

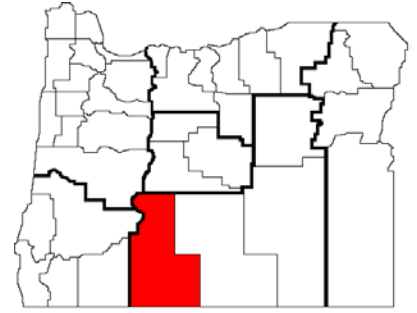
Enterprise Budget

Potatoes, Processed

South Central Region

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This enterprise budget estimates the typical costs and returns of producing processed potatoes in the Klamath Basin of Oregon. While efforts were made to reflect common practices, it is not representative of any particular farm and should be used only as a guide to estimating actual costs. The major assumptions used in constructing this budget are discussed below. Assistance provided by area producers is greatly appreciated.

Cropping Pattern

This budget is based on a 1,500-acre farm with 300 acres in potatoes and 1,200 acres in grain and alfalfa hay. Typical yield in this budget is 450 hundredweight (cwt) per acre.

Land

A land lease charge of \$300 per acre is included to represent the cost of leasing or owning land. This charge is based on the cost of leasing good quality land that includes irrigation pumps and mainlines.

Labor

General, truck and tractor driver labor cost \$14, \$16 and \$20 per hour, respectively, which includes social security, workers' compensation, unemployment insurance, and other labor overhead expenses. For this study, owner labor is valued at the same rate as tractor driver rates, and all labor is assumed to be a cash cost. Tractor labor hours are calculated based on machinery hours plus ten percent.

Capital

Interest on operating capital (4.5 percent) is treated as a cash expense. One-third of the cash expenses are borrowed for 12 months. Interest on intermediate and long-term capital (5 percent) is treated as a non-cash opportunity cost to the owner.

Machinery and Equipment

The machinery and equipment used in this budget are sufficient for a 1,500-acre farm growing small grains, alfalfa hay and potatoes. The machinery and equipment hours reflect producing potatoes, small grains and alfalfa hay. A detailed breakdown of machinery values is shown in Table 2. Estimated machinery costs are shown in Table 3. The machinery costs are estimated based on the total farm use of the machinery. Gasoline costs \$3.00 and off-road diesel \$2.50 per gallon. Table 4 shows the labor, variable, and fixed costs for certain machinery operations.

Operations

The cultural operations are listed approximately in the order in which they are performed. In the fall, the previous year's crop residues are chopped, rototilled, disked twice, and ripped. In early spring, plow and chisel plow operations are performed prior to fumigation. Following two additional tillage operations, a pre-plant fertilizer is broadcast.

In late spring, a three-person crew marks out beds and plants 22 cwt of potato seed with a 4-row planter. Fertilizer can be applied pre-plant by broadcast, banded at planting, top dressed post-emergence, or foliar applied. Fertilizer rates are 220 pounds of nitrogen (N), 120 pounds phosphorous (P), 250 pounds potassium (K) and 135 pounds of sulfur (S). Weed control consists of herbicides applied pre- and post-emergence and/or mechanical cultivation.

A three-person crew sets up solid-set sprinkler irrigation in the field. A total of 16 irrigation sets apply 24-inches of water at a cost of \$6.25 per acre-inch. Water-soluble nitrogen is injected into the irrigation lines during four irrigation sets.

Pesticides are custom aerial applied for blight control, aphid control, and sprout inhibition. Prior to harvest, a chemical defoliant is used to knock down vines. The field is rolled and the vines are cut before digging. The potato harvest involves a windrower and bulker to dig and pick up potatoes, which are delivered to a storage facility approximately 30 miles from the farm using five 10-wheel trucks.

Results

The average price for processed potatoes is \$9.44 per cwt with a long-run average yield of 450 cwt per acre for a gross income of \$4,246. Variable cash production costs, including packing shed costs, are \$3,337 per acre, giving a net return above variable cash costs of \$909 per acre. Total costs are \$4,419 per acre when all costs are considered. A break-even price of \$7.42 per cwt would be required to cover variable cash costs, and \$9.82 per cwt to cover total costs. Tables 5 and 6 show the returns per acre for cash and total costs at various yields and prices.

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Table 1. Processed Market Potatoes, Klamath Basin, \$/Acre Economic Costs and Returns

<u>GROSS INCOME</u>		<u>Quantity</u>	<u>Unit</u>	<u>\$/Unit</u>	<u>Total</u>	<u>Price/cwt</u>
Chip		415	cwt	\$10.00	4,150.00	10.00
Culls		35	cwt	\$2.75	96.25	2.75
Total GROSS Income		450			4,246.25	9.44
<u>VARIABLE CASH COSTS</u>		<u>Labor</u>	<u>Machinery</u>	<u>Materials</u>	<u>Total</u>	<u>Cost/cwt</u>
Preplant: Land Preparation						
Rototill	1 appl	\$12.28	\$24.06	\$0.00	\$36.34	\$0.08
Disc	2 appl	5.43	10.31	0.00	15.74	0.03
Chisel	0.25 appl	0.94	1.88	350.00	352.81	0.78
Fumigant						
Cultural Practices						
Plant Potatoes	1 appl	7.64	15.94	510.00	533.58	1.19
Seed: cut, treatment, preparation, etc.						
Insect Control, In-furrow	1 appl	0.00	0.00	7.00	7.00	0.02
Weed Control - Cultivate	1 appl	5.73	6.96	0.00	12.69	0.03
Irrigation	16 appl	84.00	1.43	150.04	235.48	0.52
Assessment & electricity						
Irrigate Pipe Rental		0.00	0.00	175.00	175.00	0.39
Weed Control - Chemicals, custom applied	1 appl	0.00	0.00	55.00	55.00	0.12
Fungicide, In-furrow & (3x) chemigated	4 appl	0.00	0.00	75.00	75.00	0.17
Fertilizer		0.00	0.00	450.00	450.00	1.00
Pre-Harvest						
Vine Dessicant, custom applied - aerial	0.5 appl	0.00	0.00	15.00	15.00	0.03
Roll Crop	1 appl	4.30	2.42	0.00	6.72	0.01
Harvest						
Windrow & Dig Potatoes		19.64	53.72	0.00	73.37	0.16
Haul From Field		51.43	75.70	0.00	127.13	0.28
Store Potatoes, On-farm Shed	6 months	0.00	54.17	157.50	211.67	0.47
Utilities	\$0.35 per cwt					
Packing Shed Costs	1.75 \$ per cwt	0.00	2.50	787.50	790.00	1.76
Shop/Shed		0.00	2.50	0.00	2.50	0.01
Pickups & Quads		0.00	134.27	0.00	134.27	0.30
Miscellaneous		0.00	1.43	15.00	16.43	0.04
Interest on Operating Capital		0.00	0.00	11.63	11.63	0.03
Total VARIABLE COSTS		\$191.37	\$387.29	\$2,758.68	\$3,337.34	\$7.42
GROSS INCOME minus VARIABLE COSTS					\$908.91	\$2.02
<u>FIXED CASH COSTS</u>				<u>Unit</u>	<u>Total</u>	<u>Cost/Lb</u>
CASH Costs						
Property Insurance				acre	5.00	0.01
Annual Cash Rent Payment ¹				acre	300.00	0.67
Total CASH Costs					\$305.00	\$0.68
GROSS INCOME minus VARIABLE AND FIXED CASH COSTS					\$603.91	\$1.34
<u>NON-CASH Costs</u>						
Machinery and Equipment - Depreciation & Interest				acre	\$372.83	\$0.83
Pickups - Depreciation & Interest				acre	167.56	0.37
Trucks - Depreciation & Interest				acre	105.59	0.23
Potato Storage Shed - Depreciation & Interest				acre	126.39	0.28
Shop/Shed - Depreciation & Interest				acre	4.46	0.01
Total NON-CASH Costs					\$776.83	\$1.73
Total FIXED COSTS					\$1,081.83	\$2.40
Total of All Costs Per Acre					\$4,419.17	\$9.82
Net Projected Returns					(172.92)	(\$0.38)

¹It is assumed the tenant pays the annual irrigation assessment and electrical pumping costs on leased land.

Table 2. Machinery Cost Assumptions

Machine	Size	Market Value	Hours or Miles of Annual Use	Expected Life (yrs)
Tractor - 125 hp 4WD		\$ 82,000	74	10
Tractor - 150 hp 4WD		115,000	245	10
Tractor - 175 hp 4WD		140,000	311	10
Tractor - 200 hp 4WD		170,000	487	10
Tractor - 225 hp 4WD		182,000	321	10
Tractor - 75 hp 4WD		42,500	64	10
Bed Shaper		13,292	74	10
Chisel		28,500	206	15
Cultivator		4,980	86	5
Planter - 4 Row		55,000	115	6
Digger 2 Row		70,000	295	20
Windrow		50,000	295	10
Ripper		29,000	56	15
Disc		21,000	190	15
Roller - Flat		7,500	64	10
Rototiller		29,000	55	20
Pickup - 1/2 Ton 4WD	4 units	25,000	15,000	5
Pickup - 3/4 Ton 4WD	2 units	30,000	15,000	5
Potato Truck - 20' Bed	5 units	60,000	2,893	10
Quads	2 units	10,000	2,000	3
Pipe Trailer		21,500	NA	10
Potato Storage Shed	100,000 cwt	650,000	N/A	30
Shop/Shed	40' x 80'	25,000	N/A	35

Table 3. Machinery Cost Calculations

Machine	Size	----- Variable Costs -----		----- Fixed Costs -----		Total Cost
		Fuel & Lube	Repairs & Maint.	Depreciation	Interest	
----- Costs per Hour -----						
Tractor - 125 hp 4WD		\$15.74	\$0.18	\$70.70	\$27.98	\$114.60
Tractor - 150 hp 4WD		18.89	0.85	29.29	39.55	88.58
Tractor - 175 hp 4WD		22.04	1.31	30.22	46.51	100.07
Tractor - 200 hp 4WD		25.19	2.49	24.46	55.19	107.32
Tractor - 225 hp 4WD		28.33	1.75	38.50	60.15	128.73
Tractor - 75 hp 4WD		9.44	0.08	41.82	14.41	65.75
Bed Shaper		0.00	3.29	14.12	4.05	21.46
Chisel		0.00	12.53	7.22	8.68	28.43
Cultivator		0.00	0.96	9.07	1.52	11.54
Planter - 4 Row		0.00	11.65	62.60	16.74	91.00
Digger 2 Row		0.00	27.04	9.30	21.31	57.64
Windrow		0.00	14.64	13.28	15.22	43.13
Ripper		0.00	7.58	26.96	8.83	43.36
Disc		0.00	7.87	5.76	6.39	20.03
Roller - Flat		0.00	1.74	9.11	2.28	13.13
Rototiller		0.00	11.53	20.54	8.83	40.90
----- Costs per Mile -----						
Pickup - 1/2 Ton 4WD	4 units	0.28	0.12	0.25	0.11	0.76
Pickup - 3/4 Ton 4WD	2 units	0.30	0.16	0.32	0.14	0.92
Quads	2 units	0.18	0.44	2.38	0.19	3.19
Potato Truck - 20' Bed	5 units	0.52	1.05	1.22	0.97	3.76
----- Costs per Acre -----						
Pipe Trailer		0.00	1.43	7.17	1.79	10.39
Potato Storage Shed	100,000 cwt	0.00	54.17	72.22	54.17	180.56
Shop/Shed	40' x 80'	0.00	2.50	2.38	2.08	6.96

Table 4. Estimated Cost of Each Operation with Power-Unit.

Operation	Power Unit	Miles per Hour	Acres per Hour	Labor Cost per Acre	-- Machine Costs --		Total Cost per Acre
					Variable Cost per Acre	Fixed Cost per Acre	
Bed Shaper	Tractor - 125 hp 4WD	2.00	4.07	\$4.91	\$4.72	\$28.69	\$38.31
Chisel	Tractor - 200 hp 4WD	3.50	5.35	3.74	7.52	17.87	29.13
Cultivator	Tractor - 175 hp 4WD	3.00	3.49	5.73	6.96	25.01	37.70
Planter - 4 Row	Tractor - 225 hp 4WD	3.00	2.62	7.64	15.94	67.97	91.55
Digger 2 Row	Tractor - 200 hp 4WD	2.00	1.02	19.64	53.72	108.27	181.64
Ripper	Tractor - 150 hp 4WD	3.50	5.35	3.74	5.11	19.57	28.42
Disc	Tractor - 225 hp 4WD	4.50	7.36	2.72	5.15	15.04	22.91
Roller - Flat	Tractor - 75 hp 4WD	4.00	4.66	4.30	2.42	14.52	21.24
Rototiller	Tractor - 200 hp 4WD	1.20	1.63	12.28	24.06	66.91	103.25

Table 5. Estimated Per Acre Returns Over Cash Costs at Varying Yields and Prices.

Price/Cwt	----- Cwt per Acre -----						
	375.0	400.0	425.0	450.0	475.0	500.0	525.0
\$7.94	(\$361)	(\$163)	\$36	\$234	\$432	\$631	\$829
\$8.44	(\$174)	\$37	\$248	\$459	\$670	\$881	\$1,092
\$8.94	\$14	\$237	\$461	\$684	\$907	\$1,131	\$1,354
9.44	\$201	\$437	\$673	\$909	\$1,145	\$1,381	\$1,617
\$9.94	\$389	\$637	\$886	\$1,134	\$1,382	\$1,631	\$1,879
\$10.44	\$576	\$837	\$1,098	\$1,359	\$1,620	\$1,881	\$2,142
\$10.94	\$764	\$1,037	\$1,311	\$1,584	\$1,857	\$2,131	\$2,404

Table 6. Estimated Per Acre Returns Over Total Costs at Varying Yields and Prices.

Price/Cwt	----- Cwt per Acre -----						
	375.0	400.0	425.0	450.0	475.0	500.0	525.0
\$7.94	(\$1,443)	(\$1,245)	(\$1,046)	(\$848)	(\$650)	(\$451)	(\$253)
\$8.44	(\$1,256)	(\$1,045)	(\$834)	(\$623)	(\$412)	(\$201)	\$10
\$8.94	(\$1,068)	(\$845)	(\$621)	(\$398)	(\$175)	\$49	\$272
\$9.44	(\$881)	(\$645)	(\$409)	(\$173)	\$63	\$299	\$535
\$9.94	(\$693)	(\$445)	(\$196)	\$52	\$300	\$549	\$797
\$10.44	(\$506)	(\$245)	\$16	\$277	\$538	\$799	\$1,060
\$10.94	(\$318)	(\$45)	\$229	\$502	\$775	\$1,049	\$1,322