2024

### Irrigated Grain Sorghum (center-pivot) Cost-Return Budget Southwest KS

Date: Nov-01-2023

The following pages represent a single crop budget but at 3 levels of detail and for 3 planning yield levels

Abstract level budget - The most summarized version of a budget. (e.g., a single line represents all fertilizer costs)

Summary level budget - A more detailed crop budget. (e.g., Fertilizer is broken out into N, P, K)

Detailed level budget - All the detail for producing a crop. (e.g., The specific fertilizers are listed).

Middle yield - The basic crop budget for a region and crop.

A detailed, summary, and abstract level budget are included for the middle yield.

Low and High yield - Budgets based on the middle yield but with a lower/higher yield goal (and irrigation level).

These high and low yield level budgets only include the abstract level budgets.

The 2 tables below are sensitivity tables that show the returns over direct costs and the returns over total costs.

The tables have the basic budget price in the middle column

On either side of the base price are potential prices 5% and 10% above and below this base price

For irrigated budgets the 3 yield levels are also associated with different irrigation levels

- 10.5 inches of water for LOW yields
- 12.0 inches of water for MIDDLE yields
- 13.5 inches of water for HIGH yields

#### TABLE 1. RETURNS OVER DIRECT COSTS

			F	Prices			
		\$4.59	\$4.84	\$5.10	\$5.35	\$5.60	
	=== 144.0	====== \$348	\$384	====== \$421	====== \$458	===== \$494	Low yield
Yields	160.0 II	\$366	\$407	\$448	\$488	\$529	Middle yield
	172.0 II	\$440	\$484	\$528	\$571	\$615	High yield

#### TABLE 2. RETURNS OVER TOTAL COSTS

			F	Prices			
		\$4.59	\$4.84	\$5.10	\$5.35	\$5.60	
	===	======	======	======		====	
	144.0 II	-\$104	-\$67	-\$31	\$6	\$43	Low yield
Yields	160.0 II	-\$86	-\$45	-\$4	\$37	\$77	Middle yield
	172.0 II	-\$12	\$32	\$76	\$120	\$163	High yield

Budget abstract

Date: Nov-01-2023

Gregg Ibendahl, Daniel O'Brien, Lucas Haag, and Sarah Lancaster price quantity amount Sub-total your farm item unit **INCOME Product** Grain Sorghum - Southwest KS bu \$5.10 160.00 \$815.22 \$815.22 \$815.22 \_\_\_\_ --TOTAL INCOME--**DIRECT EXPENSES** \$0.60 \_\_\_\_\_ Additional labor \$7.28 Crop consulting \$27.25 Crop insurance \$33.78 \_\_\_\_\_ **Custom Operations** \$12.57 \_\_\_\_\_ Diesel **Fertilizers** \$116.15 \$62.61 \_\_\_\_\_ Herbicides Irrigation energy (NG) ------\$32.35 \$8.16 \_\_\_\_\_ Irrigation labor Miscellaneous \$12.10 \_\_\_\_\_ \$5.98 \_\_\_\_\_ Operator labor \$16.44 \_\_\_\_\_ Repair & Maintenance -------\$18.12 \_\_\_\_\_ Seeds Interest on operating capital \$14.14 \_\_\_\_\_ 8% percent on direct expenses --TOTAL DIRECT EXPENSES--\$367.53 -----Total direct expenses per bu \$2.3 **FIXED EXPENSES** \$168.00 \_\_\_\_\_ Cash rent Capital recovery (depreciation + interest) \$283.85 --TOTAL FIXED EXPENSES--\$451.85 -----Total expenses per bu \$5.12 ======= RETURNS ABOVE DIRECT EXPENSES \$447.70

12 acre-inches of water applied 300 foot well depth \$ 2.7 fuel cost per acre-inch of water applied .71 Mcf of natural gas per acre-inch of water applied \$ 3.78 per Mcf for cost of natural gas 8.56 Mcf of fuel used in total

RETURNS ABOVE TOTAL SPECIFIED EXPENSES

-\$4.15

# 2024 Irrigated Grain Sorghum (center-pivot) Cost-Return Budget -----Southwest KS - MIDDLE YIELDS Gregg Ibendahl, Daniel O'Brien, Lucas Haag, and Sarah Lancaster

Summary page(s)

Date: Nov-01-2023

Crain Sorphum - Southwest KS	item INCOME Product		unit	price	quantity	amount	Sub-total	your farm
DIRECT EXPENSES   Irrigation		Southwest KS	bu	\$5.10	160.00	\$815.22	\$815.22	
Irrigation   Additional labor   Planting   S0.47   Spraying   S0.13   S0.60	TOTAL INCOME						\$815.22	
Additional labor   Flanting   \$0.47   \$0.13   \$0.60   \$0.13	DIRECT EXPENSES							
Planting   \$0.47   \$0.13   \$0.60	Irrigation -							
Spraying						ΦΟ 47		
S7.28   S7.28   S7.28   Crop insurance   S27.25   S27.2	_						\$0.60	
Crop insurance	Crop consulting							
Custom Operations Hauling S33.78 S33.78 S33.78 S33.78 S33.78  Diesel Harvesting S55.63 Hauling S57.29 Planting S1.21 Spraying S1.21 Spraying S1.27 Fertilizers Nitrogen Phosphorus Phosphorus Ibs S0.63 121.00 \$76.47 Phosphorus Ibs S0.64 62.00 \$39.68 Potassitum Ibs S0.00 0.00 \$00.00 Lime Ibs \$0.00 0.00 \$0.00  Lime Ibs \$0.00 0.00 \$0.00  Irrigation energy (NG) Irrigation energy (NG) Irrigation S32.35 Irrigation labor Irrigation S32.35 S32.35 Irrigation labor Irrigation S32.35 Irrigation sergy Irrigation S32.35 S32.35 Irrigation labor Irrigation S32.35 Irrigation solution Irrigation S32.35 S32.35 Irrigation solution S32.35 S32.35 Irrigation solution S32.35 Irrigation solution S32.35 S32.35 Irrigation solution S32.35 S32.35 Irrigation solution S32.35 Irrigation solution S32.35 S32.35 Irrigation S32.35 S32.35 Irrigati						\$7.28	\$7.28	
Custom Operations	Crop insurance					\$27 25	\$27 25	
Diesel   Harvesting   \$5.63   Hauling   \$5.63   Hauling   \$3.29   Hauling   \$1.21   Spraying   \$1.21   Spraying   \$1.257						ΨΕΤ.20	ΨΕ1.20	
Harvesting	•					\$33.78	\$33.78	
Hauling   \$3.29   Planting   \$1.21	Diesel							
Planting	•							
Spraying   St.08   Tillage   St.08   Tillage   St.08   St.37   St2.57   St.08   St.37   St2.57   St.08   St.09   St.	<del>-</del>							
Tillage \$1.37 \$12.57	<del>-</del>							
Nitrogen   Ibs   \$0.63   121.00   \$76.47   Phosphorus   Ibs   \$0.64   62.00   \$39.68   Potassium   Ibs   \$0.00   0.00   \$0.00   Lime   Ibs   \$0.00   0.00   \$0.00   \$116.15							\$12.57	
Phosphorus	Fertilizers							
Potassium   Ibs   \$0.00   0.00   \$0.								
Lime     lbs     \$0.00     \$0.00     \$116.15       Herbicides								
Sec. 61   Sec.							\$116.15	
Irrigation energy (NG)	Herbicides							
Irrigation       \$32.35       \$32.35         Irrigation labor       \$8.16       \$8.16         Irrigation       \$8.16       \$8.16         Miscellaneous       \$12.10       \$12.10         Operator labor       \$2.04       \$4.20         Hauling       \$2.04       \$0.75         Spraying       \$0.75       \$0.42         Tillage       \$0.72       \$5.98         Repair & Maintenance       \$6.15       \$1.20         Hauling       \$2.16       \$2.16         Irrigation       \$4.32       \$1.20         Planting       \$2.42       \$2.42						\$62.61	\$62.61	
Irrigation labor       \$8.16       \$8.16						¢22.25	¢22.25	
Irrigation       \$8.16       \$8.16	-					φ32.33	φ32.33	
Miscellaneous       \$12.10       \$12.10	_					\$8.16	\$8.16	
Operator labor       \$2.04         Harvesting       \$2.04         Hauling       \$2.04         Planting       \$0.75         Spraying       \$0.42         Tillage       \$0.72       \$5.98         Repair & Maintenance         Harvesting       \$6.15         Hauling       \$2.16         Irrigation       \$4.32         Planting       \$2.42						·	·	
Harvesting       \$2.04         Hauling       \$2.04         Planting       \$0.75         Spraying       \$0.42         Tillage       \$0.72       \$5.98         Repair & Maintenance         Harvesting       \$6.15         Hauling       \$2.16         Irrigation       \$4.32         Planting       \$2.42	iviiscellarieous 					\$12.10	\$12.10	
Harvesting       \$2.04         Hauling       \$2.04         Planting       \$0.75         Spraying       \$0.42         Tillage       \$0.72       \$5.98         Repair & Maintenance         Harvesting       \$6.15         Hauling       \$2.16         Irrigation       \$4.32         Planting       \$2.42	Operator labor							
Planting       \$0.75         Spraying       \$0.42         Tillage       \$0.72       \$5.98         Repair & Maintenance       \$6.15         Harvesting       \$2.16         Irrigation       \$4.32         Planting       \$2.42	•					\$2.04		
Spraying       \$0.42         Tillage       \$0.72       \$5.98         Repair & Maintenance         Harvesting       \$6.15         Hauling       \$2.16         Irrigation       \$4.32         Planting       \$2.42	<del>-</del>							
Tillage       \$0.72       \$5.98         Repair & Maintenance       Harvesting       \$6.15         Hauling       \$2.16         Irrigation       \$4.32         Planting       \$2.42	<del>-</del>							
Harvesting							\$5.98	
Hauling	Repair & Maintenance							
Irrigation	_							
Planting \$2.42	_							
	_							
	Spraying -					\$2.42 \$0.46		

Summary page(s)

tem	unit	price	quantity	amount	Sub-total	your farm
Tillage				\$0.93	\$16.44	
Seeds				¢10.10	<b>#10.10</b>	
				\$18.12	\$18.12	
Interest on operating capital	8% pe	rcent on o	direct expens	es \$14.14	\$14.14	
TOTAL DIRECT EXPENSESTotal direct expenses per bu \$2.3					\$367.53	
IXED EXPENSES  Cash rent						
				\$168.00	\$168.00	
Capital recovery (depreciation + interest)						
Harvesting Hauling				\$25.37 \$8.35		
Irrigation				\$234.04		
Planting				\$6.99		
Spraying Tillage				\$3.59 \$5.50	\$283.85	
TOTAL FIXED EXPENSES					\$451.85	
Total expenses per bu \$5.12						
RETURNS ABOVE DIRECT EXPENSES					\$447.70	
RETURNS ABOVE TOTAL SPECIFIED EXPENSES					-\$4.15	

12 acre-inches of water applied
300 foot well depth
\$ 2.7 fuel cost per acre-inch of water applied
.71 Mcf of natural gas per acre-inch of water applied
\$ 3.78 per Mcf for cost of natural gas
8.56 Mcf of fuel used in total

Gregg Ibendahl, Daniel O'Brien, Lucas Haag, and Sarah Lancaster

Detailed budget page(s)

Date: Nov-01-2023

amount Sub-total your farm price quantity item unit **INCOME Product** \$815.22 Grain Sorghum - Southwest KS bu \$5.10 160.00 \$815.22 Other Govt payments, indemnity payments, etc. \$815.22 --TOTAL INCOME--DIRECT EXPENSES Irrigation ? hour Additional labor **Planting** \$15.00 0.03 \$0.47 Plant - Folding\_24R-30 with Tractor(180-199hp)CB hour Spraying \$0.60 \_\_\_\_\_ 0.01 Sprayer 1200+gal\_120' 300hp with Sprayer 1200+gal \$15.00 \$0.13 hour Crop consulting \$7.28 Grain Sorghum\_West\_Irr \$7.28 1.00 \$7.28 acre Crop insurance \$27.25 \_\_\_\_ Grain Sorghum\_West\_Irr \$27.25 1.00 \$27.25 acre **Custom Operations** Hauling Hauling sorghum \$33.78 \$0.21 160.00 \$33.78 bu Diesel Harvesting Header Wheat/Sorghum\_30' Rigid with Combine (300-349 gal \$3.95 1.42 \$5.63 Hauling Grain Cart Wht/Sor\_1000 bu with Tractor(180-199hp)CB \$3.95 0.83 \$3.29 gal Planting Plant - Folding\_24R-30 with Tractor(180-199hp)CB \$3.95 0.31 \$1.21 gal Spraying Sprayer 1200+gal\_120' 300hp with Sprayer 1200+gal \$3.95 0.27 \$1.08 gal Tillage \$3.95 0.35 \$1.37 Field Cultivate Fld\_50' with Tractor(200-249hp)CB gal \$12.57 \_\_\_\_\_ **Fertilizers** MAP (11-52-0) lb \$0.40 120.00 \$48.00 \$0.29 \$68.15 lb 235.00 Urea \$116.15 --- ACTUAL POUNDS - 121 lb - N, 62 lb - P, 0 lb - K Herbicides ----2.4-D LV Ester \$0.18 8.00 \$1.44 ΟZ \$2.73 1.80 \$4.91 Atrazine 4L pt \$5.73 \$12.04 Bicep II Magnum 2.10 pt Dicamba \$0.69 12.00 \$8.33 ΟZ 32.00 Glyphosate \$0.43 \$13.81 ΟZ \$62.61 \$8.18 \$22.08 Lumax EZ 2.70 pt

Irrigation energy (NG)

Irrigation

Gregg Ibendahl, Daniel O'Brien, Lucas Haag, and Sarah Lancaster

Detailed budget page(s)

Date: Nov-01-2023

amount Sub-total your farm item unit price quantity \$2.70 12.00 \$32.35 \$32.35 Well, pump, and gearhead ac-in Irrigation labor Irrigation \$8.16 \_\_\_\_\_ Well, pump, and gearhead \$17.00 0.48 \$8.16 hour Miscellaneous Grain Sorghum\_West\_Irr 1.00 \$12.10 \_\_\_\_\_ acre \$12.10 \$12.10 Operator labor Harvesting Header Wheat/Sorghum\_30' Rigid with Combine (300-349 hour \$20.00 0.10 \$2.04 Hauling Grain Cart Wht/Sor\_1000 bu with Tractor(180-199hp)CB \$20.00 \$2.04 0.10 hour Planting Plant - Folding 24R-30 with Tractor(180-199hp)CB \$20.00 0.04 \$0.75 hour Spraying Sprayer 1200+gal\_120' 300hp with Sprayer 1200+gal \$20.00 0.02 \$0.42 hour Tillage \$5.98 \_\_\_\_\_ Field Cultivate Fld\_50' with Tractor(200-249hp)CB \$20.00 0.04 \$0.72 hour Repair & Maintenance Harvesting Header Wheat/Sorghum\_30' Rigid with Combine (300-349 Hour 0.09 \$6.15 \$72.27 Hauling Grain Cart Wht/Sor\_1000 bu with Tractor(180-199hp)CB \$25.32 0.09 \$2.16 Hour Irrigation 12.00 ac-in 12.00 \$0.36 \$4.32 Well, pump, and gearhead ac-in 0.03 \$2.42 Plant - Folding\_24R-30 with Tractor(180-199hp)CB \$77.10 Hour Spraying \$52.39 0.01 Sprayer 1200+gal\_120' 300hp with Sprayer 1200+gal Hour \$0.46 \$16.44 \_\_\_\_\_ Field Cultivate Fld\_50' with Tractor(200-249hp)CB \$31.08 0.03 \$0.93 Hour Seeds lb \$3.40 5.33 \$18.12 \$18.12 \_\_\_\_\_ Milo - concep treated Interest on operating capital 8% percent on direct expenses \$14.14 \$14.14 \_\_\_\_ --TOTAL DIRECT EXPENSES------Total direct expenses per bu \$2.3 **FIXED EXPENSES** Cash rent \$168.00 1.00 \$168.00 \$168.00 \_\_\_\_\_ All crops\_SW\_Irr acre Capital recovery (depreciation + interest) Harvesting Header Wheat/Sorghum\_30' Rigid with Combine (300-349 Hour \$298.01 0.09 \$25.37 Hauling Grain Cart Wht/Sor\_1000 bu with Tractor(180-199hp)CB \$98.13 0.09 \$8.35 Hour Irrigation Irrigation - Center Pivot \$89.25 1.00 \$89.25 acre \$31.29 \$31.29 Power unit 1.00 acre \$113.49 1.00 \$113.49 Well, pump, and gearhead acre Planting

Detailed budget page(s)

Gregg Ibendahl, Daniel O'Brien, Lucas Haag, an	d Sarah L	ancaster			Date	e: Nov-01-2023
item	unit	price	quantity	amount	Sub-total	your farm
Plant - Folding_24R-30 with Tractor(180-199hp)CB Spraying	Hour	\$222.52	0.03	\$6.99		
Sprayer 1200+gal_120' 300hp with Sprayer 1200+gal Tillage	Hour	\$407.44	0.01	\$3.59		
Field Cultivate Fld_50' with Tractor(200-249hp)CB	Hour	\$184.27	0.03	\$5.50	\$283.85	
TOTAL FIXED EXPENSESTotal expenses per bu \$5.12					\$451.85	
RETURNS ABOVE DIRECT EXPENSES					\$447.70	•
RETURNS ABOVE TOTAL SPECIFIED EXPENSES					-\$4.15	

12 acre-inches of water applied
300 foot well depth
\$ 2.7 fuel cost per acre-inch of water applied
.71 Mcf of natural gas per acre-inch of water applied
\$ 3.78 per Mcf for cost of natural gas
8.56 Mcf of fuel used in total

Gregg Ibendahl, Daniel O'Brien, Lucas Haag, and Sarah Lancaster

Budget abstract

Date: Nov-01-2023

amount Sub-total your farm price quantity item unit **INCOME Product** \$733.70 \_\_\_\_\_ Grain Sorghum - Southwest KS bu \$5.10 144.00 \$733.70 \$733.70 \_\_\_\_ --TOTAL INCOME--**DIRECT EXPENSES** \$0.60 \_\_\_\_\_ Additional labor \$7.28 Crop consulting Crop insurance \$27.25 **Custom Operations** \$0.00 \_\_\_\_\_ \$12.57 \_\_\_\_\_ Diesel **Fertilizers** \$104.54 \_\_\_\_\_ \$62.61 \_\_\_\_\_ Herbicides Irrigation energy (NG) ------\$28.31 \_\_\_\_\_ \$7.14 \_\_\_\_\_ Irrigation labor Miscellaneous \$12.10 \_\_\_\_\_ \$5.98 \_\_\_\_\_ Operator labor \$15.90 Repair & Maintenance -------\$16.31 \_\_\_\_\_ Seeds Interest on operating capital \$12.02 8% percent on direct expenses --TOTAL DIRECT EXPENSES--\$312.61 -----Total direct expenses per bu \$2.17 **FIXED EXPENSES** \$168.00 \_\_\_\_\_ Cash rent Capital recovery (depreciation + interest) \$283.85 --TOTAL FIXED EXPENSES--\$451.85 -----Total expenses per bu \$5.31 ======= RETURNS ABOVE DIRECT EXPENSES \$421.10

10.5 acre-inches of water applied 300 foot well depth \$ 2.7 fuel cost per acre-inch of water applied .71 Mcf of natural gas per acre-inch of water applied \$ 3.78 per Mcf for cost of natural gas 7.49 Mcf of fuel used in total

RETURNS ABOVE TOTAL SPECIFIED EXPENSES

-\$30.75

Budget abstract

Gregg Ibendahl, Daniel O'Brien, Lucas Haag, and Sarah Lancaster Date: Nov-01-2023 price quantity amount Sub-total your farm item unit **INCOME Product** Grain Sorghum - Southwest KS bu \$5.10 172.00 \$876.37 \$876.37 \$876.37 \_\_\_\_ --TOTAL INCOME--**DIRECT EXPENSES** \$0.60 \_\_\_\_\_ Additional labor \$7.28 \_\_\_\_\_ Crop consulting Crop insurance \$27.25 **Custom Operations** \$0.00 \_\_\_\_\_ \$12.57 \_\_\_\_\_ Diesel **Fertilizers** \$124.86 \_\_\_\_\_ \$62.61 \_\_\_\_\_ Herbicides Irrigation energy (NG) ------\$36.40 \_\_\_\_\_ \$9.18 \_\_\_\_\_ Irrigation labor Miscellaneous \$12.10 \_\_\_\_\_ \$5.98 \_\_\_\_\_ Operator labor Repair & Maintenance ------\$16.98 \_\_\_\_\_ \$19.48 Seeds Interest on operating capital \$13.41 \_\_\_\_\_ 8% percent on direct expenses --TOTAL DIRECT EXPENSES--\$348.70 -----Total direct expenses per bu \$2.03 **FIXED EXPENSES** \$168.00 \_\_\_\_\_ Cash rent Capital recovery (depreciation + interest) \$283.85 --TOTAL FIXED EXPENSES--\$451.85 -----Total expenses per bu \$4.65 ======= RETURNS ABOVE DIRECT EXPENSES \$527.67

13.5 acre-inches of water applied
300 foot well depth
\$ 2.7 fuel cost per acre-inch of water applied
.71 Mcf of natural gas per acre-inch of water applied
\$ 3.78 per Mcf for cost of natural gas
9.63 Mcf of fuel used in total

RETURNS ABOVE TOTAL SPECIFIED EXPENSES

\$75.82