

Hydroponic Leafy Greens Planning Budget

Using this budget, farmers can estimate the costs and returns for growing leafy greens hydroponically. Table 1 presents estimates for Missouri based on price forecasts in April 2024. Usable production area is assumed to be 85% of a 2,816-square-foot greenhouse. Yield is assumed to be 30 heads per square foot per year, with 95% of heads grown sold. Further assumptions and capital investments are summarized below and in Tables 2, 3 and 4. Use the “Your estimate” column to plan your hydroponic leafy greens operation’s costs and returns.

Table 1. Missouri leafy greens (deep water culture) budget.

	Dollars per year ¹	Dollars per head ¹	Dollars per square foot ¹	Your estimate
Income				
Leafy greens (wholesale market)	92,151	1.50	32.72	
Leafy greens (retail market)	18,771	2.75	6.67	
Total income	110,922	1.63	39.39	
Operating costs				
Seed	1,950	0.03	0.69	
Horticultures	1,350	0.02	0.48	
Fertilizer (5-12-26)	3,064	0.04	1.09	
Fertilizer (calcium nitrate)	616	0.01	0.22	
Fungicide	16	0.00	0.01	
Insecticide	8	0.00	0.00	
Beneficial insects	125	0.00	0.04	
Labor	26,000	0.38	9.23	
Packaging	10,523	0.15	3.74	
Utilities	22,782	0.33	8.09	
Repairs	2,300	0.03	0.82	
Marketing and promotion	5,546	0.08	1.97	
Professional services	1,000	0.01	0.36	
Miscellaneous	1,000	0.01	0.36	
Interest on operating capital	1,469	0.02	0.52	
Total operating costs	70,620	1.03	25.08	
Ownership costs				
Depreciation on capital investments	10,738	0.16	3.81	
Interest on capital investments	5,334	0.08	1.89	
Land charge	125	0.00	0.04	
Overhead, taxes and insurance	1,150	0.02	0.41	
Total ownership costs	17,347	0.25	6.16	
Total costs	87,967	1.29	31.24	
Income over operating costs	40,302	0.59	14.31	
Income over total costs	22,955	0.34	8.15	

1. Totals may not sum due to rounding.

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The yield of 30 heads per square foot per year is based on the following assumptions:

- Plant density: 2.6 plants per square foot using a triangular grid arrangement of 8 inches between plants and 6.93 inches between rows.
- Crop cycle: 36-day crop cycle, with 12 days spent propagating seedlings and 24 days in the hydroponic cropping system.

Farmers can customize this budget using the Hydroponic Enterprise Budget spreadsheet, which can be downloaded from the specialty crops section of the [Missouri Crop and Livestock Enterprise Budgets webpage](https://extension.missouri.edu/programs/agricultural-business-and-policy-extension/missouri-crop-and-livestock-enterprise-budgets) (extension.missouri.edu/programs/agricultural-business-and-policy-extension/missouri-crop-and-livestock-enterprise-budgets).

Table 2. Greenhouse capital investment (deep water culture).

Summary	Unit	Total (dollars)	Useful life (years)	Salvage value (percent)	Annual depreciation (dollars)	Annual interest (dollars)
Greenhouse structure/covering	total investment	50,000	15	10	3,000	2,338
Greenhouse environmental controls	total investment	30,000	7	10	3,857	1,403
Growing/storage/other equipment	total investment	25,000	7	10	3,214	1,169
Site preparation/infrastructure	total investment	10,000	15	0	667	425

Table 3. Greenhouse utilities.

Utility	Unit	Quantity	Dollars per unit	Dollars per year
Natural gas (heating)	1,000 cubic feet	1,166	13.50	15,741
Electricity (HPS lights, cooling)	kilowatt-hour	45,811	0.10	4,581
Water	month	12	80.00	960
Phone and internet	month	12	125.00	1,500

Table 4. Packing supplies.

Expense	Unit	Quantity	Dollars per unit	Dollars per year
Crisper labels (2,000 per roll)	roll	0	40.00	0
Lettuce crispers	crisper	0	0.44	0
Lettuce crisper boxes	box	0	2.80	0
Lettuce box liners (bulk)	liner	2,844	0.20	569
Lettuce pack boxes (bulk)	box	2,844	3.50	9,954

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