	6.00	7.50	
12. Custom Hire				
13. Crop Consulting				
14. Miscellaneous	5.00	5.00	5.00	
15. Interest on 1/2 Variable Costs	4.24	4.31	4.59	
A. TOTAL VARIABLE COSTS	$ 89.01	$ 90.53	$ 96.40	
FIXED COSTS PER ACRE:[1]				
16. Real Estate Taxes	3.94	3.94	3.94	
17 Interest on Land[2]	47.25	47.25	47.25	
18. Rent for Rented Land				
19. Depreciation on Crop Machinery	12.42	12.42	12.42	
20. Interest on Crop Machinery[3]	12.89	12.89	12.89	
21.				
22.				
23. Insurance on Machinery	0.48	0.48	0.48	
B. TOTAL FIXED COSTS	$ 76.97	$ 76.97	$ 76.97	
C. TOTAL COSTS (A + B)	$165.98	$167.50	$173.37	
D. YIELD PER ACRE	45	60	75	
E. PRICE PER BUSHEL[4]	$ 2.95	$ 2.95	$ 2.95	
F. NET GOVERNMENT PAYMENT[4]	$ 13.96	$ 13.96	$ 13.96	
G. RETURNS PER ACRE [(D × E) + F]	$ 146.71	$ 190.96	$235.21	
H. RETURNS OVER VARIABLE COSTS (G-A)	$ 57.70	$100.43	$138.81	
I. RETURNS OVER TOTAL COSTS (G-C)	$ –19.27	$ 23.46	$ 61.84	
J. VARIABLE COSTS PER BUSHEL (A ÷ D)	$ 1.98	$ 1.51	$ 1.29	
K. FIXED COSTS PER BUSHEL (B ÷ D)	$ 1.71	$ 1.28	$ 1.03	
L. TOTAL COSTS PER BUSHEL (C ÷ D)	$ 3.69	$ 2.79	$ 2.31	
M. ASSET TURNOVER (G ÷ INVESTMENT)[5]	14.99%	19.52%	24.04%	
N. NET RETURN ON INVESTMENT [(I+15+17+20) ÷ INVESTMENT][5]	4.61%	8.98%	12.93%	

[1]*Totals were derived using information listed in Table 1.*
[2]*Assumes interest rate shown in Table 1.*
[3]*Assumes one-half the average investment [(initial investment + salvage value) ÷ 2] at the interest rate shown in Table 1.*
[4]*See MF-1013 "Prices for Crop and Livestock Cost-Return Budgets" and MF-2236 "Government Program Payments for Crop Cost Return Budgets" for additional information on crop prices and program payments.*
[5]*Investment equals total value of all fixed assets shown in Table 1.*

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