Center-Pivot-Irrigated Sunflowers Cost-Return Budget in Western Kansas

K-STATE Research and Extension

Department of Agricultural Economics — *www.agmanager.info*

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Kevin C. Dhuyvetter, Agricultural Economist, Farm Management
Daniel M. O'Brien, Agricultural Economist, Crop Marketing
Lucas Haag, Crops and Soils, NW
Jeanne Falk Jones, Multi-County Agronomy Specialist
John Holman, Cropping Systems Agronomist

The information in this projected budget reflects expected income and costs based on typical production practices in the region. These values should be used as a guide, but individuals are encouraged to use their own values reflecting their specific land productive capabilities and farming system when looking at the potential costs and returns for their operations.

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 the Kansas Farm Management Association in the region, adjusting for trends over time. Cash rent for land has been adjusted for alternative yield levels in this budget. In customizing a budget to your farm, attention should be given to using land values (i.e., rents) that are representative of your farm's productive capacity and local farmland market conditions.

Output price represents an expected harvest price in the region. Typically a reasonable price forecast for most crops is to use the futures market adjusted by the historical basis for a particular location, where basis equals cash price minus futures price. Silage prices are based on corresponding crop prices. See MF1013 for more detailed information on price forecasts.

Because the yields used in the budgets reflect average expected yields, there is no crop insurance indemnity payment included in income. Crop insurance premiums will vary tremendously based on many factors (proven yield, coverage level, type of insurance policy). Crop insurance premiums included as costs reflect an expected net premium paid on average given the expected revenue.

Costs Per Acre

Production costs at the three yield levels are shown on lines 1 through 13. Projected 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/fungicide costs. Fertilizer rates are based on removal with adjustments for local conditions. Table 1 also includes inches of irrigation water applied and pumping cost per inch. Table 2 outlines the machinery operations assumed, investment in irrigation equipment, non-machinery labor, and land cash rent.

Table 1A. *Production Inputs — Center-Pivot-Irrigated Oil-Type Sunflower*

	Yield Level (lbs/a)			
Item	1,800	2,400	3,000	
Seed, 1,000/a	23.4	23.4	23.4	$1.52/1,000
Fertilizer:				
N (anhydrous)	58	78	97	$0.39/lb
N	0	0	0	$0.55/lb
P	17	23	29	$0.52/lb
K	0	0	0	$0.45/lb
Lime	0	0	0	$0.015/lb
Herbicide				
Preemergence	1	1	1	$40.86/a
Postemergence	0.3	1	1	$18.00/a
Insecticide / Fungicide				
Insecticide	1	2	2	$5.85/a
Irrigation water, in	8	10	12	$3.03/in

Table 1B. *Production Inputs — Center-Pivot-Irrigated Confectionary Sunflower*

	Yield Level (lbs/a)			
Item	1,700	2,200	2,600	
Seed, 1,000/a	17.6	17.6	17.6	$1.87/1,000
Fertilizer:				
N (anhydrous)	55	71	84	$0.39/lb
N	0	0	0	$0.55/lb
P	16	21	25	$0.52/lb
K	0	0	0	$0.45/lb
Lime	0	0	0	$0.015/lb
Herbicide				
Preemergence	1	1	1	$40.86/a
Postemergence	0.2	0.2	0.2	$5.40/a
Insecticide / Fungicide				
Insecticide	2	2	2	$5.85/a
Irrigation water, in	8	10	12	$3.03/in

Table 2A. *Machinery and Land Resources — Center-Pivot-Irrigated Oil-Type Sunflower*

Item	Yield Level (lbs/a) 1,800	2,400	3,000	Custom Rate
Tillage/Planting/Chemical Applications:				
Chisel	1	1	1	$10.89/a
Disk	1	1	1	$10.39/a
Field cultivate	1	1	1	$10.18/a
Plant	1	1	1	$16.09/a
Anhydrous application	1	1	1	$12.47/a
Fertilizer application	0	0	0	$6.25/a
Herbicide application	2	2	2	$5.87/a
Insecticide / fungicide application	2	2	2	$5.92/a
Harvest				
Base charge	1	1	1	$28.27/a
Extra charge for yields exceeding	15	15	15	$0.0032/lb
Hauling	1,800	2,400	3,000	$0.0044/lb
Non-machinery labor	1.20	1.20	1.20	$15.00/hr
Irrigation labor	0.50	0.50	0.50	$15.00/hr
Land charge/rent	$87.00	$127.00	$167.00	
Interest on capital				6.5%
Irrigation Equipment	Investment, $/a		Years	Salvage value
Well, pump and gearhead value	$440.00		25	0%
Power unit and meter	$131.00		7	0%
Irrigation system	$575.00		25	25%

Table 2B. *Machinery and Land Resources — Center-Pivot-Irrigated Confectionary Sunflower*

Item	Yield Level (lbs/a) 1,700	2,200	2,600	Custom Rate
Tillage/Planting/Chemical Applications:				
Chisel	1	1	1	$10.89/a
Disk	1	1	1	$10.39/a
Field cultivate	1	1	1	$10.18/a
Plant	1	1	1	$16.09/a
Anhydrous application	1	1	1	$12.47/a
Fertilizer application	0	0	0	$6.25/a
Herbicide application	2	2	2	$5.87/a
Insecticide / fungicide application	2	2	2	$5.92/a
Harvest				
Base charge	1	1	1	$28.27/a
Extra charge for yields exceeding	15	15	15	$0.0032/lb
Hauling	1,700	2,200	2,600	$0.0044/lb
Non-machinery labor	1.20	1.20	1.20	$15.00/hr
Irrigation labor	0.50	0.50	0.50	$15.00/hr
Land charge/rent	$87.00	$127.00	$167.00	
Interest on capital				6.5%
Irrigation Equipment	Investment, $/a		Years	Salvage value
Well, pump and gearhead value	$440.00		25	0%
Power unit and meter	$131.00		7	0%
Irrigation system	$575.00		25	25%

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED OIL-TYPE SUNFLOWERS

	Yield Level (lbs/a)			Your
	1,800	**2,400**	**3,000**	**Farm**
INCOME PER ACRE				
A. Yield per acre	1,800	2,400	3,000	
B. Price per hundredweight	$ 19.35	$ 19.35	$ 19.35	
C. Net government payment	$	$	$	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 348.30	$ 464.40	$ 580.50	
COSTS PER ACRE				
1. Seed	$ 35.57	$ 35.57	$ 35.57	
2. Herbicide	46.26	58.86	58.86	
3. Insecticide / Fungicide	5.85	11.71	11.71	
4. Fertilizer and Lime	31.46	42.38	52.91	
5. Crop Consulting	6.50	6.50	6.50	
6. Crop Insurance*	0.00	0.00	2.68	
7. Drying				
8. Miscellaneous	10.00	10.00	10.00	
9. Custom Hire / Machinery Expense	125.49	130.05	134.61	
10. Non-machinery Labor	18.00	18.00	18.00	
11. Irrigation				
a. Labor	7.50	7.50	7.50	
b. Fuel and Oil	24.24	30.30	36.36	
c. Repairs and Maintenance	2.64	3.30	3.96	
d. Depreciation on Equipment and Well	53.56	53.56	53.56	
e. Interest on Equipment and Well	41.92	41.92	41.92	
12. Land Charge / Rent	87.00	127.00	167.00	
G. SUB TOTAL	$ 495.99	$ 576.64	$ 641.13	
13. Interest on ½ Nonland Costs	10.19	11.51	12.31	
H. TOTAL COSTS	$ 506.18	$ 588.16	$ 653.44	
I. RETURNS OVER COSTS (F - H)	$ -157.88	$ -123.76	$ -72.94	
J. TOTAL COSTS/CWT ((H ÷ A) × 100)	$ 28.12	$ 24.51	$ 21.78	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-29.78%	-19.47%	-9.46%	

** Reflects expected net premium paid.*

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED CONFECTIONARY SUNFLOWERS

	Yield Level (lbs/a)			Your
	1,700	2,200	2,600	Farm
INCOME PER ACRE				
A. Yield per acre	1,700	2,200	2,600	
B. Price per hundredweight	$ 33.25	$ 33.25	$ 33.25	
C. Net government payment	$	$	$	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 565.25	$ 731.50	$ 864.50	
COSTS PER ACRE				
1. Seed	$ 32.91	$ 32.91	$ 32.91	
2. Herbicide	41.94	41.94	41.94	
3. Insecticide / Fungicide	11.71	11.71	11.71	
4. Fertilizer and Lime	29.77	38.61	45.76	
5. Crop Consulting	6.50	6.50	6.50	
6. Crop Insurance*	5.82	12.18	16.88	
7. Drying				
8. Miscellaneous	10.00	10.00	10.00	
9. Custom Hire / Machinery Expense	124.73	128.53	131.57	
10. Non-machinery Labor	18.00	18.00	18.00	
11. Irrigation				
a. Labor	7.50	7.50	7.50	
b. Fuel and Oil	24.24	30.30	36.36	
c. Repairs and Maintenance	2.64	3.30	3.96	
d. Depreciation on Equipment and Well	53.56	53.56	53.56	
e. Interest on Equipment and Well	41.92	41.92	41.92	
12. Land Charge / Rent	87.00	127.00	167.00	
G. SUB TOTAL	$ 498.24	$ 563.96	$ 625.57	
13. Interest on ½ Nonland Costs	10.26	11.10	11.80	
H. TOTAL COSTS	$ 508.50	$ 575.06	$ 637.37	
I. RETURNS OVER COSTS (F - H)	$ 56.75	$ 156.44	$ 227.13	
J. TOTAL COSTS/CWT ((H ÷ A) × 100)	$ 29.91	$ 26.14	$ 24.51	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	13.45%	29.71%	38.19%	

** Reflects expected net premium paid.*

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