

MICROCOMPUTER CROP COST AND RETURN GENERATOR

BUDGET AREA..... SOUTHERN HIGH PLAINS, LEA COUN Projected 2018
FARM SIZE..... 1,600.00 ACRES
IRRIGATION TYPE..... DRYLAND
NUMBER OF CROPS..... 2

VERSION 1.0

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TABLE 1. Acreage Summary, Lea County,
Projected 2018

BUDGET AREA.....	SOUTHERN HIGH PLAINS, LEA COUNTY
FARM SIZE.....	1600 ACRES
IRRIGATION TYPE.....	DRYLAND
NUMBER OF CROPS.....	2

ACREAGE SUMMARY:	LAND USE (ACRES)
WHEAT	680.00
ARP	0.00
FLEX IN WHEAT	120.00
GRAIN SORGHUM	646.00
ARP	0.00
FLEX IN WHEAT	114.00
FALLOW	0.00
ROADS, HOMESTEAD	40.00
TOTAL	1,600.00

TABLE 2. Basic cost information for Lea County,
Projected 2018

Item			
Labor Wage Rate:			
Equipment operators	\$/hour		\$8.55
General & Irrigators	\$/hour		\$7.50
Purchased Inputs:			
Fertilizer:			
Nitrogen (N)	\$/pound		\$0.31
Phosphate (P205)	\$/pound		\$0.24
Seed:			
Wheat	\$/pound		\$0.44
Grain Sorghum	\$/pound		\$1.32
Fuel:			
Diesel fuel	\$/gallon		\$2.70
Gasoline	\$/gallon		\$2.40
Employee Liability Insurance	\$/ \$1,000 wages		\$20.00
Employee Benefits	percent/wages		18.00%
Labor Downtime	percent		25.00%
Financial Rates:			
Operating Capital Interest Rate	percent		5.50%
Land Interest Rate	percent		5.00%
Equipment Interest Rate	percent		5.50%
Real Interest Rate	percent		3.00%
Land Taxes	\$40.00 /acre (full value)		\$0.43
Personal Property Tax Rate	- NR	\$/ \$1,000 (Assessed Value)	\$32.26
	- R		\$26.66
Supervision Factor	\$/labor hour		\$0.50
Management Rate	percent		7.00%

TABLE 3. Overhead cost information for Lea County,
Projected 2018

Item				
Electricity (Domestic & Shop)		\$254.00	per month	\$3,048
Telephone		\$127.00	per month	\$1,524
Accounting & Legal				\$1,854
Misc. Supplies & Hand Tools				\$2,788
Pickup and Auto				
miles	39,370	@	\$0.500 per mile	\$19,685
Insurance				
- general liability (non-employee)				\$1,949
- fire/theft				\$1,543
Property Taxes				
- non-planted land				\$0
- other than land & machinery				\$6,010
Building repairs and maintenance				\$1,480
Dues, fees, publications				\$445
Farmstead Equipment				\$191
			Total	\$40,516
			Total per planted acre	\$25.97

TABLE 4. Equipment summary for a 1600 acre dryland farm with above average management, Lea County, Projected 2018

EQUIPMENT	ITEM & SIZE	ANNUAL HOURS OF USE	NUMBER	VARIABLE COSTS				FIXED COSTS			
				TOTAL VALUE	FUEL, OIL, LUBRICANT	REPAIR	FUEL, OIL PER HR	REPAIR PER HR	DEPRECIATION	TAXES	TOTAL PER HR
TRACTOR	226 HP	344	1	\$65,154	\$10,466	\$2,690	\$30.44	\$7.83	\$8,694	\$701	\$27.33
TRUCK	2 TON	218	1	\$23,000	\$3,746	\$1,759	\$17.15	\$8.05	\$4,600	\$247	\$22.19
COMBINE	145 HP	218	1	\$51,677	\$4,925	\$5,392	\$22.55	\$24.69	\$8,864	\$715	\$43.86
GRAIN HEAD	22 FT	218	1	\$3,600		\$513	\$2.35		\$501	\$40	\$2.46
CULTIVATOR	12 ROW	78	1	\$5,000		\$481	\$6.20		\$667	\$54	\$9.29
CHISEL	40 FT	91	1	\$6,750		\$761	\$8.37		\$900	\$73	\$10.70
SPRAYER	12 ROW	45	1	\$2,250		\$49	\$1.08		\$300	\$24	\$7.17
PLANTER	12 ROW	52	1	\$8,500		\$211	\$4.08		\$1,700	\$91	\$34.66
DRILL 40 FT	40 FT	46	1	\$7,750		\$170	\$3.72		\$1,550	\$83	\$35.74
FERT SPREADER DEALER FURNISHED	78		1								
				\$173,681	\$19,137	\$12,026			\$27,776	\$2,029	

EQUIPMENT LIST

ITEM	NEW VALUE	USED VALUE	YEARS LIFE	EQUIP CODE	MAX HOURS	FUEL UNIT/HR	LUBE COEF	ACCUM HOURS	AGE	INTEREST EXPENSE	
TRACTOR	226 HP	130,417	65,154	15	1	800	10.25	0.10	2062.92	6	3,586.47
TRUCK	2 TON	46,000	23,000	10	6	800	6.05	0.05	2839.20	13	1,265.00
COMBINE	145 HP	132,955	51,677	15	2	300	6.96	0.20	2839.20	13	3,656.26
GRAIN HEAD	22 FT	7,500	3,600	15	2	300			2839.20	13	206.80
CULTIVATOR	12 ROW	10,000	5,000	15	3	500			1240.32	16	275.00
CHISEL	40 FT	13,500	6,750	15	3	300			1363.80	15	371.25
SPRAYER	12 ROW	4,500	2,250	15	8	250			678.30	15	123.75
PLANTER	12 ROW	17,000	8,500	10	8	250			671.84	13	467.50
DRILL 40 FT	40 FT	15,500	7,750	10	8	100			594.10	13	426.25
FERT SPREADER DEALER FURNISHED						100			1404.00	18	

USAGE LIST

WHEAT	MILO	PER ACRE TOTALS
-----hours per acre-----		
0.15	0.32	0.47
0.14	0.14	0.28
0.14	0.14	0.28
0.14	0.14	0.28
0.00	0.12	0.12
0.05	0.07	0.12
0.00	0.07	0.07
0.00	0.08	0.08
0.05	0.00	0.05
0.05	0.05	0.10

INTEREST PRORATION

WHEAT	MILO
-----dollars per acre-----	
1.56	3.34
0.81	0.81
2.34	2.34
0.13	0.13
0.00	0.43
0.20	0.28
0.00	0.19
0.00	0.72
0.47	0.00
5.52	8.29

WHEAT

MACHINE	POWER UNIT	TIMES OVER	ACCOMPLISHMENT		
			RATE	TOTAL	CUSTOM
CHISEL	225 HP	1.00	0.05	0.05	
DRILL	225 HP	1.00	0.05	0.05	
FERT SPREADER	225 HP	1.00	0.05	0.05	
COMBINE		1.00	0.14	0.14	
HAUL	2 TON	1.00	0.14	0.14	

GRAIN SORGHUM

MACHINE	POWER UNIT	TIMES OVER	ACCOMPLISHMENT		
			RATE	TOTAL	CUSTOM
FERT SPREADER	225 HP	1.00	0.05	0.05	
CHISEL & SPRAY	225 HP	1.00	0.07	0.07	
PLANTER	225 HP	1.00	0.08	0.08	
CULTIVATOR (2X)	225 HP	2.00	0.06	0.12	
COMBINE		1.00	0.14	0.14	
HAUL	2 TON	1.00	0.14	0.14	

ANNUAL REPAIR COSTS AS A PERCENT OF NEW VALUE

Hours of Use	1	2	3	4	5	6	7	8	9
0	0.000060	0.000020	0.000620	0.000020	0.000080	0.000140	0.000040	0.000240	0.000200
50	0.000060	0.000020	0.000620	0.000020	0.000080	0.000140	0.000040	0.000240	0.000200
100	0.000060	0.000020	0.000500	0.000020	0.000140	0.000220	0.000100	0.000380	0.000300
200	0.000030	0.000030	0.000430	0.000040	0.000180	0.000260	0.000110	0.000510	0.000260
300	0.000030	0.000050	0.000360	0.000060	0.000230	0.000310	0.000140	0.000630	0.000400
400	0.000030	0.000060	0.000370	0.000090	0.000260	0.000340	0.000150	0.000710	0.000450
500	0.000030	0.000070	0.000360	0.000100	0.000280	0.000370	0.000170	0.000800	0.000630
600	0.000030	0.000090	0.000340	0.000120	0.000310	0.000390	0.000180	0.000860	0.000530
700	0.000030	0.000100	0.000340	0.000130	0.000330	0.000410	0.000200	0.000910	0.000560
800	0.000030	0.000110	0.000320	0.000150	0.000350	0.000430	0.000210	0.000980	0.000590
900	0.000030	0.000120	0.000300	0.000160	0.000370	0.000450	0.000230	0.001020	0.000600
1000	0.000090	0.000130	0.000310	0.000180	0.000380	0.000460	0.000230	0.001070	0.000630
1200	0.000045	0.000145	0.000305	0.000205	0.000405	0.000480	0.000245	0.001135	0.000710
1400	0.000045	0.000170	0.000300	0.000230	0.000435	0.000510	0.000410	0.001260	0.000765
1500	0.000150	0.000170	0.000300	0.000230	0.000435	0.000510	0.000410	0.001260	0.000765
1600	0.000150	0.000190	0.000285	0.000255	0.000465	0.000525	0.000135	0.001235	0.000805
1800	0.000075	0.000170	0.000285	0.000285	0.000485	0.000550	0.000295		
2000	0.000110	0.000265	0.000280	0.000305	0.000505	0.000565	0.000310		
2500	0.000056								
3000	0.000070								
3500	0.000082								
4000	0.000096								
4500	0.000108								
5000	0.000122								
5500	0.000136								
6000	0.000148								
6500	0.000162								
7000	0.000176								
7500	0.000188								
8000	0.000204								

* Based on unpublished data of D. R. Hunt, Department of Agricultural Engineering, University of Illinois.

** Based on "Agricultural Machinery Data" in Agricultural Engineers Yearbook, 1983.

Codes

- 1 tractors
- 2 balers, combines, forage harvesters, windrowers, pickups
- 3 rotary hoes, disks, moldboard plows, chisels, field cultivators
- row cultivators, laser plane
- 4 harrows, wagons, floats, roto buck, drag, roller, water furrow, bed shaper
- 5 balewagons, cotton pickers, cotton strippers, corn pickers
- corn heads, forage equipment, rotary mowers, stalk choppers, feed wagons, farm trucks
- 6 rakes, cutterbar mower
- 7 baler w engine, manure spreader
- 8 planters, drills, seeding equipment, mounted sprayers
- 9 fertilizer distributing equipment

TABLE 5. Wheat, dryland, budgeted per acre costs and returns for a 1600 acre farm with above average management, Lea County,
 Projected 2018
 Planting dates: August 15 - September 30
 Harvest dates: June 15 - July 5

ITEM	PRICE	YIELD	BASE							TOTAL	
GROSS RETURNS											
WHEAT	\$4.40	20.00 BUSHELS								\$88.00	
DIRECT PAYMENT	\$0.00	20.00 BUSHELS	0.85							\$0.00	
COUNTER CYCLICAL PAYMENT	\$0.00									\$0.00	
TOTAL										\$88.00	
PURCHASED INPUTS											
	PRICE	QUANTITY	PURCHASED INPUTS							FIXED COST	TOTAL
SEED	\$0.44	30 LBS	\$13.20								\$13.20
NITROGEN (N)	\$0.31	16 LBS	\$4.96								\$4.96
PHOSPHATE (P205)	\$0.24	20 LBS	\$4.80								\$4.80
INSECTICIDE	\$16.99	1 X/ACRE	\$16.99								\$16.99
CROP INSURANCE	\$0.05		\$0.05								\$0.05
SUBTOTAL										\$40.00	
PREHARVEST OPERATIONS											
	POWER UNIT	ACCOMPLISHMENT RATE	PURCHASED INPUTS	LABOR	FUEL & LUBE	REPAIRS	FIXED COST	TOTAL			
CHISEL	225 HP	0.05 HR		\$0.43	\$1.52	\$0.81	\$1.90	\$4.66			
DRILL	225 HP	0.05 HR		\$0.43	\$1.52	\$0.58	\$3.15	\$5.68			
FERT SPREADER	225 HP	0.05 HR		\$0.43	\$1.52	\$0.39	\$1.37	\$3.71			
SUBTOTAL		0.15 HR	\$0.00	\$1.28	\$4.57	\$1.78	\$6.42	\$14.05			
HARVEST OPERATIONS											
COMBINE		0.14 HR		\$1.20	\$3.16	\$3.56	\$6.49	\$14.40			
HAUL	2 TON	0.14 HR		\$1.20	\$2.40	\$0.96	\$3.11	\$7.67			
SUBTOTAL		0.28 HR	\$0.00	\$2.39	\$5.56	\$4.52	\$9.59	\$22.07			
OVERHEAD EXPENSES											
DOWNTIME		0.11 HR		\$0.92						\$0.92	
EMPLOYEE BENEFITS				\$0.66						\$0.66	
INSURANCE			\$0.07						\$0.07		
LAND TAXES									\$0.43		
SUPERVISION AND MANAGEMENT				\$9.39						\$9.39	
OTHER EXPENSES			\$25.97						\$25.97		
SUBTOTAL		0.11 HR	\$26.05	\$10.97				\$0.43	\$37.44		
TOTAL OPERATING EXPENSES		0.54 HR	\$66.05	\$14.64	\$10.12	\$6.30	\$16.45	\$113.56			
NET OPERATING PROFIT										(\$25.56)	
INTEREST ON OPERATING CAPITAL		(\$22.43 @ 5.50%								\$1.23	
INTEREST ON EQUIPMENT INVESTMENT										\$5.52	
RETURN TO LAND AND RISK										(\$32.31)	
BUDGET SUMMARY											
GROSS RETURN		\$88.00									
VARIABLE OPERATING EXPENSES	\$82.47										
RETURN OVER VARIABLE EXPENSES		\$5.53	(GROSS MARGIN)								
FIXED EXPENSES	\$16.45										
NET FARM INCOME		(\$10.91)	(RETURN TO CAPITAL, LABOR, LAND & RISK)								
LABOR AND MANAGEMENT COST	\$14.64										
NET OPERATING PROFIT		(\$25.56)	(RETURN TO CAPITAL, LAND & RISK)								
CAPITAL COSTS	\$6.76										
RETURN TO LAND AND RISK		(\$32.31)									

TABLE 6. Grain sorghum, dryland, budgeted per acre costs and returns for a 1,600 acre farm with above average management, Lea County,
 Projected 2018
 Planting dates: May 15 - June 10
 Harvest dates: October 15 - November 15

ITEM	PRICE	YIELD	BASE	TOTAL
GROSS RETURNS				
GRAIN SORGHUM	\$6.08	12.00 CWT		\$72.94
COUNTER CYCLICAL PAYMENT	\$0.00	0.00 CWT		\$0.00
DIRECT PAYMENT	\$0.00	12.00 CWT	0.85	\$0.00
TOTAL				\$72.94

PURCHASED INPUTS	PRICE	QUANTITY	PURCHASED INPUTS	FIXED COST	TOTAL
SEED	\$1.32	3 LBS	\$3.96		\$3.96
NITROGEN (N)	\$0.31	16 LBS	\$4.96		\$4.96
PHOSPHATE (P205)	\$0.24	20 LBS	\$4.80		\$4.80
HERBICIDE	\$18.82	1 X/ACRE	\$18.82		\$18.82
CROP INSURANCE	\$0.08		\$0.08		\$0.08
SUBTOTAL			\$32.61		\$32.61

PREHARVEST OPERATIONS	POWER UNIT	ACCOMPLISHMENT RATE	PURCHASED INPUTS	LABOR	FUEL & LUBE	REPAIRS	FIXED COST	TOTAL
FERT SPREADER	225 HP	0.05 HR		\$0.43	\$1.52	\$0.39	\$1.37	\$3.71
CHISEL & SPRAY	225 HP	0.07 HR		\$0.60	\$2.13	\$1.21	\$3.16	\$7.10
PLANTER	225 HP	0.08 HR		\$0.68	\$2.44	\$0.95	\$4.96	\$9.03
CULTIVATOR (2X)	225 HP	0.12 HR		\$1.03	\$3.65	\$1.68	\$4.39	\$10.76
SUBTOTAL		0.32 HR		\$2.74	\$9.74	\$4.24	\$13.88	\$30.60

HARVEST OPERATIONS	POWER UNIT	ACCOMPLISHMENT RATE	PURCHASED INPUTS	LABOR	FUEL & LUBE	REPAIRS	FIXED COST	TOTAL
COMBINE		0.14 HR		\$1.20	\$3.16	\$3.89	\$6.49	\$14.73
HAUL	2 TON	0.14 HR		\$1.20	\$2.40	\$1.09	\$3.11	\$7.80
SUBTOTAL		0.28 HR		\$2.39	\$5.56	\$4.98	\$9.59	\$22.53

OVERHEAD EXPENSES	ACCOMPLISHMENT RATE	PURCHASED INPUTS	LABOR	FUEL & LUBE	REPAIRS	FIXED COST	TOTAL
DOWNTIME	0.15 HR		\$1.28				\$1.28
EMPLOYEE BENEFITS			\$0.92				\$0.92
INSURANCE		\$0.10					\$0.10
LAND TAXES						\$0.43	\$0.43
SUPERVISION AND MANAGEMENT			\$9.61				\$9.61
OTHER EXPENSES		\$25.97					\$25.97
SUBTOTAL	0.15 HR	\$26.07	\$11.81			\$0.43	\$38.32

TOTAL OPERATING EXPENSES 0.75 HR \$58.69 \$16.94 \$15.30 \$9.22 \$23.91 \$124.05

NET OPERATING PROFIT (\$51.11)

INTEREST ON OPERATING CAPITAL (\$20.68 @ 5.50%) \$1.14
 INTEREST ON EQUIPMENT INVESTMENT \$8.25

RETURN TO LAND AND RISK (\$60.50)

BUDGET SUMMARY

GROSS RETURN		\$72.94	
VARIABLE OPERATING EXPENSES	\$83.20		
RETURN OVER VARIABLE EXPENSES		(\$10.26)	(GROSS MARGIN)
FIXED EXPENSES	\$23.91		
NET FARM INCOME		(\$34.17)	(RETURN TO CAPITAL, LABOR, LAND & RISK)
LABOR AND MANAGEMENT COST	\$16.94		
NET OPERATING PROFIT		(\$51.11)	(RETURN TO CAPITAL, LAND & RISK)
CAPITAL COSTS	\$9.39		
RETURN TO LAND AND RISK		(\$60.50)	

TABLE 7. Summary of per acre costs and returns for a 1,600 acre farm with above average management, Lea County, Projected 2018

	WHEAT	GRAIN SORGHUM
	BU	CWT
PRIMARY YIELD	20.00	12.00
PRIMARY PRICE	\$4.40	\$6.08
GOVERNMENT PAYMENTS	\$0.00	\$0.00
SECOND INCOME	\$0.00	\$0.00
GROSS RETURN	\$88.00	\$72.94
VARIABLE OPERATING EXPENSES		
SEED	\$13.20	\$3.96
FERTILIZER	\$9.76	\$9.76
CHEMICALS	\$16.99	\$18.82
CROP INSURANCE	\$0.05	\$0.08
OTHER PURCHASED INPUTS		
CANAL WATER		
FUEL, OIL & LUBRICANTS-EQUIPMENT	\$10.12	\$15.30
FUEL-IRRIGATION		
REPAIRS	\$6.30	\$9.22
CUSTOM CHARGES	\$0.00	\$0.00
LAND TAXES	\$0.43	\$0.43
OTHER EXPENSES	\$26.05	\$26.07
TOTAL VARIABLE EXPENSES	\$82.90	\$83.63
RETURN OVER VARIABLE EXPENSES	\$5.10	(\$10.69)
FIXED EXPENSES	\$16.02	\$23.48
TOTAL EXPENSES	\$98.91	\$107.11
RETURNS TO CAPITAL, LABOR, LAND & RISK	(\$10.91)	(\$34.17)
LABOR AND MANAGEMENT COSTS	\$14.64	\$16.94
RETURNS TO CAPITAL, LAND & RISK	(\$25.56)	(\$51.11)
CAPITAL COSTS		
INTEREST ON OPERATING CAPITAL	\$1.23	\$1.14
INTEREST ON EQUIPMENT INVESTMENT	\$5.52	\$8.25
TOTAL CAPITAL COSTS	\$6.76	\$9.39
RETURN TO LAND AND RISK	(\$32.31)	(\$60.50)

TABLE 8. Whole farm summary, Lea County,
Projected 2018

GROSS RETURNS		
WHEAT	914.00 ACRES	
CROP		\$80,432
DIRECT PAYMENT		\$0
COUNTER CYCLICAL PAYMENT		\$0
GRAIN SORGHUM	646.00 ACRES	
CROP		\$47,121
DIRECT PAYMENT		\$0
GROSS RETURN		<u>\$127,553</u>
VARIABLE OPERATING EXPENSES		
SEED		\$14,623
FERTILIZER		\$15,226
CHEMICALS		\$27,680
CROP INSURANCE		\$100
OTHER PURCHASED INPUTS		\$0
CANAL WATER		\$0
FUEL, OIL & LUBRICANTS-EQUIPMENT		\$19,137
FUEL-IRRIGATION		\$0
REPAIRS		\$11,710
CUSTOM CHARGES		\$0
LAND TAXES		\$671
OTHER EXPENSES		\$40,649
TOTAL VARIABLE EXPENSES		<u>\$129,796</u>
RETURN OVER VARIABLE EXPENSES		(\$2,243)
FIXED EXPENSES		\$29,805
TOTAL EXPENSES		\$159,602
NET FARM INCOME		(\$32,049)
LABOR AND MANAGEMENT COSTS		\$24,328
NET OPERATING PROFIT		(\$56,376)
CAPITAL COSTS		
INTEREST ON OPERATING CAPITAL		\$1,862
INTEREST ON EQUIPMENT INVESTMENT		\$10,378
TOTAL CAPITAL COSTS		<u>\$12,240</u>
RETURN TO LAND AND RISK		<u>(\$68,617)</u>

LAND VALUE	RETURN TO RISK*	RETURN ON INVESTMENT**
\$150 /ACRE	(\$75,817)	-13.63%
\$200 /ACRE	(\$78,217)	-11.42%
\$250 /ACRE	(\$80,617)	-9.83%
\$300 /ACRE	(\$83,017)	-8.62%
\$350 /ACRE	(\$85,417)	-7.68%

* RETURN TO LAND AND RISK MINUS (INTEREST RATE TIMES LAND VALUE TIMES ACREAGE)

** NET OPERATING PROFIT DIVIDED BY (MACHINERY AND EQUIPMENT VALUE PLUS LAND VALUE)