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2014 Cost of Potato Production Study for Colorado, Idaho, Washington and Wisconsin

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Cost of production estimates in the following tables are typical or representative production costs. These are not the average cost of production for these states. Farm size, crop rotation, age and type of equipment, and the quality and intensity of management all influence costs. Each farm has a unique set of resources with different levels of productivity, different production problems, and therefore, different costs. A single budget is presented for Colorado, Washington and Wisconsin. These studies were funded by United Potato Growers of America. There are six budgets presented for Idaho, representing three major commercial areas of southern Idaho. The Idaho studies were funded by the Idaho Potato Commission. All studies presented here were conducted by Paul Patterson, Extension Agricultural Economist with the University of Idaho.

Procedures and Assumptions

Production practice information was collected from potato growers in each region. This formed the basis for developing the model farms shown in Table 1. Growers provided information on tillage practices, inputs used, irrigation practices, harvesting and storage. Costs in the following tables are economic costs, not accounting or cash costs. All resources used in the production process are valued at a market rate, or "opportunity cost". Washington's and all Idaho potato budgets are for Russet Burbank. Budgets for Colorado and Wisconsin are for Russet Norkotah. Input prices were collected from chemical fertilizer dealers and other input suppliers. A center pivot irrigation system was used on all model farms. Irrigation power costs for Washington's and all Idaho budgets are based on pressurization only for surface water delivered through a canal. Irrigation power costs for Colorado's potato budget were based on pressurization and a lift of 75 feet. Irrigation power costs for Wisconsin's potato budget were based on pressurization and a lift of 100 feet. Power rates specific to each state was used in these calculations. Labor rates include a base wage, plus a percentage to account for various payroll taxes (FICA, FUTA, SUTA), workman's compensation, as well as typical benefits for that class of labor such as paid vacation/personal leave days, health insurance, and bonuses.

A general overhead charge was calculated at ~2.5% of cash operating costs. A management charge was calculated at ~5% of total expenses. Machinery prices used in calculating capital recovery (or depreciation and interest) were 75% of replacement cost new. Land costs were based on a 1-year cash rent equivalent specifically for potatoes. Costs of production estimates were calculated using the *Budget Planner* software from the University of California, Davis.

The base cost of production in tables 2-4 include the cost to grow, harvest and sort potatoes. Storage costs are not included. Storage costs (ownership, repairs and monthly operating) are added to the base production cost in tables 5 and 6.

Table 1. Model farm size, potato acres, yield and total production
Table 2. Cost per acre summary by major cost categories & per hundredweight for field-run & paid-yield
Table 3. Cost per hundredweight summary by major cost categories for field-run yield
Table 4. Cost per hundredweight summary by major cost categories for paid-yield
Table 5. Cost per hundredweight storage cost summary by month for field-run yield
Table 6. Cost per hundredweight storage cost summary by month for paid-yield

Table 1. 2014 Potato Cost of Production Study. Model farm size, potato acres, yield and total production.

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated			Idaho Non-Fumigated		
1/16/2015	Colorado	Washington	Wisconsin	Southwest	Southcentral	Eastern-S	Southcentral	Eastern-S	Eastern-N
Model Farm:									
Farm Size	2,400	3,500	3,000	1,600	2,200	2,400	2,200	2,400	2,400
Potato Acres	1,000	1,500	800	500	550	800	550	800	800
% Potatoes	42%	43%	27%	31%	25%	33%	25%	33%	33%
Yield:									
Field-Run: Fumigated	450	630	460	525	460	415	420	380	355
% Paid Yield	85%	92%	92%	95%	95%	95%	95%	95%	95%
Paid Yield	383	580	423	499	437	394	399	361	337
Total Potato Production	450,000	945,000	368,000	262,500	253,000	332,000	231,000	304,000	284,000
Potato Variety:	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank

Eastern Idaho south: Bannock, Bingham and Power counties. Eastern Idaho north: Bonneville and Madison counties.

Note: cost of production studies for Idaho were funded by the Idaho Potato Commission.

Cost of production studies for Colorado, Washington and Wisconsin were funed by United Potato Growers of America.

Cost of production studies were conducted by Paul Patterson, Extension Agricultural Economist, University of Idaho.

Table 2. 2014 Potato cost of production study. Cost per acre summary by major cost categories & per hundredweight for field-run and paid-yield.

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated			Idaho Non-Fumigated		
1/16/2015	Colorado	Washington	Wisconsin	SWI	SCI	EI-S	SCI	EI-S	EI-N
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank
Field-Run	450	630	460	525	460	415	420	380	355
% Paid Yield	85%	92%	92%	95%	95%	95%	95%	95%	95%
Paid Yield	383	580	423	499	437	394	399	361	337
Operating Costs:									
Seed	$441	$432	$290	$358	$331	$291	$331	$291	$279
Fertilizer	$442	$662	$455	$541	$461	$423	$426	$395	$372
Pesticides/Chemicals	$298	$857	$604	$574	$523	$438	$275	$245	$193
Custom/Consultants	$40	$152	$65	$124	$139	$104	$94	$59	$59
Irrigation	$240	$164	$88	$126	$112	$95	$109	$92	$66
Other	$134	$87	$142	$160	$149	$151	$137	$145	$131
Field Labor	$154	$217	$169	$218	$175	$161	$171	$157	$153
Machinery: FOLR	$165	$200	$164	$190	$155	$159	$154	$158	$159
Sorting	$69	$96	$70	$80	$70	$63	$64	$58	$54
Interest	$58	$97	$61	$86	$77	$66	$56	$49	$45
Total Operating	$2,041	$2,964	$2,108	$2,457	$2,192	$1,951	$1,817	$1,649	$1,511
Operating/cwt: F-R	$4.54	$4.70	$4.58	$4.68	$4.77	$4.70	$4.33	$4.34	$4.26
Operating/cwt: P-Y	$5.34	$5.11	$4.98	$4.93	$5.02	$4.95	$4.55	$4.57	$4.48
Ownership Costs:									
General Overhead	$51	$74	$53	$61	$46	$41	46	41	38
Management Fee	$131	$202	$140	$175	$135	$122	135	122	110
Land	$270	$715	$375	$700	$600	$515	600	515	425
Equip. Tax & Insurance	$10	$10	$11	$6	$5	$5	5	5	5
Sorting Equip. D & I	$70	$101	$72	$83	$71	$65	64	59	55
Field Equip. D & I	$172	$175	$180	$198	$183	$170	180	167	167
Total Ownership	$704	$1,277	$831	$1,223	$1,040	$918	$1,030	$909	$800
Ownership/cwt: F-R	$1.56	$2.03	$1.81	$2.33	$2.26	$2.21	$2.45	$2.39	$2.25
Ownership/cwt: P-Y	$1.84	$2.20	$1.96	$2.45	$2.38	$2.33	$2.58	$2.52	$2.37
Total Costs:									
Total cost per acre	$2,745	$4,241	$2,939	$3,680	$3,232	$2,869	$2,847	$2,558	$2,311
Total Cost/cwt: F-R	$6.10	$6.73	$6.39	$7.01	$7.03	$6.91	$6.78	$6.73	$6.51
Total Cost/cwt: P-Y	$7.18	$7.32	$6.94	$7.38	$7.40	$7.28	$7.14	$7.09	$6.85

F-R = Field-Run Yield P-Y = Paid Yield

Machinery FOLR = Fuel, Oil, Lube and Repairs

D & I = Depreciation and Interest, or Capital Recovery for machinery and equipment.

EI-N = Eastern Idaho northern counties (north of Blackfoot), no fumigation.

EI-S = Eastern Idaho northern counties (South of Blackfoot), no fumigation.

Note: Cost to grow, harvest and sort potatoes only. Storage costs are not included in this table.

Cost of production studies for Idaho were funded by the Idaho Potato Commission.

Cost of production studies for Colorado, Washington and Wisconsin were funed by United Potato Growers of America.

Cost of production studies were conducted by Paul Patterson, Extension Agricultural Economist, University of Idaho.

Table 3. 2014 Potato cost of production study. Cost per hundredweight summary by major cost category: field-run yield.

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated			Idaho Non-Fumigated		
1/16/2015	Colorado	Washington	Wisconsin	SWI	SCI	EI-S	SCI	EI-S	EI-N
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank
Field-Run	450	630	460	525	460	415	420	380	355
% Paid Yield	85%	92%	92%	95%	95%	95%	95%	95%	95%
Paid Yield	383	580	423	499	437	394	399	361	337
Operating Costs:									
Seed	$0.98	$0.69	$0.63	$0.68	$0.72	$0.70	$0.79	$0.77	$0.79
Fertilizer	$0.98	$1.05	$0.99	$1.03	$1.00	$1.02	$1.01	$1.04	$1.05
Pesticides/Chemicals	$0.66	$1.36	$1.31	$1.09	$1.14	$1.06	$0.65	$0.64	$0.54
Custom/Consultants	$0.09	$0.24	$0.14	$0.24	$0.30	$0.25	$0.22	$0.16	$0.17
Irrigation	$0.53	$0.26	$0.19	$0.24	$0.24	$0.23	$0.26	$0.24	$0.19
Other	$0.30	$0.14	$0.31	$0.30	$0.32	$0.36	$0.33	$0.38	$0.37
Field Labor	$0.34	$0.34	$0.37	$0.42	$0.38	$0.39	$0.41	$0.41	$0.43
Machinery: FOLR	$0.37	$0.32	$0.36	$0.36	$0.34	$0.38	$0.37	$0.42	$0.45
Sorting	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15
Interest	$0.13	$0.15	$0.13	$0.16	$0.17	$0.16	$0.13	$0.13	$0.13
Total Op. Cost per Cwt	$4.54	$4.70	$4.58	$4.68	$4.77	$4.70	$4.33	$4.34	$4.26
Ownership Costs:									
General Overhead	$0.11	$0.12	$0.12	$0.12	$0.10	$0.10	$0.11	$0.11	$0.11
Management Fee	$0.29	$0.32	$0.30	$0.33	$0.29	$0.29	$0.32	$0.32	$0.31
Land	$0.60	$1.13	$0.82	$1.33	$1.30	$1.24	$1.43	$1.36	$1.20
Equip. Tax & Insurance	$0.02	$0.02	$0.02	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01
Sorting Equip. D & I	$0.16	$0.16	$0.16	$0.16	$0.15	$0.16	$0.15	$0.16	$0.15
Field Equip. Cap. Recover	$0.38	$0.28	$0.39	$0.38	$0.40	$0.41	$0.43	$0.44	$0.47
Total Cost per Cwt	$6.10	$6.73	$6.39	$7.01	$7.03	$6.91	$6.78	$6.73	$6.51

Machinery FOLR = Fuel, Oil, Lube and Repairs

D & I = Depreciation and Interest, or Capital Recovery for machinery and equipment.

EI-N = Eastern Idaho northern counties (north of Blackfoot), no fumigation.

EI-S = Eastern Idaho northern counties (South of Blackfoot), no fumigation.

Note: Cost to grow, harvest and sort potatoes only. Storage costs are not included in this table.

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Table 4. 2014 Potato cost of production study. Cost per hundredweight summary by major cost categories: paid-yield.

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated			Idaho Non-Fumigated		
1/16/2015	Colorado	Washington	Wisconsin	SWI	SCI	EI-S	SCI	EI-S	EI-N
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank
Field-Run	450	630	460	525	460	415	420	380	355
% Paid Yield	85%	92%	92%	95%	95%	95%	95%	95%	95%
Paid Yield	382.5	580	423	499	437	394	399	361	337
Operating Costs:									
Seed	$1.15	$0.75	$0.69	$0.72	$0.76	$0.74	$0.83	$0.81	$0.83
Fertilizer	$1.16	$1.14	$1.08	$1.08	$1.05	$1.07	$1.07	$1.09	$1.10
Pesticides/Chemicals	$0.78	$1.48	$1.43	$1.15	$1.20	$1.11	$0.69	$0.68	$0.57
Custom/Consultants	$0.10	$0.26	$0.15	$0.25	$0.32	$0.26	$0.24	$0.16	$0.17
Irrigation	$0.63	$0.28	$0.21	$0.25	$0.26	$0.24	$0.27	$0.25	$0.20
Other	$0.35	$0.15	$0.34	$0.32	$0.34	$0.38	$0.34	$0.40	$0.39
Field Labor	$0.40	$0.37	$0.40	$0.44	$0.40	$0.41	$0.43	$0.43	$0.45
Machinery: FOLR	$0.43	$0.35	$0.39	$0.38	$0.35	$0.40	$0.39	$0.44	$0.47
Sorting	$0.18	$0.17	$0.17	$0.16	$0.16	$0.16	$0.16	$0.16	$0.16
Interest	$0.15	$0.17	$0.14	$0.17	$0.18	$0.17	$0.14	$0.14	$0.13
Total Op. Cost per Cwt	$5.34	$5.11	$4.98	$4.93	$5.02	$4.95	$4.55	$4.57	$4.48
Ownership Costs:									
General Overhead	$0.13	$0.13	$0.13	$0.12	$0.11	$0.10	$0.12	$0.11	$0.11
Management Fee	$0.34	$0.35	$0.33	$0.35	$0.31	$0.31	$0.34	$0.34	$0.33
Land	$0.71	$1.23	$0.89	$1.40	$1.37	$1.31	$1.50	$1.43	$1.26
Equip. Tax & Insurance	$0.03	$0.02	$0.03	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01
Sorting Equip. D & I	$0.18	$0.17	$0.17	$0.17	$0.16	$0.16	$0.16	$0.16	$0.16
Field Equip. Cap. Recovery	$0.45	$0.30	$0.43	$0.40	$0.42	$0.43	$0.45	$0.46	$0.50
Total Cost per Cwt	$7.18	$7.32	$6.94	$7.38	$7.40	$7.28	$7.14	$7.09	$6.85

Machinery FOLR = Fuel, Oil, Lube and Repairs

D & I = Depreciation and Interest, or Capital Recovery for machinery and equipment.

EI-N = Eastern Idaho northern counties (north of Blackfoot), no fumigation.

EI-S = Eastern Idaho northern counties (South of Blackfoot), no fumigation.

Note: Cost to grow, harvest and sort potatoes only. Storage costs are not included in this table.

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Table 5. 2014 Potato cost of production study. Cost per hundredweight storage cost summary by month: field-run yield.

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated			Idaho Non-Fumigated		
1/15/2015	Colorado	Washington	Wisconsin	SWI	SCI	EI-S	SCI	EI-S	EI-N
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank
Base Cost: Field-Run Yield	$6.10	$6.73	$6.39	$7.01	$7.03	$6.91	$6.78	$6.73	$6.51
Storage Ownership Cost	$0.356	$0.356	$0.356	$0.356	$0.356	$0.356	$0.356	$0.356	$0.356
Storage Repair Costs	$0.039	$0.039	$0.039	$0.039	$0.039	$0.039	$0.039	$0.039	$0.039
Total	$6.50	$7.13	$6.78	$7.40	$7.42	$7.31	$7.17	$7.13	$6.90
Cumulative Costs:									
October	$6.68	$7.33	$7.02	$7.61	$7.63	$7.52	$7.38	$7.33	$7.11
November	$6.84	$7.50	$7.19	$7.78	$7.80	$7.69	$7.55	$7.50	$7.28
December	$6.91	$7.58	$7.28	$7.87	$7.89	$7.77	$7.63	$7.59	$7.36
January	$6.99	$7.67	$7.36	$7.96	$7.98	$7.86	$7.72	$7.67	$7.44
February	$7.06	$7.75	$7.45	$8.05	$8.07	$7.95	$7.80	$7.75	$7.53
Marh	$7.14	$7.84	$7.53	$8.13	$8.15	$8.03	$7.89	$7.84	$7.61
April	$7.03	$8.02	$7.71	$8.32	$8.34	$8.22	$8.07	$8.02	$7.79
May	$7.41	$8.12	$7.82	$8.43	$8.45	$8.33	$8.18	$8.13	$7.90
June	$7.52	$8.24	$7.93	$8.56	$8.58	$8.45	$8.30	$8.25	$8.01

Machinery FOLR = Fuel, Oil, Lube and Repairs
D & I = Depreciation and Interest, or Capital Recovery for machinery and equipment.
Ownership costs for non-field equipment used to sort and move potatoes are included in the base cost. This would include: even-flow bin, sorter/sizer, conveyers, and piler.
Storage ownership and repair costs are for the storage system includes the storage facility and the air system.
EI-N = Eastern Idaho northern counties (north of Blackfoot), no fumigation.
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Table 6. 2014 Potato cost of production study. Cost per hundredweight storage cost summary by month: paid-yield.

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated			Idaho Non-Fumigated		
1/15/2015	Colorado	Washington	Wisconsin	SWI	SCI	EI-S	SCI	EI-S	EI-N
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank	R. Burbank
Base Cost: Paid-Yield	$7.18	$7.32	$6.94	$7.38	$7.40	$7.28	$7.14	$7.09	$6.85
Storage Ownership Cost	$0.419	$0.387	$0.387	$0.375	$0.375	$0.375	$0.375	$0.375	$0.375
Storage Repair Costs	$0.046	$0.042	$0.042	$0.041	$0.041	$0.041	$0.041	$0.041	$0.041
Total	$7.64	$7.75	$7.37	$7.79	$7.81	$7.69	$7.55	$7.50	$7.27
Cumulative Costs:									
October	$7.49	$7.95	$7.58	$8.01	$8.03	$7.91	$7.77	$7.72	$7.48
November	$7.65	$8.12	$7.74	$8.19	$8.21	$8.09	$7.94	$7.90	$7.66
December	$7.72	$8.20	$7.83	$8.29	$8.31	$8.18	$8.03	$7.98	$7.75
January	$7.80	$8.29	$7.91	$8.38	$8.40	$8.27	$8.12	$8.07	$7.84
February	$7.88	$8.37	$8.00	$8.47	$8.49	$8.36	$8.21	$8.16	$7.92
Marh	$7.95	$8.45	$8.08	$8.56	$8.58	$8.45	$8.30	$8.25	$8.01
April	$8.13	$8.64	$8.26	$8.76	$8.78	$8.65	$8.50	$8.45	$8.20
May	$8.22	$8.74	$8.37	$8.87	$8.90	$8.76	$8.61	$8.56	$8.31
June	$8.33	$8.86	$8.49	$9.01	$9.03	$8.89	$8.73	$8.68	$8.44

Machinery FOLR = Fuel, Oil, Lube and Repairs

D & I = Depreciation and Interest, or Capital Recovery for machinery and equipment.

Ownership costs for non-field equipment used to sort and move potatoes are included in the base cost. This would include: even-flow bin, sorter/sizer, conveyers, and piler.

Storage ownership and repair costs are for the storage system includes the storage facility and the air system.

EI-N = Eastern Idaho northern counties (north of Blackfoot), no fumigation.

EI-S = Eastern Idaho northern counties (South of Blackfoot), no fumigation.

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