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2022
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:

Robbie Longest, Associate Extension Agent, Essex County
Mike Broaddus, Extension Agent, Caroline/King George Counties
Carl Stafford, Senior Extension Agent, Culpeper County
Stephanie Romelczyk, Extension Agent, Westmoreland County
Taylor Clarke, Extension Agent, Mecklenburg County
Cynthia Gregg, Extension Agent, Brunswick County
Sara Rutherford, Extension Agent, Greensville County/City of Emporia
Forrest Hobbs, Associate Extension Agent, New Kent/James City Counties
Trent Jones, Extension Agent, Northumberland/Lancaster Counties
Paul Davis, Retired Extension Agent, New Kent County
Anthony Ching, VCE Intern
Joseph Oakes, Superintendent, Eastern Virginia AREC
Wade Thomason, Former Extension Grains Specialist, Virginia Tech

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Introduction

The On-Farm Variety and Research Publications are a collaboration between county agents, producers, crop specialists, and agribusinesses to provide research-based information on not only variety selection, but other management practices such as new cultivation, fertilization, planting, and harvesting practices of small grain. It is the intent of all the cooperators involved to provide an unbiased publication that provides assistance in variety selection as well as other current small grain topics.

The authors of this publication wish to thank the many producers and agribusiness for their cooperation in obtaining the data in this publication. Without their support, this information would not be available, and the resulting publication would not be possible. This publication is made available at the VCE website (https://ext.vt.edu/), and is also available from any local county agricultural Extension agent, who can request copies from Robbie Longest in the Essex County VCE Office. If you are a person with a disability and desire assistance or accommodation and would like to request a fully accessible copy of this publication, please contact Robbie Longest in the Essex VCE Office at 804-443-3551 or robbiel7@vt.edu.

The fieldwork and printing of this publication is supported by the Virginia Small Grains Board Check-Off funds. **The cooperators gratefully acknowledge and thank the Virginia Small Grains Board for their continued support.**

This is the twenty-ninth year of this multi-year project. Further work is planned for the upcoming growing season. The demonstration and research plot results discussed in this publication are a cooperative effort by nine Virginia Cooperative Extension ANR agents, one retired agent, a former Extension specialist from Virginia Tech, the EVAREC superintendent, 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 2023.

If you are a producer interested in participating in on-farm plot work, or have research ideas that you would like to see evaluated through this project, please contact your local Extension office.

Figure 1: Harvest of the King William County On-Farm Wheat Variety Plot. The grain is harvested by the combine and run onto the weigh-wagon to determine grain weight for yield, and then transferred to the producer's trailer.

Figure 2: Freeze injury continues to be a concern for small grain producers, pictured here on March 23, 2022 in Essex County.

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Figure 3: Soft red winter wheat grain following harvest

Photos: Courtesy of Robbie Longest and Joseph Oakes

General Summary

A. **THE SEASON:** Overall the 2021-2022 small grain growing season was favorable in most areas. There was not excess moisture, however some areas experienced disease pressure in the spring with problems such as powdery mildew, and fusarium head blight. Fungicide applications have become more routine, particularly at flowering, and disease prevalence was dependent on location and variety. Late freeze injury (< 30°F) during flowering and heading continues to be a concern for producers, and some areas in the state experienced freeze injury again this year. However, in wheat most of this was earlier during the tillering and jointing stages, minimally effecting yield. Yields were very good this year, and were supported by good market prices.

B. **VARIETY SELECTION:** Proper variety selection continues to be crucial for producing high-yielding, good quality small grain. With so many options being commercially available, replicated yield data such as that presented in this publication is of great value to producers in helping make this important decision. Many agronomic factors should be considered when selecting a variety such as yield, grain quality, disease resistance package, lodging susceptibility, response to fertility, heading date, stress tolerance, etc. Virginia Cooperative Extension, along with producer-cooperators, planted five wheat variety plots throughout eastern and central Virginia in 2021-22. Sixteen varieties of soft red winter wheat (SRWW) and two varieties of hard red winter wheat (HRWW) were entered and tested in the counties of Brunswick, Culpeper, King William, New Kent, and Westmoreland. Progeny CHAD and BUSTER were only tested at the King William location due to seed availability. Variety yield and test weight summaries can be found on pages 12 and 13 respectively. An agronomic traits table found on page 17 reports heading date, plant height, and several disease resistance ratings for the tested varieties. Wheat seed size varies, resulting in differences in planting rates and pounds of seed per acre sowed. Included on page 18 is a planting chart for different sized wheat seed as a reference to insure accurate planting populations.

C. **USING AERIAL IMAGERY TO APPLY NITROGEN IN WINTER WHEAT:** Crop scouting and management using aerial imagery & remote sensing is gaining popularity. Work is being done to validate NDVI and NDRE sensing using drone technology to make prescriptive recommendations for nitrogen applications in wheat at GS 25 & GS 30, based on canopy reflectance and tiller density. A relationship is being developed and validated with ground truth tiller measurements, with the goal of producers being able to fly fields prior to GS 25 & GS 30 instead of taking hand tiller counts, and use a created map to make variable rate applications at these growth stages based on tiller density.

It is advisable to be cautious when choosing a variety from any publication that reports yield data, particularly single-year single-location data. Simply choosing the top yielding variety found in this publication may or may not be the best choice for your style of production and farm. Please consider the production practices listed for each location versus yours when selecting a variety and anticipating its performance. It is advised to consult other replicated yield data over multi-year, multi-location trials in addition to these results when selecting varieties.

County On-Farm Wheat Variety Plots

Brunswick County Wheat Variety Plot

Cooperators:	**Producer:**	William and Howard Wright
	Extension:	Taylor Clarke, VCE – Mecklenburg
		Cynthia Gregg, VCE – Brunswick
		Sara Rutherford, VCE – Greensville/Emporia
	Industry:	Tyler Ashworth & Austin Puryear, Nutrien Ag
Previous Crop:		Soybean
Soil Type:		Appling
Tillage:		Conventional
Planter/Row Width:		John Deere 750/ 7.5-inch row spacing
Planting Date:		November 10, 2021
Planting Population:		140 lbs./A (range 1.4 – 1.8 m)
Fertilizer:	**Pre-plant:**	40-30-60
	In-season:	100# N topdress
Crop Protection:	**In-season:**	Powerflex (2 oz./A)
		Miravis Ace (13.7 oz./A) +
		Tombstone Helios (3 oz./A)
Harvest Date:		June 13, 2022

Brand	Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield (Bu./A @13.5%)
AgriMaxx	514	59.3	12.4	98.5
AgriMaxx	513	63.7	12.6	103.3
Pioneer	26R45	61.4	12.4	103.5
USG	3352	61.9	12.2	98.3
USG	3472	61.2	12.4	96.8
Syngenta AgriPro	SY VIPER	63.4	12.9	92.3
Syngenta AgriPro	GP 381	58.9	12.8	90.1
VCIA	Liberty 5658	58.6	12.3	72.2
Eddie Mercer	MBX 127	60.5	13.1	94.6
Eddie Mercer	MBX 223	58.0	11.9	88.6
VIPG (HRWW)	2519	61.9	10.9	78.1
VIPG (HRWW)	5210	60.2	12.0	81.5
Revere	2277	61.7	11.8	96.6
Revere	2169	61.5	12.0	93.0
DynaGro	9941	61.4	10.8	78.9
DynaGro	9172	61.2	11.7	91.3
Southern Harvest	9520	62.2	11.1	97.7
Southern Harvest	7200	63.8	11.2	76.6
AVERAGE		**61.2**	**12.0**	**90.7**

Discussion: Excellent yielding location with two varieties yielding over 100 bu./A.

Culpeper County Wheat Variety Plot

Cooperators: **Producer:** Joe Gray
Extension: Carl Stafford, VCE- Culpeper
Industry: Britton Green, CFC Agronomist
Previous Crop: Soybean
Soil Type: Clover-Penn
Tillage: No-till
Planter/Row Width: 7.5-inch row spacing
Planting Date: November 16, 2021
Planting Population: 2 bu./A
Fertilizer: Boron, Nitrogen (split applied), Phosphorus, Potassium
Crop Protection: Herbicide, Insecticide, Fungicide (2X)
Harvest Date: June 30, 2022

Brand	Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield (Bu./A @13.5%)
CHECK - VIPG	5210	58.9	11.5	104.2
USG	3352	56.0	10.9	103.1
Pioneer	26R45	56.6	11.6	95.0
USG	3472	57.9	12.0	100.1
Eddie Mercer	MBX 127	57.5	11.6	100.5
Syngenta AgriPro	SY VIPER	57.9	14.6	94.5
AgriMaxx	513	51.1	14.4	94.7
Revere	2169	58.4	11.8	105.0
Eddie Mercer	MBX 223	56.2	11.8	97.6
DynaGro	9941	56.9	11.4	94.4
AgriMaxx	514	57.5	11.2	105.0
DynaGro	9172	55.4	12.0	105.9
VIPG (HRWW)	5210	57.4	11.0	92.0
Revere	2277	58.0	11.3	100.9
Syngenta AgriPro	GP 381	58.4	10.9	92.1
Southern Harvest	9520	58.2	11.1	99.9
VCIA	Liberty 5658	58.9	11.3	83.1
Southern Harvest	7200	58.9	10.5	79.6
VIPG (HRWW)	2519	53.5	11.6	82.2
CHECK - VIPG	5210	58.9	11.4	81.2
AVERAGE		**57.1**	**11.7**	**95.5**

Discussion: Very impressive yields at this location in 2022 behind soybeans with a plot average of 95.5 bu./A. A check (VIPG 5210 – HRWW) was included on each end of the plot. Use these results and other replicated yield data when making seed selections for the 2022-2023 growing season.

King William County Wheat Variety Plot

Cooperators: **Producer:** Thomas H. Fox Jr.
Extension: Robbie Longest, VCE – Essex
Industry: Wes Self, Nutrien Ag
Previous Crop: Corn
Soil Type: Slagle Loam
Tillage: No-till
Planter/Row Width: John Deere 1590/ 7.5-inch row spacing
Planting Date: October 21, 2021
Planting Population: 28 seeds per row foot
Fertilizer: **Pre-plant:** 40-40-120
In-season: 40# N + Radiate (2 oz./A)
60# N + Black Label Zn (1 gal./A) + Borosol 10 (1 qt./A)
Max Npact K (1 gal./A) at heading
Crop Protection: **Pre-plant:** Gramoxone 2.5 (pt./A) + Sharpen (1 oz./A) + Scanner
In-season: Fitness (4 oz./A) (x2) + Tombstone (2 oz./A) + Quelex (0.75 oz./A) + Harmony (0.5 oz./A) (x2)
Miravis Ace (13.7 oz./A) at heading
Harvest Date: June 25, 2022

Brand	Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield (Bu./A @13.5%)
Progeny	CHAD	53.6	17.3	81.3
Progeny	BUSTER	56.3	15.9	83.5
Syngenta AgriPro	SY VIPER	56.5	16.8	82.7
Syngenta AgriPro	GP 381	55.6	13.3	82.5
Eddie Mercer	MBX 127	54.9	15.6	86.4
Eddie Mercer	MBX 223	55.9	15.1	83.1
AgriMaxx	513	56.5	15.4	85.1
AgriMaxx	514	55.2	16.0	86.4
Revere	2169	54.7	15.4	83.6
Revere	2277	57.5	15.9	83.4
DynaGro	9941	55.1	14.6	80.4
DynaGro	9172	55.3	15.2	83.6
VIPG (HRWW)	5210	55.5	13.2	76.8
VIPG (HRWW)	2519	58.8	13.1	64.9
Southern Harvest	7200	57.2	15.3	66.5
Southern Harvest	9520	57.4	15.0	81.2
USG	3472	56.0	14.1	83.9
USG	3352	55.4	15.4	87.3
Pioneer	26R45	54.9	13.4	75.7
VCIA	Liberty 5658	57.7	13.5	66.5
CHECK	Shirley	55.5	13.6	78.8
AVERAGE		**56.0**	**14.9**	**80.2**

Discussion: Good yields at this location. Some grain FHB was observed in several varieties at harvest, however minimal overall.

New Kent County Wheat Variety Plot

Cooperators: **Producer:** Davis Produce, Paul Davis
Extension: Forrest Hobbs, VCE – New Kent/James City
Previous Crop: Corn
Tillage: No-till (bush hogged corn stalks and turbo tilled)
Planter/Row Width: No-till drill/ 7.5-inch row spacing
Planting Date: October 25, 2021
Planting Population: 28 seeds per row foot
Fertilizer: **Pre-plant:** Oct. 8 40-60-80
In-season: Dec. 3 20# N (28-0-0 + water)
Feb. 11 40# N (24-0-0-3S) +Impact F
Mar.16 50# N (24-0-0-3S)
Crop Protection: Apr. 29 Miravis Ace (13.7 oz./A)
Harvest Date: June 15, 2022

Brand	Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield (Bu./A @13.5%)
USG	3472	NR	12.7	92.5
USG	3352	NR	12.6	97.0
Pioneer	26R45*	NR	11.9	75.8
AgriMaxx	514	NR	12.3	74.7
AgriMaxx	513	NR	13.7	94.5
Syngenta AgriPro	SY VIPER*	NR	13.2	74.2
Syngenta AgriPro	GP 381	NR	13.1	116.5
DynaGro	9941	NR	12.5	86.2
DynaGro	9172	NR	12.7	95.9
Eddie Mercer	MBX 223	NR	12.2	77.4
Eddie Mercer	MBX 127	NR	13.2	89.4
Revere	2169	NR	12.8	83.7
Revere	2277	NR	12.8	92.8
Southern Harvest	9520	NR	13.0	88.5
Southern Harvest	7200	NR	13.0	74.0
VCIA	Liberty 5658	NR	12.5	90.7
Mennel / VIPG	Vision 45	NR	11.9	64.0
VIPG	2519	NR	12.3	58.5
VIPG	5210	NR	12.3	70.0
AVERAGE		**NR**	**12.7**	**84.0**

* Deer damage was observed in these plots
NR - Test weight data was not reported for this site location.

Discussion: Please use this data as well as other replicated yield results when making variety selections. This location had good yields with a plot average of 84 bu./A and tested several HRWW varieties. Market premiums may be available for milling quality hard red wheat.

Westmoreland County Wheat Variety Plot

Cooperators: **Producer:** Louis Chandler, F.F. Chandler Jr., Ryan Balderson
Extension: Stephanie Romelczyk, VCE – Westmoreland,
Trent Jones, VCE – Northumberland/Lancaster
Anthony Ching, VCE Intern

Previous Crop: Corn
Soil Type: Suffolk Sandy Loam
Tillage: No-till
Planter/Row Width: 7.5-inch row spacing
Planting Date: November 11, 2021
Planting Population: 36 seeds per row foot
Fertilizer: **Pre-Plant**: Nov. 5 30-90-90-5S
In-Season: Dec. 16 2-0-0-2.5S Feb. 16 40-0-0-5S
Mar. 24 70-0-0-8.5S + Black Label Zn (1 gal./A)
May Maximum N-Pact K (1 gal./A)
Crop Protection: **Pre-plant:** Gramoxone (3 pts./A) + Liberate (½ pt./A) + Finesse (0.4 oz/A)
In-season: Dec. Anthem Flex 3 (oz./A) + Quelex (0.75 oz./A) + Radiate 2 (oz./A) + Liberate (0.5 pt./100 gal.)
Mar. Finesse (0.4 oz./A)
May Miravis Ace(13.7 oz./A)+Tombstone Helios (1.5 oz./A)
Harvest Date: June 29, 2022

Brand	Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield (Bu./A @13.5%)
Syngenta AgriPro	SY Viper	-	14.7	72.6
AgriMaxx	513	-	14.5	100.0
USG	3472	-	14.0	100.5
USG	3352	-	14.1	88.1
Southern Harvest	7200	-	13.4	73.9
Revere	2169	-	13.6	86.4
VIPG	5210	-	10.7	72.6
VIPG	2519	60.0	13.4	77.0
Revere	2277	57.0	13.2	90.7
Syngenta AgriPro	GP 381	58.0	12.3	92.2
Southern Harvest	9520	56.0	12.6	88.3
Eddie Mercer	MBX 127	58.0	13.2	88.8
Pioneer	P26R45	54.0	11.6	74.2
AgriMaxx	514	55.0	13.7	88.1
Eddie Mercer	MBX 223	56.0	13.2	91.1
VCIA	Liberty 5658	59.0	12.4	85.1
DynaGro	9941	58.0	12.4	83.0
DynaGro	9972	57.0	12.1	87.2
AVERAGE		**57.1**	**13.1**	**85.5**

Discussion: Overall excellent yields. Some test weights missing due to equipment difficulties.

2022 Virginia Cooperative Extension On-Farm Wheat Variety Plots
Variety Yield Summary
(bushels/acre @ 13.5% moisture)

Brand	Variety	Location					Variety AVERAGE [1]
		Brunswick	Culpeper	King William	New Kent	Westmoreland	
Syngenta AgriPro	SY VIPER	92.3 §	94.5	82.7	74.2	72.6	**83.3**
Syngenta AgriPro	GP 381	90.1	92.1	82.5	116.5	92.2	**94.7**
Eddie Mercer	MBX 127	94.6	100.5	86.4	89.4	88.8	**91.9**
Eddie Mercer	MBX 223	88.6	97.6	83.1	77.4	91.1	**87.6**
AgriMaxx	513	103.3	94.7	85.1	94.5	100.0	**95.5**
AgriMaxx	514	98.5	105.0	86.4	74.7	88.1	**90.5**
Revere	2169	93.0	105.0	83.6	83.7	86.4	**90.3**
Revere	2277	96.6	100.9	83.4	92.8	90.7	**92.9**
DynaGro	9941	78.9	94.4	80.4	86.2	83.0	**84.6**
DynaGro	9172	91.3	105.9	83.6	95.9	87.2	**92.8**
VIPG (HRWW)	5210	81.5	92.0	76.8	70.0	72.6	**78.6**
VIPG (HRWW)	2519	78.1	82.2	64.9	58.5	77.0	**72.1**
Southern Harvest	7200	76.6	79.6	66.5	74.0	73.9	**74.1**
Southern Harvest	9520	97.7	99.9	81.2	88.5	88.3	**91.1**
USG	3472	96.8	100.1	83.9	92.5	100.5	**94.8**
USG	3352	98.3	103.1	87.3	97.0	88.1	**94.8**
Pioneer	26R45	103.5	95.0	75.7	75.8	74.2	**84.8**
VCIA	Liberty 5658	72.2	83.1	66.5	90.7	85.1	**79.5**
Location AVERAGE [1]		**90.7**	**95.9**	**80.0**	**85.1**	**85.5**	

* Progeny CHAD and BUSTER were only tested at the King William location due to limited seed, and thus were not included in the overall variety yield summary.

§ Color scale for yields indicates higher yields in green, and lower yields in red within test location (column)

1 Location and Variety yield averages derived across reported locations and varieties

2022 Virginia Cooperative Extension On-Farm Wheat Variety Plots
Variety Test Weight Summary
(pounds/bushel)

(NR= not reported)

Brand	Variety	Location				Variety AVERAGE [1]
		Brunswick	Culpeper	King William	Westmoreland	
Syngenta AgriPro	SY VIPER	63.4	57.9	56.5	NR	**59.3**
Syngenta AgriPro	GP 381	58.9	58.4	55.6	58.0	**57.7**
Eddie Mercer	MBX 127	60.5	57.6	54.9	58.0	**57.8**
Eddie Mercer	MBX 223	58.0	56.2	55.9	56.0	**56.5**
AgriMaxx	513	63.7	51.1	56.5	NR	**57.1**
AgriMaxx	514	59.3	57.5	55.2	55.0	**56.8**
Revere	2169	61.5	58.4	54.7	NR	**58.2**
Revere	2277	61.7	58.0	57.5	57.0	**58.6**
DynaGro	9941	61.4	56.9	55.1	58.0	**57.9**
DynaGro	9172	61.2	55.4	55.3	57.0	**57.2**
VIPG (HRWW)	5210	60.2	57.4	55.5	NR	**57.7**
VIPG (HRWW)	2519	61.9	53.5	58.8	60.0	**58.6**
Southern Harvest	7200	63.8	58.9	57.2	NR	**60.0**
Southern Harvest	9520	62.2	58.2	57.4	56.0	**58.5**
USG	3472	61.2	57.9	56.0	NR	**58.4**
USG	3352	61.9	56.0	55.4	NR	**57.8**
Pioneer	26R45	61.4	56.6	54.9	54.0	**56.7**
VCIA	Liberty 5658	58.6	58.9	57.7	59.0	**58.6**
Location AVERAGE [1]		**61.2**	**56.9**	**56.1**	**57.1**	

* Test weight data was not reported from the New Kent location.

§ Progeny CHAD and BUSTER were only tested at the King William location due to limited seed, and thus were not included in the overall variety yield summary.

1 Location and Variety test weight averages derived across reported locations and varieties

Other Research

Validating the Use of Aerial Imagery to Apply Nitrogen in Winter Wheat

Cooperators:	**Producer:**	Cloverfield Enterprises	
	Extension:	Joseph Oakes, Eastern Virginia AREC Robbie Longest, VCE – Essex	
Previous Crop:		Corn	
Soil Type:		Tetotum Loam, Munden Fine Sandy Loam	
Tillage:		No-till	
Planter/Row Width:		John Deere 1990/ 7.5-inch row spacing	
Planting Date:		November 11, 2021	
Planting Population:		3.58 units/A	
Variety:		DynaGro 9172	
Fertilizer:	**Pre-plant:**	Nov. 1	20-43-128
	In-season:	Feb. 24	50# N (or TRT) (24-0-0-3S) + Zn
		Apr. 3	50# N (or TRT) + Mn, humic acid
Crop Protection:		Apr. 3	Fitness Fungicide + Insecticide
		May 4	Miravis Ace Fungicide
Harvest Date:		July 1, 2022	

Plot #	GS 25 Rate (# N / ac.)	GS 30 Rate (# N / ac.)	Method
101	40	80	Tiller density
102	60	60	Aerial NDVI
103	60	60	Aerial NDRE
201	60	60	Aerial NDVI
202	60	60	Aerial NDRE
203	60	60	Tiller density
301	50	70	Tiller density
302	60	60	Aerial NDRE
303	60	60	Aerial NDVI
401	60	60	Aerial NDVI
402	50	70	Tiller density
403	60	60	Aerial NDRE
Check	50	50	Grower Standard

Discussion: The purpose of this trail is to examine the effectiveness of using aerial indices to apply nitrogen fertility at Zadok's Growth Stage (GS) 25, instead of the traditional method of counting tillers. Traditional fertility recommendations in Virginia soft red winter wheat call for nitrogen to be applied at GS 25 if there are less than 50 tillers per square foot in order to stimulate tiller growth until GS 30 when the bulk of in-season nitrogen is applied. However, due to field variability and time constraints of counting tillers, this method can be inaccurate and time consuming. Therefore, an effort to estimate tiller density remotely is essential. Over the past three growing seasons, our team has identified that aerial remote sensing with an unmanned aerial vehicle (UAV) can accurately estimate tiller density in research plots. Normalized difference vegetative index (NDVI) and normalized difference red edge (NDRE) are vegetative indices that are derived from multispectral aerial images that can assess crop nutrition status.

Over the past two years, these indices have been collected at four locations. Aerial NDVI estimated tiller density with an accuracy of 75% and aerial NDRE with an accuracy of 71%; and both accurately showed whether or not N was needed at this stage. These studies were done in small research plots. The purpose of these on-farm trials is to validate the small plot work and examine in production scale field settings.

In this study, three treatments were replicated three times. The three treatments were nitrogen application methods: applying nitrogen based on tiller density, NDVI, and NDRE at GS 25. Treatments were applied in strips 500 feet long and 120 feet wide (the width of the sprayer). Remaining nitrogen was then applied at GS 30 to equal a total of 120# N for all strips. GS 25 and GS 30 nitrogen was applied as 24-0-0-3S on February 24 and April 3, respectively.

In the strips where tiller density was used, tiller counts recommended to apply an average of 50 lbs. of nitrogen at GS 25. Meanwhile, in strips where NDVI and NDRE was used, both recommended an average of 60 lbs. of nitrogen to be applied at GS 25. At harvest, there was no statistical difference in grain yield among the three methods (Figure 4).

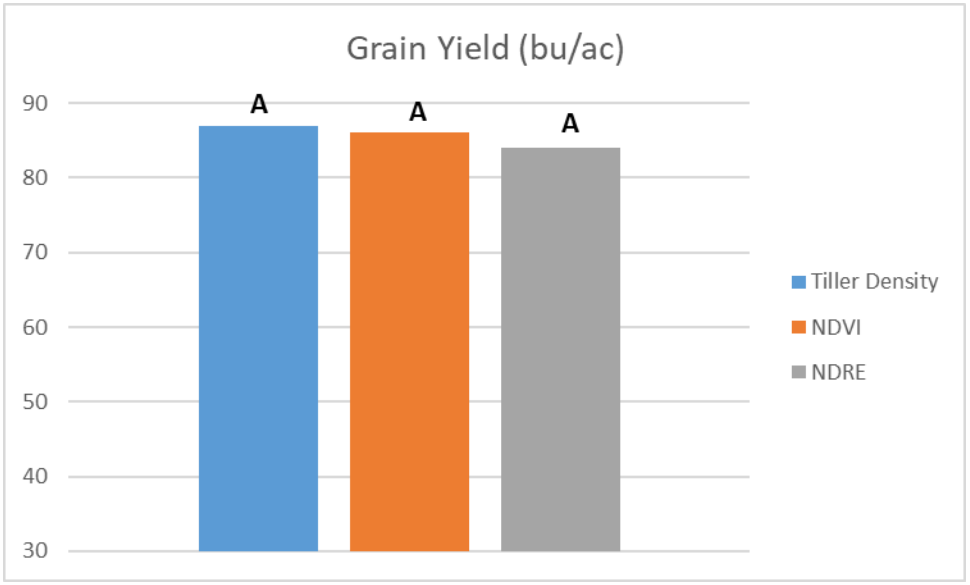

Figure 4: Grain yield among the three different nitrogen application recommendation methods. The same letters are not significantly different at LSD $p<0.05$.

This data shows that estimating tiller density and applying nitrogen at GS 25 with aerial indices recommends similar nitrogen rates as tiller density and achieves the same grain yield. Current and future work is looking to use these indices to create variable rate application maps based on NDVI to allow the sprayer to apply the nitrogen as needed based on the aerial NDVI.

Special thanks to Jay Hundley and Cloverfield Enterprises for their assistance with this study, and to the Virginia Agriculture Council for funding this study.

2022 Variety Disease Resistance Traits

Information courtesy of Small Grains in 2022 (Thomason, et. al)

Brand	Variety	Heading Date (Julian)	Height (in.)	Powdery Mildew*	Leaf Rust*	Barley Yellow Dwarf Virus*
Syngenta AgriPro	SY VIPER[d]	119	37	0.6	3.0	2
Syngenta AgriPro	GP 381[a]	120	31	2.3	-	-
Eddie Mercer	MBX 127[d]	123	35	0.1	1.5	2
Eddie Mercer	MBX 223[d]	121	35	0.7	2.5	3
AgriMaxx	513[a]	121	32	3.5	-	-
AgriMaxx	514[d]	124	33	0.0	2.5	4
Revere	2169[d]	123	35	0.2	2.0	1
Revere	2277[a]	126	33	2.0	-	-
DynaGro	9941[d]	119	38	1.8	2.7	-
DynaGro	9172[d]	123	35	0.3	2.0	1
VIPG (HRWW)	5210[a]	124	31	1.8	-	-
VIPG (HRWW)	2519[a]	122	30	1.5	-	-
Southern Harvest	7200[d]	118	37	0.7	0.0	1
Southern Harvest	9520[d]	126	33	0.0	1.5	3
USG	3472[d]	124	34	0.0	2.5	0
USG	3352[a]	124	34	1.8	-	-
Pioneer	26R45[d]	122	36	0.4	1.0	1
VCIA	Liberty 5658[d]	119	36	0.0	0.0	0
Progeny	CHAD[d]	120	32	1.3	0.0	0
Progeny	BUSTER[d]	121	36	0.0	4.0	1

[a] Single year data (2022) / (2020) [b]

[c] Two-year average (2021 and 2022)

[d] Three-year average (2020, 2021, 2022)

* The 0-9 ratings indicate a varieties response to disease where 0 = highly resistant and 9 = highly susceptible.

Wheat Seed Size Planting Conversion Table

	SEEDS PER ROW FOOT (7.5” row spacing)					
	19	22	25	28	31	34
	SEEDS PER SQUARE FOOT					
	30	35	40	45	50	55
SEEDS/POUND	**POUNDS OF SEED/ACRE (divided by 60 equals bushels/acre)**					
10,000 (large seed)	131	152	174	196	218	240
11,000	119	139	158	178	198	217
12,000	109	127	145	163	182	200
13,000	101	117	134	151	168	184
14,000	93	109	124	140	156	171
15,000	87	102	116	131	145	159
16,000	82	95	109	123	136	150
17,000	77	90	102	115	128	141
18,000	73	85	97	109	121	133
19,000	69	80	92	103	115	126
20,000 (small seed)	65	76	87	98	109	120

References

Thomason, W. et al. 2022. “Small Grains in 2022”