

Supplementary Materials

S1: Smart data loggers and router (left); Pressure regulator (right).



S2: Total area cost of low-tech greenhouse (40x9 = 360 m²) for DI.

Fixed costs for tomato under conventional surface drip irrigation (DI)						
Item No.	Item name	Unit	Initial Cost (SR)	Expected Life (Years)	Residual (SR)	Depreciation (SR)
1	Galvanized iron frame	1	19200	30	192	634
2	Fans	2	3700	30	37	122
3	Cooling system	10	950	4	0	238
4	Control unit	1	1300	30	0	43
5	Submerged pump	1	700	15	0	47
6	Fiber glass	9	12150	8	0	1519
7	Irrigation system water pump (1/2 H.P)	1	600	7	12	84
8	Timer	1	500	20	0	25
9	Solenoid valve	3	75	3	0	25
10	Pressure regulated dripline	1	250	5	0	100
11	Owner's time (opportunity cost)					500
12	Land rent (opportunity cost)					128

S3: Total area cost of low-tech greenhouse (40x9 = 360 m²) for M-DI.

Fixed costs for tomato under modified surface drip irrigation (M-DI)						
Item No.	Item name	Unit	Initial Cost (SR)	Expected Life (Years)	Residual (SR)	Depreciation (SR)
1	Galvanized iron frame	1	19200	30	192	634
2	Fans	2	3700	30	37	122
3	Cooling system	10	950	4	0	238
4	Control unit	1	1300	30	0	43
5	Submerged pump	1	700	15	0	47
6	Fiber glass	9	12150	8	0	1519
7	Irrigation system water pump (1/2 H.P)	1	600	7	12	84
8	Timer	1	500	20	0	25
9	Solenoid valve	3	75	3	0	25

10	Pressure regulated dripline	1	125	5	0	100
11	Slashed 4 inch PVC pipes / low-tech greenhouse (SR)	1	157.5	5	0	105
12	The barrier (clay soil) (SR)/low-tech greenhouse	1	75	10	0	50
13	Owner's time (opportunity cost)					500
14	Land rent (opportunity cost)					128

S4: Variable cost for DI in a low-tech greenhouse (40x9 = 360 m²).

Item	Tomato seeds (SR)/low-tech greenhouse	200
1	Electricity cost (SR)	180
2	Pesticides + fungicides/ PP (SR)	100
3	Labors (SR)/PP	150.9
4	Total	681.8
5	Area of production (m ²)	310.5
7	Tomato Yield/m ²	8.32
8	Price/kg (SR)	6.5

S5: Variable cost for M-DI in a low-tech greenhouse (40x9 = 360 m²).

Item	Tomato seeds (SR)/low-tech greenhouse	200
1	Electricity cost (SR)	180
2	Pesticides + fungicides/PP (SR)	100
3	Labors (SR)/PP	150.9
5	Area of production (m ²)	310.5
7	Tomato Yield/m ²	13.6
8	Price/kg (SR)	6.5

S6: Breakeven prices and levels of tomato production under the DI and M-DI methods under irrigation regime of 100%ET_o.

Irrigation method	Breakeven price/yield/production	Value
conventional surface drip irrigation	breakeven price to cover variable cost	2.36
	breakeven price to cover total cost	2.88
modified surface drip irrigation	breakeven price to cover variable cost	1.44
	breakeven price to cover total cost	1.77
conventional surface drip irrigation	Breakeven volume for the period (163 days)	33.6 Kg
	Breakeven yield kg/m ² (area 32 m ²)	1.05
	Actual yield kg/m ²	8.32
modified surface drip irrigation	Breakeven volume for the period (163 days)	28.5 Kg
	Breakeven yield kg/m ² (area 32 m ²)	0.9
	Actual yield kg/m ²	13.6

Source: author's computations based on supplementary Tables S2-S6.