



## Utah Urban Small-Scale Mixed Vegetable Production Costs and Returns – 2 Acres, 2014

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### INTRODUCTION

Sample costs and returns to produce mixed vegetables under drip irrigation and sold through direct markets in the Davis, Salt Lake, and Utah County area of Utah are presented in this publication. This publication is intended to be a guide used to make production decisions, determine potential returns and prepare business and marketing plans. The practices described are not the recommendations of Utah State University, but rather the production practices considered typical of a well-managed farm in the region. All practices, yields, costs, and pricing were determined by a producer panel held November 2013. Practices, yields, costs, and pricing are not applicable to all situations as management, cultural practices, markets, and growing conditions vary across the region.

**Farm.** The representative farm consists of 2 acres of land planted in a variety of high value vegetable crops. Table 1 shows the acreage, yield, and pricing for each product. Agricultural land lease costs range from \$200 to \$1,200 annually. A lease rate of \$800 per acre is used here.

**Crop Pricing.** Vegetable pricing was calculated by taking the average of the local farmers' market and restaurant prices, as the products are marketed to both outlets. Average prices and yields used to calculate returns given in Table 1. A 5 percent loss rate is applied to all yields to account for spoilage, damage, and unsold product.

**Labor.** As mixed vegetable production on small acreage is labor intensive, the total farm labor (including owner labor) is 2,000 hours across the season at a cost of \$10/hr. The annual cost is \$20,000 for the 2 acre farm, or \$10,000/acre.

**Irrigation System.** A drip irrigation system is used to irrigate both acres. The cost to install the system is \$1,000 per acre, or \$2,000 across all acres for pump, filter, mainline, and setup. The annual fee for drip tape is \$1,000/acre. The system life averages 7 years (Haward Irrigation, 2014).

**Irrigation.** The irrigation water costs for culinary water use are \$1,300/acre annually.

**Marketing.** Marketing fees include market stand costs (\$800) and transportation to four markets weekly (\$2,300). Labor costs involved in marketing are included in the labor costs described above.

**Food Safety/Testing.** These annual costs include a \$12 water test, a \$30 scale calibration fee, and a \$1,000 Global GAP inspection fee.

**Fuel and Lube.** The fuel and lube for machinery and vehicles is calculated at 8 percent of the average asset value.

**Investment Repairs.** Annual repairs on all farm investments or capital recovery items that require maintenance are calculated at 2 percent of the average asset value for buildings, improvements, and equipment and 7 percent of the average asset value for machinery and vehicles.

**Cash Overhead.** Cash overhead consists of various cash expenses paid out during the year. These costs include property taxes, interest, office expenses, liability, property insurance, and accounting/legal costs (see Table 3).

*Insurance.* Insurance on farm investments vary, depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss at .666 percent of the average asset value. Liability and crop insurance covers accidents and crop loss on the 2 acre farm at an annual cost of \$800.

*Office & Travel.* Office and travel costs are estimated at \$800 for an average year for the 2 acre farm. These expenses include office supplies, telephone service, Internet service, and travel expenses to educational seminars.

*Accounting & Legal.* Annual accounting and legal costs are estimated at \$500 for an average year for the 2 acre farm.

**Capital Recovery.** Capital recovery costs are the annual depreciation (opportunity cost) of all farm investments.

Capital recovery costs are calculated using straight line depreciation. All equipment listed is new unless otherwise noted. For used machinery the price is calculated as one-half of the new purchase price and useful life is two-thirds that of new machinery (Painter, 2011).

**Salvage Value.** Salvage value is 10 percent of the purchase price, which is an estimate of the remaining value of an investment at the end of its useful life. The salvage value for land is the purchase price, as land does not normally depreciate.

#### **Average Asset Value Computation**

$$\left( \frac{\text{Purchase Price} + \text{Salvage Value}}{2} \right)$$

#### **Straight Line Depreciation Computation**

$$\left( \frac{\text{Purchase Price} - \text{Salvage Value}}{\text{Useful Life}} \right)$$

#### **REFERENCES**

Painter, Kathleen (2011). The Costs of Owning and Operating Farm Machinery in the Pacific Northwest 2011. A Pacific Northwest Publication #346. University of Idaho, Washington State University, and Oregon State University.

Haward Irrigation (2014). Personal communication.

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**Table 1: Small-Scale Mixed Vegetable Acreage, Yield, and Pricing, 2014.**

<b>Product</b>	<b>Acres</b>	<b>Yield</b>	<b>Unit</b>	<b>Farmers' Market Price</b>	<b>Restaurant Price</b>	<b>Average Price</b>
Tomatoes	0.25	3,500	Lbs	\$2.00	\$1.25	\$1.63
Peas	0.1	700	Lbs	\$2.00	\$1.50	\$1.75
Winter Squash	0.1	500	Lbs	\$0.70	\$0.40	\$0.55
Summer Squash	0.1	550	Each	\$0.75	\$0.50	\$0.63
Beans	0.1	850	Lbs	\$3.50	NA	\$3.50
Okra	0.25	5,400	Lbs	\$4.00	NA	\$4.00
Beets	0.25	3,700	Lbs	\$3.00	\$2.25	\$2.63
Potatoes	0.25	1,200	Lbs	\$2.00	\$1.40	\$1.70
Leeks	0.25	2,300	Lbs	\$4.00	\$2.80	\$3.40
Carrots	0.1	500	Lbs	\$2.00	NA	\$2.00
Leafy Greens	0.25	750	Lbs	\$18.00	\$12.00	\$15.00

**Table 2: Small-Scale Mixed Vegetable Production Costs and Returns, 2 acres, 2014.**

	<b>Total Units</b>	<b>Unit</b>	<b>Price/Cost Per Unit</b>	<b>Total Cost/Value</b>	<b>Total Cost/Value Per Acre</b>
<b>GROSS INCOME</b>					
Tomatoes	3,500	Lbs	\$2.50	\$ 8,312.50	\$ 4,156.25
Peas	700	Lbs	\$1.75	\$ 1,163.75	\$ 581.88
Winter Squash	500	Lbs	\$0.55	\$ 261.25	\$ 130.63
Summer Squash	550	Each	\$0.63	\$ 326.56	\$ 163.28
Beans	850	Lbs	\$3.50	\$ 2,826.25	\$ 1,413.13
Okra	5,400	Lbs	\$4.00	\$ 20,520.00	\$ 10,260.00
Beets	3,700	Lbs	\$2.63	\$ 9,226.88	\$ 4,613.44
Potatoes	1,200	Lbs	\$1.70	\$ 1,938.00	\$ 969.00
Leeks	2,300	Lbs	\$3.40	\$ 7,429.00	\$ 3,714.50
Carrots	500	Lbs	\$2.00	\$ 950.00	\$ 475.00
Leafy Greens	750	Lbs	\$15.00	\$ 10,687.50	\$ 5,343.75
<b>TOTAL GROSS INCOME</b>				<b>\$ 63,641.69</b>	<b>\$ 31,820.84</b>
<b>OPERATING COSTS</b>					
Land Rental	2	Acres	\$ 800.00	\$ 1,600.00	\$ 800.00
Culinary Water	2	Acres	\$ 1,300.00	\$ 2,600.00	\$ 1,300.00
Utilities	1	Annual	\$ 2,000.00	\$ 2,000.00	\$ 1,000.00
Farm Labor	2000	Hours	\$ 10.00	\$ 20,000.00	\$ 10,000.00
Packaging	1	Annual	\$ 200.00	\$ 200.00	\$ 100.00
Food Safety/Testing	1	Annual	\$ 1,042.00	\$ 1,042.00	\$ 521.00
Marketing	1	Annual	\$ 3,100.00	\$ 3,100.00	\$ 1,550.00
Herbicide	2	Acres	\$ 125.00	\$ 250.00	\$ 125.00
Fertilizer	2	Acres	\$ 500.00	\$ 1,000.00	\$ 500.00
Seeds	1	Annual	\$ 700.00	\$ 700.00	\$ 350.00
Plants	1	Annual	\$ 200.00	\$ 200.00	\$ 100.00
Insecticide	2	Acres	\$ 100.00	\$ 200.00	\$ 100.00
Drip Tape	2	Acres	\$ 1,000.00	\$ 2,000.00	\$ 1,000.00
Fuel & Lube	1	Annual	\$ 1,320.00	\$ 1,320.00	\$ 660.00
Maintenance	1	Annual	\$ 1,270.50	\$ 1,270.50	\$ 635.25
Miscellaneous	2	Acres	\$ 50.00	\$ 100.00	\$ 50.00
<b>TOTAL OPERATING COSTS</b>				<b>\$ 37,582.50</b>	<b>\$ 18,791.25</b>
<b>INCOME ABOVE OPERATING COSTS</b>				<b>\$ 26,059.19</b>	<b>\$ 13,029.59</b>
<b>OWNERSHIP COSTS</b>					
<b>CASH OVERHEAD COSTS</b>					
Liability/Crop Insurance				\$ 800.00	\$ 400.00
Accounting & Legal				\$ 500.00	\$ 250.00
Office & Travel				\$ 800.00	\$ 400.00
Annual Investment Insurance				\$ 148.35	\$ 74.18
<b>NONCASH OVERHEAD COSTS (Capital Recovery)</b>					
Buildings, Improvements, & Equipment				\$ 1,430.71	\$ 715.36
Machinery & Vehicles				\$ 3,857.14	\$ 1,928.57
<b>TOTAL OWNERSHIP COSTS</b>				<b>\$ 7,536.21</b>	<b>\$ 3,768.10</b>
<b>TOTAL COSTS</b>				<b>\$ 45,118.71</b>	<b>\$ 22,559.35</b>
<b>NET PROJECTED RETURNS</b>				<b>\$ 18,522.98</b>	<b>\$ 9,261.49</b>

**Table 3: Small-Scale Mixed Vegetable Investment Summary, 2 acres.**

<b>Description</b>	<b>Purchase Price</b>	<b>Percentage Use</b>	<b>Purchase Price</b>	<b>Useful Life (Yrs)</b>	<b>Salvage Value</b>	<b>Annual Capital Recovery</b>	<b>Annual Insurance</b>	<b>Annual Repairs</b>	<b>Annual Fuel &amp; Lube</b>
<b>Buildings, Improvements, and Equipment</b>									
Hand Tools	\$ 1,000.00	100%	\$ 1,000.00	5.00	\$ 100.00	\$ 180.00	\$ 3.66	\$ 11.00	\$ -
Implements	\$ 2,500.00	100%	\$ 2,500.00	10.00	\$ 250.00	\$ 225.00	\$ 9.16	\$ 27.50	\$ -
Packing Shed (8X10)	\$ 3,000.00	100%	\$ 3,000.00	15.00	\$ 300.00	\$ 180.00	\$ 10.99	\$ 33.00	\$ -
Coolers (6)	\$ 600.00	100%	\$ 600.00	3.00	\$ -	\$ 200.00	\$ 2.00	\$ 6.00	\$ -
Carts (6)	\$ 1,800.00	100%	\$ 1,800.00	5.00	\$ -	\$ 360.00	\$ 5.99	\$ 18.00	\$ -
Drip Irrigation System	\$ 2,000.00	100%	\$ 2,000.00	7.00	\$ -	\$ 285.71	\$ 6.66	\$ 20.00	\$ -
<b>Sub Total</b>	<b>\$ 10,900.00</b>		<b>\$ 10,900.00</b>	<b>NA</b>	<b>\$ 650.00</b>	<b>\$ 1,430.71</b>	<b>\$ 38.46</b>	<b>\$ 115.50</b>	<b>\$ -</b>
<b>Machinery and Vehicles</b>									
1-1/2 Ton Truck	\$ 30,000.00	100%	\$ 30,000.00	7.00	\$ 3,000.00	\$ 3,857.14	\$ 109.89	\$ 1,155.00	\$ 1,320.00
<b>Sub Total</b>	<b>\$ 30,000.00</b>		<b>\$ 30,000.00</b>	<b>NA</b>	<b>\$ 3,000.00</b>	<b>\$ 3,857.14</b>	<b>\$ 109.89</b>	<b>\$ 1,155.00</b>	<b>\$ 1,320.00</b>
<b>Total</b>	<b>\$ 40,900.00</b>		<b>\$ 40,900.00</b>	<b>NA</b>	<b>\$ 3,650.00</b>	<b>\$ 5,287.86</b>	<b>\$ 148.35</b>	<b>\$ 1,270.50</b>	<b>\$ 1,320.00</b>