

MICROCOMPUTER CROP COST AND RETURN GENERATOR

BUDGET AREA..... UNION COUNTY Projected 2018
FARM SIZE..... 640.00 ACRES
IRRIGATION TYPE..... DRYLAND
NUMBER OF CROPS..... 2

VERSION 1.0

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TABLE 1. Acreage Summary, Union County,
Projected 2018

BUDGET AREA.....	UNION COUNTY
FARM SIZE.....	640 ACRES
IRRIGATION TYPE.....	DRYLAND
NUMBER OF CROPS....	2

ACREAGE SUMMARY:	LAND USE (ACRES)
WHEAT	136.0
ARP	0.00
FLEX IN WHEAT	24.00
GRAIN SORGHUM	391.00
ARP	0.00
FLEX IN WHEAT	69.00
ROADS & FENCES	20.00
TOTAL	640.0

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

Item			
Labor Wage Rate:			
Equipment operators		\$/hour	\$8.55
General & Irrigators		\$/hour	\$7.50
Purchased Inputs:			
Seed:			
Wheat		\$/pound	\$0.44
Grain Sorghum		\$/pound	\$1.32
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	\$12.00	/acre (full value)	\$0.09
Personal Property Tax Rate	- NR	\$/ \$1,000 (Assessed	\$23.64
	- R	Value)	\$19.63
Supervision Factor		\$/labor hour	\$0.50
Management Rate		percent	7.00%

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

Item			
Electricity (Domestic & Shop)		\$254.00 per month	\$3,048
Telephone		\$114.30 per month	\$1,372
Accounting & Legal			\$1,219
Misc. Supplies & Hand Tools			\$1,854
Pickup and Auto			
miles	19,622	@ \$0.500 per mile	\$9,811
Insurance			
- general liability (non-employee)			\$1,600
- fire/theft			\$1,219
Property Taxes			
- non-planted land			\$0
- other than land & machinery			\$6,010
Building repairs and maintenance			\$610
Dues, fees, publications			\$457
Farmstead Equipment			\$191
		Total	\$27,390
		Total per planted acre	\$44.18

TABLE 4. Equipment summary for a 640 acre dryland farm with above average management, Union County, Projected 2018

EQUIPMENT ITEM & SIZE	ANNUAL HOURS OF USE	NUMBER	TOTAL VALUE	VARIABLE COSTS				FIXED COSTS			
				FUEL OIL, LUBRICANT	REPAIR	FUEL OIL PER HR	REPAIR PER HR	DEPRECIATION	TAXES	TOTAL PER HR	
TRACTOR 165 HP	165 HP	317	1	\$40,865	\$7,678	\$1,708	\$24.21	\$5.39	\$5,985	\$354	\$19.99
CULTIVATOR 6 ROW	6 ROW	102	1	\$2,500		\$315	\$0.00	\$3.10	\$333	\$50	\$3.47
PLANTER 6 ROW	6 ROW	66	1	\$4,250		\$136	\$0.00	\$2.04	\$850	\$33	\$13.29
SWEEPS 20 FT	20 FT	108	1	\$4,350		\$581	\$0.00	\$5.39	\$580	\$34	\$6.70
DRILL 13 FT	13 FT	41	1	\$2,150		\$43	\$0.00	\$1.03	\$430	\$17	\$10.84
				\$54,115	\$7,678	\$2,783			\$8,178	\$458	

EQUIPMENT LIST

ITEM	NEW VALUE	USED VALUE	YEARS LIFE	EQUIP CODE	MAX HOURS	FUEL LBN/HR	LUBE COEF	ACCUM HOURS	INTEREST AGE	INTEREST EXPENSE
TRACTOR 165 HP	89775.00	40864.50	15.00	1.00	800.00	8.15	0.10	3488.65	11.00	2,468.81
CULTIVATOR 6 ROW	5000.00	2500.00	15.00	3.00	300.00	0.00	0.00	1626.56	16.00	137.50
PLANTER 6 ROW	8500.00	4250.00	10.00	8.00	100.00	0.00	0.00	864.11	13.00	233.75
SWEEPS 20 FT	8700.00	4350.00	15.00	3.00	300.00	0.00	0.00	1724.80	16.00	239.25
DRILL 13 FT	4300.00	2150.00	10.00	8.00	100.00	0.00	0.00	535.86	13.00	118.25

USAGE LIST

WHEAT	GRAN	PER ACRE	TOTALS
0.48	0.53	1.01	
0.00	0.28	0.28	
0.00	0.17	0.17	
0.30	0.10	0.40	
0.18	0.00	0.18	

INTEREST PRORATION

WHEAT	GRAN	PER ACRE	TOTALS
-dollars per acre-	3.74	4.13	
0.00	0.35		
0.00	0.60		
0.67	0.22		
0.52	0.00		
5	5		

WHEAT ACRES: 229 PUMP WATER:

MACHINE	UNIT	POWER	TIMES OVER	ACCOMPLISHMENT	
				RATE	TOTAL
SWEEPS (2X)	145 HP	3.00	0.10	0.10	0.30
DRILL	145 HP	1.00	0.18	0.18	0.18
COMBINE (CUSTOM) PER ACRE					16.00
HAUL (CUSTOM) PER BUSHEL					0.16

GRAN SORGHUM ACRES: 391

MACHINE	UNIT	POWER	TIMES OVER	ACCOMPLISHMENT	
				RATE	TOTAL
SWEEPS	145 HP	1.00	0.10	0.10	0.10
PLANTER	145 HP	1.00	0.17	0.17	0.17
CULTIVATOR (2X)	145 HP	2.00	0.13	0.26	0.26
COMBINE (CUSTOM) PER ACRE					20.50
HAUL (CUSTOM) PER CWT					0.19

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	0.000620	0.000020	0.000080	0.000140	0.000040	0.000240	0.000200
200	0.000030	0.000030	0.000430	0.000040	0.000180	0.000260	0.000110	0.000510	0.000260
300	0.000030	0.000050	0.000390	0.000060	0.000230	0.000310	0.000140	0.000630	0.000400
400	0.000030	0.000060	0.000370	0.000060	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	0.000080	0.000340	0.000120	0.000310	0.000390	0.000190	0.000860	0.000630
700	0.000030	0.000100	0.000340	0.000130	0.000330	0.000410	0.000200	0.000910	0.000660
800	0.000030	0.000110	0.000320	0.000150	0.000350	0.000430	0.000210	0.000980	0.000690
900	0.000030	0.000120	0.000320	0.000160	0.000370	0.000450	0.000220	0.001020	0.000690
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	0.000220	0.000435	0.000510	0.000240	0.001260	0.000765
1500	0.000150	0.000170	0.000300	0.000230	0.000435	0.000510	0.000240	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	0.000465	0.000550	0.000295	0.000925	
2000	0.000110	0.000265	0.000280	0.000305	0.000505	0.000565	0.000310		
2500	0.000066								
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
- 4 row cultivators, laser plane
- 5 harrows, wagons, floats, roto buck, drag, roller, water furrow, bed shaper
- 6 belevagons, cotton pickers, cotton strippers, corn pickers
- 7 corn heads, forage equipment, rotary mowers, stalk choppers, feed wagons, farm trucks
- 8 rakes, cutterbar mower
- 9 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 640 acre farm with above average management, Union County, Projected 2018
 Planting dates: August 15 - September 15
 Harvesting dates: July 1 - July 15

ITEM	PRICE	YIELD	BASE	TOTAL
GROSS RETURNS				
WHEAT	\$4.40	35.00 BUSHELS		\$154.00
DIRECT PAYMENT	\$0.00	35.00 BUSHELS	0.85	\$0.00
COUNTER CYCLICAL PAYMENT	\$0.00			\$0.00
GRAZING	\$20.00	1.00 ACRE		\$20.00
TOTAL				\$174.00

PURCHASED INPUTS	PRICE	QUANTITY	PURCHASED INPUTS	FIXED COST	TOTAL
SEED	\$0.44	30.00 LBS	\$13.20		\$13.20
MANURE	\$2.70	5.00 TON	\$13.50		\$13.50
SUBTOTAL			\$26.70		\$26.70

PREHARVEST OPERATIONS	POWER UNIT	ACCOMPLISHMENT RATE	PURCHASED INPUTS	LABOR	FUEL & LUBE	REPAIRS	FIXED COST	TOTAL
SWEEPS (3X)	145 HP	0.30 HR		\$2.57	\$7.26	\$3.23	\$7.71	\$20.77
DRILL	145 HP	0.18 HR		\$1.54	\$4.36	\$1.16	\$5.55	\$12.60
SUBTOTAL		0.48 HR		\$4.10	\$11.62	\$4.39	\$13.25	\$33.37

HARVEST OPERATIONS					
COMBINE (CUSTOM)			\$16.00		\$16.00
HAUL (CUSTOM)			\$5.60		\$5.60
SUBTOTAL			\$21.60		\$21.60

OVERHEAD EXPENSES								
DOWNTIME		0.12 HR		\$1.03				\$1.03
EMPLOYEE BENEFITS				\$0.74				\$0.74
INSURANCE			\$0.08					\$0.08
LAND TAXES						\$0.09		\$0.09
SUPERVISION AND MANAGEMENT				\$12.42				\$12.42
OTHER EXPENSES			\$44.18					\$44.18
SUBTOTAL		0.12 HR		\$44.26	\$14.18		\$0.09	\$58.54

TOTAL OPERATING EXPENSES		0.60 HR		\$92.56	\$18.29	\$11.62	\$4.39	\$13.35	\$140.21
NET OPERATING PROFIT									\$33.79
INTEREST ON OPERATING CAPITAL		(\$19.15	@	5.50%)			\$1.05
INTEREST ON EQUIPMENT INVESTMENT									\$4.92
RETURN TO LAND AND RISK									\$27.82

BUDGET SUMMARY			
GROSS RETURN		\$174.00	
VARIABLE OPERATING EXPENSES	\$108.57		
RETURN OVER VARIABLE EXPENSES		\$65.43	(GROSS MARGIN)
FIXED EXPENSES	\$13.35		
NET FARM INCOME		\$52.08	(RETURN TO CAPITAL, LABOR, LAND & RISK)
LABOR AND MANAGEMENT COST	\$18.29		
NET OPERATING PROFIT		\$33.79	(RETURN TO CAPITAL, LAND & RISK)
CAPITAL COSTS	\$5.97		
RETURN TO LAND AND RISK		\$27.82	

TABLE 6. Grain sorghum, dryland, budgeted per acre costs and returns for a 640 acre farm with above average management, Union County,
 Projected 2018
 Planting dates: May 15 - June 15
 Harvesting dates: October 15 - November 15

ITEM	PRICE	YIELD	BASE						TOTAL	
GROSS RETURNS										
GRAIN SORGHUM	\$6.08	15.00 CWT							\$91.18	
COUNTER CYCLICAL PAYMENT	\$0.00	0.00 CWT							\$0.00	
DIRECT PAYMENT	\$0.00	15.00 CWT	0.85						\$0.00	
TOTAL									\$91.18	
PURCHASED INPUTS										
	PRICE	QUANTITY	PURCHASED INPUTS						FIXED COST	TOTAL
SEED	\$1.32	3 LBS	\$3.96						\$3.96	
MANURE	\$2.75	5 TON	\$13.75						\$13.75	
HERBICIDE	\$16.00	1 X/ACRE	\$16.00						\$16.00	
SUBTOTAL			\$33.71							\$33.71
PREHARVEST OPERATIONS										
	POWER UNIT	ACCOMPLISHMENT RATE	PURCHASED INPUTS	LABOR	FUEL & LUBE	REPAIRS	FIXED COST	TOTAL		
SWEEPS	145 HP	0.10 HR		\$0.86	\$2.42	\$1.08	\$2.57	\$6.92		
PLANTER	145 HP	0.17 HR		\$1.45	\$4.12	\$1.26	\$5.66	\$12.49		
CULTIVATOR (2X)	145 HP	0.26 HR		\$2.22	\$6.29	\$2.21	\$6.10	\$16.82		
SUBTOTAL		0.53 HR		\$4.53	\$12.83	\$4.55	\$14.33	\$36.23		
HARVEST OPERATIONS										
COMBINE (CUSTOM)			\$20.50						\$20.50	
HAUL (CUSTOM)			\$2.85						\$2.85	
SUBTOTAL			0.00 HR	\$23.35						\$23.35
OVERHEAD EXPENSES										
DOWNTIME		0.13 HR		\$1.13						\$1.13
EMPLOYEE BENEFITS				\$0.82						\$0.82
INSURANCE			\$0.09						\$0.09	
LAND TAXES							\$0.09	\$0.09		
SUPERVISION AND MANAGEMENT				\$6.65						\$6.65
OTHER EXPENSES			\$44.18						\$44.18	
SUBTOTAL			0.13 HR	\$44.27	\$8.60	\$0.09		\$52.96		
TOTAL OPERATING EXPENSES		0.66 HR	\$101.33	\$13.13	\$12.83	\$4.55	\$14.42	\$146.25		
NET OPERATING PROFIT									(\$55.08)	
INTEREST ON OPERATING CAPITAL		(\$23.15 @	5.50%)						\$1.27
INTEREST ON EQUIPMENT INVESTMENT									\$5.30	
RETURN TO LAND AND RISK									(\$61.65)	

BUDGET SUMMARY			
GROSS RETURN		\$91.18	
VARIABLE OPERATING EXPENSES	\$118.71		
RETURN OVER VARIABLE EXPENSES		(\$27.53)	(GROSS MARGIN)
FIXED EXPENSES	\$14.42		
NET FARM INCOME		(\$41.95)	(RETURN TO CAPITAL, LABOR, LAND & RISK)
LABOR AND MANAGEMENT COST	\$13.13		
NET OPERATING PROFIT		(\$55.08)	(RETURN TO CAPITAL, LAND & RISK)
CAPITAL COSTS	\$6.57		
RETURN TO LAND AND RISK		(\$61.65)	

TABLE 7. Summary of per acre costs and returns for a 640 acre farm with above average management, Union County, Projected 2018

	WHEAT	GRAIN SORGHUM
	BU	CWT
PRIMARY YIELD	35.00	15.00
PRIMARY PRICE	\$4.40	\$6.08
GOVERNMENT PAYMENTS	\$0.00	\$0.00
SECOND INCOME	\$20.00	\$0.00
GROSS RETURN	\$174.00	\$91.18
CASH OPERATING EXPENSES		
SEED	\$13.20	\$3.96
FERTILIZER	\$13.50	\$13.75
CHEMICALS		\$16.00
CROP INSURANCE		
OTHER PURCHASED INPUTS		
CANAL WATER		
FUEL, OIL & LUBRICANTS-EQUIPMENT	\$11.62	\$12.83
FUEL-IRRIGATION		
REPAIRS	\$4.39	\$4.55
CUSTOM CHARGES	\$21.60	\$23.35
LAND TAXES	\$0.09	\$0.09
OTHER EXPENSES	\$44.26	\$44.27
TOTAL CASH EXPENSES	\$108.66	\$118.80
RETURN OVER CASH EXPENSES	\$65.34	(\$27.62)
FIXED EXPENSES	\$13.25	\$14.33
TOTAL EXPENSES	\$121.92	\$133.13
NET FARM INCOME	\$52.08	(\$41.95)
LABOR AND MANAGEMENT COSTS	\$18.29	\$13.13
NET OPERATING PROFIT	\$33.79	(\$55.08)
CAPITAL COSTS		
INTEREST ON OPERATING CAPITAL	\$1.05	\$1.27
INTEREST ON EQUIPMENT INVESTMENT	\$4.92	\$5.30
TOTAL CAPITAL COSTS	\$5.97	\$6.57
RETURN TO LAND AND RISK	\$27.82	(\$61.65)
Flex Computation	45.99	-42.02

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

GROSS RETURNS		
WHEAT	229.00 ACRES	
CROP		\$35,266
GRAZING		\$4,580
DIRECT PAYMENT		\$0
COUNTER CYCLICAL PAYMENT		\$0
GRAIN SORGHUM	391.00 ACRES	
CROP		\$35,651
DIRECT PAYMENT		\$0
COUNTER CYCLICAL PAYMENT		\$0
GROSS RETURN		<u>\$75,497</u>
CASH OPERATING EXPENSES		
SEED		\$4,571
FERTILIZER		\$8,468
CHEMICALS		\$6,256
CROP INSURANCE		\$0
OTHER PURCHASED INPUTS		\$0
CANAL WATER		\$0
FUEL, OIL & LUBRICANTS-EQUIPMENT		\$7,678
FUEL-IRRIGATION		\$0
REPAIRS		\$2,783
CUSTOM CHARGES		\$14,076
LAND TAXES		\$59
OTHER EXPENSES		\$27,445
TOTAL CASH EXPENSES		<u>\$71,336</u>
RETURN OVER CASH EXPENSES		\$4,161
FIXED EXPENSES		\$8,636
TOTAL EXPENSES		<u>\$79,972</u>
NET FARM INCOME		(\$4,475)
LABOR AND MANAGEMENT COSTS		\$9,321
NET OPERATING PROFIT		(\$13,796)
CAPITAL COSTS		
INTEREST ON OPERATING CAPITAL		\$739
INTEREST ON EQUIPMENT INVESTMENT		\$3,198
TOTAL CAPITAL COSTS		<u>\$3,937</u>
RETURN TO LAND AND RISK		<u>(\$17,733)</u>

LAND VALUE	RETURN TO RISK*	RETURN ON INVESTMENT**
\$100 /ACRE	(\$19,653)	-11.68%
\$200 /ACRE	(\$21,573)	-7.58%
\$300 /ACRE	(\$23,493)	-5.61%

* 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)