

Trickle-Irrigation Watermelon Cost-Return Budget for Missouri

Department of Agricultural Economics



Missouri Value Added Development Center · MU College of Agriculture, Food and Natural Resources

Melvin Brees
Extension Associate
Farm Business Management

The following budgets estimate potential returns/costs for trickle (drip) irrigated watermelon production in Missouri. To customize the budget for your farm, adjust yields, costs and prices to represent your individual production system, farm productivity and market outlets.

Income Per Acre

The following budgets include three yield and price levels, ranging from lower yield/lower price to higher yield/higher price scenarios, with similar levels of production management. Other yield/price combinations can be made by adjusting yield and price. Land values are estimated to reflect various productivity levels and may be adjusted to represent local values.

Cost Per Acre

Crop production costs vary by production system, pest pressure and plant nutrient requirements. Table 1 identifies typical transplanting, fertilizer, herbicide, insecticide and fungicide applications. Fertilizer application rates are based on estimated crop needs. Weed control estimates assume herbicide is applied between plastic mulched rows. Re-

Table 1. Production Inputs — Watermelon

Item	Yield Level (lbs/acre)			
	20,000	35,000	50,000	
Plants (# of plants/1,000) Seedless Variety	1.4	1.4	1.4	\$160.00/
1,000				
Fertilizer:				
N (anhydrous)	0	0	0	\$10.00/lb
N (liquid/dry)	30	60	80	\$0.28/lb
P	60	100	180	\$0.18/lb
K	60	100	145	\$0.14/lb
Lime	0.5	0.5	0.5	\$10.00/ton
Herbicide				
Alanap 2L™	0.0	0.0	0.0	\$48.44/ac
Prefar™	0.0	0.0	0.0	\$61.25/ac
Treflan™	0.0	0.0	0.0	\$7.14/ac
Curbit™	0.8	0.8	0.8	\$20.00/ac
Insecticide / Fungicide				
Insecticide	1	1	1	\$40.00/ac
Quadris™	2	2	2	\$20.00/ac
Bravo™	2	2	2	\$15.19/ac
Dithane™	2	2	2	\$7.50/ac
Irrigation, hours	28	28	28	\$1.00/hr

Table 2. Machinery and Land Resources — Watermelon

ITEM	Yield Level (lbs/acre)			
	20,000	35,000	50,000	
Planting, Growing, and Harvesting				
Chisel	1	1	1	\$5.48/ac
Disk	2	2	2	\$4.87/ac
Mulch Layer	1	1	1	\$71.85/ac
Transplant	1	1	1	\$86.80/ac
Dry fertilizer application	1	1	1	\$4.50/ac
Herbicide application	1	1	1	\$4.50/ac
Insecticide / fungicide application	7	7	7	\$2.15/ac
Mulch Lifter	1	1	1	\$44.00/ac
Plastic Disposal Fee	1	1	1	\$10.00
Packing Bins (24")	25	40	60	\$7.34/ea.
Harvest Labor	40	60	80	\$8.00/hr
Grade/Pack	8	10	12	\$8.00/hr
Transportation Operating Cost	6	6	6	\$12.02/hr
Overhead/Management labor	5.00	5.00	5.00	\$10.00/hr
Irrigation labor	6.75	6.75	6.75	\$10.00/hr
Land value/acre	\$950	\$1,400	\$1,900	5.50%
Interest on capital	7.5%			
Irrigation Equipment	\$/ac			
Depreciation	\$46.67			
Interest	\$28.00			
Repairs	\$161.00			

peated fungicide and insecticide applications often are necessary for effective insect and disease control.

Planting, growing and harvest costs represent labor and machinery operations identified in Table 2. Custom rates are used for fertilizer, herbicide and insecticide applications. Economic engineering approach estimates are used for machinery tillage, mulching and transplanting operations assuming maximum tractor size of 75hp. Harvesting costs are based on labor estimates for hand harvesting. Overhead/management labor includes estimates for activities not directly related to field operations.

Trickle irrigation costs vary considerably depending upon water source, filtration and equipment needs. The budgets

assume capital investment (water source, pump, filter, controls, main lines, etc.) of \$700 per acre. Repair and maintenance costs are estimated at 3% of capital investment plus annual replacement of row drip tubes (tapes). Fuel, oil and labor costs assume four hours of irrigation per week for 7 weeks.

Land costs are based on owned land. If the land is cash rented, the actual cash rent per acre should be used as land cost.

Acknowledgments — These budgets were prepared with input from the following committee: UMC Agriculture Economist — Joe Parcell, UMC Horticulture Specialist — Lewis Jett; University Outreach and Extension Regional Specialists — Timothy Baker, Keith Hawxby, Gaylord Moore and Todd Lorenz; UMC Student — Todd Gerlt

COST-RETURN PROJECTION — TRICKLE-IRRIGATION WATERMELON — MISSOURI

	Yield Level (lbs/acre)			Your Farm
	20,000	35,000	50,000	_____
INCOME PER ACRE				
A. Yield per acre (pounds).....	20,000	35,000	50,000	_____
B. Price per pound	\$ 0.03	\$ 0.08	\$ 0.12	_____
C. Net government payment	\$ _____	\$ _____	\$ _____	_____
D. Indemnity payments	\$ _____	\$ _____	\$ _____	_____
E. Miscellaneous income	\$ _____	\$ _____	\$ _____	_____
F. Returns/acre ((A x B) + C + D + E)	\$ 600.00	\$ 2,800.00	\$ 6,000.00	_____
COSTS PER ACRE				
1. Plants	\$ 224.00	\$ 224.00	\$ 224.00	_____
2. Herbicide	16.00	16.00	16.00	_____
3. Insecticide / Fungicide	125.38	125.38	125.38	_____
4. Fertilizer and Lime	32.60	53.80	80.10	_____
5. Pollination-Hive Rental	25.00	25.00	25.00	_____
6. Crop Insurance	_____	_____	_____	_____
7. Plastic Mulch	130.00	140.00	150.00	_____
8. Miscellaneous	10.00	10.00	10.00	_____
9. Planting, Growing & Harvesting	938.29	1262.69	1637.09	_____
10. Overhead/management labor	50.00	50.00	50.00	_____
11. Irrigation	_____	_____	_____	_____
a. Labor	67.50	67.50	67.50	_____
b. Fuel and oil	28.00	28.00	28.00	_____
c. Repairs and Maintenance	161.00	161.00	161.00	_____
d. Depreciation	46.67	46.67	46.67	_____
e. Interest on Equipment	28.00	28.00	28.00	_____
12. Land Charge/Rent	52.25	77.00	104.50	_____
G. SUB TOTAL	\$ 1,934.69	\$ 2,315.04	\$ 2,753.24	_____
13. Interest on 1/2 Nonland Costs	70.59	83.93	99.33	_____
H. TOTAL COSTS (B/E POINT)	\$ 2,005.28	\$ 2,398.97	\$ 2,852.57	_____
I. RETURNS OVER COSTS (F – H)	\$ -1,405.28	\$ 401.03	\$ 3,147.43	_____
J. TOTAL COSTS/DOZEN (H ÷ A)	\$ 0.10	\$ 0.07	\$ 0.06	_____
K. RETURN TO ANNUAL COST (I+13) ÷ G	\$ -68.99%	\$ 20.95%	\$ 117.93%	_____

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Melvin Brees, *Trickle-Irrigation Watermelon Cost-Return Budget for Missouri*, University of Missouri, December 2002.

University of Missouri, College of Agriculture, Food and Natural Resources

FMB-6750

December 2002

Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Ronald J. Turner, Director, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. • University Extension does not discriminate on the basis of race, color, national origin, sex, religion, age, disability or status as a Vietnam era veteran in employment or programs. If you have special needs as addressed by the Americans with Disabilities Act, please contact our ADA coordinator at University of Missouri, 4 Hienkel Bldg, Columbia, MO 65211, (573) 884-7278. Reasonable efforts will be made to accommodate your special needs.