Farm Management Guide MF-903

Wheat Cost-Return Budget in Western Kansas

Department of Agricultural Economics

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Daniel M. O'Brien
Agricultural Economist, NW

Roger Stockton
Crops and Soils, NW

Troy J. Dumler
Agricultural Economist, SW

Curtis R. Thompson
Crops and Soils, SW

The state of Kansas ranked first in the nation in winter wheat production in 2001 and 2002 with 328 million and 264 million bushels, respectively. Harvested acreage of winter wheat in Kansas was 8.2 million acres in 2001, and 8 million acres in 2002.

The position of wheat in many western Kansas cropping systems has changed, as many producers have switched away from traditional wheat-fallow rotations to more intensive wheat-summer crop-fallow cropping systems during the last decade. This transition has been encouraged by increased planting flexibility in recent government farm programs and by competitive pressure placed on farmers to increase the profitability of nonirrigated crop enterprises.

The goal of farmers using these more intensive rotations is to increase crop production and income through effective soil moisture conservation and utilization. Wheat is an essential crop in these intensive dryland cropping systems, providing valuable residue for following summer crops. In no-till conditions, university research shows that wheat residue provides approximately 30 percent greater water infiltration than grain sorghum residue. Wheat is also the only winter annual crop in western Kansas rotations, providing a break in the growth cycle of summer annual weeds.

There are four recognized phases to a three-year wheat-summer crop-fallow rotation. Phase 1 is the period of winter wheat production, lasting approximately 9 months (September 15 of year 1 to July 1 of year 2). Phase 2 is the period of winter wheat stubble, covering 10 or 11 months (July 1 of year 2 to May or June of year 3). Phase 3 is the summer crop production period of approximately 4-5 months (May-June of year 3 to October of year 3). Phase 4 is the time of summer crop stubble, lasting approximately 11 months (October of year 3 to September 15 of year 4). The primary spring crops to be considered in rotation with wheat in this cropping system and their associated Farm Management Guides are as follows: grain sorghum (MF-904), corn (MF-2150), oil-type and confectionary sunflowers (MF-887), cane hay (MF-997), and soybeans (MF-2366).

The conventional wheat-fallow rotation has been a mainstay crop enterprise for many years in western Kansas. The 14- to 15-month fallow period (from July harvest to wheat seeding in September or October of the following year) in this rotation has traditionally served as a time to accumulate soil moisture to be used by the following wheat crop. Although many crop producers in this region are now using wheat-summer crop-fallow or even more intensive cropping systems, the wheat-fallow rotation still is used by a number

Table 1A. *Production Inputs — Wheat-Fallow*

Item	Yield Level (bu) 30	40	50	
Seed, lbs	50	65	80	$0.09/lb
Fertilizer:				
N (anhydrous)	53	70	88	$0.13/lb
N	0	0	0	$0.22/lb
P	17	23	28	$0.22/lb
K	0	0	0	$0.14/lb
Lime	0	0	0	$0.01/lb
Herbicide				
RT Master	24.0	24.0	24.0	$0.19/oz
+ 2, 4-D	1.0	1.0	1.0	$1.90/pt
Ally	0.1	0.1	0.1	$23.42/oz
+ Banvel	4.0	4.0	4.0	$0.71/oz
Insecticide / Fungicide				

Table 1B. *Production Inputs — Wheat-Summer Crop-Fallow*

Item	Yield Level (bu) 30	40	50	
Seed, lbs	50	65	80	$0.09/lb
Fertilizer:				
N (anhydrous)	53	70	88	$0.13/lb
N	0	0	0	$0.22/lb
P	17	23	28	$0.22/lb
K	0	0	0	$0.14/lb
Lime	0	0	0	$0.01/lb
Herbicide				
RT Master	24.0	24.0	24.0	$0.19/oz
+ 2, 4-D	1.0	1.0	1.0	$1.90/pt
Ally	0.1	0.1	0.1	$23.42/oz
+ Banvel	4.0	4.0	4.0	$0.71/oz
Insecticide / Fungicide				

of western Kansas farmers. Farmers may choose not to adopt more intensive cropping systems because of a) the change in management expertise required to make such intensive cropping systems work, b) the additional input costs of the intensive systems, or c) other special soil type/field conditions on their farms that limit the effectiveness of the more intensive rotations.

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. Producers can compare the profitability of crop enterprises on farmland tracts with varying yield potential by considering alternative expected yield scenarios. 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 and local farmland market conditions.

Price per bushel represents an expected harvest price in Scott City, Kan, accounting for government marketing loan price support levels. Wheat producers in other regions of western Kansas should use an expected price that is representative for their location.

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. Historically, crop insurance indemnity payments have typically exceeded premiums due to government subsidies.

Costs Per Acre

Production costs for three alternative production 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

Table 2A. *Machinery and Land Resources — Wheat-Fallow*

	Yield Level (bu)			
Item	30	40	50	
Tillage/Planting/Chemical Applications:				
Sweep	3	3	3	$5.49/ac
Disk	0	0	0	$5.74/ac
Field cultivate	1	1	1	$5.49/ac
Drill	1	1	1	$6.29/ac
Anhydrous application	1	1	1	$5.58/ac
Fertilizer application	0	0	0	$3.66/ac
Herbicide application	4	4	4	$3.66/ac
Insecticide application	0	0	0	$3.74/ac
Harvest				
Base charge	1	1	1	$13.01/ac
Extra charge for yields exceeding	20	20	20	$0.130/bu
Hauling	30	40	50	$0.129/bu
Non-machinery labor	0.50	0.50	0.50	$10.00/hr
Irrigation labor	0.00	0.00	0.00	$10.00/hr
Land value/acre	$409	$511	$613	5.75%
Interest on capital				8.0%

Table 2B. *Machinery and Land Resources — Wheat-Summer Crop-Fallow*

	Yield Level (bu)			
Item	30	40	50	
Tillage/Planting/Chemical Applications:				
Sweep	2	2	2	$5.49/ac
Disk	0	0	0	$5.74/ac
Field cultivate	0	0	0	$5.49/ac
Drill	1	1	1	$6.29/ac
Anhydrous application	1	1	1	$5.58/ac
Fertilizer application	0	0	0	$3.66/ac
Herbicide application	2	2	2	$3.66/ac
Insecticide application	0	0	0	$3.74/ac
Harvest				
Base charge	1	1	1	$13.01/ac
Extra charge for yields exceeding	20	20	20	$0.130/bu
Hauling	30	40	50	$0.129/bu
Non-machinery labor	0.50	0.50	0.50	$10.00/hr
Irrigation labor	0.00	0.00	0.00	$10.00/hr
Land value/acre	$409	$511	$613	5.75%
Interest on capital				8.0%

expenses in these budgets. Tables 1A and 1B identify the typical seed, fertilizer, herbicide, and insecticide requirements (rate and cost/unit) for conventional-till wheat in a wheat-fallow cropping system, and for reduced-till wheat in a wheat-summer crop-fallow cropping system, respectively. Herbicide requirements include both pre-crop and in-crop treatments, and are greater in the reduced-till wheat-summer crop-fallow cropping system. Tables 2A and 2B outline the field operations and land resources used for conventional-till wheat-fallow and for reduced-till wheat in a wheat summer crop-fallow cropping system. Each tillage, planting, and harvest operation is identified.

Other Wheat Production Management Resources

K-State Research and Extension has a number of resources available relating to wheat production and marketing. The "Kansas Wheat Production Handbook," C-529, provides information on recommended wheat production practices. More information on wheat variety performance, insect, weed and disease management, market prospects, wheat residue and yield estimation, and other wheat production and marketing information can be obtained through local K-State Research and Extension offices or via the K-State Research and Extension Wheat website, *www.oznet.ksu.edu/wheatpage/agronomy.htm.*

COST-RETURN PROJECTION—WHEAT (W-F ROTATION)—WESTERN KANSAS

	Yield Level (bu) 30	40	50	Your Farm
INCOME PER ACRE				
A. Yield per acre	30	40	50	
B. Price per bushel	$ 3.49	$ 3.49	$ 3.49	
C. Net government payment	$ 15.02	$ 16.33	$ 17.63	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 119.72	$ 155.93	$ 192.13	
COSTS PER ACRE				
1. Seed	$ 4.50	$ 5.85	$ 7.20	
2. Herbicide	11.59	11.59	11.59	
3. Insecticide / Fungicide				
4. Fertilizer and Lime	10.63	14.16	17.60	
5. Crop Consulting				
6. Crop Insurance				
7. Drying				
8. Miscellaneous	5.50	5.50	5.50	
9. Custom Hire / Machinery Expense	66.65	69.24	71.83	
10. Non-machinery Labor	5.00	5.00	5.00	
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	47.04	58.77	70.50	
G. SUB TOTAL	$ 150.91	$ 170.11	$ 189.22	
13. Interest on ½ Nonland Costs	4.15	4.45	4.75	
H. TOTAL COSTS	$ 155.06	$ 174.56	$ 193.96	
I. RETURNS OVER COSTS (F - H)	$ –35.34	$ –18.63	$ –1.83	
J. TOTAL COSTS/BUSHEL (H ÷ A)	$ 5.17	$ 4.36	$ 3.88	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-20.67%	-8.34%	1.54%	

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

	Yield Level (bu) 30	40	50	Your Farm
INCOME PER ACRE				
A. Yield per acre	30	40	50	
B. Price per bushel	$ 3.49	$ 3.49	$ 3.49	
C. Net government payment	$ 11.26	$ 12.24	$ 13.22	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 115.96	$ 151.84	$ 187.72	
COSTS PER ACRE				
1. Seed	$ 4.50	$ 5.85	$ 7.20	
2. Herbicide	11.59	11.59	11.59	
3. Insecticide / Fungicide				
4. Fertilizer and Lime	10.63	14.16	17.60	
5. Crop Consulting				
6. Crop Insurance				
7. Drying				
8. Miscellaneous	5.50	5.50	5.50	
9. Custom Hire / Machinery Expense	48.35	50.94	53.53	
10. Non-machinery Labor	5.00	5.00	5.00	
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	35.28	44.07	52.87	
G. SUB TOTAL	$ 120.85	$ 137.11	$ 153.29	
13. Interest on 1/2 Nonland Costs	3.42	3.72	4.02	
H. TOTAL COSTS	$ 124.27	$ 140.84	$ 157.31	
I. RETURNS OVER COSTS (F - H)	$ –8.30	$ 11.01	$ 30.42	
J. TOTAL COSTS/BUSHEL (H ÷ A)	$ 4.14	$ 3.52	$ 3.15	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-4.04%	10.74%	22.46%	

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