

Corn (Irrigated) Planning Budget

This budget presents information useful to farmers planning the production, financing and marketing of irrigated corn. Table 1 presents estimates for the 2021 crop year for irrigated corn production in northern, central and southwest Missouri. Assumptions were based on price conditions as of October 2020. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common in Missouri. Farmers are encouraged to modify this budget based on their circumstances.

Table 1. Missouri corn (irrigated) planning budget for 2021.

	Dollars per acre ¹	Your estimate
Income		
Grain sales	735.00	
Other income	0.00	
Total income	735.00	
Operating costs		
Seed	100.00	
Fertilizer and soil amendments	122.48	
Crop protection chemicals	41.00	
Crop supplies, storage, and marketing	3.00	
Crop consulting and insurance	22.00	
Custom hire and rental	6.20	
Machinery fuel, drying, and irrigation energy	76.37	
Machinery repairs and maintenance	57.84	
Operator and hired labor	25.35	
Operating interest	10.18	
Total operating costs	464.46	
Ownership costs		
Farm business overhead	3.13	
Machinery overhead	47.65	
Machinery depreciation	60.23	
Real estate charge	210.00	
Total ownership costs	321.00	
Total costs	785.46	
Income over operating costs	270.54	
Income over total costs	-50.46	
	Operating costs per bushel	2.21
	Ownership costs per bushel	1.53
	Total costs per bushel	3.74

¹ Totals may not sum due to rounding.

Written by
Raymond Massey, Professor, Agricultural Business and Policy Extension

Table 2 shows input assumptions used to estimate the irrigated corn budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in corn (irrigated) planning budget for 2021.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	210	Corn market price, per bushel	3.50
Seeding rate, count	32,000	Seed, per 80,000 seed bag	250.00
Nitrogen rate, pounds N	210	Nitrogen, per pound N	0.27
Phosphorus rate, pounds P ₂ O ₅	95	Phosphorus, per pound P ₂ O ₅	0.38
Potassium rate, pounds K ₂ O	61	Potassium, per pound K ₂ O	0.28
Lime rate, tons	0.6	Lime, per ton	21.00
Sum of allocated labor, hours	1.52	Skilled labor, per hour	21.00
Irrigation, inches	6	Farm diesel, per gallon	2.38

Table 3 details the field activities assumed in this budget and their machinery costs. Machinery costs were estimated using an economic engineering approach.

Table 3. Machinery assumptions used in corn (irrigated) planning budget for 2021, on a per acre basis.

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs ¹ (dollars)	Ownership costs ² (dollars)	Total costs (dollars)	Trips across field
Field cultivator (35 ft); 360 4WD	0.04	0.63	3.17	4.87	8.04	1
V-ripper 30" (17 feet); 360 4WD	0.03	0.45	2.06	5.76	7.82	0.3
Split row no-till planter (16/31 (30/15")); 225 MFWD	0.05	0.53	4.70	12.02	16.72	1
Boom sprayer (90 feet); 160 MFWD	0.04	0.31	2.87	4.59	7.46	2
Anhydrous applicator (21 feet); 225 MFWD	0.09	0.88	5.15	7.23	12.38	1
Combine, corn head (8 row); 275 HP	0.15	1.78	21.28	17.74	39.02	1
Grain cart (500 bushel); 225 MFWD	0.07	0.73	3.84	5.51	9.36	
Grain auger (5,000 bushels per hour); 130 MFWD	0.04	0.24	1.52	1.48	3.00	
Irrigation	0.50		57.37	44.00	101.37	1
Semi, tractor and trailer		1.34	5.69	3.03	8.71	
Pickup truck		0.26	1.11	1.65	2.76	
Total³	1.02	7.15	108.75	107.88	216.63	7.3

¹ Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

² Machinery ownership cost is the sum of machinery overhead and depreciation.

³ Totals may not sum due to rounding.

Abbreviations: 4WD = four wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also develop their own custom budget by using the Missouri Crop Budget Generator Tool (<https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm>). This spreadsheet tool allows users to develop a custom estimate for their costs and returns for growing corn and other grain crops in Missouri.