

Root Crops (High Tunnel) Planning Budget

Using this budget, farmers can estimate the costs and returns for raising radishes, beets and carrots in a high tunnel. Table 1 presents estimates for Missouri based on price forecasts in January 2025. The budget assumes root crops are grown in a 2,000-square-foot high tunnel with trickle irrigation and sold wholesale. Capital investments and a sensitivity analysis are summarized in Tables 2 and 3. Use the “Your estimate” column to plan your high tunnel root crop operation’s costs and returns.

Table 1. Missouri high tunnel root crops budget

	Unit	Quantity	Price per unit	Dollars per 2,000 square feet	Dollars per square foot	Your estimate
Income						
Radishes, beets and carrots	pound	1,920	2.31	4,435.20	2.22	
Total income				4,435.20	2.22	
Operating costs						
Seeds	each	1	73.03	73.03	0.04	
Soil Test	each					
Fertilizer	cubic yard	6	5.78	34.68	0.02	
Lady bugs	box					
Insecticide	total	1	27.13	27.13	0.01	
Drip Tape	feet	400	0.06	24.00	0.01	
Row cover	each					
Hoops	each					
Labor	hour	50	18.00	900.00	0.45	
Boxes and other supplies	each	1,920	1.20	2,304.00	1.15	
Marketing	% of sales	4,435	10.00	443.52	0.22	
Miscellaneous	total					
Operating interest	percent	7.75		49.17	0.02	
Total operating costs				3,855.53	1.93	
Ownership costs						
High tunnel building use	month	2	145.46	290.93	0.15	
Total ownership costs				290.93	0.15	
Total costs				4,146.45	2.07	
Income over operating costs				579.67	0.29	
Income over total costs				288.75	0.14	

Note: Totals may not sum due to rounding.

Table 2. Capital investments used in Missouri high tunnel root crops budget.

Component	Labor (dollars)	Machinery (dollars)	Materials (dollars)	Total (dollars)	Useful life (years)	10-year cost (dollars)
Site evaluation and soil preparation	393.30	86.06	0.00	479.36	10	479.36
Trenching and laying water pipes	17.85	0.00	133.35	151.19	10	151.19
Inserting poles and setting posts	356.89	196.20	281.62	834.72	10	834.72
Assembling the frame	356.89	0.00	9,399.23	9,756.12	10	9,756.12
Treating and setting baseboards	118.96	0.00	159.53	278.50	10	278.50
End and sidewall installation	594.82	0.00	449.37	1,044.20	10	1,044.20
Pulling plastic	118.96	0.00	874.74	993.71	3	3,312.36
Channel lock installation	29.74	0.00	0.00	29.74	10	29.74
Shutter vents	0.00	0.00	816.07	816.07	10	816.07
Trellis purlin installation	178.45	0.00	295.09	473.54	10	473.54
Electrical	146.52	0.00	0.00	146.52	10	146.52
Miscellaneous hardware and tools	0.00	0.00	133.35	133.35	10	133.35
Total cost	2,312.40	282.27	12,542.36	15,137.03		17,455.68
Cost per square foot	1.16	0.14	6.27	7.57		8.73

Table 3 provides annual profitability expectations (returns over total costs) under varying yield and price scenarios in full production and holding all costs constant.

Table 3. Sensitivity analysis for Missouri high tunnel root crops budget, income over total costs (dollars).

Percent change	Sale price per pound	Yield per 2,000 square feet (pounds)						
		1,344	1,536	1,728	1,920	2,112	2,304	2,496
15% less	1.96	-1,508	-1,131	-754	-377	0	377	754
10% less	2.08	-1,352	-953	-554	-155	244	644	1,043
5% less	2.19	-1,197	-776	-354	67	488	910	1,331
Base level	2.31	-1,042	-598	-155	289	732	1,176	1,619
5% more	2.43	-887	-421	45	511	976	1,442	1,908
10% more	2.54	-731	-243	244	732	1,220	1,708	2,196
15% more	2.66	-576	-66	444	954	1,464	1,974	2,484

The budget presented here aggregates costs for some inputs. Farmers can find additional details and customize this budget to match their own operation by using the [Root Crops High Tunnel Planning Budget workbook \(XLSX\)](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ht-rootcrops-budget.xlsx) (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ht-rootcrops-budget.xlsx).

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