

2020 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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Virginia Polytechnic Institute and State University

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2020

INTRODUCTION

The On-Farm Variety and Research Publications are a result of collaboration between county agents, producers, crop specialists, and agribusiness 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 is beneficial in variety selection as well as other current small grain issues.

The authors of this publication wish to thank the many cooperators and agribusiness for their cooperation in for the data in this publication, and we are grateful for this cooperation. Without their support, this information would not be available, and the resulting informative data would not be necessary. This publication is made available at the many small grain conferences held annually, at the VCE website (<u>http://pubs.ext.vt.edu</u>) and is also available from any local county agricultural extension agent, who can request it from Mike Broaddus in Caroline County (804) 633-6550, or by emailing <u>broaddus@vt.edu</u>.

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This is the twenty-seventh year of this multi-year project. Further work is planned for the upcoming growing seasons. The demonstration and research plot results discussed in this publication are a cooperative effort by nine Virginia Cooperative Extension agents, one retired agent, an extension specialist 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 2021.

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.





Figure 1. Randy Alvis harvesting Goochland wheat plots. Much is learned in the combine cab by the farmer about the different cultivars while harvesting on-farm plots. (photo by Robbie Longest)



Figure 2. Westmoreland on-farm plot weighing and testing center. (photo by Stephanie Romelczyk)



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GENERAL SUMMARY

- A. THE SEASON: The fall of 2019 gave sufficient soil moisture and perfect soil temperatures for great germination. Mild conditions in early winter allowed for good vegetative growth prior to the arrival of colder temperatures later in the winter, that allowed a well tillered, thick stand. The 2019-2020 wheat growing season could be considered perfect until a sudden freeze on the night of May 8th caught many varieties during pollination and in most cases, entire fields along the northern and central Piedmont and Coastal Plains regions of Virginia were severely impacted. However, as will be noted throughout this publication, wheat not caught pollinating on May 8th yielded very respectable results.
- **B. VARIETY SELECTION:** There are many factors that can be altered in wheat production such as soil fertility, planting date, and the decision to apply, or not apply, pest and disease control options. However, variety selection will always remain an extremely important component of wheat production. Virginia Cooperative Extension, along with six cooperating producers, planted six variety plots throughout eastern and central Virginia in 2019-20. A total of fifteen varieties of soft red winter wheat (SRWW) were donated and tested across Westmoreland County, Goochland County, New Kent County, Mecklenburg County, Culpeper County, and Northumberland County, and the yields and test weights for all fifteen are compared. Two varieties of hard red winter wheat (HRRW) also tested; one across all six locations and the other, a new variety, in two locations only. It should also be noted that Vision 45 was planted in the New Kent plot only, and since it was not planted in the other plots, it was not figured into the comparative tables on pages 14 and 15. These tables summarize this year's test weight results and yield results for comparative purposes. Another table on page 16 compares agronomic traits and disease resistance for all the varieties tested. Finally, due to various sizes of wheat seed, we have included a planting chart on page 17 for different sized wheat seeds to insure accurate planting.

Most years, average yields are usually fairly close between locations. This year, the average yield per variety across all six locations ranged widely. This was due to the May 8 freeze, where varieties caught pollinating during this time suffered greatly. The hard freeze seemed to affect the Goochland location greatly, which averaged 32.0 bushels per acre, to an average of 95.99 bushels per acre in New Kent, which did not suffer from the freeze. Amazingly, average tests weights across varieties and locations were very similar in readings, ranging from 55.7 pounds per bushel to 60.1 pounds per bushel in both categories.

It is advisable to be cautious when choosing a variety from any publication that reports yield data. Simply choosing the top yielding variety found in this publication may or may not be the best yielding variety for your style of production. Please also consider test weight and moisture readings, as these affect yield. One would be advised 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 and yield results. 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.



2020 Brunswick County Wheat Variety Plot

Cooperators:	Producer:	William and Howard Wright, Mallory "Bo" Blackwell
	Extension:	Taylor Clarke, ANR – Mecklenburg
		Lindy Fimon, ANR – Lunenburg

Previous Crop:	soybean
Soil Type:	Appling-Mattaponi Complex
Tillage:	No-till
Planter/Row Width:	JD 750 drill / 7.5"
Planting Date:	November 29, 2019
Planting Population:	150 lbs. seed/ac
Fertilizer:	fall: 20 lbs. N from soybean residue credits
	<u>at planting</u> : 30-70-100
	<u>spring top-dress</u> - 100 lb. N (total $N = 150$ lbs)
Crop Protection:	<u>burndown</u> - Roundup
	<u>spring</u> - Powerflex
Harvest Date:	June 22, 2019

Variety	Test Weight	Moisture	Yield
	(Lbs./Bu.)	(%)	Bu./A @13.5%
Va 14 HRW-41	56.6	12.3	67.7
Southern Harvest 7200	56.5	13.0	67.2
Southern Harvest 7510	56.4	12.1	66.7
Progeny Fury	56.2	12.3	66.1
Liberty 5658	56.7	12.7	65.8
Progeny Berkeley	55.0	11.9	64.8
Pioneer 26R10	56.0	12.9	63.8
Dyna Gro 9932	56.4	12.5	63.1
Nutrien Shirley	55.4	12.7	61.6
HUBNER H400	54.6	12.7	60.8
HUBNER H350	54.2	12.6	60.6
USG 3228	55.2	12.8	57.3
USG 3790	56.6	12.5	56.7
Pioneer 26R59	53.9	12.5	55.5
Average	55.69	12.54	62.69

Discussion: The overall test average was 61.9 bushels/acre. The three check plots of Dyna Gro 9701 averaged 58.3 bushels/acre. The test varieties averaged 62.69 bushels/acre. The Pioneer 26R59 plot had noticeable more deer damage than other adjacent plots.



2020 New Kent County Wheat Variety Plot

Cooperators:	Producer: Da	avis Farms		
	Extension: Pa	ul Davis, ANR retire	d - New Kent	
Previous Crop:	field cor	n		
Soil Type:	Altavista	a Fine Sandy Loam		
Tillage:		gged, then turbo tilled	1	
Planter/Row Width		2" row width		
Planting Date:	Novemb	er 1, 2019		
Planting Population	1: 28-30 se	ed/row (~2.65 bu. se	ed/acre)	
Fertilizer:		- 30-60-80		
	<u>Dec 5</u> - 1			
	<u>Dec 28</u> -	20# N w/Impact F		
	<u>Feb 18</u> –	- 40# N		
	<u>Mar 14</u> -	- 50# N	(total N = 170 lbs)	
Crop Protection:	<u>Oct 28</u> –	36 oz. Glyphosate		
	<u>Dec 5</u> – 1	2.5 oz Metribuzine		
	<u>Jan 11</u> –	2 oz Powerflex w/ 1	5# N	
	<u>Apr 21</u> –	<u>Apr 21</u> – 13.7 oz Miravis Ace		
Harvest Date:	June 26,	2020		
		EE = equipment		
Variety		Test Weight	Moisture	
		(Lbs./Bu.)	(%)	B
Pioneer P26R59))	EE	14.1	
Cropland 9606		EE	13.5	
Liberty 5658		EE	13.9	
USG 3790		EE	13.0	
Hubner H400		EE	13.0	

Variety	Test Weight	Moisture	Yield
	(Lbs./Bu.)	(%)	Bu./A @13.5%
Pioneer P26R59	EE	14.1	112.6
Cropland 9606	EE	13.5	109.5
Liberty 5658	EE	13.9	106.4
USG 3790	EE	13.0	104.8
Hubner H400	EE	13.0	99.5
Dyna-Gro 9932	EE	13.2	98.8
Nutrien Shirley	EE	13.4	96.2
Pioneer P26R10	EE	13.5	94.5
V14 HRW-41	EE	15.1	94.5
Hubner H350	EE	13.3	94.0
Croplan 8550	EE	13.5	93.0
Southern Harvest SH7200	EE	14.3	92.4
USG 3228	EE	12.8	91.2
Southern Harvest SH7510	EE	13.4	91.2
Progeny Berkley	EE	12.9	90.2
HRW Vision 45	EE	16.0	89.4
V14 HRW-25	EE	14.1	84.9
Progeny Fury	EE	12.9	84.7
Average	N/A	13.52	95.99

Discussion: Exceptional yields. The average yield for these varieties amounted to 95.99 bushels per acre, which was 12.44 bushels per acre higher than the second highest location average yield. As seen, this plot was spoon fed often with small amounts of UAN and crop protection was not withheld. This producer firmly believes that Dr. Carl Griffey's proven research on later planting dates leads to higher wheat yields.

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2020 Culpeper County Wheat Variety Plot

Cooperators:	Producer: Ashland Farm, Scott and Andrew Smith Extension: Carl Stafford, ANR - Culpeper Mike Broaddus, ANR – Caroline/King George
Previous Crop:	field corn
Soil Type:	Penn (9B & 45B)
Tillage:	no-till (after preplant rip)
Planter/Row Width:	7.5 inches
Planting Date:	October 15, 2019
Planting Population	180 lb. seed/acre
Fertilizer (per acre):	3 tons poultry litter (30-30-30) provided 90 lbs N
¥ /	plus 15 gal/ac UAN 30 with herbicide (50 units N) (total N = 140 lbs)
Crop Protection:	burn down - 36 oz. Roundup, 16 oz. Gramaxone, 1 oz. Silspread Sticker.
1	Feb67 oz/ac Harmony Extra, 0.1 oz. Plotter, 0.25 oz. Silspread Sticker
	<u>Apr</u> - 5 oz. Stratego YLD, 1 qt. Fungi-Phite, 8 oz. Prosaro, 1 oz. Silspread
Harvest Date:	July 1, 2020

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
Croplan CP 9606	58.5	12.4	97.2
USG 3228	58.0	13.7	96.7
Hubner H400	59.0	12.9	88.6
Pioneer 26R59	57.0	13.4	87.2
V14 HRW-25	57.5	13.7	85.6
Southern Harvest 7510	57.0	13.2	84.6
Southern Harvest 7200	57.0	13.7	83.8
USG 3790	58.0	12.6	82.8
Croplan 8550	60.0	12.6	77.6
VA14 HRW 41	57.0	12.6	74.7
Hubner H350	58.0	12.9	74.4
Pioneer 26R10	58.5	13.9	69.4
Average	57.96	13.13	83.55

Discussion: Very good yields for Culpeper wheat in 2020. Although the May 8 freeze affected Culpeper County as a whole, it appears many varieties on this on-farm plot was planted early enough to have escaped severe pollination freeze damage from the freeze.



2020 Northumberland County Wheat Variety Plot

Cooperators: Pro	oducer: Alan and Justin Welch
Ext	tension: Trent Jones, ANR – Lancaster/Northumberland
Previous Crop:	field corn
Soil Type:	Sassafras Fine Sandy Loam
Tillage:	minimum tillage
Planter/Row Width:	15 ft. John Deere Drill, 7.5 in. row spacing
Planting Date:	November 25, 2019
Planting Population:	200 lb. seed / acre
Fertilizer:	<u>Feb 3</u> – Broadcast 60 lbs. N (28-0-0-5)
	<u>Mar 22</u> – Broadcast 64 lbs. N (28-0-0-5) + B, Zn, & Mn + 1 gal. Hydra Hume
	(total N = 124 lbs)
Crop Protection:	Mar 12 – 16.4 oz. Axial XL, 1 oz. Sentrallis, 2 oz. Priaxor
-	May 2 – 2 oz. Sultrus, 13.7 oz. Miravice Ace, 1 gal. CORON
Harvest Date:	July 6, 2020

Variety	Test Weight (Lbs./Bu.)	Moisture (%)	Yield Bu./A @13.5%
Nutrien Shirley	59.0	13.4	103.7
Pioneer 26R59	58.5	13.7	101.9
USG 3228	58.5	13.5	100.3
Croplan CP9606	60.5	13.6	93.1
USG 3790	59.5	14.2	91.4
Progeny Fury	59.5	12.5	91.2
Pioneer 26R10	58.5	13.7	90.6
Hubner H400	60.0	13.5	89.2
Progeny Berkeley	59.0	12.9	86.4
Hubner H350	61.0	12.6	85.5
Dyna Gro 9932	61.0	11.5	82.7
Southern Harvest 7200	59.0	14.0	82.5
Croplan CP8550	61.0	12.2	82.5
Liberty 5658	59.5	13.8	81.6
Southern Harvest 7510	60.0	13.8	81.3
VA 14 HRW-41	61.0	12.9	79.2
Average	59.63	13.24	89.94

Discussion: Producers should use this plot as a good example of the performance of late planted wheat in Eastern Virginia. Mild conditions in early winter allowed for decent vegetative growth prior to the arrival of colder temperatures later in the winter. This plot was not affected by late spring frosts that severely impacted wheat fields in other areas of Virginia.



2020 Westmoreland County Wheat Variety Plot

Cooperators:	Producer: F.F. Chandler, Jr. and Louis Chandler Extension: Stephanie Romelczyk, ANR – Westmoreland Trent Jones, ANR – Northumberland/Lancaster Mike Broaddus, ANR – King George/Caroline Robbie Longest, ANR - Essex Skylar Swann, VCE Intern
Previous Crop:	Corn
Soil Type:	Suffolk Sandy Loam
Tillage:	No-till
Planter/Row Width:	7.5 inches
Planting Date:	November 6, 2019
Planting Population:	36 seeds per foot (~3 bushels/acre)
Fertilizer:	<u>Oct</u> - 30-80-80-5S <u>Feb</u> – 40-0-0-12.5S <u>Mar</u> – 70-0-0-8.5S + 1 gal B.L.Zn
	May - 1 gal Max N-Pact K (total N = 140 lbs)
Crop Protection:	Pre-plant: Gramoxone 3pts/A + Liberate ³ / ₄ pt/A + Finesse 0.4oz/A + Sharpen
	10z/A <u>Feb</u> - Quelex 0.750z/A + Liberate ½ pt/100gal <u>Mar</u> - Fitness 40z/A
	May - Miravis Ace 13.7oz/A + Tombstone 1.5oz/A in
Harvest Date:	July 6, 2020

Variety	Test Weight	Moisture	Yield	
	(Lbs/Bu.)	(%)	Bu./A @13.5%	
USG 3790	59.9	13.3	91.1	
Hubner H400	60.7	13.5	89.1	
Nutrien Shirley	60.9	12.9	88.7	
Croplan 8550	59.1	13.1	86.3	
Croplan 9606	60.0	13.3	82.6	
Hubner H350	60.4	13.1	81.6	
Southern Harvest 7200	61.9	13.4	80.8	
DynaGro 9932	60.3	12.7	80.0	
Pioneer 26R59	59.1	14.1	79.7	
Progeny Fury	59.0	12.0	78.6	
Pioneer 26R10	61.3	13.4	77.7	
Southern Harvest 7510	61.0	12.5	71.2	
VA 14HRW-41	60.8	11.8	64.3	
Liberty 5658	60.6	12.4	61.2	
USG 3228	56.8	12.1	35.8	
Progeny Berkeley	59.9	12.0	34.1	
Average	60.11	12.85	73.93	



Discussion: Temperatures below 32 degrees over May 9 and 10 caused severe yield damage on varieties that were pollinating at that time. Although head damage was not visible from afar, inspection of wheat heads indicated that the majority of kernels on affected varieties did not fill.



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2020 Goochland County Wheat Variety Plot

Cooperators:	Producer: Alvis Farms Extension: Nicole Shuman, ANR – Goochland Rachel Henley, ANR - Powhatan Robbie Longest, ANR – Essex Mike Broaddus, ANR – Caroline/King George
Previous Crop:	Soybeans
Soil Type:	Fluvanna Fine Sandy Loam (11B2, 11C2)
Tillage:	No-Till
Planter/Row Width	7.5 inches
Planting Date:	November 15, 2020
Planting Population	: 3 bu/acre
Fertilizer:	fall: 20 lbs N from soybean N credits
	fall: 30-40-60-23S w/1.3B - 6.5 Zn - 0.2 Cu
	$Mar 27 - 45 lbs. URAN \qquad (total N = 95 lbs)$
Crop Protection:	Jan 30 – 4 oz. Dicamba, 1 pt. Impact
	Mar 27 – 4 oz Silencer, 4 oz. Tebuster, 1 pt. Maxgrow stimulant,
	1 pt. CarboMax
	<u>May 3</u> – 8 oz. Prosaro
Harvest Date:	July 27, 2020

Test Weight Moisture Yield Variety (Lbs./Bu.) Bu./A @13.5% (%) USG 3790 58.0 12.4 72.3 Progeny Fury 58.5 11.9 52.3 Hubner 400 57.5 12.8 51.6 Hubner 350 58.9 12.8 42.9 Dyna Gro 9932 57.7 11.9 37.8 Liberty 5658 57.5 12.0 33.8 Southern Harvest 7510 58.8 12.1 29.4 58.7 Nutrien DG Shirley 11.6 28.6 Pioneer 26R10 58.0 11.8 27.8 VA 14HRW41 59.4 12.1 23.8 Pioneer 26R59 58.9 11.5 20.6 **USG 3228** 57.3 11.4 14.4 **Progeny Berkeley** 58.5 11.7 9.3 Southern Harvest 7200 57.3 3.4 11.6 58.21 11.97 32.00 Average



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Discussion: This plot was planted a little later than ideal, but due to the mild winter, the crop was still able to establish itself well. However, on May 8 there was a hard freeze that resulted in substantial damage to wheat across the county, and most varieties in this test plot were no exception. Varieties that were pollinating at that time were hit hardest. The delay in harvest also contributed to yield loss in many varieties due to increased shattering. This plot may provide good data to those who plant or harvest wheat later than normal.



2020 Virginia Cooperative Extension On-Farm Wheat Variety Plot

<u>Test Weight Summary</u> (pounds/bushel)

Test Weight Summary (pounds/bushel)								
	(NP=No	ot Planted) (EE=	equipment error)	(*=New Kent average no	t including Vision 45)			
Variety	Brunswick	New Kent	Culpeper	Northumberland	Westmoreland	Goochland	Variety	
	(14 var.)	(17 var.)	(12 var.)	(16 var.)	(16 var.)	(14 var.)	average	
Croplan 8550	NP	EE	60.0	61.0	59.1	NP	60.03	
Croplan 9606	NP	EE	58.5	60.5	60.0	NP	59.67	
Dyna Gro 9932	56.4	EE	NP	61.0	60.3	57.7	58.85	
Nutrien Shirley	55.4	EE	NP	59.0	60.9	58.7	58.50	
Liberty 5658	56.7	EE	NP	59.5	60.6	57.5	58.57	
Progeny Berkley	55.0	EE	NP	59.0	59.9	58.5	58.10	
Progeny Fury	56.2	EE	NP	59.5	59.0	58.5	58.30	
Hubner H350	54.2	EE	58.0	61.0	60.4	58.9	58.50	
Hubner H400	54.6	EE	59.0	60.0	60.7	57.5	58.36	
Pioneer 26R59	53.9	EE	57.0	58.5	59.1	58.9	57.48	
Pioneer 26R10	56.0	EE	58.5	58.5	61.3	58.0	58.46	
Southern Harv. 7200	56.5	EE	57.0	59.0	61.9	57.3	58.34	
Southern Harv. 7510	56.4	EE	57.0	60.0	61.0	58.8	58.64	
USG 3790	56.6	EE	58.0	59.5	59.9	58.0	58.40	
USG 3228	55.2	EE	58.0	58.5	56.8	57.3	57.16	
VA 14 HRW 41	56.6	EE	57.0	61.0	60.8	59.4	58.96	

NP

59.63

NP

60.11

NP

58.21

57.50

57.5

57.96

VA 14 HRW 25

Location Average

NP

55.69

EE

N/A

2020 Virginia Cooperative Extension On-Farm Wheat Variety Plot

<u>Yield Summary</u> (bushels/acre @ 13.5%)

(NP=Not Planted) (EE=equipment error) (* = New Kent average not including Vision 45)

Variety	Brunswick	New Kent	Culpeper	Northumberland	Westmoreland	Goochland	Variety
	(14 var.)	(17 var.)	(12 var.)	(16 var.)	(16 var.)	(14 var.)	average
Croplan 8550	NP	93.0	77.6	82.5	86.3	NP	84.85
Croplan 9606	NP	109.5	97.2	93.1	82.6	NP	95.60
Dyna Gro 9932	63.1	98.8	NP	82.7	80.0	37.8	72.48
Liberty 5658	65.8	106.4	NP	81.6	61.2	33.8	69.76
Nutrien Shirley	61.6	96.2	NP	103.7	88.7	28.6	75.76
Progeny Berkley	64.8	90.2	NP	86.4	34.1	9.3	56.96
Progeny Fury	66.1	84.7	NP	91.2	78.6	52.3	74.58
Hubner H350	60.6	94.0	74.4	85.5	81.6	42.9	73.17
Hubner H400	60.8	99.5	88.6	89.2	89.1	51.6	79.80
Pioneer 26R59	55.5	112.6	87.2	101.9	79.7	20.6	76.25
Pioneer 26R10	63.8	94.5	69.4	90.6	77.7	27.8	70.63
S. Harvest 7200	67.2	92.4	83.8	82.5	80.8	3.4	68.35
S. Harvest 7510	66.7	91.2	84.6	81.3	71.2	29.4	70.73
USG 3790	56.7	104.8	82.8	91.4	91.1	72.3	83.18
USG 3228	57.3	91.2	96.7	100.3	35.8	14.4	65.95
VA 14 HRW 41	67.7	94.5	74.7	79.2	64.3	23.8	67.37
VA 14 HRW 25	NP	84.9	85.6	NP	NP	NP	85.25
Location Average	62.69	96.38*	83.55	88.94	73.93	32.00	

2020 Virginia Cooperative Extension On-Farm Wheat Variety Plot

2020 Variety Disease Resistance Traits

Information courtesy of manufacturer's breeding data, and Small Grains in Virginia, 2020, Virginia Tech Wheat Test, 2018, 2019, and 2020 harvest data (Thomason, et all)

Cultivar	Maturity (days)	Height (in)	FHB index*	Powd. Mild.*	Leaf rust*	Septoria*
Croplan 8550	121	39	2.0	1.0	1.0	1.0
Croplan 9606	118	38	2.9	1.8	2.9	3.7
Dyna Gro 9932	116	36	1.0	2.0	2.0	2.0
Progeny Berkley	113	37	0.7	0.3	0.8	4.3
Progeny Fury	116	35	4.0	2.0	2.0	2.0
Hubner H350	120	35	3.0	4.0	2.0	2.0
Hubner H400	120	37	1.0	3.0	1.0	3.0
Pioneer 26R59	118	36	4.1	1.0	2.1	2.3
Pioneer 26R10	121	33	2.0	3.0	5.0	2.0
Southern Harv. 7200	114	32	4.0	2.0	1.0	2.0
Southern Harv. 7510	121	31	2.0	2.0	1.0	1.0
USG 3790	120	38	5.3	0.3	1.9	3.3
USG 3228	114	36	1.0	3.0	3.0	2.0
VA 14 HRW 41	117	35	N/A	N/A	N/A	N/A
VA 14 HRW 25	113	39	1.9	1.8	0.0	2.3

*(0=highly resistant; 9=highly susceptible)

	SEEDS PER 7 1/2" ROW FOOT								
	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			

<u>References</u>

- Small Grains in VA, 2020 (Thomason, W., et all)
 - o <u>https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/spes/spes-227/SPES-227.pdf</u>

