

# Alfalfa Establishment Planning Budget

This budget presents information useful to farmers planning the financing, establishment and marketing of alfalfa. Table 1 presents estimates for the 2021 crop year for alfalfa establishment in the fall for 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. For example, spring established alfalfa would have a higher crop protection cost to account for necessary herbicides.

**Table 1. Missouri alfalfa establishment planning budget for 2021.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income per acre</b>		
Hay sales (60 pound bales)	420.00	
Other income	0.00	
<b>Total income per acre</b>	<b>420.00</b>	
<b>Operating costs per acre</b>		
Seed	43.50	
Fertilizer and soil amendments	114.80	
Crop protection chemicals	37.00	
Crop supplies, storage, and marketing	7.50	
Custom hire and rental	72.70	
Machinery fuel and irrigation energy	18.48	
Machinery repairs and maintenance	23.35	
Operator and hired labor	43.65	
Operating interest	8.12	
<b>Total operating costs per acre</b>	<b>369.10</b>	
<b>Ownership costs per acre</b>		
Farm business overhead	11.25	
Machinery overhead	24.29	
Machinery depreciation	44.44	
Real estate charge	105.00	
<b>Total ownership costs per acre</b>	<b>184.99</b>	
<b>Total costs per acre</b>	<b>554.09</b>	
<b>Income over operating costs per acre</b>	<b>50.90</b>	
<b>Income over total costs per acre</b>	<b>-134.09</b>	

<sup>1</sup> 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 alfalfa establishment budget for small bale production. 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 alfalfa establishment planning budget for 2021.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Forage yield, 60 pound bales	70	Alfalfa market price, per bale	6.00
Seeding rate, pounds	15	Alfalfa seed, per pound	2.90
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	70	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.38
Potassium rate, pounds K <sub>2</sub> O	90	Potassium, per pound K <sub>2</sub> O	0.28
Lime rate, tons	3	Lime, per ton	21.00
Sum of allocated labor, hours	2.47	Skilled labor, per hour	21.00
Operating Interest, %	4.5	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 alfalfa establishment planning budget for 2021, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Chisel plow (15 feet); 130 MFWD	0.13	0.74	5.46	9.04	14.50	1
Tandem disk (21 feet); 130 MFWD	0.16	0.94	7.92	8.99	16.92	2
Roller harrow (12 feet); 105 2WD	0.13	0.65	4.76	5.49	10.25	1
No-till drill (15 feet); 130 MFWD	0.16	0.90	9.51	15.08	24.60	1
Disk mower-conditioner (9 feet); 105 2WD	0.35	1.71	14.42	10.82	25.25	2
Wheel rake (2-16'); 60 2WD	0.08	0.20	2.48	3.82	6.30	2
Small square baler; 75 2WD	0.46	1.51	20.99	8.87	29.86	2
Pickup truck		1.04	4.43	6.62	11.04	
<b>Total<sup>3</sup></b>	<b>1.47</b>	<b>7.69</b>	<b>69.98</b>	<b>68.74</b>	<b>138.72</b>	<b>11</b>

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

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: 2WD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor

Farmers can see other Missouri budgets or customize existing Missouri budgets by visiting <https://extension.missouri.edu/programs/agricultural-business-and-policy-extension/missouri-crop-and-livestock-enterprise-budgets>.