

February 7, 2018 Advisory Board Meeting
NDSU-Hettinger Research Extension Center
Agronomy Update – John Rickertsen
2017 Research Projects

Variety/Hybrid Performance Trials:

Twenty two yield trials were conducted on the following crops. (average yield)

<i>Winter Wheat (82 bu)</i>	<i>Field Pea (13 bu)</i>	<i>Canola (300 lb)</i>	<i>Sunflower (1900 lb)</i>
<i>Spring Wheat (36 bu)</i>	<i>Chickpea (488 lb)</i>	<i>Carinata (575 lb)</i>	<i>Corn (53 bu)</i>
<i>Durum Wheat (36 bu)</i>	<i>Lentil (355 lb)</i>	<i>Flax (3 bu)</i>	
<i>Barley (45 bu)</i>	<i>Dry Beans (1427 lb)</i>	<i>Safflower (wireworms)</i>	
<i>Oats (62 bu)</i>	<i>Soybean (24 bu)</i>		

2017 NDSU releases: “ND Benson” & “ND Stutsman” conventional soybeans, “ND17009GT” glyphosate tolerant (RR1) soybean, “ND VitPro” spring wheat, “ND Grano” & “ND Riveland” low Cd durum wheat. I am serving on the NDSU Variety Release Committee as the western REC representative.

Off Station Yield Trials:

Trials were located at Scranton, Regent and Mandan, New Leipzig was dropped due to time constraints and issues with good results there. These trials are located with farmer cooperators and with the USDA-ARS Northern Great Plains Lab at Mandan. Crops tested were spring wheat, durum wheat and barley.

Plant Breeding Nurseries:

Nurseries were planted for the following breeding programs.

Program	# of nurseries
NDSU Spring Wheat	4
NDSU Field Pea	3
NDSU Lentil	2
NDSU Canola	1
NDSU RR1 Soybean	1
Agrisoma Carinata	4
Syngenta Winter Wheat	1
Regional Spring Wheat	1
Regional Barley	1

Soybean Planting Date:

A study was initiated in cooperation with the Carrington REC to look at the performance of differing soybean maturities at Hettinger, Minot and Carrington. Four varieties were planted at three dates (May 4, May19, June2) and four seeding rates (150K, 175K, 200K). The May 4 & May 19 date had the highest yields, May 19 was the highest yielding over the past three years. There was no difference in yields among seeding rates.

Soybean Planting Date Three Year Averages 2015 - 2017						Hettinger, ND	
	Mature	Harvest	Plant	Test	Seed	Seed	Grain
Treatment	Date	Date	Height	Weight	Oil	Protein	Yield
			inches	lbs/bu	%	%	bu/ac
Planting Date							
May 4	9/5	9/16	24.7	52.5	17.4	33.0	27.0
May 19*	9/14	9/22	24.3	53.2	17.2	33.3	31.0
June 2	9/19	9/27	24.3	52.8	17.0	33.6	26.3

* Used vareity 30-20 yield (26.3 bu/ac) from nearby soybean yield trial in 2017.

Nitrogen Relationships of Soybean in Southwest North Dakota:

In cooperation with Dickinson REC, a study comparing inoculation and nitrogen application on soybeans. Two cultivars were be planted at two populations of 80,000 and 160,000 plants per acre. Four N management strategies used were a control of no inoculant and no N added, no inoculant and 30 lbs of N added through urea, inoculant with no N added, and inoculant with 30 lbs of N added through urea. There were no yield differences among all the treatments, but there was significant differences in nodulation between the inoculant and no inoculant treatments. Funded by ND Soybean Council, applying for funding in 2018.



Management of Fusarium Root Rot of Field Peas and Wheat with Crop Rotation:

This project seeks to evaluate crop rotation strategies as a tool for managing existing problems with Fusarium root rot of peas and for preventing the buildup of Fusarium root rot of peas where the disease is not yet a problem. This was the fourth year of the trail and just one rotation was planted to peas, so there are limited results to report. In 2018 four rotation sequences will be planted to peas so we will be evaluating pea roots for disease. This trial is funded by the Northern Pulse Growers and will continue in 2018.

Rotation sequences. Crops for 2018

- (1) field pea / spring wheat
- (2) field pea / spring wheat / spring wheat
- (3) field pea / spring wheat / spring wheat / spring wheat
- (4) field pea / spring wheat / flax / spring wheat
- (5) field pea / spring wheat / canola / spring wheat
- (6) field pea / spring wheat / barley / canola / spring wheat / corn

Effect of Planting Date & Maturity on Disease (FHB) of Durum:

Study with plant pathologist at Williston REC looking at four durum varieties at three planting dates for visual fusarium head blight ratings and DON levels in grain. Funded by SBARE, will continue in 2018.

HRSW Nitrogen Rate X Timing:

Treatment	Planting Application	4-5 Leaf Application	Boot Stage Application	Anthesis Application	Protein	Yield
----- lb acre ⁻¹ -----					%	bu/ac
1	77 - urea	-	-	-	13.6	27.4
2	110 - urea	-	-	-	13.7	25.0
3	77 - urea	30 - urea	-	-	13.5	27.5
7	77- urea	-	30 - urea	-	13.7	28.7
11	77 - urea	-	-	30 - UAN	13.6	28.4
13	77 - urea	30 - UAN	-	-	13.5	28.7
15	77 - urea	-	30 - UAN	-	13.3	26.8
17	200 - urea	-	-	-	14.1	24.1
18	0	-	-	-	13.7	27.6

Seed Treatment Studies:

Company funded biological seed treatment trials conducted on winter wheat, spring wheat, corn and soybeans.

Other Agronomy Studies:

HRSW seeding rate, barley cover crop/intercrop, soybean population, carinata seeding rate, carinata planting date.

New Studies for 2018:

Hybrid spring wheat seeding rate, funded by Syngenta.

Presentations and Outreach:

- County Crop Improvement meetings at Reeder, Regent and Taylor. February 2017.
- Western Crop & Pest School, Dickinson. March 2017.
- KNDC-TTO, discuss agronomy research, current issues. June-July 2017.
- Hettinger REC Crop Tour. July 2017.
- Off station variety plot tours at Scranton & Regent. July 2017.
- Friends & Neighbors Day, USDA-ARS Mandan. July 2017.
- Western Dakota Crops Day. December 2017.

Project Upgrades:

New weigh system on research plot combine, repairs and upgrades to combine (\$76,680).

Hettinger REC summer crop tour will be on July 10, 2018

Precipitation & Temperature 2016-17

