



Virginia Cooperative Extension

Virginia Tech • Virginia State University

www.ext.vt.edu

2017 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

Conducted and summarized by:

Mike Broaddus, Extension Agent, Caroline County
Keith Balderson, Extension Agent, Retired, Essex County
David Moore, Extension Agent, Retired, Middlesex County
Roy Flanagan, Extension Agent, Virginia Beach
Watson Lawrence, Extension Agent, City of Chesapeake
David Moore, Extension Agent, Middlesex County
Stephanie Romelczyk, Extension Agent, Westmoreland County
Trent Jones, Extension Agent, Northumberland/Lancaster County
Makenzie Hall, VCE Intern
Wade Thomason, Extension Grains Specialist, Virginia Tech

**Financial Assistance Provided by:
Virginia Small Grains Board**

INTRODUCTION

2016/17 was almost a model year for wheat. Good soil moisture in the fall of 2016 resulted in good germination and produced a great stand. The following mild winter was instrumental in producing a good root system. Ample rainfall continued throughout most of Virginia throughout the spring of 2017, which led to significant tillering and, in many cases, produced higher than normal yields. This was a stark contrast to the past year, 2015/16, where good growth conditions during the winter coupled with a very late April 6 freeze contributed to very low yields. These low yields, along with a depressed wheat market, led many producers to abandon planting and raising wheat in 2016/2017.

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, end-use quality parameters are different than for SRWW, so producers must employ additional management, and markets are by contract only.



Figure 1 This is a picture taken in mid-May, in New Kent County where Paul Davis, producer and retired VCE agent, is instructing Robert Harper, of the Virginia Farm Bureau, along with purchasers of HRWW, how to determine yield of standing wheat in a field.

The demonstration and research plot results discussed in this publication are a cooperative effort by seven 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 2018.

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 broaddus@vt.edu.

This is the twenty-fourth 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.

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.

TABLE OF CONTENTS

	Page
General Summary	4
Middlesex County Variety Plot	5
Westmoreland County Variety Plot.....	6
Virginia Beach Variety Plot.....	7
Amelia County Variety Plot.....	8
Test Weight Summary	9
Yield Summary	10
Amelia County Mixed Small Grain Forage Plot.....	11

GENERAL SUMMARY

- A. VARIETY SELECTION:** Although there are many factors in wheat production such as soil fertility, and pest and disease management, variety selection still remains a very important component of wheat production. Virginia Cooperative Extension, along with cooperating producers, planted four variety plots throughout central Virginia in 2016-17. A total of twenty-one soft red winter and two hard red winter wheats were tested across Middlesex County, Westmoreland County, Amelia County, and Virginia Beach. Nine SRWW and two HRWW varieties were replicated across the Westmoreland and Middlesex County Plots, and there is a table in this publication that summarizes all four plots for comparative yield and test weight. This year, the yield per variety across the four locations ranged from 67.6 to 106.2 bushels per acre.
- B. DATA INTERPRETATION:** Also, please note that not all entries were tested at all sites. You will notice that the average yield in Middlesex was significantly higher than the others, especially in Amelia, and this can be due to many different factors such as rainfall, soil and temperature. So one variety only tested in Amelia cannot be directly compared to those tested on a farm in either Middlesex or Westmoreland. In these cases, one should be cautious with the averages in the yield summary table on page 10. These averages are simply a summary of the data we collected this year. Producers are encouraged consider yields over all locations and also to view comparative yields at a single location, which may be representative of the location where the producer farms.

2017 Middlesex County Wheat Variety Plot

Cooperators: Producer: Jason Benton
Extension: David Moore, VCE-Middlesex Retired

Previous Crop: Corn

Soil Type: Suffolk Fine Sandy Loam

Tillage: No Till following Stalk Shredder

Planting Date: November 1, 2016

Planting Population: 28-29 seeds per foot of row (7.5 inch rows)

Fertilizer: 140-60-110-18s
(4 passes)

Crop Protection: Roundup Burndown
Lambda-CY in January
Tebuconazole 2nd N
Quelex with 1st N
Prosaro at Flowering

Harvest Date: June 15, 2017

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
AGRI-MAXX 473	60.3	15.4	106.2
Check (Shirley)	59.3	14.8	95.7
AGRI-MAXX 474	59.9	15.0	101.1
Check		14.7	102.5
SS8340	61.8	14.7	100.3
Check		14.5	105.4
SS8415	58.6	14.3	93.4
Check		14.5	102.6
Vision 45 (Hard Wheat)	58	12.4	100.5
Check		14.2	102.9
Hilliard	60	14.0	95.5
Check	59.6	14.1	103.1
USG 3895	60.1	14.1	101.2
Check		14.2	100.5
USG 3523	60.1	14.0	93.3
Check		13.9	99.3
Dyna-Gro 9772	57.8	14.0	93.6
Check		14.0	102.6
Dyna-Gro 9692	60.3	14.0	99.9
Check	59	13.8	100.1
Vision 50 (Hard Wheat)	60.6	12.8	88.3

Discussion:

Very Good Plot! Varieties averaged 97.4 bushels and Check variety averaged 101.5 bushels

2017 Westmoreland County Wheat Variety Plot

Cooperators:	Producer: F.F. Chandler, Jr. Louis Chandler Extension: Stephanie Romelczyk, VCE – Westmoreland Keith Balderson, VCE – Essex, Retired Trent Jones, VCE – Northumberland/Lancaster Mike Broaddus, VCE – King George/Caroline Makenzie Hall, VCE Intern
Previous Crop:	Corn
Soil Type:	Kempsville and Savannah Loam
Tillage:	No-till
Planting Date:	November 1, 2016
Fertilizer:	30-70-70-5S in fall 40-0-0-8S in February 60-0-0-8S + 1 gal Black Label Zn in mid-March
Crop Protection:	Burndown: 2.5 pts/A Gramoxone & 0.4 oz/A Finesse Cereal and Fallow 0.75 oz/A Quelex & 2 oz/A Rifle in February 3 oz/A Quadris & 2 oz/A Tombstone in mid-March 7 oz/A Prosaro & 2 oz/A Tombstone at flowering
Harvest Date:	June 19, 2017

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
Croplan 9606	60	14.2	98.6
Agri-Maxx 474	59	14.6	95.0
Agri-Maxx 473	53	14.5	92.1
Hilliard	57	14.4	91.2
Pioneer 26R41	60	14.4	89.2
Featherstone 73	59	14.6	87.3
Dyna-Gro 9772	55	13.4	85.9
Featherstone 258	57	14.1	85.2
Dyna-Gro 9692	56	14.5	83.0
Southern States 8340	59	14.4	82.1
USG 3523	56	16.8	81.6
Southern States 8415	53	16.8	80.8
USG 3895	55	16.6	78.6
Hubner H350	59	15.4	76.4
Hubner H358	53	15.7	72.4
Vision 45	55	14.3	70.1
Vision 50	56	14.7	67.6

Discussion: Vision 45 and Vision 50 are hard red wheats. Southern States 8415, both USG varieties, both Hubner varieties, Vision 45 and Vision 50 were planted in another field, so differences in the fields may account to some extent for the lower yields in these varieties.

2017 Virginia Beach Wheat Variety Plot

Cooperators: Producer: Jason Dawley
 Extension: Roy Flanagan & Watson Lawrence

Previous Crop: Soybeans
Soil Type: Tomotley Loam
Tillage: No-Till
Planting Date: November 7, 2016
Fertilizer: 350 lbs. 11-15-26 + 6% S pre-plant; plus 27 gal. 32% liquid N (95 lbs.)
Crop Protection: Quelex .75 oz./acre + Osprey 4.75 oz./acre
Harvest Date: June 13, 2017

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
Cropland SRW9606	56.8	11.7	98.1
Hubner 358	59.9	12.2	92.5
USG 3523	58.1	11.8	90.6
USG 3895	58.2	11.7	88.3
Oakes	59.9	12.0	87.8
Southern States 8340	59.3	11.6	86.3
Pioneer 26R59	58.2	11.9	86.2
Hubner 350	58.3	11.8	85.4
Pioneer 26R10	58.7	11.9	84.5
Viper 617	60.1	12.2	79.8
Pioneer 26R41	59.0	11.7	78.6
USG 3404	59.0	11.8	77.0

Discussion: This test had few pest problems. No insecticide was needed and Quelex plus Osprey did a good job controlling weeds and ryegrass. Strong test weights with no fungicide application indicated low disease pressure was in 2017 compared to heavy disease pressure in 2016.

*These varieties, side-by-side had weak stands at one end of field possibly due to poor drainage. Always use multiple tests when choosing varieties.

2017 Amelia County Wheat Variety Plot

Cooperators: Producer: Featherstone Farm, Colin Whittington
Extension: Laura Siegle, Wade Thomason

Previous Crop: Corn

Soil Type: Cecil sandy loam

Tillage: No-Till

Planting Date: Oct. 27, 2016

Planting Population: 40 seeds/sq ft

Fertilizer: 25-60-100-20S at planting; 30-0-0-5S Jan 28;
60-0-0-10S Mar 10

Crop Protection: Finesse, 0.4 oz/ac preplant

Harvest Date: Barley: May 31, 2017 Wheat: June 26, 2017

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
Flavia*	44.5	15.5	118.6 (14.5% moist)
USG 3197	51.6	12.2	70.1
USG 3316	55.6	12.8	80.2
DynaGro 9692	55.8	13.2	75.5
VCIA Hilliard	54.6	12.8	72.6
AgriMAXX 473	55.1	12.5	80.8
USG 3523	53.3	12.3	70.6
USG 3895	54.4	12.4	74.3
DynaGro 9772	51.4	12.4	71.5
Vision 50	55.9	12.1	57.4
SS 8415	54.6	11.9	67.3
AgriMAXX 474	54.8	12.6	62.2
Vision 45	52.4	12.3	77.2
Featherstone 73	56.3	12.7	76.8
SS 8340	56.3	12.6	80.2
Pioneer 26R41	54.3	12.5	82.6
Featherstone VA 258	54.8	12.1	80.8
SRW 9606	54.2	12.3	85.3
Wheat AVG.	54.4	12.5	74.4

* Malt barley

Discussion: Thanks to the Whittington family for hosting the 2017 Virginia Grain Producers Association annual field day! At this site we included 'Flavia', a 2-row winter malting barley, as a demonstration and it performed quite well. Wheat quality was impacted by multiple rainy cycles before harvest.

**2017 Virginia Cooperative Extension On-Farm Wheat Variety Plot Test Weight
Summary for Upper Coastal Plain (pounds/bushel)**

Variety	Middlesex	Westmoreland	Va. Beach	Amelia	Average
Croplan SRW 96-06	---	60	56.8	54.2	57.0
Agri-Maxx 473	60.3	53	---	55.1	56.1
SS 8340	61.8	59	59.3	56.3	59.1
VCIA Hilliard	60.0	57	---	54.6	57.2
Pioneer 26R59	---	---	58.2	---	58.2
Agri-Maxx 474	59.9	59	---	54.8	57.9
Dyna Gro 9692	60.3	56	---	55.8	57.4
USG 3895	60.1	55	58.2	54.4	56.9
Dyna Gro 9772	57.8	55	---	51.4	54.7
Pioneer 26R41	---	60	59	54.3	57.8
Featherstone 258	---	57	---	54.8	55.9
Vision 45	58.0	55	---	52.4	55.1
Hubner H358	---	53	59.9	---	56.5
Featherstone 73	---	59	---	56.3	57.7
Hubner H350	---	59	58.3	---	58.7
SS 8415	58.6	53	---	54.6	55.4
Vision 50	60.6	56	---	55.9	57.5
USG 3523	60.1	56	58.1	53.3	56.9
Shirley	59.3	---	---	---	59.3
Oakes	---	---	59.9	---	59.9
Pioneer 26R10	---	---	58.7	---	58.7
USG 3316	---	---	---	55.6	55.6
USG 3404	---	---	59.0	---	59.0
USG 3197	---	---	---	51.6	51.6

**2017 Virginia Cooperative Extension On-Farm Wheat Variety Plot Yield
Summary for Upper Coastal Plain (bushels/acre)**

Variety	Middlesex	Westmoreland	Va. Beach	Amelia	Average
Croplan SRW 96-06	---	98.63	98.06	85.3	94.0
Agri-Maxx 473	106.2	92.08	---	80.8	93.0
SS 8340	100.3	82.07	86.27	80.2	87.2
CIA Hilliard	95.5	91.16	---	72.6	86.4
Agri-Maxx 474	101.1	95.03	---	62.2	86.1
Dyna Gro 9692	99.9	82.97	---	75.5	86.1
USG 3895	101.2	78.63	88.34	74.3	85.6
Dyna Gro 9772	93.6	85.91	---	71.5	83.7
Pioneer 26R41	---	89.15	78.61	82.6	83.5
Featherstone 258	---	85.22	---	80.8	83.0
Vision 45	100.5	70.12	---	77.2	82.6
Hubner H358	---	72.38	92.49	---	82.4
Featherstone 73	---	87.28	---	76.8	82.0
Hubner H350	---	76.41	85.35	---	80.9
SS 8415	93.4	80.84	---	67.3	80.5
Vision 50	88.3	67.56	---	57.4	71.1
USG 3523	93.3	81.58	90.6	70.6	63.77
Shirley	95.7	---	---	---	95.7
Oakes	---	---	87.83	---	87.83
Pioneer 26R59	---	---	86.2	---	86.2
Pioneer 26R10	---	---	84.5	---	84.5
USG 3316	---	---	---	80.02	80.0
USG 3404	---	---	76.95	---	77.0
USG 3197	---	---	---	70.1	70.1

2017 Amelia County Wheat and Forage Mixtures Plot

Cooperators: Producer: Featherstone Farm, Colin Whittington
Extension: Laura Siegle, Wade Thomason

Previous Crop: Corn

Soil Type: Cecil sandy loam

Tillage: No-Till

Planting Date: Oct. 27, 2016

Planting Population:

Treatment	Cultivar/Mixture	Seed, lb/ac		
		small grain	winter pea	clover
1	Featherstone VA 258 wheat (W)	151	.	.
2	Austrian winter pea (P)	.	191	.
3	Crimson clover (C)	.	.	200
4	Oats (O)	94	.	.
5	W+P	96	62	.
6	W+C	96	.	66
7	O+P	57	62	.
8	O+C	57	.	66
9	W+P+C	52	62	66
10	O+P+C	29	62	66

Fertilizer: 25-60-100-20S at planting; 30-0-0-5S Jan 28; 60-0-0-10S Mar 10

Crop Protection:

Harvest Date: May 11, 2017

Crop/Mixture	35% DM Yield, tons/ac	DM Yield tons/ac	Crude Protein %	ADF %	NDF %	TDN %
Crimson Clover	3.16	1.11	17.41	34.01	47.29	61.17
Oats	2.98	1.04	7.79	36.92	58.97	55.47
Oats + Crimson Cover	4.09	1.43	10.63	35.13	54.50	57.86
Oats + Winter Pea	5.46	1.91	9.96	37.24	59.08	56.00
Oats + Crimson Clover + Winter Pea	4.37	1.53	10.22	36.25	54.90	56.85
Austrian Winter Pea	6.89	2.41	13.47	34.44	48.59	59.42
Featherstone VA258 Wheat	2.87	1.00	8.97	30.19	51.24	61.07
VA258 + Crimson Cover	2.84	0.99	9.26	31.40	52.09	60.24
VA258 + Winter Pea	5.70	2.00	11.80	34.19	53.40	59.01
VA258 + Crimson Clover + Winter Pea	2.58	0.90	10.10	30.65	51.81	61.12
LSD (0.05)	1.60	0.56	2.82	3.80	5.76	3.14

Discussion: Thanks to the Whittington family for hosting the 2017 Virginia Grain Producers Association annual field day! Since many wheat acres are harvested for forage in the area, we installed this demonstration to provide some data on performance of various forage species and mixtures with wheat and oats.