

With 10" water

Without water

THE ECONOMICS OF OREGON'S COLUMBIA BASIN IRRIGATED AGRICULTURE

AGENDA

THE ECONOMICS OF OREGON'S COLUMBIA BASIN IRRIGATED AGRICULTURE

- 1 A unique opportunity
- 2 How the resource is used
- 3 The economics of irrigated land
- 4 The economics of the farm
- 5 Summary information
- 6 The supply chain
- 7 Questions



A UNIQUE OPPORTUNITY

LITERALLY: THE BEST IN THE WORLD

• WATER LIFT

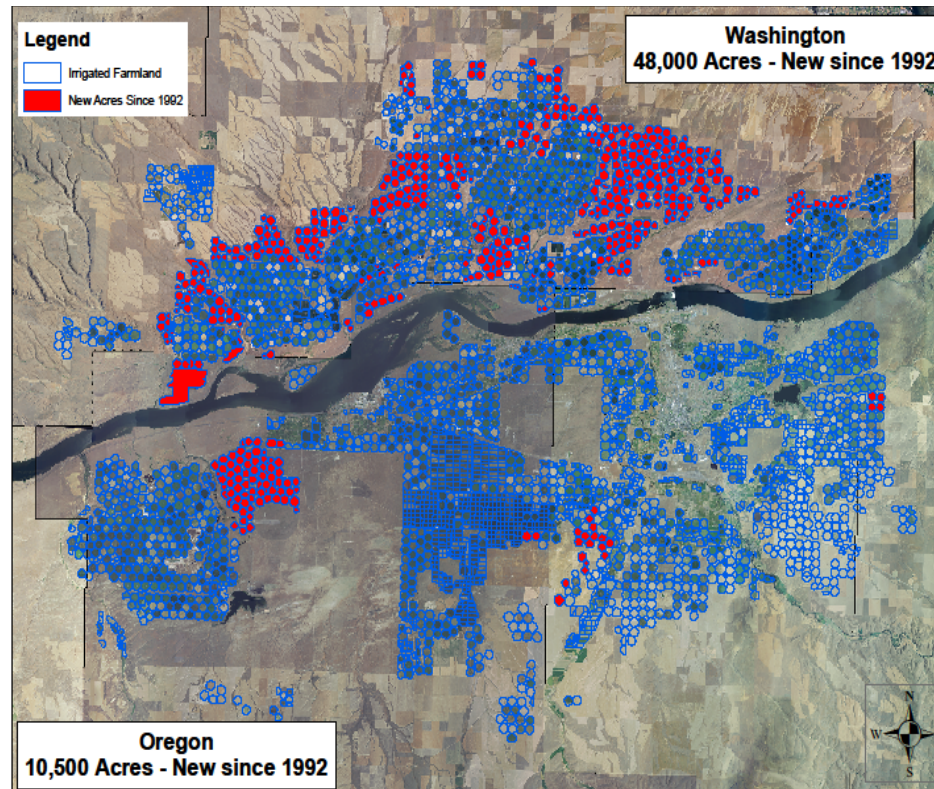
• WEATHER

• EXISTING SYSTEMS

• TERRAIN

• PROCESSING

• ALTERNATIVE FUEL NEEDS



VALUE OF WATER “From Dry to Fry”

• Dryland wheat - \$100

- 40 bushel fallow wheat

• 1st Acre Foot - \$500

- 100 bushel irrigated wheat

• 2nd Acre Foot - \$1,500

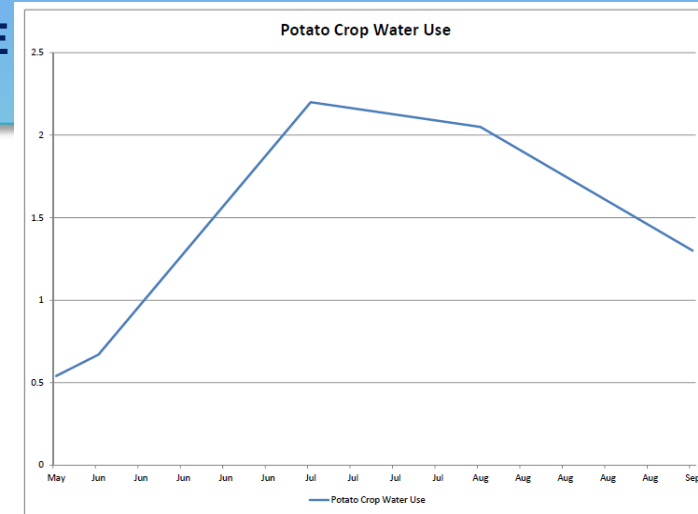
- Hay, Some vegetables, grass seeds, etc.

• 3rd Acre Foot - \$5,000+

- High value root crops
- Full Rotation

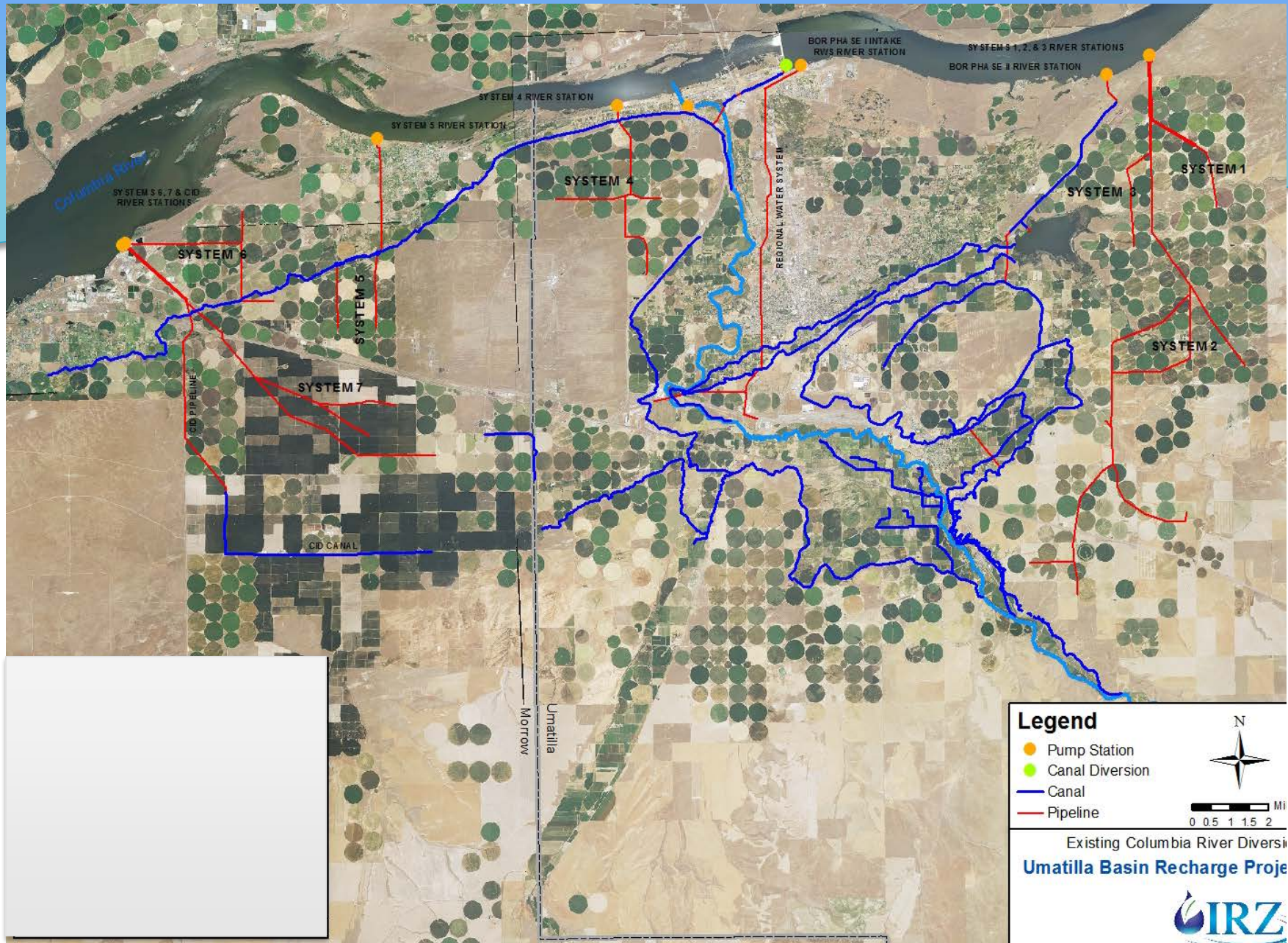
HOW THE RESOURCE IS USED

- **1 ACRE = 8.0 GALLONS PER MINUTE**
 - 1/40TH OF A CFS
- **125 ACRES = 1000 GPM, 2.25 CFS**
- **ACRE FEET PER ACRE = 3.5**
- **3-4 MONTHS PEAK CAPACITY**



ACRE FEET:		<u>200,000</u>			<u>100,000</u>		
ACRES @ 3.5 AC FT/ACRE:		<u>57,143</u>			<u>28,571</u>		
MONTH	AVERAGE	AC FT	% OF CAPACITY	CFS	AC FT	% OF CAPACITY	CFS
January	0%	-		-	-		-
February	0%	-		-	-		-
March	3%	6,667	25%	254.8	3,333	25%	127.4
April	8%	16,667	50%	509.6	8,333	50%	254.8
May	13%	26,667	75%	764.5	13,333	75%	382.2
June	20%	39,333	85%	866.4	19,667	85%	433.2
July	23%	45,333	85%	866.4	22,667	85%	433.2
August	18%	36,000	85%	866.4	18,000	85%	433.2
September	11%	21,333	50%	509.6	10,667	50%	254.8
October	4%	8,000	25%	254.8	4,000	25%	127.4
November	0%	-		-	-		-
December	0%	-		-	-		-
TOTAL	100%	200,000		407.7	100,000		203.9

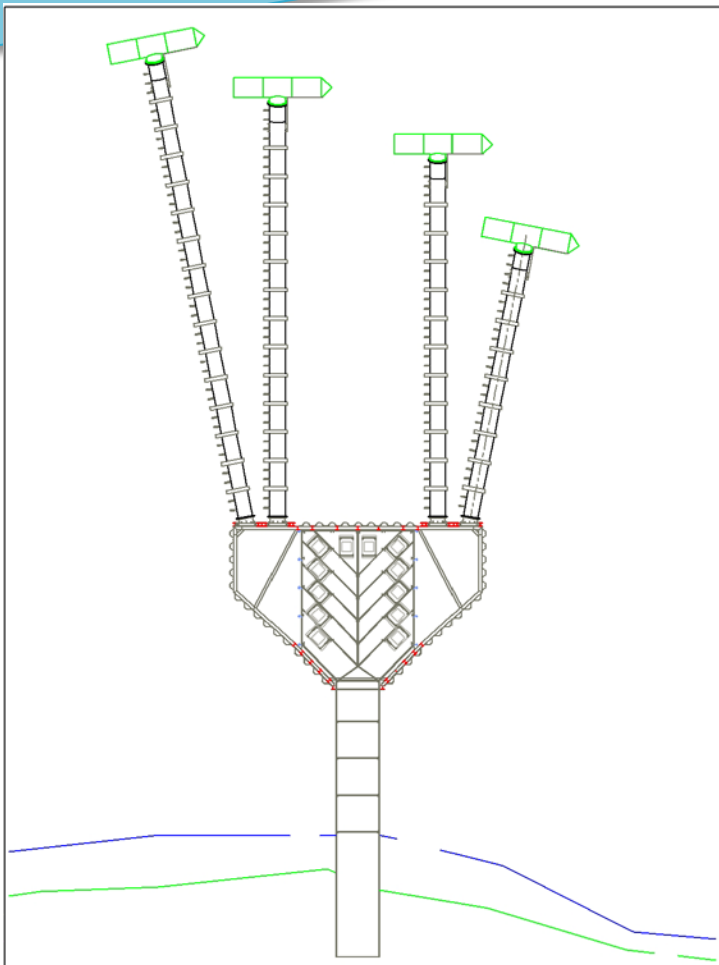
WHAT WE USE & HOW WE GET IT THERE



HOW WE GET RIVER WATER



ATTRACTION FLOWS: SCREENS DESIGNED FOR 0.2 FOOT PER SECOND



THE ECONOMICS OF LAND



BASIN LAND COMPANY							
LAND BUDGET - 40% DEBT							
					BUDGET		
FARM CROP PLAN - ACRES					ACRES		
1	Grains - Corn, Wheat, Etc.				300.0		
2	Double Crop				300.0		
3	Onion				200.0		
4	Potato				200.0		
5	Hay, Rental, Etc.						
6	Total				1,000.0		
PER ACRE LAND RENT AND WATER USE					DOLLARS	AC INCH	AC FEET
7	Grains - Corn, Wheat, Etc.			\$ 400	40.0	3.33	
8	Double Crop			\$ 500	40.0	3.33	
9	Onion			\$ 700	40.0	3.33	
10	Potato			\$ 700	40.0	3.33	
11	Hay, Rental, Etc.			\$ 500	36.0	3.00	
12	Average			\$ 550	40.0	3.33	
TOTAL LAND RENT AND WATER USE					TOTAL \$	TOT AC "	AC FT
13	Grains - Corn, Wheat, Etc.			\$ 120,000	12,000.0	1,000.00	
14	Double Crop			\$ 150,000	12,000.0	1,000.00	
15	Onion			\$ 140,000	8,000.0	666.67	
16	Potato			\$ 140,000	8,000.0	666.67	
17	Hay, Rental, Etc.			\$ -	-	-	
18	Total Land Revenues			\$ 550,000	40,000.0	3,333.33	
OPERATING COSTS					TOTAL \$	\$/ACRE	
19	Repair & Prop. Maintenance	\$ 30.00 /acre		\$ 30,000.00	\$ 30.00		
20	Water/Electrical Costs				\$ -		
21	Primary Water	\$ 72.00	3,333	\$ 240,000.00	\$ 240.00		
22							
23	Total Operations			\$ 270,000.00	\$ 270.00		
24	NET OPERATING INCOME			\$ 280,000.00	\$ 280.00		
FARM CROP PLAN - ACRES							
25	Payment	\$ 250.00	1,000.0	\$ 250,000.00	\$ 250.00		
26	Property Tax	\$ 25.00	1,000.0	\$ 25,000.00	\$ 25.00		
27	Total Fixed Costs		1,000.0	\$ 275,000.00	\$ 275.00		
28	NET CASH FLOW			\$ 5,000.00	\$ 5.00		
29	LOAN ON FARM	5%	25	\$ 3,523,486.14	\$ 3,523.49		

COSTS OF WATER: WHAT WORKS



- **Return to land**
 - River farm costs: \$280 - works
 - 50% new stored water: \$142 - ??
 - 100% new stored water: (\$ 21) - not work

LAND RENT / REVENUE			
Total Land Rent Per Acre	\$ 450	\$ 550	\$ 650
Acre Feet of Water Use Per Acre	3.5	3.5	3.5
\$/Acre Foot with ZERO return to land	\$ 129	\$ 157	\$ 186

WATER COSTS / EXPENSES - 100% NEW WATER			
Fixed Costs of Storage Project			
Total Cost Per Acre Foot	\$1,000	\$2,000	\$5,000
Annual Cost Per Acre Foot	\$43.26	\$86.52	\$216.31
Interest Rate	3%	3%	3%
Years of Ammortization	40	40	40
Operating Cost of Storage Project			
Cost to pump water into storage project	\$ 40	\$ 40	\$ 40
Cost to pump water out of storage project	\$ -	\$ -	\$ -
Power Cost to pump water out of river	\$ 60	\$ 60	\$ 60
Operating & Maintenance Costs of System	\$ 20	\$ 20	\$ 20
Total Operating Cost	\$ 120	\$ 120	\$ 120
TOTAL ANNUAL COSTS PER ACRE	\$571	\$723	\$1,177
TOTAL ANNUAL COSTS PER ACRE FOOT	\$163	\$207	\$336
RETURN TO LAND AFTER WATER COSTS	(\$21)	(\$173)	(\$627)

WATER COSTS / EXPENSES - 50% NEW WATER			
Cost of first 50% of water for farm / acre foot	\$ 30	\$ 70	\$ 90
Cost of final 50% of water for farm / acre foot	\$ 163	\$ 163	\$ 163
TOTAL ANNUAL COSTS PER ACRE	\$ 338	\$ 408	\$ 443
TOTAL ANNUAL COSTS PER ACRE FOOT	\$ 97	\$ 117	\$ 127
RETURN TO LAND AFTER WATER COSTS	\$ 212	\$ 142	\$ 107

SUMMARY FOR PROJECT WITH 100% "NEW" WATER

At \$550 average land rent, there is NO return to the land or irrigation infrastructure on a storage project that costs \$1,000 per acre foot to construct and requires pumping (versus gravity) to fill.

SUMMARY FOR PROJECT WITH 50% "NEW" WATER

At \$550 average land rent there is \$142 per acre return to the land or irrigation infrastructure on a storage project that provides 50% additional water to a farm with existing well water, costs \$1,000 per acre foot to construct, and requires pumping (versus gravity) to fill.

RAW PRODUCT AND A 20 MINUTE DRIVE

EXAMPLE 1: SWEET CORN - AN OREGON STAPLE

125 ACRES = \$120,000 = \$3.2 MILLION

SWEET CORN													
#	SUPPLY CHAIN	PRICE UNIT	PRICE UNIT	\$/UNIT	%	PER ACRE				TOTAL			
						TONS	POUNDS	OUNCES	\$	TONS	POUNDS	OUNCES	\$
1	Farm	Harvested Corn	Ton	\$ 95.00		10.00	20,000	320,000		1,250.00	2,500,000	40,000,000	
2	Farm	Usable Corn	Ton	\$105.56	90%	9.00	18,000	288,000	\$ 950	1,125.00	2,250,000	36,000,000	\$ 118,750
3	Processor	Bulk Finished	Pound	\$ 0.30	60%	5.40	10,800	172,800	\$ 3,240	675.00	1,350,000	21,600,000	\$ 405,000
4	Repackage Facility	Packaged Finished	Pound	\$ 0.10	100%	5.40	10,800	172,800	\$ 1,080	675.00	1,350,000	21,600,000	\$ 135,000
5	Retail	Store Sales	Ounce	\$ 0.15	100%	5.40	10,800	172,800	\$ 25,920	675.00	1,350,000	21,600,000	\$ 3,240,000



RAW PRODUCT - CARROTS

EXAMPLE 2: OREGON'S OTHER ORANGE POWERHOUSE

125 ACRES = \$475,000 = \$8.6 MILLION

CARROTS													
#	SUPPLY CHAIN	PRICE UNIT	PRICE UNIT	\$/UNIT	%	PER ACRE				TOTAL			
						TONS	POUNDS	OUNCES	\$	TONS	POUNDS	OUNCES	\$
1	Farm	Harvested Carrots	Ton	\$ 95.00		40.00	80,000	1,280,000		5,000.00	10,000,000	160,000,000	
2	Farm	Usable Carrots	Ton	\$105.56	90%	36.00	72,000	1,152,000	\$ 3,800	4,500.00	9,000,000	144,000,000	\$ 475,000
3	Processor	Finished Product	Pound	\$ 0.35	60%	21.60	43,200	691,200	\$ 15,120	2,700.00	5,400,000	86,400,000	\$ 1,890,000
4	Repackage Facility	Packaged Finished	Pound	\$ 0.10	100%	21.60	43,200	691,200	\$ 4,320	2,700.00	5,400,000	86,400,000	\$ 540,000
5	Retail	Store Sales	Ounce	\$ 0.10	100%	21.60	43,200	691,200	\$ 69,120	2,700.00	5,400,000	86,400,000	\$ 8,640,000



RAW PRODUCT - POTATOES

EXAMPLE 3: PARADISE FOR POTATOES



125 ACRES = \$750,000 = \$24 MILLION

POTATOES													
#	SUPPLY CHAIN	PRICE UNIT	PRICE UNIT	\$/UNIT	%	PER ACRE				TOTAL			
						TONS	POUNDS	OUNCES	\$	TONS	POUNDS	OUNCES	\$
1	Farm	Harvested Potatoes	Ton	\$ 150.00		40.00	80,000	1,280,000		5,000.00	10,000,000	160,000,000	
2	Farm	Usable Potatoes	Ton	\$ 176.47	85%	34.00	68,000	1,088,000	\$ 6,000	4,250.00	8,500,000	136,000,000	\$ 750,000
3	Processor	Finished Product	Pound	\$ 0.35	60%	20.40	40,800	652,800	\$ 14,280	2,550.00	5,100,000	81,600,000	\$ 1,785,000
4	Retail	Store Sales	Ounce	\$ 0.30	100%	20.40	40,800	652,800	\$ 195,840	2,550.00	5,100,000	81,600,000	\$ 24,480,000



BASIN FARMS AND LAND: SUMMARY INFO

WHAT DO YOU GET WHEN YOU PUT DIRT AND WATER TOGETHER?

SUMMARY INFORMATION					
		\$ PER ACRE	BASIN LAND & FARM	10 X	50 X
LAND VALUE	\$	8,000	\$ 8,000,000	\$ 80,000,000	\$ 400,000,000
EQUIPMENT	\$	1,500	\$ 1,500,000	\$ 15,000,000	\$ 75,000,000
PAYROLL	\$	403	\$ 403,000	\$ 4,030,000	\$ 20,150,000
PROPERTY TAX	\$	25	\$ 25,000	\$ 250,000	\$ 1,250,000
POTENTIAL PUBLIC FUNDING	\$	16	\$ 16,667	\$ 166,667	\$ 833,333



THE SUPPLY CHAIN & WHAT IT BUILDS



• OUR VENDORS, OUR COMMUNITY

- The sample list: 1,007
- IRZ Consulting
- Ag Tech Services – locally owned Trimble GPS dealer
- Barnett & Moro – local accounting firm
- Columbia Basin Spreaders – farmers, applicator, packer
- Porfily Water Rights Consulting – local water specialist
- Farm Equipment Headquarters - local equipment dealership
- UEC – local electric coop
- Pendleton Grain Growers – local supply coop
- Purswell Pump – local pump sales and service
- Stoel Rives – water issues attorney
- Port of Portland – shipping
- Columbia Grain – primary grain export terminal

• WHAT WE CAN & HAVE BUILT:

- Bud Rich Potato
 - National supplier of Wendy's foil wrapped baked potato
- Riverpoint Farms
 - Subway switches to red onions
- Pacific Ag Solutions
 - Largest alternative fuel fiber supplier in US
- Threemile Canyon & Tillamook
 - Tillamook Cheese stays in Oregon
- Columbia Basin Onion / T&C Organics
 - Pioneered circle irrigated organic onion program – largest in US
- JSH Farms
 - Produces flavors for Colgate , Wrigley, P&G, & McCormick
- Madison Farms
 - Pure canola oil for Whole Foods
- Stahl Farms
 - Sustainable living at it's finest
- Greenwood Resources
 - Making a forest is the desert
- Pioneer Seed
 - Making small acreages pay



SUSTAINABILITY



- **Source based supply**
- **Food safety audits**
- **GAP**
- **CSR Programs**
- **Water management programs**

Sustainability Goals - 2015

- 20% reduction in Greenhouse Gas emissions
- 15% reduction in water use
- 75% diversion rate of all solid wastes going to landfill
- 10% reduction of packaging, as well as increasing the use of renewables in packaging to more than 50%, and an increased use of recycle content in packaging of 25%
- Actively work with others in our supply chain to achieve continuous improvement on natural resource utilization



QUESTIONS



- **WHY GROW ANYTHING BUT POTATOES & ONIONS?**
 - Disease and soil health – sustainability
- **WHERE DOES IT STOP**
 - It stops about 900 feet – cost to pump water
- **WHO GETS NEW WATER**
 - Do the “big” get bigger?
 - How are the junior water right holders effected?
- **CAN THE LAND SUPPORT RENEWABLES?**
 - Yes, very well but competes with food production