

# **Agronomic Value of Crop Rotations in NW Minnesota**

**Research Results 2016**



UNIVERSITY OF MINNESOTA

# Research Team

- **Dr. Nancy Ehlke - Overall project lead, trial design and data analysis**
- **Donn Vellekson - U of MN Mag Farm manager, field layout and data collection**
- **Dave Grafstrom - Coordinate day-to-day activities at CPC**
- **Summer intern/s assist in data collection**



# Canola Rotation Trial

- **Brian Jenks lead investigator on project**
- **Project duration three years**
- **Objective to determine canola growth development and yield in rotation with spring wheat and soybeans**
- **Trial established in 2014 with the final year after the 2016 harvest**



# Canola Rotation Trial

## Three Years: 2013-2015

Treatment	2013	2014	2015
1	Wheat	Wheat	Soybean
2	Wheat	Canola	Soybean
3	Wheat	Wheat	Canola
4	Wheat	Soybean	Canola

## Three Years: 2014-2016

Treatment	2014	2015	2016
1	Wheat	Wheat	Soybean
2	Wheat	Canola	Soybean
3	Wheat	Wheat	Canola
4	Wheat	Soybean	Canola



# Canola Rotation Trial Methods

- **Large on-farm equipment use in all phases of trial**
- **Best management practices used for each crop**
- **Weight wagon used to determine yield and sub-samples taken from each strip for quality analysis**



# Large On-Farm Trials

Each Strip Weighed



Weights & Sub-samples



# Soybean and Canola Residue

## Soybean Residue



## Canola Residue



# Canola Rotational Trial after Fall Tillage

Canola Rotation Trial



Wheat Residue





# Canola Density, Height and Yield Wheat vs Soybeans - 2016

Rotation	Density #/acre	Height in	Yield #/acre
W-W-C	500,000	43	2,309
W-S-C	516,000	46	2,546
	NS	NS	NS



# Canola Density, Ht and Yield Wheat vs Soybeans-2015&16

Rotation	Density #/acre	Height in	Yield #/acre
W-W-C	453,500	42	1998
W-S-C	441,500	44	2323
	NS	NS	NS

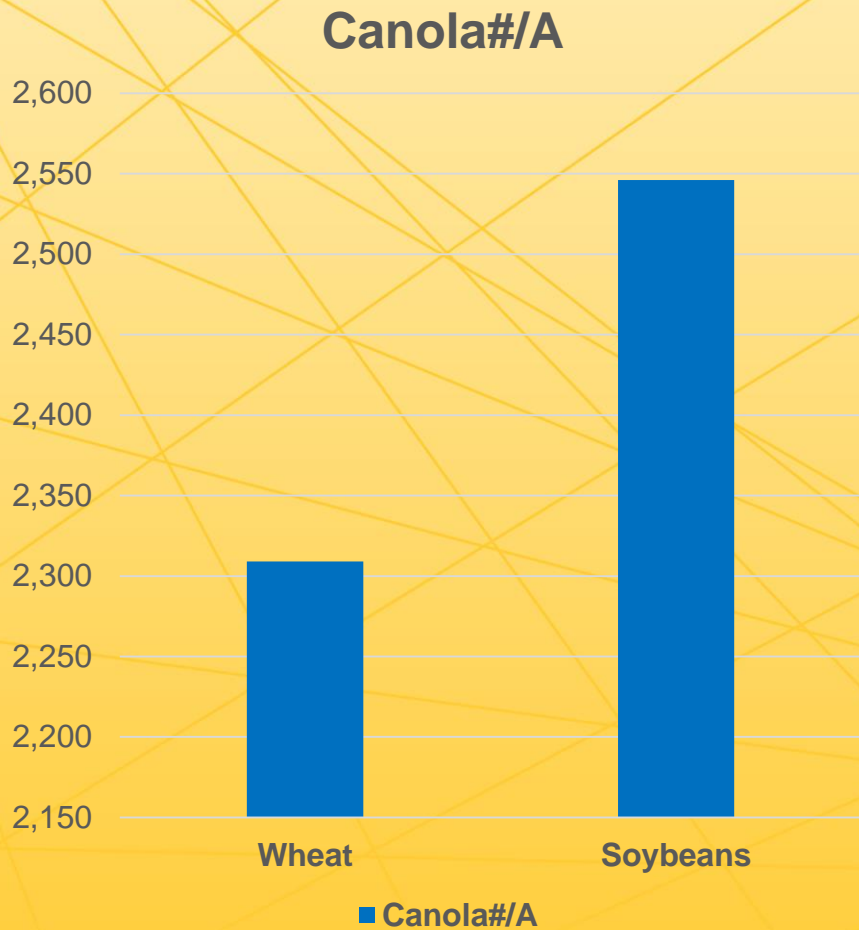


# Soybean Density, Height and Yield Wheat vs Soybeans - 2016

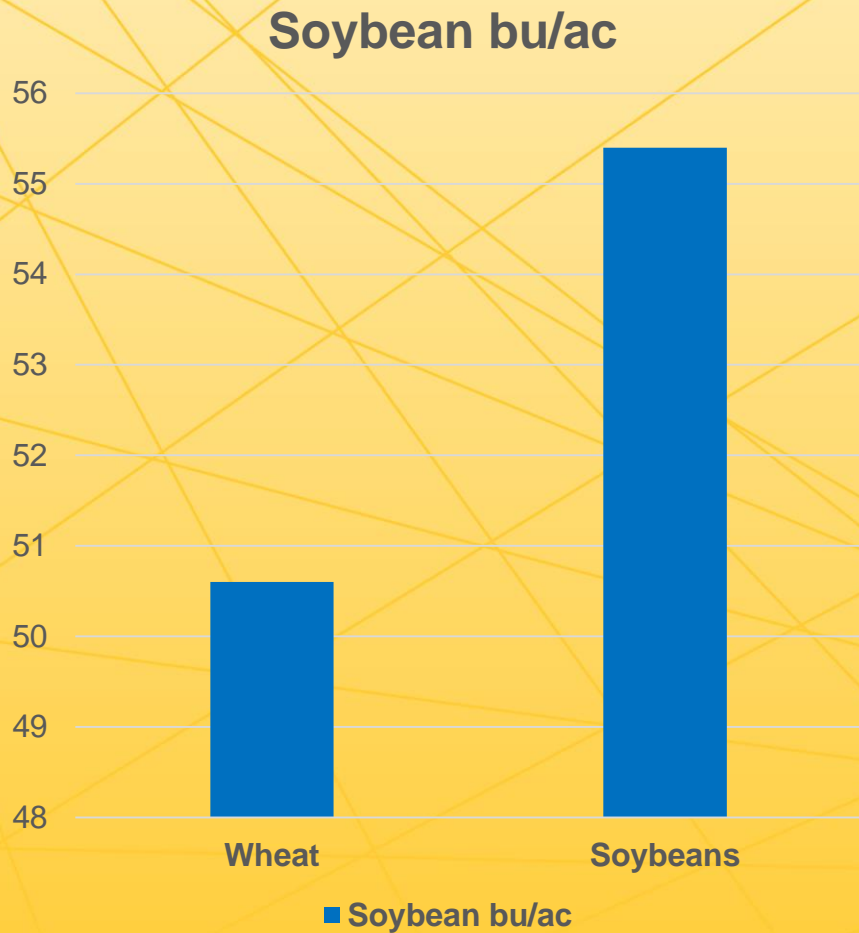
Rotation	Density #/acre	Height in	Yield bu/acre
W-W-S	183,300	21	50.6
W-C-S	150,800	21	55.4
	NS	NS	1.4



# Canola Rotation Trial - 2016



# Canola Rotation Trial - 2016



# Summary Three Year Canola Rotation Trial

- Residual nitrogen was 32 and 18 #/acre more from a w-w-s than a w-w-c rotation
- Canola yields from a w-s-c tended to be 325 #/acre in 2015 and 387 #/acre in 2016 than a w-w-c rotation
- Soybeans were not harvested in 2015
- In 2016 soybeans yields were 4.8 bu/ac more from a w-c-s than a w-w-s
- No differences in disease expression, but all crops received a fungicide treatment



# Questions



# Contact Information

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