

Colorado Potato Production Costs for 2014

Southern Rock Mountain Agricultural Conference

February 10, 2015

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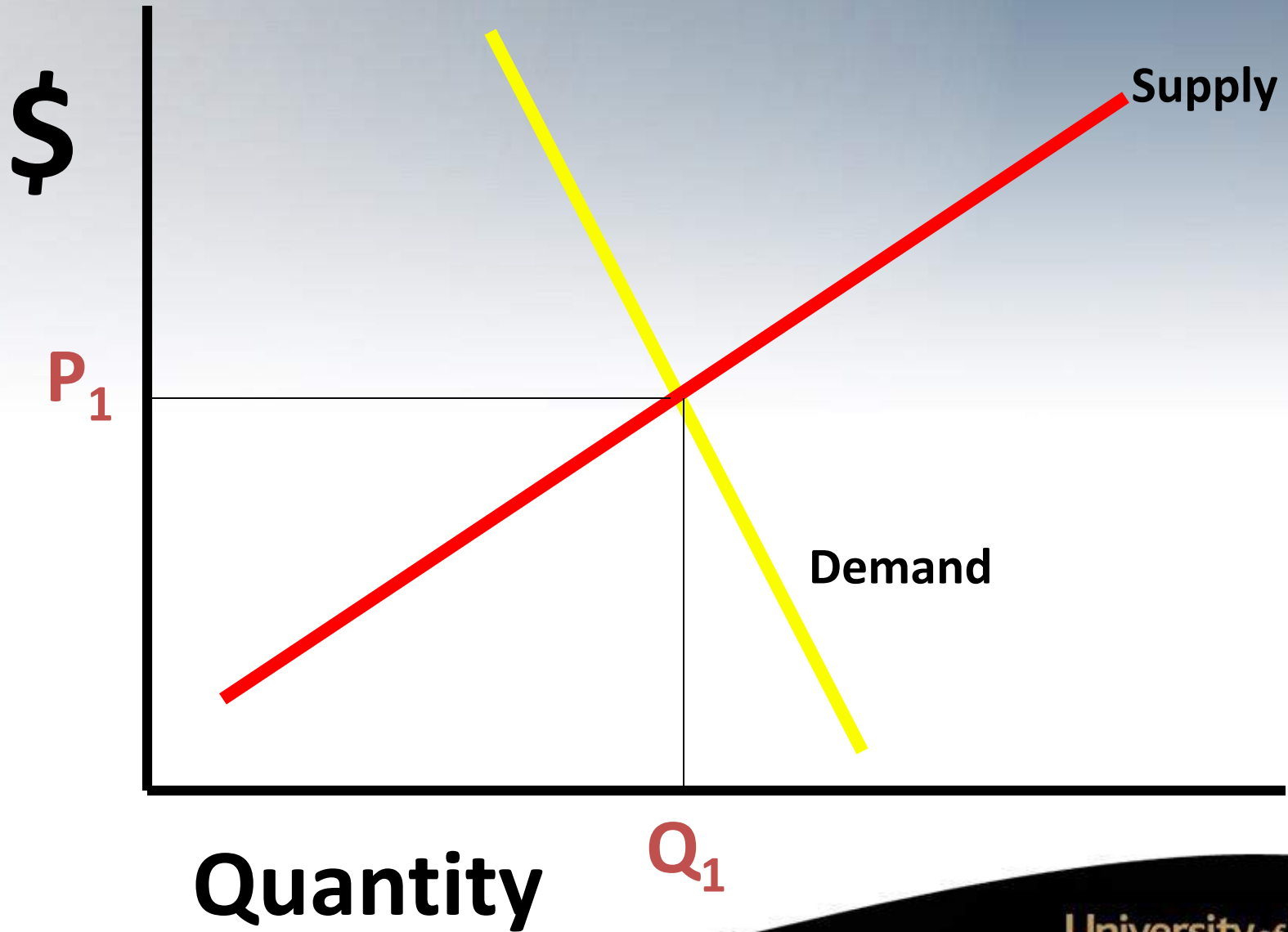
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Project funded by United Potato Growers of America

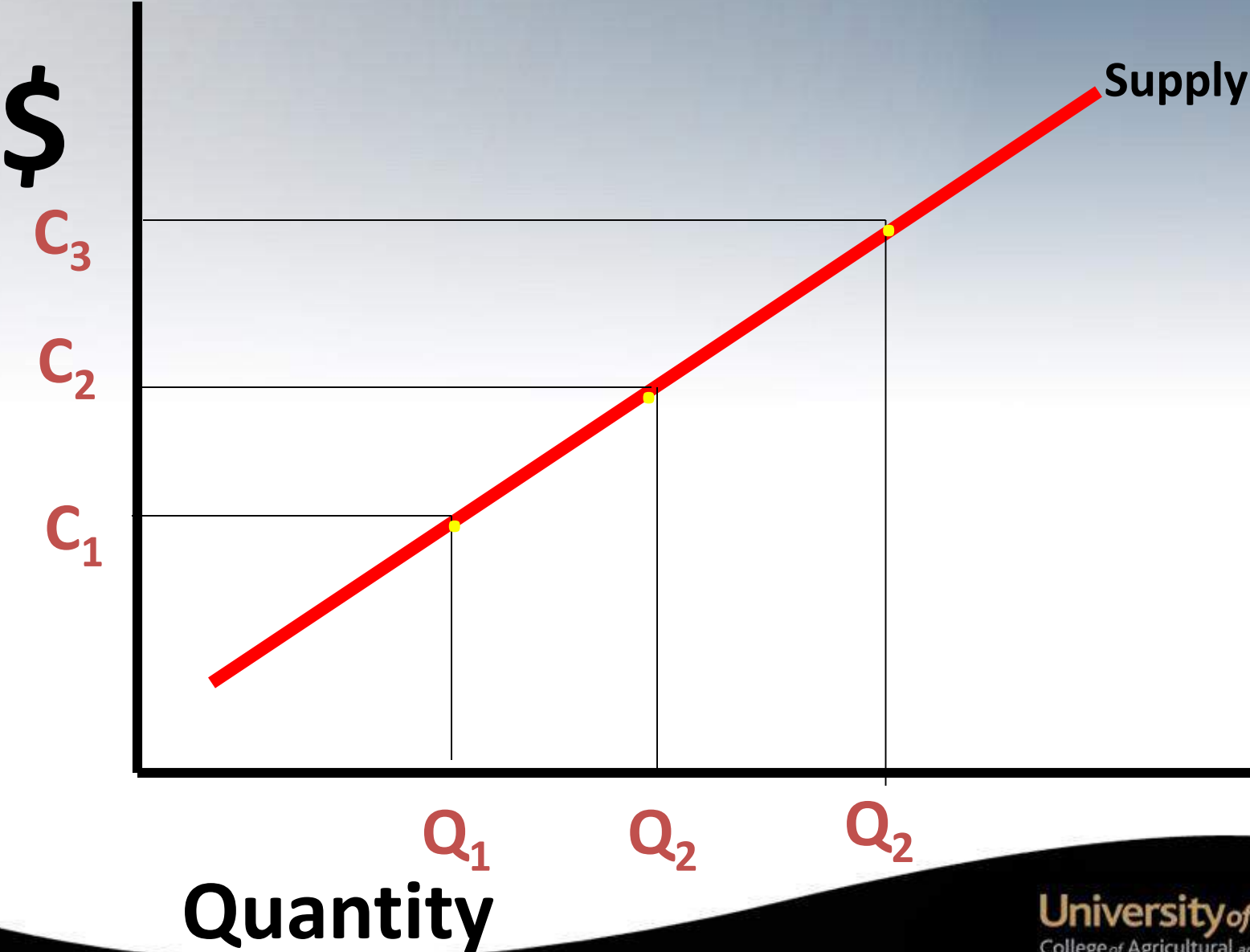
How much does it cost to raise potatoes?

It Depends:
Acre vs. Cwt
Location
Variety
Farm Size
Storage
Water Source
Irrigation System

Market-based economies: supply & demand set price



Cost of Production & Supply



Potato Cost of Production Estimates

- Survey growers
 - Sequence of operations
 - Machinery used
 - Inputs applied and quantities
- Model farm developed
- Typical or representative costs of production estimates, not average
- Followed standard procedures and assumptions used for Idaho potato production cost estimates

Cost of Production Estimates

- Budget Generator Software
 - Budget Planner – U.C. Davis
- Calculates Costs of Operating & Owning Equipment
 - Fuel, Oil, Lube, Repairs, Labor
 - Capital Recovery (depreciation & interest)
- Select Tractor and Implement
 - Tractor horsepower drives fuel consumption
 - Implement: speed, width, field efficiency
 - Hours per Acre and Acres per Hour
- Select Inputs and Quantity Applied

Procedures and Assumptions

- Economic costs, not accounting (cash) costs
 - Opportunity cost for all resources
- Machinery: 75% of replacement cost new
 - Management depreciation, not tax depreciation
- Management: ~5% of total expenses (gross receipts)
- Overhead: ~2.5% of cash operating expenses
- Land: crop specific 1-year cash rental value
- Water source: Groundwater or Surface
- 75' Lift and pressurization for center pivot, per acre-inch water applied

Procedures and Assumptions

- Any standard procedures and assumptions have limitations
 - Positive bias (high)
 - Negative bias (low)
- Consistency in methodology negates the impact of the bias in calculating changes in production cost from year to year
- Challenges:
 - How to improve the overall accuracy and usefulness of the cost of production estimates, without injecting a new bias or implementing a change that is not sustainable
 - Keeping cost reasonable

2013 Colorado Survey

	Survey	Model
Sample Size	7	
Farm Size: Average (Low – High)	2,432 (990 – 4,700)	2,400
Potato Acres: Average (Low – High)	1,104 (469 – 1,960)	1,000
% Potato Acres: Average (Low – High)	47% (39-52)	42%

2013 Colorado Survey: Norkotah

	Survey	Model
Field-Run Yield: Average (Low – High)	459 (426 – 480)	450
% Paid Yield: Average (Low – High)	84% (76 – 91)	85%
Paid-Yield: Average (Low – High)	384 (340 – 415)	382

Budget Changes: 2014

- Base budget shows cost to the “end of piler boom “
 - Grow, harvest & sort
 - Storage operating & ownership costs are not included

Pesticides & Chemicals:				\$297.76	
Potato Seed Treatment	28	cwt	\$0.85		\$23.80
Quadris Flowable	6.0	fl oz	\$2.50		\$15.00
Boundary	1.5	pt	\$10.75		\$16.13
Chateau WDG	1.5	oz	\$6.50		\$9.75
Eptam 7E	4.0	pt	\$6.25		\$25.00
Quadris Opti	1.6	pt	\$12.50		\$20.00
Bravo Ultrex	1.25	lb	\$6.50		\$8.13
Vydate C-LV	4.2	pt	\$13.50		\$56.70
Fulfill WDG	2.8	oz	\$6.25		\$17.19
Movento	5.0	fl oz	\$7.00		\$35.00
Endura	4.5	oz	\$5.25		\$23.63
Revus Top	5.50	fl oz	\$2.40		\$13.20
Super Tin 4L	3.75	oz	\$3.00		\$11.25
Reglone	1.0	qt	\$23.00		\$23.00
					\$0.00

Breakeven Analysis:

	- 10%	Base	+ 10%
		Yield	
<u>Price</u>	405	450	495
Operating Cost Breakeven	\$5.04	\$4.53	\$4.12
Ownership Cost Breakeven	\$1.74	\$1.56	\$1.42
Total Cost Breakeven	\$6.78	\$6.10	\$5.54
		Price	
<u>Yield</u>	\$6.30	\$7.00	\$7.70
Operating Cost Breakeven	323.9	291.5	265.0
Ownership Cost Breakeven	111.7	100.6	91.4
Total Cost Breakeven	435.6	392.0	356.4

**How much did it cost to grow,
harvest, and sort potatoes in 2014
for SLV of Colorado?**

2014 Russet Norkotah

Colorado	Cost per Acre	Yield	Cost per Cwt
Operating	\$2,040	450	\$4.53
Ownership	\$704		\$1.56
Total Costs	\$2,744		\$6.10

Cost to grow, harvest & sort.

How much did costs change in 2014?

It Depends:
Acre vs. Cwt
Which inputs

Colorado RN: Costs per Acre

Cost Categories	
2013 Operating Costs	\$2,072
2014 Operating Costs	\$2,040
\$ Change	-\$32
% Change	-1.5%
2013 Ownership Costs	\$678
2014 Ownership Costs	\$704
\$ Change	+\$26
% Change	+3.9%
2013 Total Costs	\$2,750
2014 Total Costs	\$2,744
\$ Change	-\$5
% Change	-0.2%

Cost to grow, harvest & sort.

Table 1.

Colorado RN Costs per Cwt

Cost Categories	
2013 Operating Costs	\$4.60
2014 Operating Costs	\$4.53
\$ Change	-\$0.07
% Change	-1.5%
2013 Ownership Costs	\$1.51
2014 Ownership Costs	\$1.56
\$ Change	+\$0.06
% Change	+3.9%
2013 Total Costs	\$6.11
2014 Total Costs	\$6.10
\$ Change	-\$0.01
% Change	-0.2%

Cost to grow, harvest & sort.

Table 1.

**Which input cost categories
changed in 2014 and by how much?**

Co. Cost change summary for 2014

Operating Expense Category	\$ Change/acre	% Change/acre
Seed	+\$7.00	+1.6%
Fertilizer	-\$51.55	-10.4%
Pesticides & Chemicals	+\$4.04	+1.4%
Custom & Consultant	+\$0.50	+1.3%
Irrigation	+\$4.18	+1.8%
Machinery (FOLR)	+\$1.84	+1.1%
Field Labor	+\$2.41	+1.6%
Sorting: labor, power, repairs	+\$1.58	+2.3%
Other: fees, crop insurance	Flat	+0%
Operating interest	-\$0.17	-0.3%

Table 2.

Co. Cost change summary for 2014

Ownership Expense Category	\$ Change/acre	% Change/acre
Field Equipment	+\$6.00	+3.6%
Overhead	-\$1.00	-1.9%
Land	+\$20	+8.0%
Handling/Sorting Equip.	+\$1.00	+1.4%
Storage System	+\$5.52	+3.5%

Table 2.

Field-run vs. Paid Yield

- What percentage of the potatoes that you deliver do you get paid for?
- Does it vary by market?
- Colorado: 85%
 - Field-Run: 450 cwt/ac
 - Paid-Yield: 382 cwt/ac

2014 Colorado SLV Potato Cost of Production and Storage Costs (Table 4)

	Field-Run	Paid-Yield
Base: Cost to grow, harvest, and sort	\$6.10	\$7.17
Base + Storage Ownership & Repairs	\$6.49	\$7.64
October	\$6.68	\$7.82
November*	\$6.84	\$7.98
December	\$6.91	\$8.06
January	\$6.99	\$8.13
February	\$7.06	\$8.21
March	\$7.14	\$8.29
April*	\$7.31	\$8.46
May	\$7.41	\$8.55
June	\$7.52	\$8.66

Base includes the cost to grow, harvest, and sort.

*Sprout inhibitor applied

Storage Operating Costs: labor, power, chemicals, interest, shrink and insurance

Paid Yield = 85% of Field-Run Yield

2014 Production Costs, Storage Ownership & Repair Costs, & Monthly Storage Operating Costs (Tables A-2, B-2 and C-2)

	SWI Field-Run	SWI Paid-Yield	SCI Field-Run	SCI Paid-Yield	EI-S Field-Run	EI-S Paid-Yield
Base COP:	\$7.01	\$7.38	\$6.78	\$7.14	\$6.73	\$7.09
+ Storage Owner.	\$7.36	\$7.75	\$7.14	\$7.51	\$7.09	\$7.46
+ Storage Repairs	\$7.40	\$7.79	\$7.17	\$7.55	\$7.13	\$7.50
Oct	\$7.61	\$8.01	\$7.38	\$7.77	\$7.33	\$7.72
Nov*	\$7.78	\$8.19	\$7.55	\$7.94	\$7.50	\$7.90
Dec	\$7.87	\$8.29	\$7.63	\$8.03	\$7.59	\$7.98
Jan	\$7.96	\$8.38	\$7.72	\$8.12	\$7.67	\$8.07
Feb	\$8.05	\$8.47	\$7.80	\$8.21	\$7.75	\$8.16
Mar	\$8.13	\$8.56	\$7.89	\$8.30	\$7.84	\$8.25
Apr*	\$8.32	\$8.76	\$8.07	\$8.50	\$8.02	\$8.45
May	\$8.43	\$8.87	\$8.18	\$8.61	\$8.13	\$8.50
Jun	\$8.56	\$9.01	\$8.30	\$8.73	\$8.25	\$8.68

Paid Yield = 95% of Field Run Yield

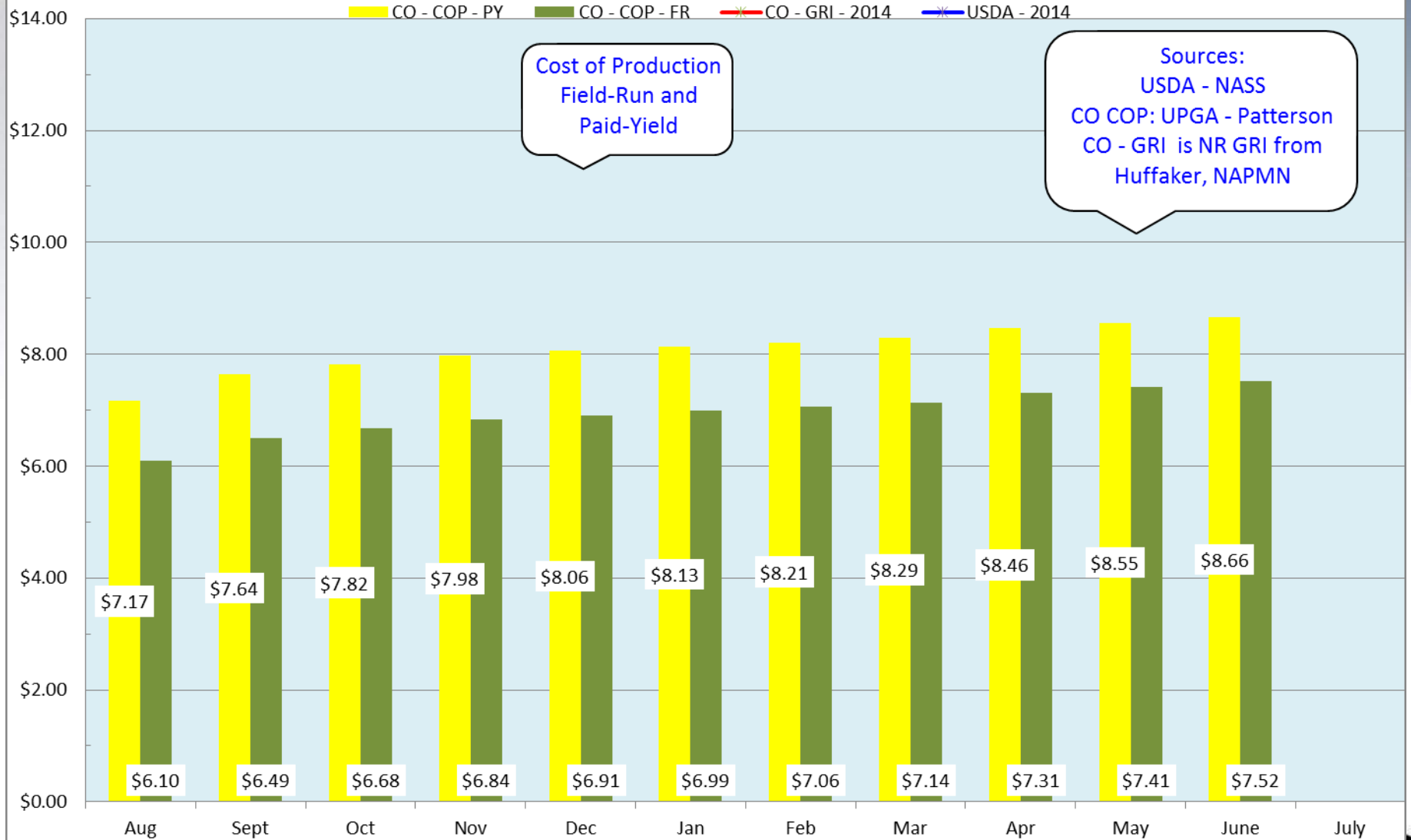
*Sprout inhibitor applied

Storage Operating Costs: labor, power, chemicals, interest, shrink and insurance

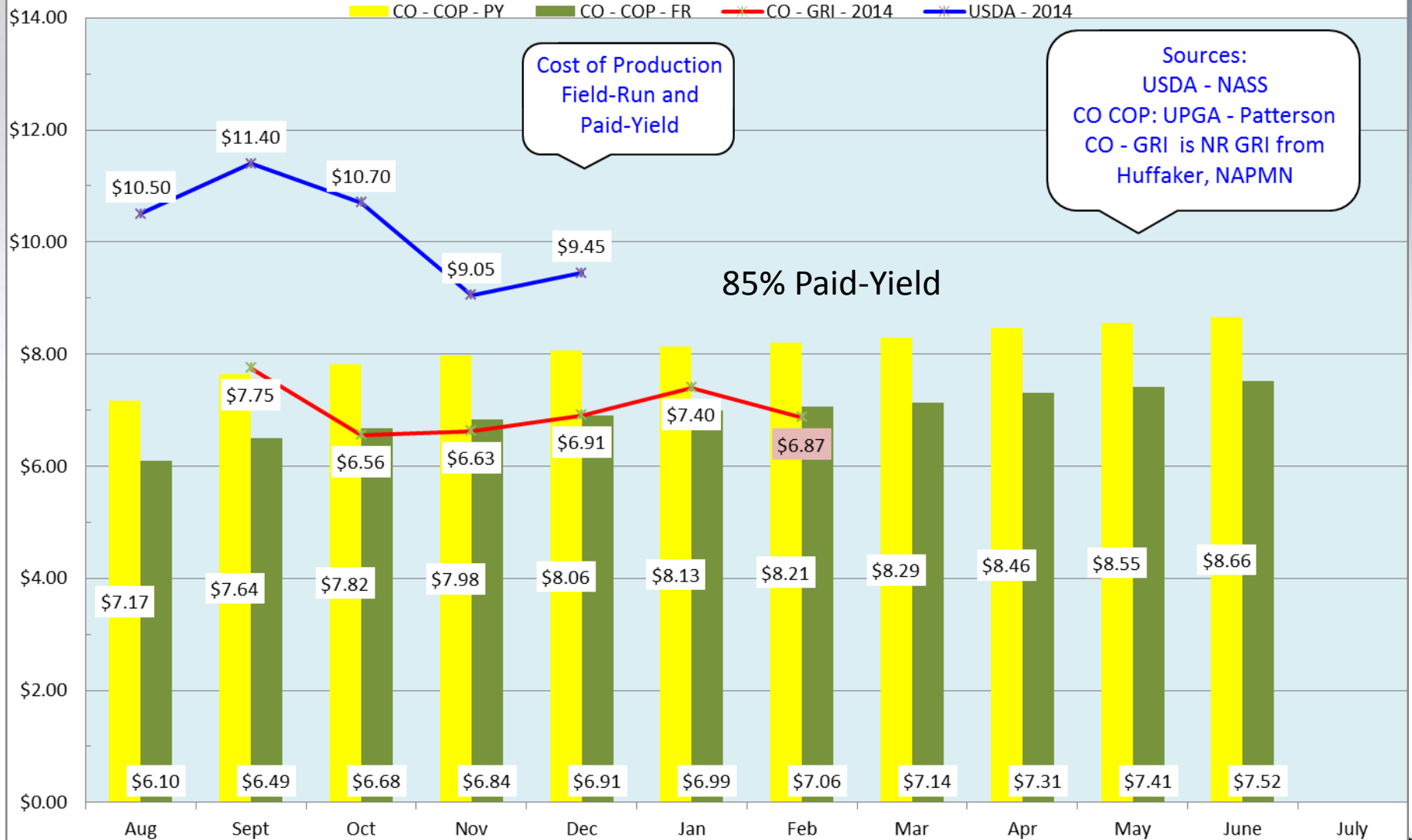
SWI = Southwestern Idaho, SCI = Southcentral Idaho, EI = Eastern Idaho

**It's not what you know that
matters.
Rather, it's what you do with what
you know that counts.**

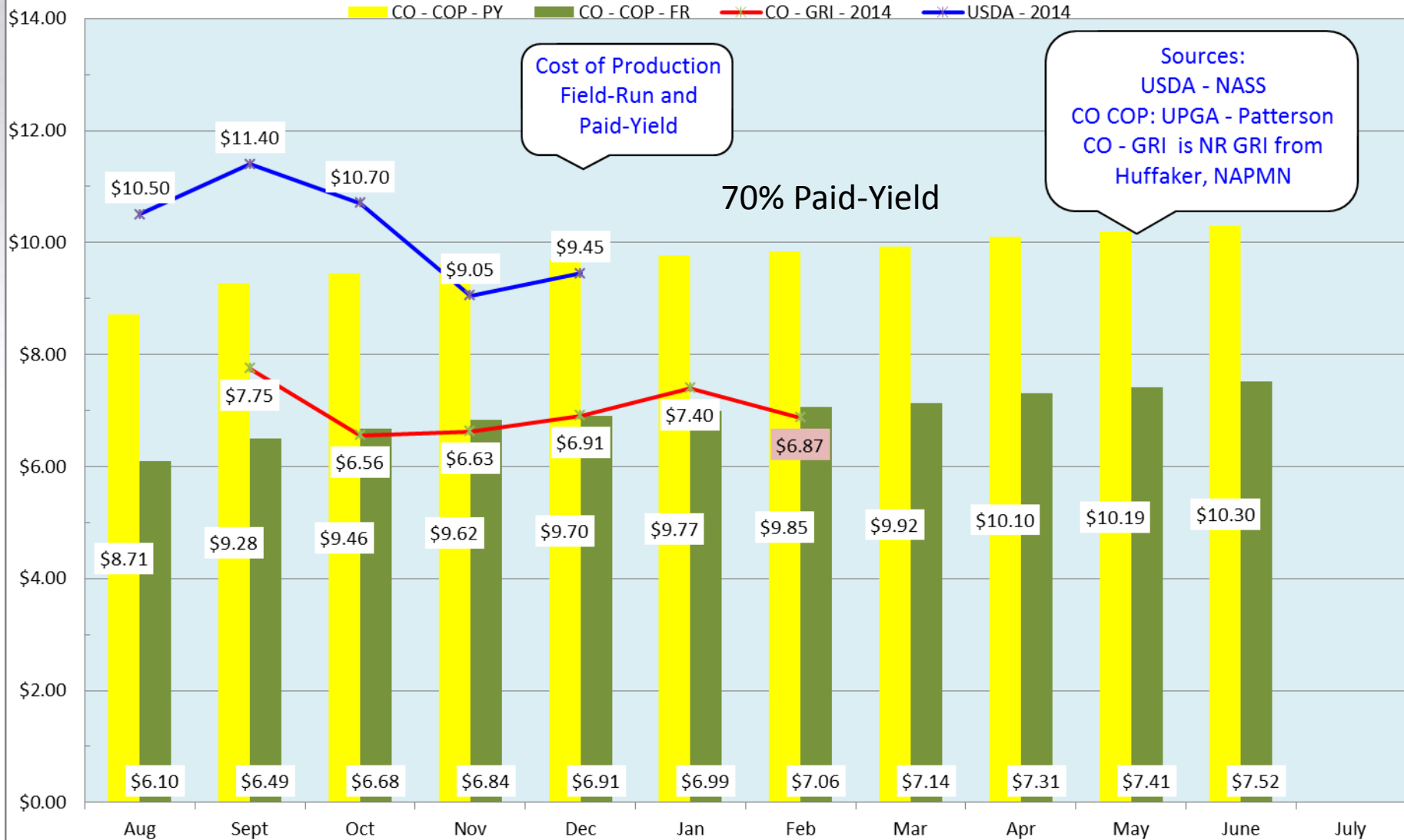
2014 Colorado Cost of Production with Storage Costs by Month & Fresh Market Potato Prices: USDA-NASS and NAPMN



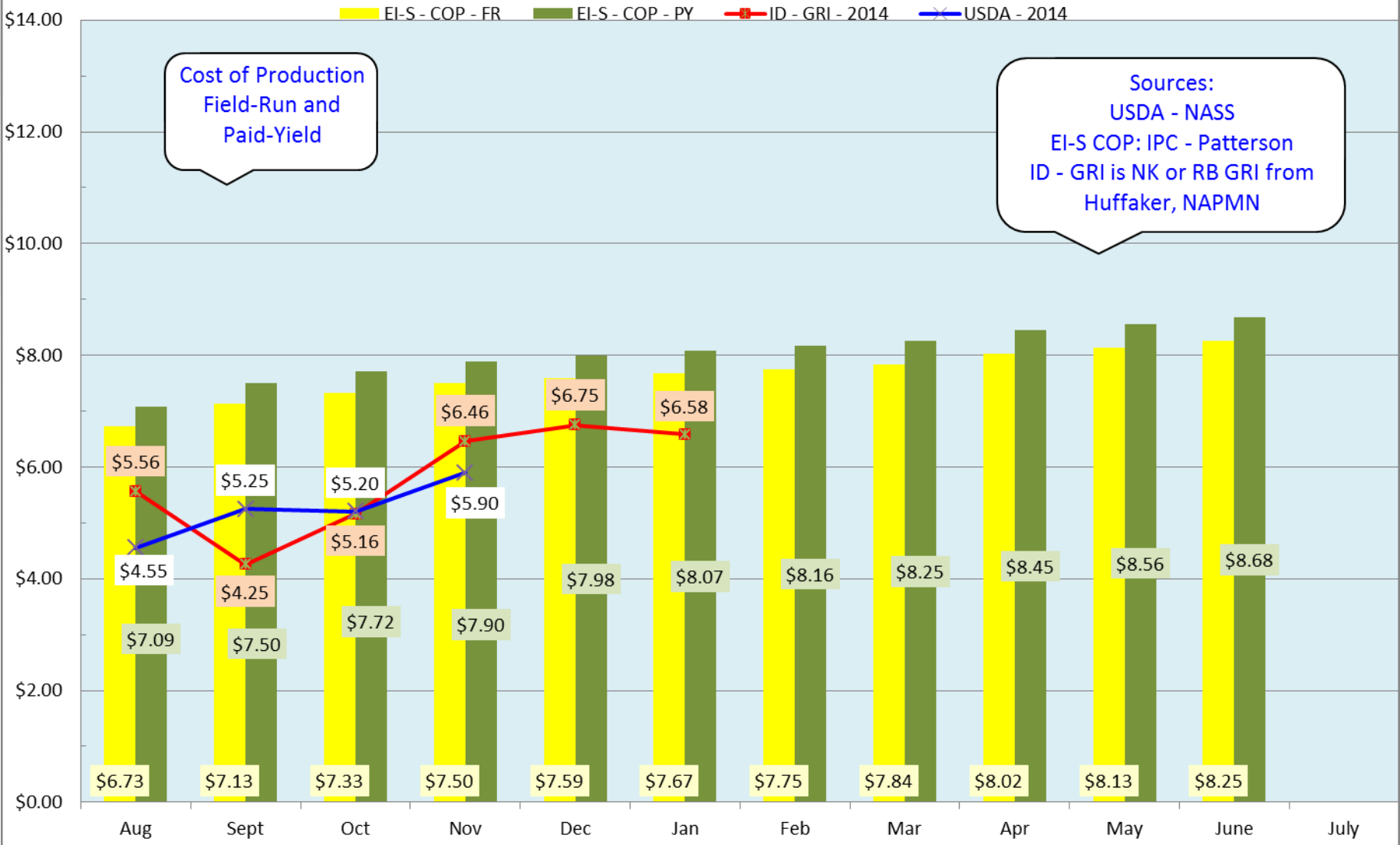
2014 Colorado Cost of Production with Storage Costs by Month & Fresh Market Potato Prices: USDA-NASS and NAPMN



2014 Colorado Cost of Production with Storage Costs by Month & Fresh Market Potato Prices: USDA-NASS and NAPMN



2014 Eastern ID - South Cost of Production with Storage Costs by Month & Fresh Market Potato Prices: USDA-NASS and NAPMN



Cost of Potato Production: All States

	Non- Fumigated	Fumigated	Fumigated	Idaho Fumigated		
1/16/2015	<u>CO</u>	<u>WA</u>	<u>WI</u>	<u>SWI</u>	<u>SCI</u>	<u>EI-S</u>
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank
Field-Run	450	630	460	525	460	415
% Paid Yield	85%	92%	92%	95%	95%	95%
Paid Yield	383	580	423	499	437	394
Total Operating	\$2,041	\$2,964	\$2,108	\$2,457	\$2,192	\$1,951
Operating/cwt: F-R	\$4.54	\$4.70	\$4.58	\$4.68	\$4.77	\$4.70
Operating/cwt: P-Y	\$5.34	\$5.11	\$4.98	\$4.93	\$5.02	\$4.95
Total Ownership	\$704	\$1,277	\$831	\$1,223	\$1,040	\$918
Ownership/cwt: F-R	\$1.56	\$2.03	\$1.81	\$2.33	\$2.26	\$2.21
Ownership/cwt: P-Y	\$1.84	\$2.20	\$1.96	\$2.45	\$2.38	\$2.33
<u>Total Costs:</u>						
Total cost per acre	\$2,745	\$4,241	\$2,939	\$3,680	\$3,232	\$2,869
Total Cost/cwt: F-R	\$6.10	\$6.73	\$6.39	\$7.01	\$7.03	\$6.91
Total Cost/cwt: P-Y	\$7.18	\$7.32	\$6.94	\$7.38	\$7.40	\$7.28

Cost of Potato Production: All States

	Non- Fumigated	Fumigated	Fumigated	Idaho Fumigated		
1/16/2015	<u>CO</u>	<u>WA</u>	<u>WI</u>	<u>SWI</u>	<u>SCI</u>	<u>EI-S</u>
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank
Field-Run	450	630	460	525	460	415
% Paid Yield	85%	92%	92%	95%	95%	95%
		+45%				
Total Operating	\$2,041	\$2,964	\$2,108	\$2,457	\$2,192	\$1,951
					+5.1%	
Operating/cwt: F-R	\$4.54	\$4.70	\$4.58	\$4.68	\$4.77	\$4.70
		+81%				
Total Ownership	\$704	\$1,277	\$831	\$1,223	\$1,040	\$918
				+49%		
Ownership/cwt: F-R	\$1.56	\$2.03	\$1.81	\$2.33	\$2.26	\$2.21
<u>Total Costs:</u>		+54%				
Total cost per acre	\$2,745	\$4,241	\$2,939	\$3,680	\$3,232	\$2,869
					+15%	
Total Cost/cwt: F-R	\$6.10	\$6.73	\$6.39	\$7.01	\$7.03	\$6.91

Cost of Potato Production: Other States

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated		
1/16/2015	<u>CO</u>	<u>WA</u>	<u>WI</u>	<u>SWI</u>	<u>SCI</u>	<u>EI-S</u>
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank
Field-Run	450	630	460	525	460	415
<u>Operating Costs:</u>						
Seed	\$0.98	\$0.69	\$0.63	\$0.68	\$0.72	\$0.70
Fertilizer	\$0.98	\$1.05	\$0.99	\$1.03	\$1.00	\$1.02
Pesticides/Chemicals	\$0.66	\$1.36	\$1.31	\$1.09	\$1.14	\$1.06
Custom/Consultants	\$0.09	\$0.24	\$0.14	\$0.24	\$0.30	\$0.25
Irrigation	\$0.53	\$0.26	\$0.19	\$0.24	\$0.24	\$0.23
Other	\$0.30	\$0.14	\$0.31	\$0.30	\$0.32	\$0.36
Field Labor	\$0.34	\$0.34	\$0.37	\$0.42	\$0.38	\$0.39
Machinery: FOLR	\$0.37	\$0.32	\$0.36	\$0.36	\$0.34	\$0.38
Sorting	\$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
Total Op. Cost /Cwt	\$4.54	\$4.70	\$4.58	\$4.68	\$4.77	\$4.70

Cost of Production: Other States

	Non-Fumigated	Fumigated	Fumigated	Idaho Fumigated		
1/16/2015	<u>CO</u>	<u>WA</u>	<u>WI</u>	<u>SWI</u>	<u>SCI</u>	<u>EI-S</u>
Variety	R. Norkotah	R. Burbank	R. Norkotah	R. Burbank	R. Burbank	R. Burbank
Field-Run	450	630	460	525	460	415
<u>Ownership Costs:</u>						
General Overhead	\$0.11	\$0.12	\$0.12	\$0.12	\$0.10	\$0.10
Management Fee	\$0.29	\$0.32	\$0.30	\$0.33	\$0.29	\$0.29
Land	\$0.60	\$1.13	\$0.82	\$1.33	\$1.30	\$1.24
Equip. Tax & Insurance	\$0.02	\$0.02	\$0.02	\$0.01	\$0.01	\$0.01
Sorting Equip. D & I	\$0.16	\$0.16	\$0.16	\$0.16	\$0.15	\$0.16
Field Equip. Cap. Recovery	\$0.38	\$0.28	\$0.39	\$0.38	\$0.40	\$0.41
Total Cost per Cwt	\$6.10	\$6.73	\$6.39	\$7.01	\$7.03	\$6.91

Challenges

- To create and maintain a business model or structure that can withstand financial stress and can take advantage of unexpected opportunities
- Become the low cost high quality producer
- Focus on efficiency
 - Production – output per unit of input
 - Economic – dollar produced per dollar spent
- It's not how many hundredweight of potatoes per acre that you produce, it's how many dollars per acre
- Focus attention on both the revenue side and the cost side

Internet Site

- University of Idaho – AERS Idaho Ag Biz
<http://web.cals.uidaho.edu/idahoagbiz/>

Select Publications for potato reports

Select Enterprise Budgets for crop and livestock costs
and returns estimates

Paul Patterson

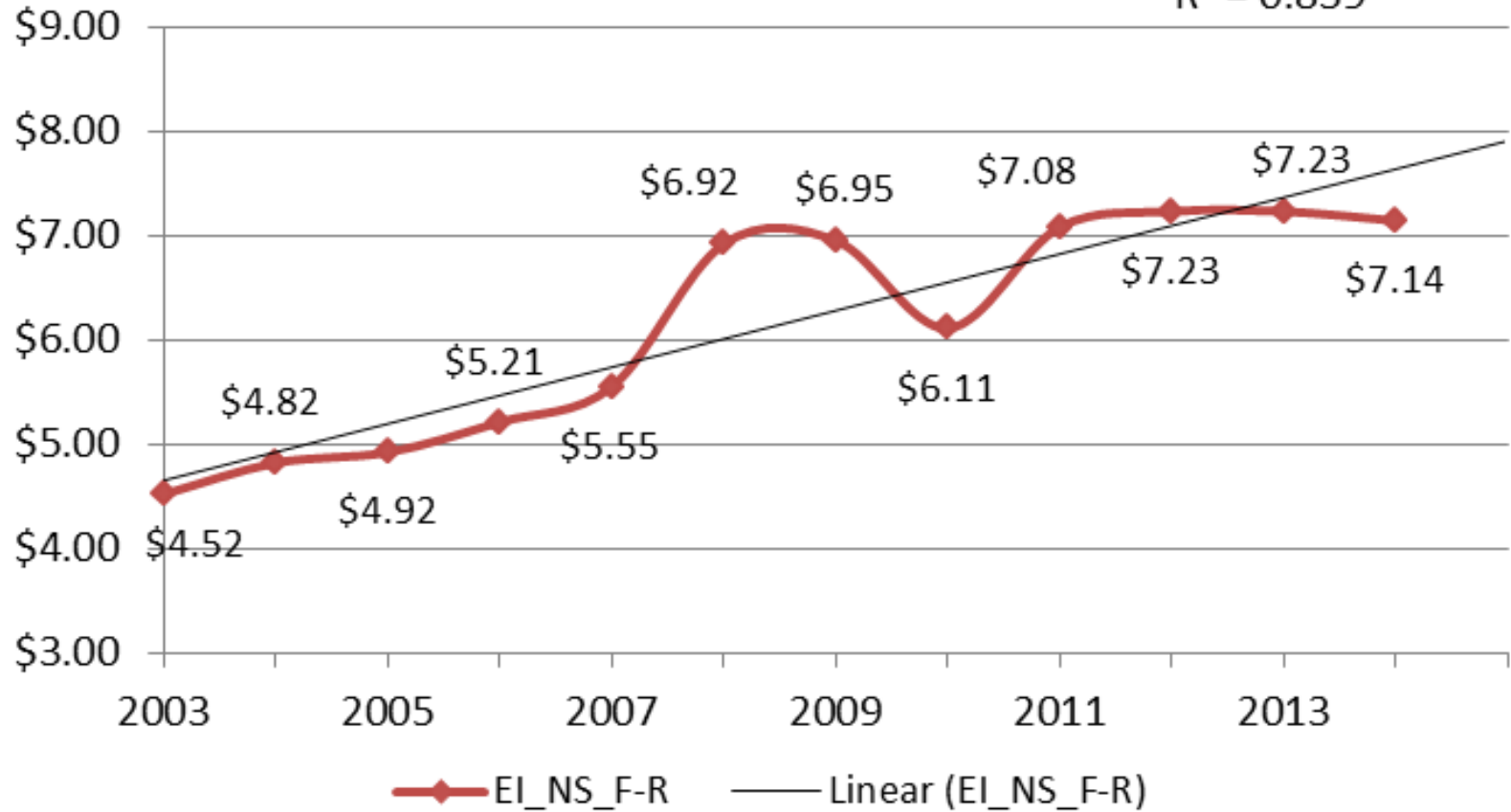
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Questions?
Comments



EI_NS_F-R

$$y = 0.2718x + 4.3732$$
$$R^2 = 0.839$$



+\$0.30 increase in 2004 vs -\$0.09 decrease in 2014
U of I Eastern Idaho-South, Non-Storage, Field-Run

My Guess for 2015?

	<u>\$/Acre</u>	<u>\$/Cwt*</u>
Operating	-3% to -2%	-3 to -4%
Ownership	+1% to +2%	-1 to +1%
Total Costs	-1.5% to -0.5%	-2 to -3%

*Assumes a 5 cwt increase in yield

My Guess for 2015?

Seed (RB)	-2 to +2%
*Fertilizer	-2 to +4%
*Chemical Prices	-2 to +1%
Custom Prices	-2 to +0%
Irrigation	+0 to +2%
Power	+0 to +2%
Water	+0 to +1%
Machinery (FOLR)	-23 to -19%
Diesel	-35 to -30%
Repairs	+2 to +3%
Labor	+0 to +1%
Interest Paid	-1 to +1%

Land	+0 to +2%
Machinery	+2 to +3%
Overhead	+0 to +1%
Management	+0 to +1%

Average Yield: +5 cwt

Yield Trend Summary

	<u>5-Year</u>		<u>10-Year</u>		<u>20-Year</u>	
	R ²	Cwt	R ²	Cwt	R ²	Cwt
Idaho	.37	+4.9	.76	+6.0	.84	+4.2
SWI	.002	-0.4	.63	+7.2	.72	+5.1
SCI	.003	+0.5	.47	+4.8	.68	+3.4
EI	.43	+6.5	.77	+6.7	.86	+4.8

SWI = Southwestern, SCI = Southcentral, EI = Eastern

Table 9. Also, see page 7.

2014 Fuel Prices Survey – Colorado

Input	Feb	April	June	Aug	Average
Gas	\$3.54	\$3.58	\$3.54	\$3.67	\$3.58
Diesel -R	\$3.92	\$3.95	\$3.89	\$3.87	\$3.91
Diesel – F	\$3.47	\$3.50	\$3.44	\$3.42	\$3.46

San Luis Valley