Lessons Learned- Direct Seeding <12 Inches Moisture

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Answers

1. I don't know, you don't know, so let me explain it to you.

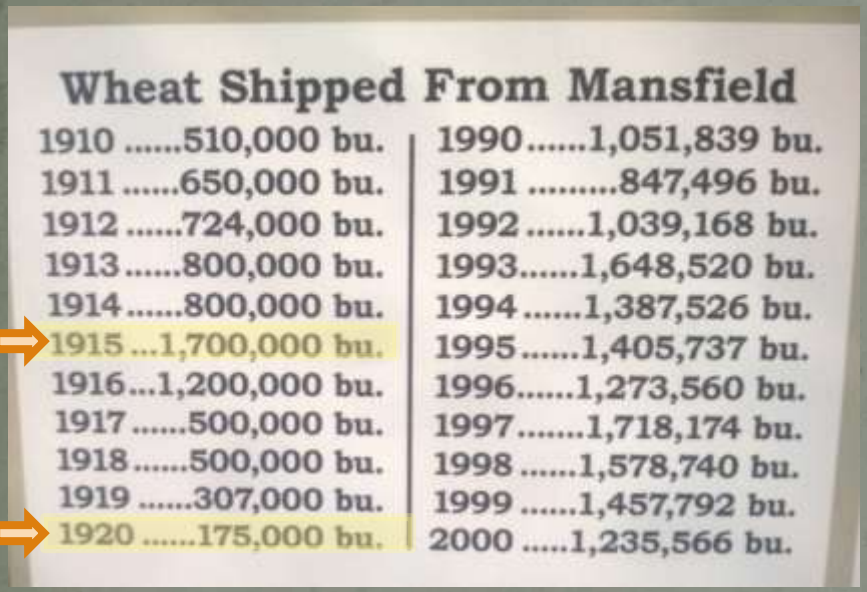
2. If it is easy, it is wrong.

3. Never just 1 answer to a question or problem. Refer to answer #2.

Why Direct Seed

1. Yield Ceiling
2. Difficult to manage rotations
3. Old equipment
4. Government Programs:
   - Conservation Stewardship Program
   - Enviornmental Quality Incentives Program

History of the Area



Wheat Shipped From Mansfield

1910 .....510,000 bu.	1990.....1,051,839 bu.
1911 .....650,000 bu.	1991 .....847,496 bu.
1912 .....724,000 bu.	1992 .....1,039,168 bu.
1913 .....800,000 bu.	1993.....1,648,520 bu.
1914 .....800,000 bu.	1994 .....1,387,526 bu.
1915 ...1,700,000 bu.	1995 .....1,405,737 bu.
1916...1,200,000 bu.	1996.....1,273,560 bu.
1917 .....500,000 bu.	1997.....1,718,174 bu.
1918 .....500,000 bu.	1998 .....1,578,740 bu.
1919 .....307,000 bu.	1999 .....1,457,792 bu.
1920 .....175,000 bu.	2000 .....1,235,566 bu.

Recent Production

- 2014
  - Wheat 945,357 bu.
  - Canola 220,815 bu.
  - Total 1,166,172 bu.
- 2015
  - Wheat 1,318,833 bu.
  - Canola 180,257 bu.
  - Total 1,499,085 bu.

Average Rainfall

Waterville, WA

- 1931-2005
- Ave. 11.45”
  - Max. 24.26” 1948
  - Min. 6.74” 1976
- AVE./CROP 22.9”

- LAST 100 YEARS
- SOIL DEGRADATION

Direct Seeding

- Water Management:
  - 10% more efficient (2”)=25% more YIELD
  - (12 bu) 48-60 bu.
- Fertilizer Management:
  - Placement, timing and type of fertilizer
- Cost of Production:
  - No savings

The Start

- 2011
  - 600 a. spring wheat and 500 a. winter wheat planted on chemfallow
- 2012
  - 600 a. spring wheat and 950 a. winter wheat planted on chemfallow
- 2013
  - 100% Direct Seed. Rotations and crops

- Winter wheat, Spring wheat, Winter canola, Barley, Oats, Triticale
- Rotations also include CHEMICALS

Direct Seeding

Protect and improve the condition and productivity of the soil

The System and the Spokes

1. Chemfallow
2. Coultering
3. Planting/Fertilizing
4. Pesticide Application/Fertilizing in Crop
5. Harvest

CHEMFALLOW

1. Same goals as conventional summer fallow
2. Water conservation
3. Create mulch on top 4” of soil to hold moisture for seeding
4. Residue mulch vs mechanical mulch

Sprayer

Apache AS 1220 - 1200 gal, 100 ft. boom
Apply 5 gpa @ 8-9 mph. for chemfallow– Green Turbo Tee Jet TT110015 Nozzles
Blue Stream Jets- 13 gpa --topdressing fertilizer
Brown Turbo Twinjet-TTj60-11005 16gpa – Insecticides and fungicides

Chemicals

Systemic – Early Season

- Round-Up-Unison or Barrage
- Treat water with 17 lbs NH_4SO_4
- Always use a mix, ex. RU+2,4-D
- Rotate with chemfallow and in crop
  - Ex. 24-D in chemfallow, use Huskie in crop

Contact – Late season

- Sharpen-Broadleaves
- Gromoxone-Nonselective Both grasses and broadleaves

Coultering

Used in transition for 1st crop notill

Used to size clods and residue

Planting/Fertilizing

John Deere 1870 w/1910 cart
120 bu wheat and 1900 gal fertilizer

Type of fertilizer- liquid, dry or NH_3
Determines type of point and drill

Fertilizer points rips into moisture in hard dirt , seed boot & press wheel packs

Fert point

Seed boot

Planting in Low Moisture

- Fertilizer can compromise seedling survival
  - Reduce the amount of N and S
  - Use higher rates of P
  - Use Agrotain with UN-32. Slows conversion to NH_3.

- Seed
  - Use higher seeding and treatment rates
  - USE LARGEST SEED AVAILABLE
    - Determines the energy available for new planting
  - Delay seeding date

Harvest

John Deere S-680 with 635 Draper

- Process residue at harvest
- Chopping aids breakdown
- Split apply fertilizer in fall can aid decomposition

2015 – 3rd crop Direct Seed

Never a Single Answer

Hole dug in canola field at harvest and root growth of canola plant (Below)

Root growth of Sorghum sudan cover crop after 5 weeks of growth

Comparison

W/wheat following W/canola

W/wheat following Cover Crop

Never Easy but Always Fun

Cover Crop after 5 Weeks

Wheat row with no fertilizer

7lbs. N, 12 lbs P_2O_5, 8 lbs. S.

Fall 2015

Mela Clearfield Soft White

Mercedes Hybrid Canola

Thank You

ROTATION, ROTATION,ROTATION, ROTATION

CROPS AND CHEMICALS