

Guidelines For Estimating Strawberry U-Pick Production Costs

Date: March, 2003

The projected strawberry production costs in this publication have been prepared to assist you in developing your own production costs.

The capital and cash input costs associated with growing strawberries in Manitoba are substantial. Detailed planning is necessary when budgeting for capital expenditures and also for the annual operating costs. The importance of good financial planning is evident by noting the capital required for 10 acres of strawberries may be in the vicinity of \$124,000. Cash costs of establishing the crop run about \$15,000 in the two years prior to picking with an additional \$21,000 in the first year of production before income begins to flow.

The budget should be used as a guide only as each situation may have higher or lower costs than those listed. Costs and yields on each farm differ due to soil type, climatic conditions and agronomic practices. Therefore, producers are encouraged to substitute their own figures in the attached budget to develop their own cost of production for strawberry production.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of the Manitoba Strawberry U-Pick industry. Interpretation and utilization of this information is the responsibility of the user. If you require assistance with developing your individual budget, please contact your local MAF Farm Management Specialist or Regional Crop Specialist.

Commercial strawberry production in Manitoba has been an important part of diversification in the province. Currently there are approximately 60 growers of strawberries in the province; these farms vary in size from 3 acres to 20 acres. The majority of the strawberry farms are on a U-Pick basis; but custom picking of the crop has increased over the past few years.

Strawberries are an intensely managed crop that require precise timing. Yield and quality achieved during the short 3-4 week picking season hinge on timely management practices of the previous year, as well as care and maintenance before picking. Growers entering the industry need these basic requirements: (1) suitable land with adequate drainage and shelterbelts, (2) access to an adequate quantity and quality of water for irrigation, (3) financial resources that permit a significant level of investment on infrastructure and input costs, (4) the ability to apply intensive management skills to the crop in a precisely timed manner, (5) the ability to determine market potential, and (5) the willingness to accept risk.

It is advised that new growers should proceed on a small but graduated scale. A complete assessment of the customer base and marketing opportunities needs to be completed prior to planting the first crop of strawberries.

Strawberry U-Pick - Cost of Production Summary March, 2003

A. Operating Costs	Establishment¹ Cost \$/acre	Picking Cost /acre	Annual Cost/lb	Your Cost
1.01 Seed & Plants	\$815.00	\$824.75	\$0.2561	_____
1.02 Fertilizer	\$65.40	\$56.80	\$0.0176	_____
1.03 Herbicides	\$31.00	\$20.00	\$0.0062	_____
1.04 Insecticides	\$0.00	\$36.00	\$0.0112	_____
1.05 Fungicides	\$0.00	\$45.00	\$0.0140	_____
1.06 Field Fuel Costs	\$28.85	\$17.66	\$0.0055	_____
1.07 Irrigation Costs	\$60.00	\$240.00	\$0.0745	_____
1.08 Custom Costs	\$0.00	\$80.00	\$0.0248	_____
1.09 Repair & Maintenance	\$186.72	\$373.44	\$0.1160	_____
1.10 Miscellaneous	\$190.00	\$320.00	\$0.0994	_____
1.11 Land Taxes	<u>\$20.00</u>	<u>\$10.00</u>	<u>\$0.0031</u>	_____
Subtotal Operating	\$1,396.97	\$2,023.65	\$0.6300	_____
1.12 Interest on Operating	<u>\$41.91</u>	<u>\$60.71</u>	<u>\$0.0189</u>	_____
Total Operating Costs	\$1,438.88	\$2,084.36	\$0.6489	_____
B. Fixed Costs				
2. Depreciation				
2.01 Machinery	\$1,124.64	\$562.32	\$0.1746	_____
2.02 Storage	\$585.00	\$292.50	\$0.0908	_____
3. Investment				
3.01 Land	\$120.00	\$60.00	\$0.0186	_____
3.02 Machinery	\$274.91	\$137.46	\$0.0427	_____
3.03 Storage	<u>\$200.20</u>	<u>\$100.10</u>	<u>\$0.0311</u>	_____
Total Fixed Costs	\$2,304.75	\$1,152.38	\$0.3578	_____
C. Labour	\$380.10	\$606.93	\$0.1885	_____
Total Cost of Production	\$4,123.73	\$3,843.67	\$1.1952	_____

1. The cost of establishing the crop of \$4,123.73 per acre, includes the pre plant and planting years, was spread over 5 years at \$824.75 per year.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of the Manitoba Strawberry U-Pick industry.

Strawberry U-Pick Assumptions

Number of acres in production	10
Additional land (acres)for parking etc.	1
Market Value (\$/acre)	\$1,500
Land Taxes (\$/acre)	\$10.00
Fuel Price (Diesel \$/litre)	\$0.52
Interest on Operating	6.0%
Interest on Investment	4.0%

Crop Rotation and Yields

	<u>Year</u>	<u>lbs/acre</u>
Pre Plant	1	0
Planting Year	2	0
1st Picking	3	6600
2nd Picking	4	5500
3rd Picking	5	4000
Total Yield (lbs/acre)		16,100
Average Yield (lbs/acre)		3,220

<u>Capital Costs</u>	<u>Market Value</u>	<u>Allocated % Strawberry</u>	<u>Allocated \$ Strawberry</u>
<u>Land Value</u>			
Land Cost	\$16,500	100%	\$16,500
<u>Machinery Costs</u>			
Tractor 30 hp	\$30,000	100%	\$30,000
Tractor 100 hp	\$45,000	33%	\$14,850
Planter 5 ft	\$2,000	100%	\$2,000
Plow 5 ft	\$100	100%	\$100
Sprayer 25 ft	\$8,000	100%	\$8,000
Rotovator 5 ft	\$2,200	90%	\$1,980
Cultivator 18 ft	\$500	90%	\$450
Straw spreader 5 ft	\$14,000	25%	\$3,500
Mower 5 ft	\$2,000	75%	\$1,500
Seeder Discer 15 ft	\$100	100%	\$100
Total	\$103,900		\$62,480
<u>Other Costs</u>			
Storage Shed	\$15,000	90%	\$13,500
Cooler	\$2,000	100%	\$2,000
Booth	\$1,500	100%	\$1,500
Miscellaneous	\$10,000	35%	\$3,500
Irrigation Equipment	\$25,000	100%	\$25,000
Total	\$53,500		\$45,500
Total Investment	\$173,900		\$124,480
Average Investment per acre	Machinery	\$6,248 \$/acre	
	Other	\$4,550 \$/acre	
	Total	\$12,448 \$/acre	

Establishment Year Costs

Seed and Plant Costs

Pre Plant Crop

Seeding Rate Bushels per acre

Seed Cost \$ per bushel

Sorghum

1.5 bu/ac

\$10.00 \$/bu

Strawberry Plants

Seeding rate plants/acre

Seed Cost / 1000 plants

8,000 plants/ac

\$100.00 \$/1000 plants

Fertilizer

Cost \$/lb lbs/acre	<u>Nitrogen</u> \$0.27	<u>Phosphate</u> \$0.28	<u>Potash</u> \$0.14	<u>Sulfur</u> \$0.23	<u>Zinc</u> \$1.50
Pre plant	0	0	0	0	0
Planting	70	100	30	15	6

Applicator rental

\$1.00 \$/acre

Herbicides

	<u>Broadleaf</u>	<u>Wildoats</u>	<u>Other</u>
	-----\$/acre-----		
Pre Plant	\$0.00	\$10.00	\$1.00
Planting	\$20.00	\$0.00	\$0.00

Insecticides

	<u>Insect 1</u>	<u>Insect 2</u>	<u>Insect 3</u>
	-----\$/acre-----		
Pre Plant	\$0.00	\$0.00	\$0.00
Planting	\$0.00	\$0.00	\$0.00

Fungicides

	<u>Spray 1</u>	<u>Spray 2</u>	<u>Spray 3</u>
	-----\$/acre-----		
Pre Plant	\$0.00	\$0.00	\$0.00
Planting	\$0.00	\$0.00	\$0.00

Field Operations: Pre Plant

<u>Operation</u>	<u>Times Over</u>	<u>Width Feet</u>	<u>Speed MPH</u>	<u>Tractor HP</u>
Cultivate	1	18	5	100
Seed	1	15	6	100
Plow down	1	5	5	100
Cultivate	1	18	5	100
Fertilizer	1	40	7	100

Field Operations: Planting

<u>Operation</u>	<u>Times Over</u>	<u>Width Feet</u>	<u>Speed MPH</u>	<u>Tractor HP</u>
Planting	1	5	1	30
Cultivate	3	5	5	30
Spray	1	25	4	30
Straw Spreading	1	5	2	100

Irrigation Fuel Costs

	<u>Pre Plant</u>	<u>Plant</u>
Inches applied	0	3
Hours per acre for 1" of water	4	4.0
Hourly pumping costs	\$5.00	\$5.00

Custom & Rental Operations

Custom 1	\$0.00
Custom 2	\$0.00

Repairs & Maintenance

% rate of investment	1.5%
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Miscellaneous

Pre Plant	\$200.00
Plant	\$500.00
Straw Costs	10 bales/acre
	\$12.00 \$/bale

Labour

Labour Rate per hour	\$7.00	<u>Hours/acre</u>
Weed Control		30.0
De-blossom		8.0
Irrigation		6.0
Straw Spreading		5.0
Field Operations		<u>4.3</u>
Total Labour Hours		53.3 hrs

Strawberry U-Pick Cost of Production Worksheet Establish - Pre Plant & Planting Year Details

				Your Cost
1.01 Seed & Plants				
Cover Crop		1.5	seeding rate (bu/acre)	
Sorghum	x	<u>\$10.00</u>	<u>seed cost (\$/bu)</u>	
	=	\$15.00	\$/acre	
Plants		8,000	plants/acre	
	x	\$100.00	\$/ 1,000 plants	
	÷	<u>1,000</u>	<u>1,000 plants</u>	
	=	\$800.00	\$/acre	
Total Cost		\$815.00	\$/acre	
1.02 Fertilizer				
Nitrogen				
Pre Plant		0	lbs/acre seeding	
Plant	+	70	lbs/acre seeding	
	x	<u>\$0.270</u>	<u>cost/lb</u>	
	=	\$18.90	\$/acre	
P₂O₅				
Pre Plant		0	lbs/acre seeding	
Plant		100	lbs/acre seeding	
	x	<u>\$0.280</u>	<u>cost/lb</u>	
	=	\$28.00	\$/acre	
K₂O				
Pre Plant		0	lbs/acre seeding	
Plant		30	lbs/acre seeding	
	x	<u>\$0.135</u>	<u>cost/lb</u>	
	=	\$4.05	\$/acre	
Sulfur				
Pre Plant		0	lbs/acre seeding	
Plant		15		
	x	<u>\$0.230</u>	<u>cost/lb seeding</u>	
	=	\$3.45	\$/acre	
Zinc				
Pre Plant		0	lbs/acre seeding	
Plant		6		
	x	<u>\$1.500</u>	<u>cost/lb seeding</u>	
	=	\$9.00	\$/acre	
Applicator rental				
Pre Plant	=	\$1.00	\$/acre	

				<u>Your Cost</u>
Plant	≡	\$1.00	\$/acre	
Total	=	\$2.00	\$/acre	
Total	=	\$65.40	\$/acre	
1.03 Herbicides				
Pre Plant		\$0.00	broadleaf control (establish)	
	+	\$10.00	wildoats (establish)	
	<u>±</u>	<u>\$1.00</u>	<u>other</u>	
	=	\$11.00	\$/acre	
Planting		\$20.00	broadleaf control	
	+	\$0.00	wildoats	
	<u>±</u>	<u>\$0.00</u>	<u>other</u>	
	=	\$20.00	\$/acre	
Total	=	\$31.00	\$/acre	
1.04 Insecticides				
Pre Plant		\$0.00	insect 1	
	+	\$0.00	insect 2	
	<u>±</u>	<u>\$0.00</u>	<u>insect 3</u>	
	=	\$0.00	\$/acre	
Planting		\$0.00	insect 1	
	+	\$0.00	insect 2	
	<u>±</u>	<u>\$0.00</u>	<u>insect 3</u>	
	=	\$0.00	\$/acre	
Total	=	\$0.00	\$/acre	
1.05 Fungicides				
Pre Plant		\$0.00	spray 1	
	+	\$0.00	spray 2	
	<u>±</u>	<u>\$0.00</u>	<u>spray 3</u>	
	=	\$0.00	\$/acre	

				<u>Your Cost</u>
Planting		\$0.00	spray 1	_____
	+	\$0.00	spray 2	_____
	<u>±</u>	<u>\$0.00</u>	<u>spray 3</u>	_____
	=	\$0.00	\$/acre	_____
Total	=	\$0.00	\$/acre	_____

1.06 Field Fuel Costs

Field Operations

Pre Plant

<u>Operation</u>	<u>Times Over</u>	<u>Width feet</u>	<u>Speed mph</u>	<u>Fuel \$/ac.</u>	
Cultivate	1	18	5	\$1.37	_____
Seed	1	15	6	\$1.37	_____
Plow down	1	5	5	\$4.91	_____
Cultivate	1	18	5	\$1.37	_____
Fertilizer	1	40	7	<u>\$0.44</u>	_____
Total				<u>\$9.45</u>	_____

Field Operations

Planting

<u>Operation</u>	<u>Times Over</u>	<u>Width feet</u>	<u>Speed mph</u>	<u>Fuel \$/ac.</u>	
Planting	1	5	1	\$5.85	_____
Cultivate	3	5	5	\$3.51	_____
Spray	1	25	4	\$0.29	_____
Straw Spreading	1	5	2	<u>\$9.75</u>	_____
Total				<u>\$19.40</u>	_____

Total Field Operation Fuel Costs **\$28.85** _____

1.07 Irrigation Fuel Costs

Pre Plant		0	inches of water applied	
	x	4	hours/acre for 1" of water	_____
	<u>x</u>	<u>\$5.00</u>	<u>rate/hour</u>	_____
	=	\$0.00	\$/acre	_____

			<u>Your Cost</u>
Plant		3 inches of water applied	_____
	x	4 hours/acre for 1" of water	_____
	<u>x</u>	<u>\$5.00</u> <u>rate/hour</u>	_____
	=	\$60.00 \$/acre	_____
Total	=	\$60.00 \$/acre	_____
1.08 Custom Costs			
Pre Plant		\$0.00 total cost	_____
Plant		\$0.00 total cost	_____
	<u>÷</u>	<u>10</u> <u>acres</u>	_____
	=	\$0.00 \$/acre	_____
1.09 Repairs and Maintenance			
		1.5% percentage rate	_____
	x	<u>\$12,448</u> <u>investment/acre</u>	_____
		\$186.72 \$ /acre	_____
1.10 Miscellaneous			
		\$200.00 pre plant \$/acre	_____
	+	\$500.00 plant \$/acre	_____
	<u>÷</u>	<u>10</u> <u>acres</u>	_____
	=	\$70.00 \$/acre	_____
Straw Costs		10 bales/acre	_____
	<u>x</u>	<u>\$12.00</u> <u>\$/bale</u>	_____
	=	\$120.00 \$/acre	_____
1.11 Land Taxes			
		\$10.00 pre plant \$/acre	_____
	<u>±</u>	<u>\$10.00</u> <u>plant \$/acre</u>	_____
	=	\$20.00 \$ /acre	_____
1.12 Interest on Operating			
		\$1,396.97 subtotal operating	_____
	<u>÷</u>	<u>2</u> average	_____
	<u>x</u>	<u>6.0%</u> <u>interest rate</u>	_____
	=	\$41.91 \$ /acre	_____

Your Cost

2. Depreciation Original Value - Salvage Value
Useful Life

2.01 Machinery

	\$6,248.00	cost/acre
-	\$624.80	salvage value
x	2	years
÷	<u>10</u>	<u>useful life</u>
=	\$1,124.64	\$ /acre

2.02 Other Equipment

	\$4,550.00	cost/acre
-	\$455.00	salvage value
x	2	years
÷	<u>14</u>	<u>useful life</u>
=	\$585.00	\$ /acre

3. Investment Original Value + Salvage Value x Investment Rate
2

3.01 Land

	\$1,500.00	cost/acre
x	2	years
<u>x</u>	<u>4.0%</u>	<u>% investment rate</u>
=	\$120.00	\$ /acre

3.02 Machinery

	\$6,248.00	cost/acre
+	\$624.80	salvage value
÷	2	average
x	2	years
<u>x</u>	<u>4.0%</u>	<u>% investment rate</u>
=	\$274.91	\$ /acre

Your Cost

3.03 Other Equipment

	\$4,550.00	cost/acre	_____
+	\$455.00	salvage value	_____
÷	2	average	_____
x	2	years	_____
<u>x</u>	<u>4.0%</u>	<u>% investment rate</u>	_____
=	\$200.20	\$ /acre	_____

Labour

	30.0	hrs/ac weed control	_____
+	8.0	hrs/ac de-blossom	_____
+	6.0	hrs/ac straw spreading	_____
+	6.0	hrs/ac irrigation	_____
+	4.3	hrs/ac field operations	_____
<u>x</u>	<u>\$7.00</u>	<u>\$/hour</u>	_____
=	\$380.10	\$ /acre	_____

Picking Year Costs

A. Operating Costs

1.01 Seed and Plants

1.02 Fertilizer

	<u>Cost \$/lb</u>	<u>lbs/acre</u>
Nitrogen	\$0.27	150
Phosphate	\$0.28	20
Potash	\$0.14	30
Sulfur	\$0.23	5
Zinc	\$1.50	3

Applicator rental \$1.00 per acre

1.03 Herbicides

Broadleaf	\$20.00
Wild Oats	\$0.00

1.04 Insecticides

Tarnish Plant	\$24.00
Mites	\$12.00
Insect 3	\$0.00

1.05 Fungicide

Spray 1	\$20.00
Spray 2	\$25.00
Spray 3	\$0.00

1.06 Fuel Costs

Estimated fuel cost per acre of picking year \$0.00

<u>Field Operations</u>	<u>Times</u> <u>Over</u>	<u>Width</u> <u>Feet</u>	<u>Speed</u> <u>MPH</u>	<u>Tractor</u> <u>HP</u>
Straw removal	1	5	5	30
Spray	5	25	4	30
Mowing	1	5	5	30
Rototilling	2	5	3	30
Fertilizer	2	40	7	30
Straw Spreading	1	5	2	100

1.07 Irrigation Fuel Costs

Inches applied	12
Hours per acre for 1' of water	4
Hourly pumping costs	\$5.00

1.08 Custom & Rental Operations

Annual Cost	\$800.00
Washrooms	\$0.00

1.07 Repairs & Maintenance

% rate of investment	3.0%
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1.09 Miscellaneous

Advertising	\$2,000.00
Pales/Baskets	\$0.00
Utilities	\$0.00

Straw Costs

Bales per acre	10
\$ per Bale	\$12.00

Labour Costs (\$/acre)

Rate per hour	\$7.00
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	<u>Hours/acre</u>
Weed control	30.0
De-blooming	0.0
Straw spreading	5.0
Irrigation	6.0
Field operations	3.7
U-pick operations	<u>42.0</u>
Total hours/acre	86.7

Strawberry U-Pick Cost of Production Worksheet Picking Years - Details

Your Cost

A. Operating Costs

1.01 Seed and Planting Costs

	\$4,123.73	pre plant & planting
÷	<u>5</u>	<u>years in crop</u>
=	\$824.75	\$/acre

1.02 Fertilizer

Nitrogen

	150	lbs/acre cropping
x	<u>\$0.270</u>	<u>cost/lb cropping</u>
=	\$40.50	\$/acre

P₂O₅

	20	lbs/acre cropping
x	<u>\$0.280</u>	<u>cost/lb cropping</u>
=	\$5.60	\$/acre

K₂O

	30	lbs/acre cropping
x	<u>\$0.135</u>	<u>cost/lb cropping</u>
=	\$4.05	\$/acre

Sulfur

	5	lbs/acre cropping
x	<u>\$0.230</u>	<u>cost/lb cropping</u>
=	\$1.15	\$/acre

Zinc

	3	lbs/acre cropping
x	<u>\$1.500</u>	<u>cost/lb cropping</u>
=	\$4.50	\$/acre

Applicator rental	= \$1.00	\$/acre
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Annual Cost	= \$56.80	\$/acre
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1.03 Herbicides

	\$20.00	\$/acre broadleaf
+	<u>\$0.00</u>	<u>\$/acre wild oats</u>
=	\$20.00	\$/acre

Your Cost

1.04 Insecticides

	\$24.00	\$ /acre Tarnish Plant Bug
±	<u>\$12.00</u>	<u>\$ /acre Mites</u>
=	\$36.00	\$ /acre

1.05 Fungicide

	\$20.00	\$ /acre
±	<u>\$25.00</u>	<u>\$ /acre</u>
=	\$45.00	\$ /acre

1.06 Field Fuel Costs

<u>Operation</u>	<u>Times Over</u>	<u>Width feet</u>	<u>Speed mph</u>	<u>Fuel \$/ac.</u>
Straw removal	1	5	5	\$1.17
Spray	5	25	4	\$1.46
Mowing	1	5	5	\$1.17
Rototilling	2	5	3	\$3.90
Fertilizer	2	40	7	\$0.21
Straw Spreading	1	5	2	<u>\$9.75</u>
				\$17.66

1.07 Irrigation Costs

	12	inches of water applied
x	4	hours/acre for 1" of water
<u>x</u>	<u>\$5.00</u>	<u>rate/hour</u>
=	\$240.00	\$/acre

1.08 Custom Operations

	\$800.00	\$ /acre
÷	<u>10</u>	<u>acres</u>
=	\$80.00	\$/acre

1.09 Repair & Maintenance

	3.0%	percentage rate
x	<u>\$12,448</u>	<u>investment/acre</u>
=	\$373.44	\$ /acre

1.10 Miscellaneous

\$2,000.00 \$ /acre
 \div 10 acres
= \$200.00 \$/acre

Your Cost

Straw Costs 10 bales/acre
 \times \$12.00 \$/bale
= \$120.00 \$/acre

1.11 Land Taxes

= \$10.00 \$ /acre

1.12 Interest on Operating

\$2,023.65 subtotal operating
 \div 2 average
 \times 6.0% interest rate
= \$60.71 \$ /acre

C. Labour

			<u>Your Cost</u>
	30.0	hrs/ac weed control	_____
+	0.0	hrs/ac de-blossoming	_____
+	5.0	hrs/ac straw spreading	_____
+	6.0	hrs/ac irrigation	_____
+	3.7	hrs/ac field operations	_____
+	42.0	hrs/ac u-pick operations	_____
<u>x</u>	<u>\$7.00</u>	<u>\$/hour</u>	_____
=	\$606.93	\$/acre	_____

For more information contact your local Manitoba Agriculture and Food office.

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