

Grain Sorghum Planning Budget

This budget presents information useful to farmers planning the production, financing and marketing of grain sorghum. Table 1 presents estimates for the 2020 crop year for grain sorghum production in northern, central and southwest Missouri. Assumptions were based on price conditions as of October 2019. 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 grain sorghum planning budget for 2020.

	Dollars per acre ¹	Your estimate
Income per acre		
Grain sales	339.50	
Other income	0.00	
Total income per acre	339.50	
Operating costs per acre		
Seed	12.00	
Fertilizer and soil amendments	78.96	
Crop protection chemicals	29.00	
Crop supplies, storage, and marketing	2.00	
Crop consulting and insurance	15.00	
Custom hire and rental	6.75	
Machinery fuel, drying, and irrigation energy	12.24	
Machinery repairs and maintenance	11.80	
Operator and hired labor	13.71	
Operating interest	4.99	
Total operating costs per acre	186.45	
Ownership costs per acre		
Farm business overhead	3.00	
Machinery overhead	21.01	
Machinery depreciation	22.74	
Real estate charge	122.50	
Total ownership costs per acre	169.25	
Total costs per acre	355.70	
Income over operating costs per acre		
	153.05	
Income over total costs per acre		
	-16.20	
Operating costs per bushel	1.92	
Ownership costs per bushel	1.74	
Total costs per bushel	3.67	

¹ Totals may not sum due to rounding.

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Table 2 shows input assumptions used to estimate the grain sorghum 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 grain sorghum planning budget for 2020.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	97	Grain sorghum market price, per bushel	3.50
Seeding rate, count	90,000	Seed, per 750,000 seed bag	100.00
Nitrogen rate, pounds N	97	Nitrogen, per pound N	0.44
Phosphorus rate, pounds P ₂ O ₅	44	Phosphorus, per pound P ₂ O ₅	0.40
Potassium rate, pounds K ₂ O	28	Potassium, per pound K ₂ O	0.31
Lime rate, tons	0.5	Lime, per ton	20.00
Sum of allocated labor, hours	0.85	Skilled labor, per hour	20.00
		Farm diesel, per gallon	3.04

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 grain sorghum planning budget for 2020, 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
V-ripper 30-inch (17 feet); 360 4WD	0.03	0.45	2.25	5.72	7.97	0.3
Row crop planter (16 row); 225 MFWD	0.05	0.53	5.61	10.85	16.46	1
Boom sprayer (90 feet); 130 MFWD	0.04	0.25	2.81	4.49	7.30	2
Anhydrous applicator (21 feet); 225 MFWD	0.09	0.88	5.73	7.23	12.96	1
Combine, fixed grain head (30 feet); 275 HP	0.07	0.91	8.09	8.86	16.96	1
Grain cart (500 bushel); 225 MFWD	0.04	0.37	2.20	2.80	5.00	
Grain auger (5,000 bushels per hour); 130 MFWD	0.02	0.11	0.76	0.68	1.45	
Semi, tractor and trailer		0.32	1.84	1.34	3.18	
Pickup truck		0.28	1.21	1.76	2.98	
Total³	0.35	4.10	30.50	43.75	74.25	5.3

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 = 4-wheel drive tractor; MFWD = modified front-wheel drive tractor; HP = horsepower

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