2022/2023 Cost of Production

Irrigated Potato

Manitoba

Guidelines For Estimating

Irrigated Processing Potato Costs - 2022/2023

Based on 780 Acres Production

Date: February, 2022

The following budgets is estimates of the cost of producing processing potatoes in Manitoba. General Manitoba Agriculture recommendations are assumed in using fertilizers and chemical inputs. These figures provide an economic evaluation of the crops and estimated yields required to cover all costs. Costs include labour, investment, depreciation, and owner management costs, but do not necessarily represent the average cost of production in Manitoba.

These budgets may be adjusted by putting in your own figures. As a producer you are encouraged to calculate your own costs of production for various crops. On each farm, costs and yields differ due to soil type, climate and agronomic practices.

This tool is available as an Excel worksheet at:

The Farm Machinery Custom and Rental Rate Guide is also available to help determine machinery costs.

Contact Us

For more information, contact a Farm Management Specialist.

- manitoba.ca/agriculture
- mbfarmbusiness@gov.mb.ca
- 1-844-769-6224

Note: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and use of this information is the responsibility of the user. If you need help with a budget, contact Farm Management Specialist.

Irrigated Processing Potato Cost of Production - 2022/2023

		Cost /CWT (Based on Gross Yield)				
A. Operating Costs	**Cost / Acre**	**325 CWT**	**375 CWT**	**425 CWT**	**475 CWT**	**Your Cost**
1.01 Seed & cutting	$356.94	$1.10	$0.95	$0.84	$0.75	
Seed treatment	$92.34	$0.28	$0.25	$0.22	$0.19	
1.02 Fertilizer	$621.49	$1.91	$1.66	$1.46	$1.31	
1.03 Herbicides	$64.67	$0.20	$0.17	$0.15	$0.14	
1.04 Fungicide & Insecticide	$249.00	$0.77	$0.66	$0.59	$0.52	
1.05 Fuel Costs-Field	$83.88	$0.26	$0.24	$0.23	$0.22	
1.06 Trucking Costs	$270.40	$0.74	$0.74	$0.74	$0.74	
1.07 Irrigation Fuel	$66.77	$0.21	$0.18	$0.16	$0.14	
1.08 Maintenance & Repairs	$659.61	$2.03	$1.76	$1.55	$1.39	
1.09 Custom Work & Rental	$159.00	$0.49	$0.42	$0.37	$0.33	
1.10 Hired Labour	$448.00	$1.38	$1.19	$1.05	$0.94	
1.11 Insurance	$131.05	$0.45	$0.40	$0.36	$0.33	
1.12 Utilities	$125.54	$0.39	$0.33	$0.30	$0.26	
1.13 Other Costs	$118.13	$0.36	$0.32	$0.28	$0.25	
Subtotal Operating Costs	$3,446.82	$10.57	$9.27	$8.30	$7.51	
1.14 Interest on Operating	$86.17	$0.27	$0.23	$0.20	$0.18	
Total Operating Costs	**$3,532.99**	**$10.84**	**$9.50**	**$8.51**	**$7.69**	
B. Fixed Costs						
2.01 Own Land Cost	$195.56	$0.60	$0.52	$0.46	$0.41	
2.02 Depreciation	$835.50	$2.57	$2.23	$1.97	$1.76	
2.03 Investment	$250.99	$0.77	$0.67	$0.59	$0.53	
Total Fixed Costs	**$1,282.05**	**$3.94**	**$3.42**	**$3.02**	**$2.70**	
C. Labour						
3.01 Own Labour	**$112.00**	**$0.34**	**$0.30**	**$0.26**	**$0.24**	
Total Cost of Production	**$4,927.04**	**$15.12**	**$13.22**	**$11.79**	**$10.63**	

Profitability & Breakeven Analysis

Estimated Farmgate					
Price $ per cwt	$13.75	$13.75	$13.75	$13.75	$13.75
Gross Yield per acre (cwt)		325	375	425	475
Marketable Yield per acre (cwt)		276	319	361	404
Gross Revenue / acre		$3,795.00	$4,386.25	$4,963.75	$5,555.00
Marginal Returns					
Over Operating Costs		$262.01	$853.26	$1,430.76	$2,022.01
Over Total Costs (Net Profit)		($1,132.04)	($540.79)	$36.71	$627.96
Operating Expense Ratio		93.1%	80.5%	71.2%	63.6%
Breakeven Price Per Unit					
Operating Costs		$12.80	$11.08	$9.79	$8.75
Total Costs		$17.85	$15.45	$13.65	$12.20
Breakeven Yield (Gross cwt)					
Operating Costs	302				
Total Costs	422				
Return on Investment (ROI)		**(22.98%)**	**(10.98%)**	**0.75%**	**12.75%**
Return on Assets (ROA)		(0.51%)	0.88%	2.24%	3.63%
(Includes estimated return from annual non-potato acres in crop rotation)					
Breakeven Yield Risk Ratio		**77%**	**89%**	**101%**	**113%**
(Target Yield per Acre / BE Yield)					

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Risk & Sensitivity Analysis

	Potato $ per acre	Your Farm
A. Operating Costs	$3,532.99	
B. Fixed Costs	$1,282.05	
Total Costs	$4,927.04	

	Potato - Gross Yield			
	325 CWT	375 CWT	425 CWT	475 CWT
Estimated Farmgate				
Price $ per cwt	**$13.75**	**$13.75**	**$13.75**	**$13.75**
Marketable Yield (cwt per acre)	**276**	**319**	**361**	**404**

Percent Price Variation	Up 5%	Down 10%	**Percent Yield Variation**	Up 10%	Down 5%

Higher Price ($ per cwt)	$14.44	$14.44	$14.44	$14.44	
Lower Price ($ per cwt)	$12.38	$12.38	$12.38	$12.38	
Higher Yield (cwt per acre)	303.6	350.9	397.1	444.4	
Lower Yield (cwt per acre)	262.2	303.1	343.0	383.8	

Higher Margin Scenario - Price Up 5% and Yield Up 10%

Gross Revenue / acre	$4,383.23	$5,066.12	$5,733.13	$6,416.03	
Marginal Returns					
Over Operating Costs	$850.23	$1,533.13	$2,200.14	$2,883.03	
Over Total Costs (Net Profit)	($543.81)	$139.08	$806.09	$1,488.99	
Operating Expense Ratio	80.6%	69.7%	61.6%	55.1%	

Lower Margin Scenario - Price Down 10% and Yield Down 5%

Gross Revenue / acre	$3,244.73	$3,750.24	$4,244.01	$4,749.53	
Marginal Returns					
Over Operating Costs	($288.27)	$217.25	$711.01	$1,216.53	
Over Total Costs (Net Profit)	($1,682.31)	($1,176.80)	($683.03)	($177.51)	
Operating Expense Ratio	108.9%	94.2%	83.2%	74.4%	

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Irrigated Processing Potato - Input

Assumptions

1. This budget outlines the cost of producing processing potatoes under irrigated conditions.
2. A potato land base of 780 harvested acres was assumed in developing this budget. The crop rotation was based on growing potatoes no more than 1 in 3 years.
3. Total gross yield per acre was estimated at 325 to 475 cwt/acre with marketable yield estimated at 276 to 404 cwt/acre.
4. MASC Crop Insurance, is based on 2022 rates at 80% coverage.
5. Utilities cost is based on flat rate for all yields.
6. All trucking operations related to marketing of processed potatoes were assumed to be custom hauled to the processors. A rate applicable to hauling potatoes approximately 100 miles was assumed.

Total land base

Number of irrigation pivot circles	6
Acres per circle	130
Potato harvested acres (annual basis)	780
Potato rotation (time in rotation - how many years)	3
Total Acres	2,880
Total Rented Acres	320
Land Rental Per Acre (potato acres only)	$270
Total Owned Acres	2,560
Owned Land Value Per Acre	$8,000

Yields

Dockage	9%
Shrink	6%

Estimated Yields	Low	Medium	Med-High	High
Gross Yield (cwt/acre)	325	375	425	475
Acres - Percentage	0%	10%	70%	20%
Marketable Yield (cwt/acre	276	319	361	404

Potato Contract Price

Base Rate ($/cwt)	$13.75
Bonus Rate ($/cwt)	$0.00
Penalty Rate ($/cwt)	$0.00

Interest Rate

Operating	5.00%
Investment	2.75%

1.01 Seed Cost & Treatment Cost	Cost ($/cwt)	Seeding Rate (cwt/acre)	Total Cost Per Acre
Seed Cost	$17.50	18	$315.00
Cutting Cost - Custom Rate	$2.33	18	$41.94
Seed Treatment - Fungicide	$2.80	18	$50.40
Seed Treatment - Insecticide	$2.33	18	$41.94
			$449.28

1.02 Fertilizer Cost	Bulk Price $/tonne	Rate Lbs/acre	Actual Nutrient $/lb	Total Cost Per Acre
Nitrogen: (UAN) 28-0-0	$800	105	$1.296	$136.08
Nitrogen: (urea) 46-0-0	$1,300	105	$1.282	$134.60

Phosphate: 10-34-0	$950	65	$0.888	$57.74
Phosphate: 11-52-0	$1,300	45	$0.861	$38.76
Potash: 0-0-60	$1,000	260	$0.756	$196.56
Sulphur: 20.5-0-0-24	$850	45	$0.506	$22.75
Other (Micro, etc.)				$35.00
				$621.49

Crop Pesticide Costs

1.03 Herbicide Costs	Times Applied	Cost Per Application	Total Cost Per Acre
Preplant			$9.67
Post emergent			$55.00
			$64.67

1.04 Fungicide Costs & Insecticides			
Contact Fungicide	11	$8.00	$88.00
Systemic Fungicide	2	$23.00	$46.00
Phos Acid Fungicide	3	$31.00	$93.00
Insecticide	1	$22.00	$22.00
			$249.00

1.05 Fuel Costs (field & trucking) Diesel Fuel Cost $/litre $1.15

Field Operation	Times Over	Fuel Use Litres/Ac	Fuel Use Imp.Gal/Ac	Total Cost Per Acre
Harrow	0	0.75	0.16	$0.00
Rotera	1	4.60	1.01	$5.29
Cultivate	1	1.29	0.28	$1.48
Plant	1	1.40	0.31	$1.61
Spray	3	0.42	0.09	$1.45
Cultivate	1	1.74	0.38	$2.00
Hilling	2	1.74	0.38	$4.00
Fertilize	1	0.42	0.09	$0.48
Harvest	1	8.50	1.87	$9.78
Ripper	1	5.75	1.26	$6.61
Tandem Disk	1	1.85	0.41	$2.13
				$34.83

Truck Fuel-Harvesting

Truck Capacity (cwts)	275
Fuel Consumption (miles/gal)	2.5
Distance to storage (miles)	15

1.06 Trucking Costs - Processor

Trucking Rate ($/cwt) based on 70 miles to processor	$1.16
Trucking Reimbursement ($/cwt)	$0.42

1.07 Irrigation Costs

Inches applied	12
Hours/pivot (.75" water)	72
Percent of pumping - Hydro	70%
Hourly pumping costs - Hydro	$6.20
Percent of pumping - Diesel	30%
Hourly pumping costs - Diesel	$10.65

1.08 Maintenance & repairs	Rate	Total Cost	Total Cost/ac
Machinery	7.15%	$390,640	$501
Potato Storage	1.75%	$98,280	$126

Irrigation Equipment	1.75%	$25,578	$33

1.09 Custom Work & Rental	Number	Rate/ac	Total Cost/ac
Custom - aerial	14	$10.00	$140
Custom - granular	2	$9.50	$19

1.10 Hired labour costs	Hours	Rate	Total Cost/ac
Labour per acre	16	$28.00	$448
Acres			780
		Total	$349,440

1.11 Insurance Costs	Rate	Acres	
Crop Insurance (80%)	$55.04	780	$42,931
Hail Insurance	$0.00	780	$0
Buildings & Equipment	0.26%		$29,197
Farm trucks (seasonal)	$525	10	$5,250
Farm trucks (annual)	$1,050	5	$5,250
Content Insurance (value of production)			0.5%
Insured value of production ($/cwt)			$13.75

1.12 Utilities	Number	Rate	Months	Total Cost
Hydro		$9,000	10	$90,000
Phone / Cell	6	$110	12	$7,920

1.13 Other Costs	Rate	Acres	
Accounting & Legal		0	$7,000
Publications & Membership			$2,000
Crop Consulting per acre	$40	780	$31,200
Property Taxes	$35.00	693	$24,255
Land Rental	$270.00	87	$23,490
Shop Supplies			$2,100
Miscellaneous			$2,100

Capital Costs

Depreciation (straight line)**:**

Useful Life:	
Buildings	20 years
Storage Building	20 years
Machinery & Equipment	15 years
Irrigation Equipment	15 years

Salvage Value (% of original cost)	
Buildings	5.0%
Storage Building	5.0%
Machinery & Equipment	15.0%
Irrigation Equipment	30.0%

Capital Investment

Land Value	
Owned land 2,560 ac. @ $8,000/acre	$20,480,000

Storage Facilities	Size	Rate/cwt	
Building, climate control & loading area	312,000	$18.00	$5,616,000

Machine Shed Workshop			$150,000
Total Storage Costs			**$5,766,000**
Irrigation System	**Value**	**Number**	
River pump station	$83,300	1	$83,300
Booster pump station	$50,500	1	$50,500
Well & Pump	$56,400	1	$56,400
Water Reservoir	$188,100	0	$0
Pipeline (per 2 miles)	$45,200	3	$135,600
Electrical & pipeline	$28,000	6	$168,000
Pivots & generators	$161,300	6	$967,800
Total Irrigation Costs			**$1,461,600**
Machinery & Equipment	**Value**	**Number**	
Bin piler (primary)	$188,100	1	$188,100
Bin piler (secondary)	$37,600	1	$37,600
Picking table	$430,000	1	$430,000
Conveyor (3'x150')	$62,900	3	$188,700
Dirt conveyor	$25,300	1	$25,300
Diggers	$483,800	2	$967,600
Hog	$101,100	1	$101,100
Skid Steer	$96,800	1	$96,800
Tractor (280hp)	$467,600	2	$935,200
Tractor (500hp)	$623,500	1	$623,500
Ripper	$31,700	1	$31,700
Roterra/hiller	$64,500	1	$64,500
Cultivator	$31,700	1	$31,700
Disc	$25,300	1	$25,300
Even Flow Tub	$101,100	1	$101,100
Tandem Truck	$50,500	10	$505,000
Belt Bottom Boxes	$37,600	10	$376,000
Planter	$250,500	1	$250,500
Wheel loader/telehandler	$268,800	1	$268,800
Windrower	$215,000	1	$215,000
(enter equipment here)	$0	1	$0
(enter equipment here)	$0	1	$0
(enter equipment here)	$0	1	$0
(enter equipment here)	$0	1	$0
Total Machinery Costs			**$5,463,500**
		Per Acre	**$7,004**

Total Capital Investment	**$33,171,100**
Labour Costs (Owner Labour and Management)	
Hours per acre	4
Rate per hour	$28.00
Return on Asset (ROA) Assumptions	
Total annual non-potato acres in crop rotation	2,100
Estimated non-potato acres in crop rotation (per acre)	
- Marginal Return Over Total Costs (Net Profit)	$25.00
- Land Investment Cost	$97.78
- Machinery Investment Cost	$13.75
- Operating Interest	$6.25

Assumptions

1. This budget outlines the cost of producing processing potatoes under irrigated conditions and is based on a pivot system.

2. A potato land base of 2,880 harvested acres was assumed in developing this budget. The cost of production does not include the cost of maintaining the corners not under irrigation. The crop rotation was based on growing potatoes no more than 1 in 3 years.

3. Total gross yield per acre was estimated at 325 to 475 cwt/acre with marketable yield estimated at 276 to 404 cwt/acre.

4. MASC Crop Insurance, is based on 2022 rates at 80% coverage.

5. All trucking operations related to marketing of processed potatoes were assumed to be custom hauled to the processors. A rate applicable to hauling potatoes approximately 70 miles was assumed.

Irrigated Potato Cost of Production Worksheet

A. Operating Costs				**Your Cost**
1.01 Seed & Cutting Cost				
Seed		18	cwt/acre	
	x	$17.50	$/cwt	
	=	$315.00	$/acre	
Cutting		18	cwt/acre	
	x	$2.33	$/cwt	
	=	$41.94	$/acre	
Total	**=**	**$356.94**	**$/acre**	
Treatment Cost				
		$2.80	$/cwt fungicide	
	+	$2.33	$/cwt insecticide	
	x	18	cwt/acre	
	=	**$92.34**	**$/acre**	
1.02 Fertilizer				
Nitrogen: (UAN) 28-0-0		105	lbs/acre	
	x	$1.296	$ / lb	
	=	$136.08	$/acre	
Nitrogen: (urea) 46-0-0		105	lbs/acre	
	x	$1.282	$ / lb	
	=	$134.60	$/acre	
Phosphorus: 10-34-0		65	lbs/acre	
	x	$0.888	$ / lb	
	=	$57.74	$/acre	
Phosphorus: 11-52-0		45	lbs/acre	
	x	$0.861	$ / lb	
	=	$38.76	$/acre	

Potash		260	lbs/acre	
	x	$0.756	$ / lb	
	=	$196.56	$/acre	
Sulfur		45	lbs/acre	
	x	$0.506	$ / lb	
	=	$22.75	$/acre	
Micro	=	$35.00	$/acre	
Total	**=**	**$621.49**	**$/acre**	

1.03 Herbicide

Preplant	$9.67	$/acre
Post emergent	$55.00	$/acre
Total	**$64.67**	**$/acre**

1.04 Fungicide & Insecticide

Contact Fungicide	11	number applications	
x	$8.00	cost per application	
=	$88.00	$/acre	
Systemic Fungicide	2	number applications	
x	$23.00	cost per application	
=	$46.00	$/acre	
Phos Acid Fungicide	3	number applications	
x	$31.00	cost per application	
=	$93.00	$/acre	
Insecticide	1	number applications	
x	$22.00	cost per application	
=	$22.00	$/acre	
Total =	**$249.00**	**$/acre**	

1.05 Fuel Costs

a) Field Fuel Costs — Fuel Cost $/litre $1.15

Field Operation	**Times Over**	**Fuel Use Litres/Ac**	**Fuel Use Imp.Gal/Ac**	**Total Cost Per Acre**
Harrow	**0**	**0.75**	**0.16**	**$0.00**
Roterra	**1**	**4.60**	**1.01**	**$5.29**
Cultivate	**1**	**1.29**	**0.28**	**$1.48**
Plant	**1**	**1.40**	**0.31**	**$1.61**
Spray	**3**	**0.42**	**0.09**	**$1.45**
Cultivate	**1**	**1.74**	**0.38**	**$2.00**
Hilling	**2**	**1.74**	**0.38**	**$4.00**
Fertilize	**1**	**0.42**	**0.09**	**$0.48**
Harvest	**1**	**8.50**	**1.87**	**$9.78**
Ripper	**1**	**5.75**	**1.26**	**$6.61**
Tandem Disk	**1**	**1.85**	**0.41**	**$2.13**
				$34.83

b) Truck Fuel Costs - harvest from field to storage

Low Yield	325	gross yield (cwt)/ac.	
=	16.25	tons/ac.	

	÷	13.75	truck capacity (tons)	
	=	1.18	trips/acre	
	x	15	distance/trip (miles)	
	=	17.73	total miles/acre	
	÷	2.5	fuel consumption (miles/gal)	
	=	7.09	gallons required fuel	
	x	$1.15	fuel cost ($/litre)	
	=	$37.07	field to storage fuel cost	
	+	$34.83	field fuel cost	
	=	$71.90	Fuel Costs - Field	
	÷	276	marketable yield (cwt)/ac.	
Total	**=**	**$0.2605**	**per cwt**	
Medium Yield		375	gross yield (cwt)/ac.	
	=	18.75	tons/ac.	
	÷	13.75	truck capacity (tons)	
	=	1.36	trips/acre	
	x	15	distance/trip (miles)	
	=	20.45	total miles/acre	
	÷	2.5	fuel consumption (miles/gal)	
	=	8.18	gallons required fuel	
	x	$1.15	fuel cost ($/litre)	
	=	$42.77	field to storage fuel cost	
	+	$34.83	field fuel cost	
	=	$77.60	Fuel Costs - Field	
	÷	319	marketable yield (cwt)/ac.	
Total	**=**	**$0.2433**	**per cwt**	
Med-High Yield		425	gross yield (cwt)/ac.	
	=	21.25	tons/ac.	
	÷	13.75	truck capacity (tons)	
	=	1.55	trips/acre	
	x	15	distance/trip (miles)	
	=	23.18	total miles/acre	
	÷	2.5	fuel consumption (miles/gal)	
	=	9.27	gallons required fuel	
	x	$1.15	fuel cost ($/litre)	
	=	$48.48	field to storage fuel cost	
	+	$34.83	field fuel cost	
	=	$83.31	Fuel Costs - Field	
	÷	361	marketable yield (cwt)/ac.	
Total	**=**	**$0.2308**	**per cwt**	
High Yield		475	gross yield (cwt)/ac.	
	=	23.75	tons/ac.	
	÷	13.75	truck capacity (tons)	
	=	1.73	trips/acre	
	x	15	distance/trip (miles)	
	=	25.91	total miles/acre	
	÷	2.5	fuel consumption (miles/gal)	
	=	10.36	gallons required fuel	
	x	$1.15	fuel cost ($/litre)	
	=	$54.18	field to storage fuel cost	
	+	$34.83	field fuel cost	
	=	$89.01	Fuel Costs - Field	

	÷	404	marketable yield (cwt)/ac.	
Total	**=**	**$0.2203**	**per cwt**	
Total Fuel Costs	**=**	**$83.88**	**$/acre**	

1.06 Trucking Costs - from storage to processor (Custom haul)

Low Yield		276	cwt net yield/acre	
	x	$0.74	net trucking rate/cwt	
	=	**$204.24**	**$/acre**	
Medium Yield		319	cwt net yield/acre	
	x	$0.74	net trucking rate/cwt	
	=	**$236.06**	**$/acre**	
Med-High Yield		361	cwt net yield/acre	
	x	$0.74	net trucking rate/cwt	
	=	**$267.14**	**$/acre**	
High Yield		404	cwt net yield/acre	
	x	$0.74	net trucking rate/cwt	
	=	**$298.96**	**$/acre**	
Total	**=**	**$270.40**	**$/acre**	

1.07 Irrigation Costs

Hydro		72	hours for .75 inches	
	=	96	hours for 1.0 inches	
	x	12	inches water applied	
	=	1152	hours pumping	
	x	$6.20	hourly pumping costs	
	x	4.2	number of pivots	
	÷	546	acres	
	=	$54.94	$/acre	
Diesel		72	hours for .75 inches	
	=	96	hours for 1.0 inches	
	x	12	inches water applied	
	=	1152	hours pumping	
	x	$10.65	hourly pumping costs	
	x	1.8	number of pivots	
	÷	234	acres	
	=	$94.38	$/acre	
Total	**=**	**$66.77**	**$/acre**	

1.08 Maintenance & Repairs

	$390,640	machinery	
+	$98,280	potato storage	
+	$25,578	irrigation	
=	$514,498	total	
÷	780	acres	
=	**$659.61**	**$/acre harvested**	

1.09 Custom Work & Rental

	14	aerial applications	
x	$10.00	rate	
=	$140.00	total per acre	
	2	aerial applications	
x	$9.50	rate	

	=	$19.00	total per acre	
Total	**=**	**$159.00**	**$/acre**	

1.10 Hired Labour Costs

	$16	Hours per acre	
x	$28.00	rate	
=	**$448.00**	**total per acre**	

1.11 Insurance

	$0	hail insurance	
+	$42,931	crop insurance	
+	$5,250	farm trucks (seasonal)	
+	$5,250	farm trucks (annual)	
+	$29,197	buildings & equipment	
=	$82,628	total insurance	
÷	780	acres	
=	**$105.93**	**$/acre**	

Content insurance

Low Yield	276	gross yield (cwt)/ac.	
x	$13.75	Insured value of production ($/cwt)	
x	0.5%	content insurance	
=	$18.98	per acre	
÷	276	marketable yield (cwt)/ac.	
Total =	$0.0688	per cwt	
Medium Yield	319	gross yield (cwt)/ac.	
x	$13.75	Insured value of production ($/cwt)	
x	0.5%	content insurance	
=	$21.93	per acre	
÷	319	marketable yield (cwt)/ac.	
Total =	$0.0688	per cwt	
Med-High Yield	361	gross yield (cwt)/ac.	
x	$13.75	Insured value of production ($/cwt)	
x	0.5%	content insurance	
=	$24.82	per acre	
÷	361	marketable yield (cwt)/ac.	
Total =	$0.0688	per cwt	
High Yield	404	gross yield (cwt)/ac.	
x	$13.75	Insured value of production ($/cwt)	
x	0.5%	content insurance	
=	$27.78	per acre	
÷	404	marketable yield (cwt)/ac.	
Total =	$0.0688	per cwt	
Total Insurance =	**$131.05**	**$/acre**	

1.12 Utilities

	$90,000	hydro	
+	$7,920	telephone	
=	$97,920	total utilities	
÷	780	acres	
=	**$125.54**	**$/acre**	

1.13 Other Costs

$7,000	accounting & legal	
+ $2,000	membership	
+ $31,200	crop consulting	
+ $24,255	property taxes	
+ $23,490	land rental	
+ $2,100	shop supplies	
+ $2,100	other costs	
= $92,145	total other costs	
÷ 780	acres	
= $118.13	**$/acre**	

1.14 Interest on Operating Costs

(Operating interest is charged on one-half the sub-total operating costs)

$3,446.82	operating costs	
÷ 2	average	
= $1,723.41	average value	
x 5.0%	operating interest	
= $86.17	**$/acre**	

Capital Investment

Land Value

Own land 2,560 ac. @ $8,000/ac	**$20,480,000**	

Storage Facilities (312,000 cwt @ $18.00 per cwt)

Building & Climate Control	**$5,616,000**	
Workshop	**$150,000**	
Total Storage Costs	**$5,766,000**	

Irrigation System

River pump station	**$83,300**	
Booster pump station	**$50,500**	
Well & Pump	**$56,400**	
Water Reservoir	**$0**	
Pipeline (per 2 miles)	**$135,600**	
Electrical & pipeline	**$168,000**	
Pivots & generators	**$967,800**	
Total Irrigation Costs	**$1,461,600**	

Machinery & Equipment	**$5,463,500**	
Total Capital Investment	**$33,171,100**	

B. Fixed Costs

2.01 Land Costs

$8,000	$/acre	
x 2.75%	investment rate	
x 88.9%	potato acres - owned land	
= $195.56	**$/acre**	

2.02 Depreciation

$$\frac{\text{Original Value - Salvage Value}}{\text{Useful life (yrs.)}}$$

Storage Facilities

	$5,766,000	original value	_____
-	$288,300	salvage value	_____
÷	20	useful life (yrs.)	_____
÷	780	total acres	_____
=	$351.13	$/acre	_____

Machinery & Equipment

	$5,463,500	original value	_____
-	$819,525	salvage value	_____
÷	15	useful life (yrs.)	_____
÷	780	total acres	_____
=	$396.92	$/acre	_____

Irrigation System

	$1,461,600	original value	_____
-	$438,480	salvage value	_____
÷	15	useful life (yrs.)	_____
÷	780	total acres	_____
=	$87.45	$/acre	_____
Total =	**$835.50**	**$/acre**	_____

2.03 Investment Cost

$$\frac{\text{Original Value + Salvage Value}}{2} \text{ X } \text{Investment Rate}$$

Storage Facilities

	$5,766,000	original value	_____
+	$288,300	salvage value	_____
÷	2	average value	_____
x	2.8%	Investment rate	_____
÷	780	total acres	_____
=	$106.73	$/acre	_____

Machinery & Equipment

	$5,463,500	original value	_____
+	$819,525	salvage value	_____
÷	2	average value	_____
x	2.8%	Investment rate	_____
÷	780	total acres	_____
=	$110.76	$/acre	_____

Irrigation System

	$1,461,600	original value	_____
+	$438,480	salvage value	_____

÷	2	average value	
x	2.8%	Investment rate	
÷	780	total acres	
=	$33.50	$/acre	
Total =	**$250.99**	**$/acre**	

C. Own Labour Costs

	4	hours/acre	
x	$28.00	$/hour	
=	**$112.00**	**$/acre**	

Profitability & Breakeven Analysis:

Gross Revenue = Price per unit x Yield per acre
(eg. potato: $13.75/cwt x 276 marketable cwt/ac = $3,795./ac)

Net Profit = Gross Revenue - Total Cost
(eg. potato: $3,795. gross revenue - $4,927.04 total cost = $-1132.04 per acre)

Operating Expense Ratio = (Operating Cost / Gross Revenue) x 100
(eg. potato: $3,532.99 operating expense / $3,795 gross revenue = 93.1%)

Breakeven Price = Cost / Target Yield (eg. potato cost $4,927.04 / 276 cwt = $17.85 per cwt)

Breakeven Yield = Cost / Price per Unit
(eg. potato cost $4,927.04 / $13.75 cwt / (1 - (0.09 shrink + 0.06 dockage)) = 421.6 cwt)

$$\text{Return on Assets} = \frac{\text{(((Potato acres: net profit + operating interest + land inv. cost + investment cost) x acres) + (Non-potato acres: net profit + operating interest + land inv. cost + investment cost) x acres)))}}{\text{Total Capital Investment}}$$

(eg. 425 CWT potato: ((($36.71 net profit + $86.17 op. interest + $195.56 land inv. cost + $250.99 inv. cost) x 780 potato acres) + ($25. net profit + $6.25 op. interest + $97.78 land inv. cost + $13.75 inv. cost) x 2100 rotation acres))) / $33,171,100 total capital investment = 2.243% ROA

Contact Us
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