

# Current Status and the Impact on Cropping Systems

November 16, 2017

**What is wheat worth (\$\$\$) for Oregon and Washington?**

**Oregon = \$340,000,000      Washington = \$1,000,000,000**





# Yes, fertilizer was used



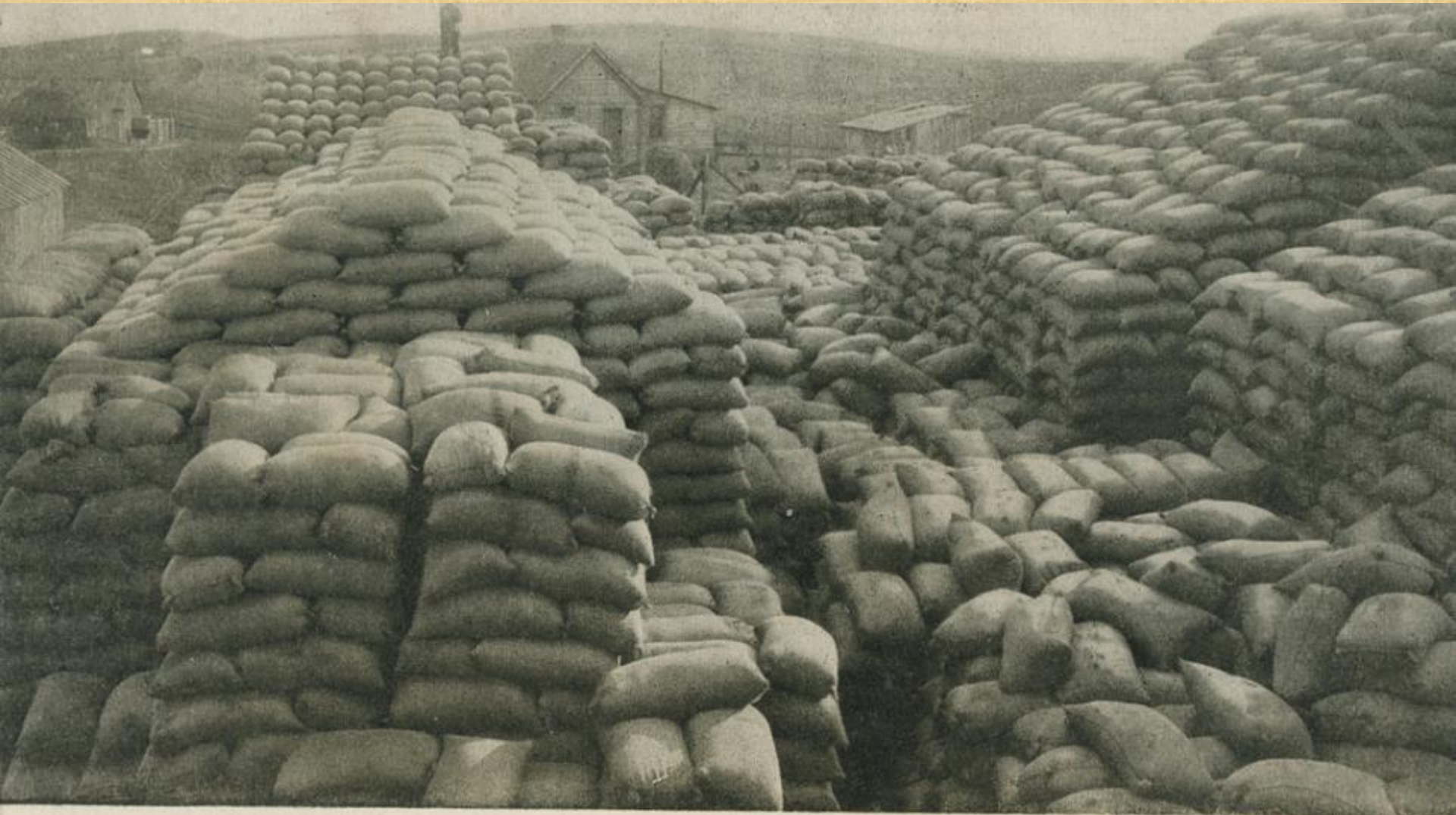


WHEAT SEEDING IN THE CELEBRATED TOUCHET VALLEY, WASHINGTON



COMBINED WHEAT HARVESTER.

# Wheat in sacks 1890



**WHEAT IN SACKS AWAITING SHIPMENT** A Common Scene at Railway Points  
We also Grow to Perfection Oats,  
Barley, Potatoes, Fruit and Vegetables. (Over) Compliments of Grant County, Wash.  
A. Y. P. Exhibit.

# Klondike Gold Rush



# Fertilizer use expands across North America

- Used for centuries
- German scientist discovers the “fixation” of Nitrogen (early 1900’s)
- Started moving across the United States and more frequent use from 1940’s (After WWII) and beyond

## Transformation of Agriculture

Farming underwent major changes in the time period following WWII

### SS810a

1. New farming techniques  
pesticides, fertilizer, crop rotation etc.
2. Mechanization:
  - tractors and other motorized Implements
  - As a result, farming became more efficient... less farmers, bigger farms.
  - Boll weevil, industrialization, AAA, and the transformation of agriculture all led to a population shift from rural to urban areas.



Since then, more advanced and more expensive equipment, however, many practices have not changed



# Today



Samples from CHEM FALLOW

0-12"

	SAMPLE		NO3N	NH4N	S	Total N	Total N	Soil stik pH meter readings				Native
Location/Soils	<u>NO.</u>	<u>DEPTH</u>	<u>mg/Kg</u>	<u>mg/Kg</u>	<u>mg/Kg</u>	<u>mg/kg</u>	<u>lbs/ac 2 ft</u>	<u>pH 1"</u>	<u>pH 3"</u>	<u>pH 6"</u>	<u>pH 24 "</u>	<u>soil pH</u>
Long Hollow Dufur	1	0-24	7.4	0.8	6.326	8.2	56.2		5.1			6.1-7.3
Cantala/Condon soils	5	0.24	10.5	0.2	8.396	10.7	73.3		5.3			6.1-7.3
	6	0.24	6.1	0.5	8.064	6.6	45.2		5.1			6.1-7.3
	2	0.24	5.9	0.6	7.099	6.5	44.6		6.5			6.1-7.3
	4	0.24	8.5	0.3	6.496	8.8	60.3		6.4			6.1-7.3
	8	0.24	3.2	0.2	6.229	3.4	23.3		6.3			6.1-7.3
	2	0.24	2.8	0.3	5.975	3.1	21.2		6.3			6.1-7.3
Wrentham Dufur	1	0.24	4.9	1.5	6.648	6.4	43.9		6.2			6.6-7.8
Walla Walla soils	5	0.24	6	0.6	7.548	6.6	45.2		6.3			6.6-7.8
	1	0-24	6.3	1.2	4.53	7.5	51.4		6.5			6.6-7.8
	7	0.24	6.6	0.8	5.22	7.4	50.7		6.1			6.6-7.8
	6	0.24	2.5	0.4	4.78	2.9	19.9		6.4			6.6-7.8
Emerson Loop	17	0-24	7.3	1	8.3	8.3	56.9	5.7	5.4	5.6		6.6-7.8
Walla Walla soils	18	0-12	6.4	0.9	7.3	7.3	50.0	6.2	5.2	5.8		6.6-7.8
	19	0-24	3.9	1.4	5.3	5.3	36.3	5.8	5.4	5.2		6.6-7.8
	20	0-24	7.1	2.3	9.4	9.4	64.4	5.3	5.2	5.5		6.6-7.8
	21	0-24	5	2.9	7.9	7.9	54.1	5.4	5.1	4.8		6.6-7.8
	22	0-24	6.3	1.9	8.2	8.2	56.2	5.4	5.1	5.3		6.6-7.8
	23	0-24	3.8	5.3	9.1	9.1	62.4	5.6	5.7	5.8		6.6-7.8
	24	0-12	5.4	6.5	11.9	11.9	81.6	5.5	5.3	5.5	6.2	6.6-7.8
	Juniper Flat	3	24"	4.4	0.7	8	5.1	37.4		6.7		
Maupin/Watama/Wapinitia soils	1	12 "	11.9	2.1	13	14.0	95.2		5.6			6.1-7.3
	52	24"	6.4	3	10	9.4	63.4		5.6			6.1-7.3
May in Crop Samples:												
North Wasco Co.	1								4.9			6.6-7.8
Walla Walla soils	2								5.1			6.6-7.8

## How much can you afford to lose?

### Yield Loss Due To Low pH

Crop	pH 4.7	pH 5.0	pH 5.7	pH 6.8
Corn	66%	27%	17%	0%
Soybeans	35%	21%	20%	0%
Wheat	32%	24%	11%	0%
Alfalfa	98%	91%	58%	0%

**Loses of 11% yield on 72% of fields tested in Oregon**



# Or Here!!!!



# Soil properties that affect porosity and nutrient availability

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- Soil texture
- Soil structure
- Compaction and disturbance
- Organic matter
- Soil pH
- Calcium

