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2018 VIRGINIA ON-FARM WHEAT TEST PLOTS



A Summary of Replicated Research and Demonstration Plots Conducted by Virginia Cooperative Extension in Cooperation with Local Producers and Agribusinesses

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INTRODUCTION

Unlike 2016 -17, 2018 was not a model year for wheat. Although good soil moisture in the fall of 2017 resulted in good seed germination and produced a great stand, the following winter was dry throughout most of November, with a cold and damp December, then frigidly harsh at times in January and February, and the result was not a well tillered, thick stand. Heavy and frequent rainfall plagued most of Virginia throughout the spring of 2018 (NOAA, 2018) until mid-June, which led to significant disease, weed, pollination, and low test weight issues in many areas of the state. This was a stark contrast to the past year, 2016-17, where good growth conditions during the fall and winter coupled with a perfect spring produced higher than normal yields. However, slowly rising wheat prices have led to a small increase in acres planted (NASS, 2018). In years past, low yields, along with a depressed wheat market, led many producers to abandon planting and raising wheat.

You will also notice farm variety trials for Hard Red Winter Wheat (HRWW) in this publication. HRWW is now being grown in more abundance by central Virginia wheat producers for the bread industry. HRWW produces similar yields and requires similar inputs and costs as does Soft Red Winter Wheat (SRWW), but often pays a premium over SRWW and matures earlier, allowing producers to plant double-crop beans earlier. However, it should be noted that because HRWW is used for human consumption, it is scrutinized more than SRWW and so producers must employ additional management, and markets are by contract only.



Figure 1 Taken in late June, Jason Dawley of the Chesapeake Region cleans around the Virginia Beach On-Farm variety plot. (Photo courtesy of Watson Lawrence)

The demonstration and research plot results discussed in this publication are a cooperative effort by six Virginia Cooperative Extension agents, extension specialists from Virginia Tech, and a VCE summer intern. We are proud to present this year's on-farm small grain plot work to you. We hope the information in this publication will help farmers produce a profitable crop in 2019.

The fieldwork and printing of this publication are supported by the Virginia Small Grains Check-Off Funds. The cooperators gratefully acknowledge this support. Any small grain producer or agri-business representative who would like to receive a copy of this report should contact his/her local extension agent, who can request a copy from Mike Broaddus in Caroline County at 804 633-6550, or by emailing broadus@vt.edu.

This is the twenty-fifth year of this multi-year project. Further work is planned for the upcoming growing season.

The authors of this publication wish to thank the many producers who participated in this project. Appreciation is also extended to the seed, chemical, and fertilizer representatives who donated products and/or assisted with the fieldwork.



(Photo courtesy of Watson Lawrence)

DISCLAIMER:

Trade and brand names used in this publication are for educational and comparative purposes only, and Virginia Cooperative Extension does not guarantee or warrant the standards of the products, nor does Virginia Cooperative Extension imply approval of the product to the exclusion of others that may be suitable.

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2018 Westmoreland On-Farm Variety Plot (Drone Photo Courtesy of Trent Jones)

GENERAL SUMMARY

- A. VARIETY SELECTION:** There are many factors that can be altered in wheat production such as soil fertility, and the decision to apply/not apply pest and disease control options. However, variety selection still remains an extremely important component of wheat production. Virginia Cooperative Extension, along with cooperating producers, planted three variety plots throughout central Virginia in 2017-18.

A total of eighteen soft red winter and two hard red winter wheats were tested across Westmoreland County, Prince George County, and Virginia Beach. Twelve SRWW and two HRWW varieties were replicated across Westmoreland and Prince George. Ten of the twelve replicated SRWW varieties and one HRWW variety were also tested at Virginia Beach. Virginia Beach also tested four additional wheat varieties bred for southern climates. For comparative purposes, there is a table in this publication that summarizes all three plots for comparative yield and test weight. This year, the average yield per variety across all three locations ranged from 59.8 bushels per acre to 78.0 bushels per acre, but the average yields for all varieties at the three locations were very close, ranging from 64.3 bushels per acre in Prince George to 74.0 bushels per acre in Virginia Beach. The average tests weights across varieties were also very similar, ranging from 52.0 pounds per bushel to 57.0 pounds per bushel, due to extreme amounts of rainfall in late spring. Like the small variance in yields between the locations, the variance in test weights across the locations was also very small, ranging from 53.5 pounds per bushel, to 54.7 pounds per bushel.

It is advisable to be cautious when choosing a variety from any publication that reports data. Simply choosing the top yielding variety may or may not be the best yielding variety for your style of production. One would need to consider many factors when choosing the best variety for their operation. Different soils, different fertilization practices, different pesticide practices, and different timing of planting and harvesting can severely alter variety performance. These practices are listed on each plot reporting sheet in this publication and are there for your use. Please consider these practices versus yours when choosing a variety.

2018 Westmoreland County Wheat Variety Plot

Cooperators: Producer: F.F. Chandler, Jr.
Louis Chandler
Extension: Stephanie Romelczyk, VCE – Westmoreland
Trent Jones, VCE – Northumberland/Lancaster
Mike Broaddus, VCE – King George/Caroline
Makenzie Hall, VCE Intern

Previous Crop: Soybeans
Soil Type: Suffolk sandy loam
Tillage: No-till
Planting Date: November 3, 2017
Fertilizer: 30-90-90-5S in fall
50-0-0-6S + ½ gal Black Label Zn in Jan
60-0-0-7S + ½ gal Black Label Zn in March

Crop Protection: Burndown: Gramoxone 3pts/A + Finesse 0.4oz/A
Quelex 0.75oz/A + Quadris 3oz/A in March
Prosaro 7oz/A + Tombstone 2oz/A in May

Harvest Date: June 28, 2018

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
Croplan 9606	52.5	10.4	86.8
Pioneer 26R10	54	12.0	81.4
Agri-Maxx 473	51	11.8	78.8
Southern Harvest 4400**	55	12.6	78.0
Croplan 8550	56	11.0	77.7
DynaGro 9772	48	11.0	77.3
DynaGro 9701	54	11.6	77.2
Agri-Maxx 474**	52	11.5	75.9
Featherstone 73**	60	12.6	75.2
5210 HR	54	11.6	72.3
Southern Harvest 7510	57	12.6	70.7
Hilliard	53	11.8	69.3
Vision 45	51	10.6	68.1
Pioneer 26R45**	52	12.0	46.2
AVERAGE	53.5	11.7	73.9

** = awnless (non-bearded) variety

Discussion: Wheat harvest was delayed by frequent rain in June. Vision 45 and 5210 HR are hard red wheats. Pioneer 26R45 had tremendous animal injury which resulted in most of the plot missing the grain head and subsequently low yield.

2018 Prince George County Wheat Variety Plot

Cooperators: Producer: Warren Clements
Extension: Scott Reiter

Previous Crop: Corn

Soil Type: Pamunkey loam

Tillage: Turbo-till

Planter/Row Width: John Deere 750 drill, 7.5 inch spacing

Planting Date: November 6, 2017

Planting Population: 23-24 seed per foot

Fertilizer: Pre-plant – 42-40-80-3S
Dec 16 – 26-0-0-3S
Feb 22 – 40-0-0-5S, 1 pt Boron, 1 pt Copper, 1 pint Zinc, 1 qt N-Zone per 100 gal
Apr 18 – 60-0-0-8S, 1 pt Boron, 1 qt N-Zone per 100 gal

Crop Protection: Burndown – 24 oz Roundup PowerMax + 2 oz ET
Jan 22 – 0.75 oz Harmony Extra SG, 4.75 oz Osprey, 2 qt 24-0-0-3, 1 qt Nu-Surf
May 22 – 7 oz Prosaro, 1 qt Nu-Surf per 100 gal

Harvest Date: June 19, 2018

Harvest Equipment: John Deere 9500 w/ 920 platform, Weigh wagon, Dickey-john miniGAC plus for moisture and test weight

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
USG 3404 -- Check	55.5	13.2	71.6
Featherstone 73**	55.0	13.3	70.8
CROPLAN 9606	54.6	13.1	67.4
Pioneer 26R10	54.7	12.9	66.4
USG 3404 -- Check	55.8	12.7	64.8
Dyna-Gro 9701	55.2	12.1	64.6
CROPLAN 8550	55.6	12.4	63.9
Southern Harvest SH7510	53.8	12.2	63.6
VIPG/Renwood 5210 HR	54.9	12.2	62.9
Dyna-Gro 9772	53.6	12.5	62.7
Hilliard	53.7	12.4	62.6
VIPG/Renwood Vision 45	53.5	11.8	61.1
AgriMAXX 473	55.2	12.4	58.0
AgriMAXX 474**	52.0	13.0	57.0
Southern Harvest SH4400**	Combine issues		
Pioneer 26R45**	Deer damage		
AVERAGE	54.5	12.6	64.1

** = awnless (non-bearded) variety

Discussion:

Wheat yields and test weight have been lower than expected this season. A combine issue resulted in the loss of SH4400 yield data. Pioneer 26R45 was eaten entirely by deer (30x500 ft plot). AgriMAXX 474 had some deer damage to the last few feet of the plot. This plot was located in the middle of a 25 acre field and part of a 100 acre block of wheat. The closest wood line was 200 yards from the plot and this level of damage was unexpected. Radar estimated rainfall totals since March 1:

March 2.5

April 2.5 (Mostly Apr 15-25)

May 8.4 (6 inches May 14-19)

June 1.1
16.5 inches

Tissue testing was used to determine Growth Stage 30 nitrogen rates and micronutrient additions.

2018 Virginia Beach Wheat Variety Plot

Cooperators: Producer: Jason Dawley
 Extension: Roy Flanagan & Watson Lawrence
Previous Crop: Corn
Soil Type: Tetotum Loam and State Loam
Tillage: No-Till
Row Width: 7-inch drill rows
Planting Date: November 6, 2017
Fertilizer: 350 lbs. 11-15-26 + 6% S pre-plant; plus 28 gal. 32% liquid N (100 lbs.)
Crop Protection: Quelex .75 oz./acre + Osprey 4.75 oz./acre
Harvest Date: June 17, 2018

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
Viper	57.0	12.9	91.5
Dyna Gro 9750	53.0	12.4	80.5
Vision 45	55.0	12.4	80.3
Agri Maxx 474**	54.0	13.0	80.2
CropPlan SRW 9606	49.0	12.2	79.8
Featherstone 73**	56.0	12.6	79.2
Pioneer 26R10	53.0	12.6	78.3
Agri Maxx 473	55.0	13.1	77.6
Oakes	55.0	13.3	76.7
Hubner H350	55.0	13.0	75.5
CropPlan SRW 8550	55.0	12.5	74.4
Pioneer 26R45**	51.0	12.1	73.3
USG 3523	53.0	12.6	72.7
Dyna Gro 9600	53.0	12.6	72.6
USG 3536	55.0	12.6	71.3
Hillard	53.0	12.4	70.4
Hubner H358	52.0	12.7	69.3
Hubner H400	52.0	12.8	67.9
Southern Harvest SH4400**	54.0	12.5	64.8
Southern Harvest SH7510	52.0	12.3	55.2
Average	53.6	12.6	74.8

** = awnless (non-bearded) variety

Discussion: A lot of rain during flowering and grain fill stages prevented fungicide application by ground. No fungicide was used in 2017 either under the same production practices. Test weights in 2017 were very good compared to low test weights in 2018. Major difference in 2018 growing season compared to 2017 was significant more rain during 2018 flowering/grain fill.

2018 Virginia Cooperative Extension On-Farm Wheat Variety Plot

Test Weight Summary (pounds/bushel)

Variety	Westmoreland	Prince George	Va. Beach	<u>AVERAGE</u>
Southern Harvest SH4400*	55.0	N/A	54.0	54.5
Southern Harvest SH7510	57.0	53.8	52.0	54.3
Featherstone 73*	60.0	55.0	56.0	57.0
Hilliard	53.0	53.7	53.0	53.2
AgriMAXX 474*	52.0	52.0	54.0	52.7
AgriMAXX 473	51.0	55.2	55.0	53.7
Dyna-Gro 9772	48.0	53.6	N/A	50.8
Dyna-Gro 9701	54.0	55.2	N/A	54.6
Pioneer 26R45*	52.0	N/A	51.0	51.5
Pioneer 26R10	54.0	54.7	53.0	53.9
CROPLAN 8550	56.0	55.6	55.0	55.5
CROPLAN 9606	52.5	54.6	49.0	52.0
VIPG/Renwood Vision 45	51.0	53.5	55.0	53.2
VIPG/Renwood 5210 HR	54.0	54.9	N/A	54.5
<u>AVERAGE</u>	53.5	54.7	54.1	

* = awnless (non-bearded) variety

2018 Virginia Cooperative Extension On-Farm Wheat Variety Plot

Yield Summary (bushels/acre @ 13.5%)

Variety	Westmoreland	Prince George	Va. Beach	<u>AVERAGE</u>
Southern Harvest SH4400*	78.0	N/A	64.8	71.4
Southern Harvest SH7510	70.7	63.6	55.2	63.2
Featherstone 73*	75.2	70.8	79.2	75.1
Hilliard	69.3	62.6	70.4	67.4
AgriMAXX 474*	75.9	57.0	80.2	71.0
AgriMAXX 473	78.8	58.0	77.6	71.5
Dyna-Gro 9772	77.3	62.7	N/A	70.0
Dyna-Gro 9701	77.2	64.6	N/A	70.9
Pioneer 26R45*	46.2	N/A	73.3	59.8
Pioneer 26R10	81.4	66.4	78.3	75.4
CROPLAN 8550	77.7	63.9	74.4	72.0
CROPLAN 9606	86.8	67.4	79.8	78.0
VIPG/Renwood Vision 45	68.1	61.1	80.3	69.8
VIPG/Renwood 5210 HR	72.3	62.9	N/A	67.6
<u>AVERAGE</u>	73.9	64.3	74.0	

* = awnless (non-bearded) variety

2018 Variety Traits

(Information courtesy 2018 Small Grains in Virginia, Virginia Tech Wheat Test, 2017 and 2018 harvests)

Cultivar	Straw height	Mat. date	FHB index resist	Powd. Mild. resist.	Lodging resist	Stripe rust resist	Leaf Rust resist	BYD tolerance
Southern Harvest SH4400	36	121	VG	G	VG	EX	G	EX
Southern Harvest SH7510	34	120	G	VG	VG	EX	EX	EX
Featherstone 73	33	120	VG	VG	G	EX	EX	VG
Hilliard	35	119	VG	EX	EX	EX	VG	VG
AgriMAXX 474	33	118	G	EX	VG	EX	G	EX
AgriMAXX 473	35	120	VG	EX	VG	EX	VG	EX
Dyna-Gro 9772	35	119	VG	VG	G	EX	VG	VG
Dyna-Gro 9701	36	120	VG	EX	VG	EX	EX	VG
Pioneer 26R45	33	125	G	EX	VG	EX	VG	VG
Pioneer 26R10	34	121	VG	G	VG	EX	G	VG
CROPLAN 8550	36	120	G	EX	VG	EX	G	VG
CROPLAN 9606	34	120	VG	EX	VG	EX	EX	EX
VIPG/Renwood Vision 45	35	FS	VG	VG	VG	VG	VG	VG
VIPG/Renwood 5210 HR	n.a.	FS	VG	VG	VG	VG	VG	VG

References

- NOAA, 2018 National Climatic Data Center
- USDA, 2018 National Agricultural Statistics Service (NASS)
- 2018 Small Grains in VA.