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## Virginia On-Farm Soybean Research

*A summary of replicated research conducted by  
Virginia Cooperative Extension in cooperation with local producers and agribusiness*

# 2022



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## Introduction

These results are a collaborative effort of Virginia Cooperative Extension (VCE) Agents and Specialists, area producers, and agribusiness. The purpose of this publication is to provide research-based information to aid in the decision-making process for soybean producers in Virginia. It provides an unbiased evaluation of varieties, management practices, and new technologies through on-farm replicated research using producer equipment and time. These experiments enable producers to make better management decisions based on research and provide greater opportunities to improve yields and profits, which improves quality of life for them and their families.

The success of these on-farm experiments is very dependent on the cooperative effort of the producer and the assisting agribusinesses. We are grateful for that cooperation. We hope the information will be beneficial to you and your individual agribusiness operations. This publication is made available each year at the Virginia Grain and Soybean Conference, at regional production meetings throughout Virginia, and on the VCE website (<http://pubs.ext.vt.edu>). This information reaches hundreds of Virginia soybean and grain producers plus agribusinesses, impacting over 550,000 acres of soybeans valued at approximately \$200 million.

The field work and printing of this publication is supported by Virginia Soybean Board Check-Off Funds. The cooperators graciously wish to acknowledge this support. Any person, producer or agribusiness professional wishing to receive a copy of this publication or needing a more accessible version should contact their local Extension Agent who can make the request to Stephanie Romelczyk in Westmoreland County at 804-493-8924 or [sromelcz@vt.edu](mailto:sromelcz@vt.edu).

This is the 26th year of this multi-county cooperative effort and further work is planned for 2023. The authors wish to thank the many producers who participated in this project. Appreciation is extended to seed, crop protection, and fertilizer representatives who donated products and/or assisted with the field work.



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## Table of Contents

<b>GENERAL SUMMARY</b> .....	<b>5</b>
Trait Data for 2022 VCE On-farm MG4 & MG5 Soybean Varieties .....	6
Trait Data for 2022 VCE On-farm MG3 Soybean Varieties .....	7
Trait Data for 2022 VCE On-farm Soybean Varieties Enlist & LibertyLink.....	8
Seed Treatment Data for On-Farm Soybean Variety Comparisons .....	9
Soybean Herbicide Systems and Herbicide Selection Chart.....	10
.....	10
<b>MATURITY GROUP 4 VARIETY COMPARISONS</b> .....	<b>11</b>
2022 Overall Group 4 Comparison .....	12
Caroline County AG EXPO Maturity Group 4 Soybean Comparisons.....	13
Cities of Chesapeake/Virginia Beach Maturity Group 4 Soybean Comparisons.....	14
Culpeper County Maturity Group 4 Soybean Comparisons .....	15
Halifax County Maturity Group 4 Soybean Comparisons .....	16
Prince George County Maturity Group 4 Soybean Comparisons .....	17
City of Suffolk Maturity Group 4 Soybean Comparisons .....	18
Westmoreland County Maturity Group 4 Soybean Comparisons .....	19
<b>MATURITY GROUP 5 VARIETY COMPARISONS</b> .....	<b>20</b>
2022 Overall Group 5 Comparisons .....	21
Appomattox County Maturity Group 5 Soybean Comparisons .....	22
Brunswick County Maturity Group 5 Soybean Comparisons.....	23
Charlotte County Maturity Group 5 Soybean Comparisons .....	24
Cities of Chesapeake/Virginia Beach Maturity Group 5 Soybean Comparisons.....	25
Mecklenburg County Maturity Group 5 Soybean Comparisons .....	26
Prince George County Maturity Group 5 Soybean Comparisons .....	27
City of Suffolk Maturity Group 5 Soybean Comparisons .....	28
<b>Other Soybean Weed Control System Tests</b> .....	<b>29</b>
Brunswick County LibertyLink Soybean Comparisons .....	30
Brunswick County XtendFlex Soybean Comparisons .....	31
<b>Other Research</b> .....	<b>32</b>
2022 Overall Group 3 Comparisons .....	33
Caroline County AG EXPO Maturity Group 3 Soybean Study .....	34
Prince George Biological Soybean Seed Treatment Study.....	35
Middlesex Conventional Double-Cropped Soybean Variety Study.....	36
Mecklenburg Nematode Soybean Seed Treatment Study .....	37
Brunswick Nematode Soybean Seed Treatment Study .....	38
Westmoreland and Essex Counties Rappahannock River Salinity Monitoring .....	39
Nottoway County Maturity Group 4 Soybean Disease Comparisons .....	42
Nottoway County Maturity Group 5 Soybean Disease Comparisons .....	44
Nottoway County LibertyLink Soybean Disease Comparisons .....	46
Threecornered Alfalfa Hopper Study .....	48

**PHOTOS:** Courtesy of Lindy Fimon, Laura Siegle, Robbie Longest, and Stephanie Romelczyk

## GENERAL SUMMARY

These replicated studies provide information that can be used by Virginia soybean producers to make better management decisions. Refer to individual tests for a discussion of results.

First, we would like to thank everyone that participated in on-farm plot work: seed and input suppliers for providing materials for the trials; our farmer-cooperators for supplying equipment, land, and patience to get these tests from planting to harvest; the Virginia Soybean Board for funding to assist with expenses; Extension Agents for securing locations, hauling seed, and sending in data; and you, the soybean grower, for showing interest in our work and taking time to review this publication.

Weather conditions dominate every crop year and 2022 was no different. Early season conditions were generally favorable across the Commonwealth. For most locations, mid-August through September was a period of extended drought with 50% of the state rated abnormally dry to severe drought by September 27. The Southern Piedmont was especially hard hit by drought conditions starting in June. The dry conditions late in the season tended to affect later maturing varieties more than early maturity varieties. Selecting varieties for your soil and climate conditions is imperative.

Maturity Group (MG) 4 & 5 varieties were compared across multiple locations in 2022. This work is performed in concert with the Official Variety Tests conducted by Dr. David Holshouser and offers producers even stronger yield comparison information that they can use when making planting decisions.

Roundup Ready 2 XtendFlex soybeans constituted the majority of varieties submitted for testing. Fifteen of 20 varieties carried the XtendFlex trait in the MG 4 tests and 8 of 16 in the MG 5 tests. The LibertyLink trials were all Enlist E3 varieties. Additional traits for herbicide tolerance, nematodes, and disease tolerance can be found in the accompanying tables. Weed control system, nematode resistance, and disease package should be considered when selecting varieties for 2023.

Several additional trials were also conducted. Nematode resistant varieties and seed treatments were compared at two locations. No yield response was observed with overall yields in the mid-30s. A biological seed treatment test was established in Prince George with no yield response to the treatment. All of the on-farm soybean varieties were also planted at the Southern Piedmont AREC (Research Center) and evaluated for frogeye leaf spot and cercospora leaf blight.

There continues to be interest in non-GMO soybean markets. A trial was planted in Middlesex County to evaluate conventional soybean varieties. Specialty marketing programs often pay a premium for non-GMO soybeans.

A special report is included on salinity levels in the Rappahannock River. This monitoring is conducted by local agents and shows the importance of water quality for irrigation. A project on Threecornered Alfalfa Hopper (3CAH) was conducted by an agent as part of her Master's program. 3CAH can be a serious early season pest especially when soybeans are planted near large areas of hay.

We hope you find this information useful. If you have ideas for 2023 on-farm research or would like to be a cooperator in 2023, please contact your local Virginia Cooperative Extension Agriculture Agent.

## Trait Data for 2022 VCE On-farm MG4 & MG5 Soybean Varieties Roundup Ready 2 Xtend & XtendFlex

<u>Brand</u>	<u>Variety</u>	<u>Relative Maturity</u>	<u>Herbicide Traits</u>	<u>Soybean Cyst Nematode</u>	<u>Root Knot Nematode</u>	<u>Frogeye leafspot</u>	<u>Sudden death syndrome</u>	<u>Brown stem rot</u>	<u>Southern Stem Canker</u>
Asgrow	AG46XF2	4.6	XF/SR	R3	S	G	G	-	F
Asgrow	AG48XF2	4.8	XF	R3	S	G	F	-	VG
Pioneer	P46A86X	4.6	X	R	MS	VG	G	MS	VG
Pioneer	P47A25BX	4.7	X/BOLT	R	-	-	G	MS	-
USG	7461XFS	4.6	XF/STS	R	S	S	MR	-	R
Hubner	H47-30XF	4.7	XF/SR	R	S	VG	G	-	VG
Hubner	H48-31XF	4.8	XF/SR	R	S	G	G	-	G
Dyna Gro	S48XF61S	4.8	XF/STS	R3,MR14	S	F	G	-	E
Dyna Gro	S46XF31S	4.6	XF/STS	R3,MR14	S	-	G	-	E
Progeny	P 4821RX	4.8	X	R3,MR14	S	MR	MR	-	MR
Progeny	P 4604XFS	4.6	XF/STS	R	S	-	MR	-	R
Revere Seed	4606XFS	4.6	XF/SR	R3,MR14	S	-	VG	-	R
Revere Seed	4806XS	4.8	X/SR	R3	S	VG	E	-	R
NK Seed	NK45-P9XF	4.5	XF	R3	MS	VG	G	G	E
NK Seed	NK44-J4XFS	4.4	XF/STS	MR3	MS	G	G	VG	E
MorSoy	MS 4640 XF	4.6	XF/STS	MS	S	-	G	-	E
MorSoy	MS 4852 XF	4.8	XF/STS	MR	S	VG	VG	-	S
DONMARIO Seeds	DM45X61S	4.5	X/SR	R	-	VG	VG	-	R
AgriGold	G 4615XF	4.6	XF/STS	R	S	F	VG	-	E
AgriGold	G 4813XF	4.8	XF/STS	R	S	F	F	-	E

Asgrow	AG53XF2	5.3	XF	R3	S	G	G	-	VG
Asgrow	AG54XF0	5.4	XF/SR	S	MR-MS	F	G	-	VG
Pioneer	P52A05X	5.2	X	R	R	G	VG	MS	G
Pioneer	P54A36SX	5.4	X/STS	-	R	-	-	MS	VG
USG	7562XF	5.6	XF	MR3	MS	MR	MR	-	R
Hubner	H51-22XF	5.1	XF/SR	R	R	G	G	-	
Dyna Gro	S56XT99	5.6	X	R1,R3	G	VG	G	-	G
Dyna Gro	S54XF62	5.4	XF	R3,MR14	G	-	VG	-	E
Progeny	P 5252RX	5.2	X	S	S	MR	MR	-	R
Progeny	P 5554RX	5.5	X	R1,3	R	R	MR	-	MR
Revere Seed	5029XF	5.0	XF	R3,MR14	S	A	A	-	R
Revere Seed	5386X	5.3	X	R3,MR14	MS	VG	G	-	R
NK Seed	S52-Y7X	5.2	X	MR3,MR14	R	G	G	-	VG
NK Seed	NK57-A3XF	5.7	XF	R3	MS	VG	G	VG	E
MorSoy	MS 5398 RXT	5.3	X	MS	S	G	VG	-	R
MorSoy	MS 5640 XF	5.6	XF	MS	R	VG	G	-	S

R = Resistant  
 S = Susceptible  
 MR = Moderately resistant  
 M = Moderate  
 MS = Moderately susceptible  
 X = Roundup Ready 2 Xtend  
 XF = Roundup Ready 2 XtendFlex  
 STS, SR, or BOLT = Tolerant to sulfonylurea herbicides

No entry for a particular trait means that no information was provided or trait has not been rated by the company.

All ratings were taken from company literature available in current catalogs or websites.

## Trait Data for 2022 VCE On-farm MG3 Soybean Varieties Roundup Ready 2 Xtend & XtendFlex

<u>Brand</u>	<u>Variety</u>	<u>Relative Maturity</u>	<u>Herbicide Traits</u>	<u>Soybean Cyst Nematode</u>	<u>Root Knot Nematode</u>	<u>Frogeve leafspot</u>	<u>Sudden death syndrome</u>	<u>Brown stem rot</u>	<u>Southern Stem Canker</u>
Pioneer	P39A58X	3.9	X	R	-	G	G	-	G
Pioneer	P38A92X	3.8	X	R	-	E	-	HT	-
DynaGro	S38XF22S	3.8	XF/STS	MR3	S	VG	VG	-	E
DynaGro	S39XF41	3.9	XF/STS	MR3	-	VG	G	-	E
USG	7392XFS	3.9	XF/STS	MR3, MS14	S	S	MS	-	R
Revere Seed	3908XFS	3.9	XF/SR	MR3	S	F-G	-	-	R
Asgrow	AG35XF1	3.5	XF	R3	-	G	G	VG	VG
Asgrow	AG38XF1	3.8	XF	R3	-	VG	G	-	VG

R = Resistant  
 S = Susceptible  
 MR = Moderately resistant  
 M = Moderate  
 MS = Moderately susceptible  
 HT = Highly tolerant  
 X = Roundup Ready 2 Xtend  
 XF = Roundup Ready 2 XtendFlex

No entry for a particular trait means that no information was provided or trait has not been rated by the company.

All ratings were taken from company literature available in current catalogs or websites.

## Trait Data for 2022 VCE On-farm Soybean Varieties Enlist & LibertyLink

<u>Brand</u>	<u>Variety</u>	<u>Relative Maturity</u>	<u>Herbicide Traits</u>	<u>Soybean Cyst Nematode</u>	<u>Root Knot Nematode</u>	<u>Frogeye leafspot</u>	<u>Sudden death syndrome</u>	<u>Brown stem rot</u>	<u>Southern Stem Canker</u>
Pioneer	P53T90E	5.3	E3	R	MS	-	G	HT	VG
Pioneer	P49T62E	4.9	E3/STS	R	S	G	G	MS	VG
Pioneer	P48A14E	4.8	E3	R	-	F	G	HT	G
Dyna Gro	S45ES10	4.5	E3/STS	R3, MR14	S	VG	G	-	E
Dyna Gro	S49EN12	4.9	E3	R3, MR14	S	VG	G	-	E
Dyna Gro	S51EN62	5.1	E3	S	S	VG	VG	-	E
MorSoy	MS 5110 E	5.1	E3	MS	S	VG	G	-	E
MorSoy	MS 5461 E	5.4	E3	MS	-	-	-	-	E
Revere Seed-Innotech	IS4737E3	4.7	E3	R3, MR14	S	G	-	-	R
Revere Seed	4927E3S	4.9	E3/SR	S	S	E	E	-	R
Revere Seed-Innotech	IS5360E3	5.3	E3	R3, MR14	S	G	-	-	MR
Revere Seed	5429E3	5.4	E3	R3, MR14	S	E	E	-	R
Progeny	P 4775 E3S	4.7	E3/STS	R3, MR14	S	MR	-	-	R
Progeny	P 5521 E3	5.5	E3	-	S	-	-	-	R
Southern Harvest	SH 4622 E3	4.6	E3/STS	S	S	VG	VG	MR	R
Southern Harvest	SH 5223 E3	5.2	E3	R	S	G	-	MR	R
Southern Harvest	SH 5523 E3	5.5	E3	R	S	G	VG	-	R
DONMARIO Seeds	DM46E62	4.6	E3/SR	S	-	VG	VG	-	R
USG	7451ET	4.5	E3	MS3	MS	MR	MR	-	R
USG	7542ET	5.4	E3	R3, MR14	S	MR	MR	-	R
AgriGold	G 4881 E3	4.8	E3	R	R	VG	G	-	E
AgriGold	G 4655 E3	4.6	E3/STS	R	S	VG	G	-	E

R = Resistant  
 S = Susceptible  
 MR = Moderately resistant  
 M = Moderate  
 MS = Moderately susceptible  
 E3 = Enlist E3  
 STS or SR = Tolerant to sulfonylurea herbicides

No entry for a particular trait means that no information was provided or trait has not been rated by the company.

All ratings were taken from company literature available in current catalogs or websites.



# Seed Treatment Data for On-Farm Soybean Variety Comparisons

Seed Treatments on Submitted Varieties							
Brand	Variety	Treatment Brand Name (Contents)	Insecticide	Fungicide	Nematicide	Inoculant	Biological
			None				
Asgrow	AG46XF2	Acceleron Seed Applied Solutions (Standard)	X	X			
Asgrow	AG48XF2	Acceleron Seed Applied Solutions (Standard)	X	X			
Pioneer	P46A86X	Lumisena + ILEVO ( B. subtilis, pumilis, amyloliquifaciens)	X	X	X		X
Pioneer	P47A25BX	Lumisena + ILEVO ( B. subtilis, pumilis, amyloliquifaciens)	X	X	X		X
USG	7461XFS	Apron Max	X				
Hubner	H47-30XF	Acceleron Seed Applied Solutions (Standard)	X	X			
Hubner	H48-31XF	Acceleron Seed Applied Solutions (Standard)	X	X			
Dyna Gro	S48XF61S	Vibrance Trio + DynaStart 3P		X		X	X
Dyna Gro	S46XF31S	Vibrance Trio + DynaStart 3P		X		X	X
Progeny	P 4821RX	Poncho/Votivo, Obvious Plus	X	X	X		
Progeny	P 4604XFS	Poncho/Votivo, Obvious Plus	X	X	X		
Revere Seed	4606XFS	Radius Premium + inoculant	X	X		X	
Revere Seed	4806XS	Radius Premium + inoculant	X	X		X	
NK Seed	NK45-P9XF	Cruiser Max Beans + Vibrance + Salstro	X	X	X		
NK Seed	NK44-J4XFS						
MorSoy	MS 4640 XF	Avicta Complete + Preside Ultra inoculant	X	X	X	X	
MorSoy	MS 4852 XF	Avicta Complete + Preside Ultra inoculant	X	X	X	X	
DONMARIO Seeds	DM45X61S	Magnum ST System		X			
AgriGold	G 4615XF	AgriShield Plus	X	X			
AgriGold	G 4813XF	AgriShield Plus	X	X			
Asgrow	AG53XF2	Acceleron Seed Applied Solutions (Standard)	X	X			
Asgrow	AG54XF0	Acceleron Seed Applied Solutions (Standard)	X	X			
Pioneer	P52A05X	Lumigen Lumisena ( B. pumilis, amyloliquifaciens)	X	X			X
Pioneer	P54A36SX	Lumigen Lumisena ( B. pumilis, amyloliquifaciens)	X	X			X
USG	7562XF	RenPro Plus Riznate Seed Treatment Package	X	X			X
Hubner	H51-22XF	Acceleron Seed Applied Solutions (Standard)	X	X			
Dyna Gro	S56XT99	Vibrance Trio + DynaStart 3P		X		X	X
Dyna Gro	S54XF62	Vibrance Trio + DynaStart 3P		X		X	X
Progeny	P 5252RX	Poncho/Votivo, Obvious Plus	X	X	X		
Progeny	P 5554RX	Poncho/Votivo, Obvious Plus	X	X	X		
Revere Seed	5029XF	Radius Premium + inoculant	X	X		X	
Revere Seed	5386X	Radius Premium + inoculant	X	X		X	
NK Seed	S52-Y7X						X
NK Seed	NK57-A3XF						X
MorSoy	MS 5398 RXT	Avicta Complete + Preside Ultra inoculant	X	X	X	X	
MorSoy	MS 5640 XF	Avicta Complete + Preside Ultra inoculant	X	X	X	X	

# Soybean Herbicide Systems and Herbicide Selection Chart

	<b>Glyphosate</b> (Group 9) EPSP Synthase Inhibitor	<b>Glufosinate</b> (Group 10) Glutamine Synthetase Inhibitor	<b>Dicamba</b> (Group 4) Synthetic Auxin - Benzoic acid	<b>2,4-D choline</b> (Group 4) Synthetic Auxin - Phenoxy	<b>Sulfonylureas</b> (Group 2) ALS Inhibitors	<b>Isoxaflutole</b> (Group 27) HPPD Inhibitors
	Roundup brands <i>Generics</i>	Liberty <i>Generics</i>	XtendiMax Engenia Tavium	Enlist One Enlist Duo ( <i>premix</i> )	Synchrony XP Classic Harmony GT Permit Plus <i>Generics</i>	Alite 27 <sup>1</sup>
Conventional						
STS, SR, and BOLT <sup>2</sup>					✓	
Roundup Ready	✓				3	
Roundup Ready 2 Yield	✓				3	
Glyphosate Tolerant	✓				3	
Roundup Ready Xtend	✓		✓		3	
Roundup Ready XtendFlex	✓	✓	✓		3	
GT27 <sup>4</sup>	✓					✓
LibertyLink		✓			3	
LibertyLink GT27	✓	✓			3	✓
Enlist E3	✓	✓		✓	3	

<sup>1</sup> Alite 27 has a federal label but is not yet registered or available in VA. <sup>2</sup> STS, SR, and BOLT are non-GMO traits and may fit into non-GMO soybean programs. These varieties also have tolerance to Basis Blend, LeadOff, Classic, Crusher, Harmony Extra, Harmony GT, Permit Plus, Synchrony XP applied pre-emerge in soybean and Finesse, Outrider, Peak, Harmony Extra, Harmony GT applied to wheat. Generic versions of these herbicides may also be available. <sup>3</sup> STS, SR, and BOLT traits can be stacked with these systems - see variety information for details. <sup>4</sup> GT27 is not yet commercially available.

Thank you to Dr. Michael Flessner, Extension Weed Specialist, for assistance with this chart.



## **MATURITY GROUP 4 VARIETY COMPARISONS**

## 2022 Overall Group 4 Comparison

Brand	Variety	Caroline AG EXPO	Chesapeake-Virginia Beach	Culpeper	Halifax	Prince George	Suffolk	Westmoreland	Average	Relative Yield
NK Seed	NK44-J4XFS	75.7	63.3	53.2	49.8	53.2	47.3	66.6	58.4	107
Revere Seed	4606XFS	69.1	63.1	56.3	54.3	44.6	49.5	63.8	57.2	105
Hubner	H48-31XF	71.9	54.6	67.8	44.2	48.3	48.7	61.3	56.7	104
Progeny	P 4604XFS	77.3	51.9	70.0	46.4	46.0	46.3	59.6	56.8	103
Pioneer	P46A86X	72.1	57.4	53.5	42.5	52.7		66.3	57.4	102
USG	7461XFS	73.1	38.9	63.1	50.7	49.4	49.2	66.1	55.8	102
Asgrow	AG48XF2	69.3	57.6	62.5	41.6	45.8	50.3	63.6	55.8	102
Progeny	P 4821RX	69.9	52.6	59.8	47.2	45.2	45.2	71.5	55.9	102
Pioneer	P47A25BX	63.9	59.0	50.1	46.1	54.3		66.0	56.6	102
Hubner	H47-30XF	66.4	57.5	55.4	50.9	49.4	45.1	59.5	54.9	101
AgriGold	G 4615XF	68.4	53.5	60.3	53.5	44.4	40.9	62.9	54.8	100
MorSoy	MS 4640XF	70.0	49.8	56.6	51.7	45.6	47.5	54.9	53.7	99
MorSoy	MS 4852XF	67.8	59.2	50.8	37.7	52.3		64.6	55.4	99
Dyna Gro	S46XF31S	66.4	63.3	51.6	41.9	44.2		63.0	55.1	98
Asgrow	AG46XF2	73.3	47.4	59.4	38.7	46.4	46.2	65.9	53.9	98
Revere Seed	4806XS	75.2	52.6	58.8	40.4	45.6	40.6	62.2	53.6	97
NK Seed	NK45-P9XF	64.5	53.5	45.5	42.0	46.3	48.8	64.7	52.2	96
DONMARIO Seeds	DM45X61S	66.4	44.3	54.9	39.0	51.0	46.1	61.2	51.8	95
AgriGold	G 4813XF	70.8	46.7	49.4	43.1	43.1	47.0	61.0	51.6	94
Dyna Gro	S48XF61S	66.4	49.7	48.6	44.8	42.5	42.2	61.9	50.9	93
<b>Location Average</b>		<b>69.9</b>	<b>53.8</b>	<b>56.4</b>	<b>45.3</b>	<b>47.5</b>	<b>46.3</b>	<b>63.3</b>		

**NOTES:**

Missing plots at Suffolk due to not enough seed available at planting time.

Average Relative Yield ranks varieties based on their performance compared to the location average. It is a percentage above or below the location average.

## Caroline County AG EXPO Maturity Group 4 Soybean Comparisons

**Cooperators:**   **Producer:**   Mill Creek Farm  
                   **Extension:**   M. Broaddus, R. Longest, S. Romelczyk, T. Jones, D. Holshouser  
                   **Industry:**     Hubner Seed, Rappahannock Seed  
**Previous Crop:**       Soybeans  
**Soil Type:**            Bojac sandy loam  
**Tillage:**             No-till  
**Planting Date:**       May 20, 2022  
**Seeding Rate/Row Spacing:** 120,000 seed/acre; 30-inch  
**Fertilization:**        200 lbs. 11-52-0 (MAP) per acre  
**Crop Protection:**     1. 32 oz. Gramoxone, 16 oz. 2, 4-D  
                               2. 32 oz. Roundup PowerMax, 2.5 oz. Anthem Flex  
                               3. 13.7 oz. Miravis Top, 2 qt. Maximum N-Pact K, 1 pt. Borosol, 2.5 oz. Tombstone  
**Harvest Date:**        November 14, 2022  
**Harvest Equipment:**   Fendt 8T

Brand	Variety	Moisture%	Yield (bu/A)
Check	H44-42XF	13.4	74.5
Asgrow	AG46XF2	13.7	73.3
Asgrow	AG48XF2	13.9	69.3
Pioneer	P46A86X	14.0	72.1
Pioneer	P47A25BX	13.5	63.9
USG	7461XFS	13.6	73.1
Hubner	H47-30XF	13.5	66.4
Hubner	H48-31XF	13.5	71.9
Dyna Gro	S48XF61S	13.5	66.4
Dyna Gro	S46XF31S	13.6	66.4
Progeny	P 4821RX	13.6	69.9
Check	H44-42XF	13.7	63.1
Progeny	P 4604XFS	13.5	77.3
Revere Seed	4606XFS	13.4	69.1
Revere Seed	4806XS	13.7	75.2
NK Seed	NK45-P9XF	14.0	64.5
NK Seed	NK44-J4XFS	13.5	75.7
MorSoy	MS 4640XF	13.4	70.0
MorSoy	MS 4852XF	13.8	67.8
DONMARIO Seeds	DM45X61S	14.0	66.4
AgriGold	G 4615XF	13.5	68.4
AgriGold	G 4813XF	13.6	70.8
Check	H44-42XF	13.5	76.3
	<b>AVERAGE</b>	<b>13.6</b>	<b>70.1</b>

**Discussion:** Although August of 2023 was unusually dry, all the varieties did very well in Bojac sand. Use this and other yield data for the most effective variety selection.

## Cities of Chesapeake/Virginia Beach Maturity Group 4 Soybean Comparisons

**Cooperators:**                    **Producer:** C. Frank Brickhouse  
**Extension:** Roy D. Flanagan III & Nathan Sedghi  
**Previous Crop:** Corn  
**Soil Type:** Acredale silt loam  
**Tillage:** Ridge-type conventional tillage  
**Planting Date:** May 23, 2022  
**Seeding Rate/Row Spacing:** 160,000 seed/acre on 30-in. rows  
**Fertilization:** None before soybeans  
**Crop Protection:** 1 pt Reflex and 1 qt Roundup + 16 oz *CE* LP  
**Harvest Date:** December 13, 2022  
**Harvest Equipment:** John Deere 95 with 213 grain platform

Brand	Variety	Moisture%	Yield (bu/A)
USG	7461XFS	13.9	38.9
AgriGold	G 4615XF	14.2	53.5
Asgrow	AG48XF2	14.3	57.6
Hubner	H48-31XF	14.5	54.6
Pioneer	P47A25BX	14.2	59.0
Hubner	H47-30XF	14.0	57.5
Asgrow	AG46XF2	14.4	47.4
DONMARIO Seeds	DM45X61S	14.7	44.3
MorSoy	MS 4640XF	14.2	49.8
Progeny	P 4604XFS	13.9	51.9
Revere Seed	4606XFS	14.1	63.1
AgriGold	G 4813XF	14.4	46.7
Progeny	P 4821RX	14.2	52.6
Dyna Gro	S48XF61S	14.1	49.7
Revere Seed	4806XS	14.2	52.6
Pioneer	P46A86X	13.7	57.4
Dyna Gro	S46XF31S	13.2	63.3
NK Seed	NK44-J4XFS	13.2	63.3
MorSoy	MS 4852XF	13.3	59.2
NK Seed	NK45-P9XF	13.5	53.5
	<b>AVERAGE</b>	<b>14.0</b>	<b>53.8</b>

**Discussion:** Use this and other yield data for the most effective variety selection.

## Culpeper County Maturity Group 4 Soybean Comparisons

**Cooperators:**                    **Producer:** Ross Swan, The Glebe  
**Extension:** Carl Stafford, ANR - Culpeper  
**Industry:** Eric Scruggs, Nutrien  
**Planting Date:** June 3, 2022  
**Seeding Rate/Row Spacing:** 30-inch  
**Fertilization:** Variable rate on recommendation + Radiate  
**Crop Protection:** Glyphosate, Salvo, BroadAxe, metribuzin, Engenia,  
**Harvest Date:** November 21, 2022  
**Harvest Equipment:** Case IH w/MacDon header

Brand	Variety	Moisture%	Yield (bu/A)
USG	7461XFS	11.4	63.1
Progeny	P 4821RX	11.5	59.8
Revere Seed	4606XFS	11.5	56.3
Asgrow	AG48XF2	11.1	62.5
Dyna Gro	S48XF61S	11.2	48.6
Pioneer	P47A25BX	11.2	50.1
Pioneer	P46A86X	11.8	53.5
NK Seed	NK44-J4XFS	11.4	53.2
Dyna Gro	S46XF31S	11.1	51.6
NK Seed	NK45-P9XF	11.5	45.5
Revere Seed	4806XS	10.9	58.8
DONMARIO Seeds	DM45X61S	11.5	54.9
Hubner	H48-31XF	11.4	67.8
MorSoy	MS 4640XF	11.1	56.6
AgriGold	G 4813XF	11.3	49.4
Hubner	H47-30XF	11.2	55.4
Asgrow	AG46XF2	11.3	59.4
MorSoy	MS 4852XF	11.4	50.8
AgriGold	G 4615XF	11.3	60.3
Progeny	P 4604XFS	10.8	70.0
	<b>AVERAGE</b>	<b>11.3</b>	<b>56.4</b>

**Discussion:** Use this and other yield data for the most effective variety selection.

## Halifax County Maturity Group 4 Soybean Comparisons

<b>Cooperators:</b>	<b>Producer:</b>	Brian Hall
	<b>Extension:</b>	Rebekah Slabach: VCE - Halifax Joanne Jones: VCE - Charlotte Bruce Jones: VCE - Appomattox
<b>Previous Crop:</b>		Soybeans
<b>Soil Type:</b>		Clifford sandy loam
<b>Tillage:</b>		No-till
<b>Planting Date:</b>		May 18, 2022
<b>Seeding Rate/Row Spacing:</b>		Kinze 11 row; 15-inch row spacing; 140,000 seed/acre
<b>Fertilization:</b>		1 ton poultry litter
<b>Crop Protection:</b>		Burndown: 3.25 oz Envive, 2 pt glyphosate & 1 oz Sharpen Post-plant: 12.8 oz Engenia, 3.25 oz Zidua SC, 2 pt glyphosate; 6.8 oz Approach
<b>Harvest Date:</b>		October 24, 2022
<b>Harvest Equipment:</b>		Gleaner R65

Brand	Variety	Moisture%	Yield (bu/A)
Asgrow	AG48XF2	11.4	41.6
MorSoy	MS 4852XF	11.7	37.7
Hubner	H48-31XF	11.5	44.2
Dyna Gro	S48XF61S	11.3	44.8
NK Seed	NK44-J4XFS	11.7	49.8
Progeny	P 4821RX	12.0	47.2
Revere Seed	4606XFS	11.9	54.3
AgriGold	G 4615XF	12.1	53.5
MorSoy	MS 4640XF	12.2	51.7
USG	7461XFS	12.1	50.7
Progeny	P 4604XFS	12.2	46.4
Revere Seed	4806XS	12.2	40.4
Pioneer	P46A86X	11.9	42.5
DONMARIO Seeds	DM45X61S	12.1	39.0
Asgrow	AG46XF2	11.7	38.7
Hubner	H47-30XF	11.1	50.9
AgriGold	G 4813XF	12.3	43.1
NK Seed	NK45-P9XF	12.1	42.0
Pioneer	P47A25BX	11.8	46.1
Dyna Gro	S46XF31S	12.0	41.9
	<b>AVERAGE</b>	<b>11.9</b>	<b>45.3</b>

**Discussion:** Use this and other yield data for the most effective variety selection.



## Prince George County Maturity Group 4 Soybean Comparisons

<b>Cooperators:</b>	<b>Producer:</b>	Sean Finney
	<b>Extension:</b>	Scott Reiter, Prince George
<b>Previous Crop:</b>		Wheat with straw baled
<b>Soil Type:</b>		Montross and Aycock silt loam
<b>Tillage:</b>		No-till
<b>Planting Date:</b>		June 15, 2022
<b>Seeding Rate/Row Spacing:</b>		220,000 seed/acre; 7.5 inches
<b>Fertilization:</b>		110-40-120 to wheat
<b>Crop Protection:</b>		1 qt glyphosate + 22 oz XtendiMax - June 25 8 oz Quadris Top SBX - August 1
<b>Harvest Date:</b>		November 22, 2022
<b>Harvest Equipment:</b>		John Deere 9500 918 platform + weigh wagon

Brand	Variety	Moisture%	Yield (bu/A)
Check - AgriGold	G 4813XF	12.2	45.8
AgriGold	G 4813XF	12.0	43.1
AgriGold	G 4615XF	12.2	44.4
DONMARIO Seeds	DM45X61S	12.4	51.0
MorSoy	MS 4852XF	12.1	52.3
MorSoy	MS 4640XF	12.0	45.6
NK Seed	NK44-J4XFS	12.4	53.2
NK Seed	NK45-P9XF	12.0	46.3
Revere Seed	4806XS	12.0	45.6
Revere Seed	4606XFS	11.9	44.6
Progeny	P 4604XFS	11.9	46.0
Progeny	P 4821RX	12.0	45.2
Dyna Gro	S46XF31S	11.9	44.2
Dyna Gro	S48XF61S	11.8	42.5
Hubner	H48-31XF	12.2	48.3
Hubner	H47-30XF	12.1	49.4
USG	7461XFS	12.2	49.4
Pioneer	P47A25BX	12.3	54.3
Pioneer	P46A86X	12.6	52.7
Asgrow	AG48XF2	12.3	45.8
Asgrow	AG46XF2	12.3	46.4
Check - AgriGold	G 4813XF	11.9	42.7
	<b>AVERAGE</b>	<b>12.1</b>	<b>47.2</b>

**Discussion:** This location produced very good yields despite drought conditions in August and September. The plots were consistent with no notable issues. Use this and other yield data for the most effective variety selection.

## City of Suffolk Maturity Group 4 Soybean Comparisons

**Cooperators:**                    **Producer:** Matt Wilkins, MBM Farms  
**Extension:** Elizabeth Cooper, City of Suffolk  
**Previous Crop:** Wheat (double-crop)  
**Soil Type:** Goldsboro fine sandy loam  
**Tillage:** No-till  
**Planting Date:** June 18, 2022  
**Seeding Rate/Row Spacing:** 200,000 seeds per acre; 18-inch spacing  
**Fertilization:** 1 ton chicken litter 10/31/21, 25 gpa 24-0-0-3 1/11/22,  
 25 gpa 24-0-0-3 2/15/22  
**Crop Protection:** 6/18/22 1 qt Roundup and 10 oz. Veritas, 7/1/22 1 qt Roundup and 16 oz  
 Reflex, 8/26/22 8 oz Besiege and 4 oz Stratego YLD  
**Harvest Date:** December 11, 2022  
**Harvest Equipment:** John Deere 9500

Brand	Variety	Moisture%	Yield (bu/A)
NK Seed	NK45-P9XF	15.5	48.8
MorSoy	MS 4640XF	15.4	47.5
USG	7461XFS	15.4	49.2
DONMARIO Seeds	DM45X61S	16.0	46.1
AgriGold	G 4813XF	15.9	47.0
Asgrow	AG46XF2	15.6	46.2
Progeny	P 4604XFS	14.2	46.3
Revere Seed	4606XFS	14.6	49.5
Dyna Gro	S48XF61S	15.0	42.2
Hubner	H48-31XF	16.0	48.7
NK Seed	NK44-J4XFS	15.3	47.3
Progeny	P 4821RX	15.5	45.2
Asgrow	AG48XF2	14.6	50.3
AgriGold	G 4615XF	14.8	40.9
Hubner	H47-30XF	15.4	45.1
Revere Seed	4806XS	15.3	40.6
	<b>AVERAGE</b>	<b>15.3</b>	<b>46.3</b>

**Discussion:** Conditions were favorable at harvest, but periods of drought did affect growth and pod fill. Long periods of rain and damp conditions pushed back harvest as well as several unavoidable equipment breakdowns. Pioneer P46A86X, Pioneer P47A25BX, Dyna Gro S46XF31S and MorSoy MS 4852XF were not included in this trial due to seed not being available at planting. Use this and other yield data for the most effective variety selection.

## Westmoreland County Maturity Group 4 Soybean Comparisons

<b>Cooperators:</b>	<b>Producer:</b>	Louis Chandler and F.F. Chandler, Jr.
	<b>Extension:</b>	Stephanie Romelczyk, ANR – Westmoreland Trent Jones, ANR - Northumberland/Lancaster Robbie Longest, ANR - Essex
<b>Previous Crop:</b>		Corn
<b>Soil Type:</b>		Kempsville loam
<b>Tillage:</b>		No-till
<b>Planting Date:</b>		May 31, 2022
<b>Seeding Rate/Row Spacing:</b>		130,000; 30-inch rows
<b>Fertilization:</b>		18-55-83-5S
<b>Crop Protection:</b>		Pre-plant (3/15): PowerMax 32 oz/A + Envive 4 oz/A + Reviton 1 oz/A Post-emergence: 6/16: PowerMax 32 oz/A + Radiate 2 oz/A 8/8: PowerMax 26 oz/A + Miravis Top 13.7 oz/A + Brigade 6 oz/A + Radiate 2 oz/A + Pro Trio 1 qt/A + Maximum N-Pact K 1 gal/A
<b>Harvest Date:</b>		October 21, 2022
<b>Harvest Equipment:</b>		CAT Challenger 670

Brand	Variety	Moisture%	Yield (bu/A)
MorSoy	MS4640XF	11.8	54.9
MorSoy	MS4852XF	11.8	64.6
USG	7461XFS	11.2	66.1
AgriGold	G4813XF	11.4	61.0
AgriGold	G4615XF	11.2	62.9
Asgrow	AG48XF2	11.4	63.6
Asgrow	AG46XF2	11.2	65.9
Revere	4806XS	11.2	62.2
Revere	4606XFS	11.1	63.8
NK Seed	NK44-J4XFS	11.7	66.6
NK Seed	NK45-P9XF	11.4	64.7
Dyna-Gro	46XF31	11.0	63.0
Dyna-Gro	48XF61	11.1	61.9
Pioneer	P46A86X	11.6	66.3
Pioneer	P47A25BX	10.9	66.0
Hubner	H48-31XF	11.5	61.3
Hubner	H47-30XF	10.9	59.5
DONMARIO Seeds	DM45X61S	11.3	61.2
Progeny	P4604XFS	11.0	59.6
Progeny	P4821RX	11.5	71.5
	<b>AVERAGE</b>	<b>11.3</b>	<b>63.3</b>

**Discussion:** Considering the dry conditions present during the late summer, yields were very good. This location received localized rains when other parts of the county did not. Use this and other yield data for the most effective variety selection.



## **MATURITY GROUP 5 VARIETY COMPARISONS**

## 2022 Overall Group 5 Comparisons

Brand	Variety	Appomattox	Brunswick	Charlotte	Chesapeake-Virginia Beach	Mecklenburg	Prince George	Suffolk	Average	Relative Yield
Revere Seed	5029XF	55.7	27.6	63.2	60.2	44.7	48.7	48.5	49.8	112
Asgrow	AG53XF2	60.1	29.8	62.8	54.2	44.5	52.9	35.0	48.5	109
Asgrow	AG54XF0		28.5	62.6	58.8	39.2	48.7	39.7	46.3	105
Pioneer	P52A05X	52.3	28.7	59.1	47.3	36.0	49.7	45.3	45.5	103
MorSoy	MS 5398RXT	51.2	25.2	63.2	52.5	43.2	46.4	39.4	45.9	102
Pioneer	P54A36SX	54.7	27.5	55.7	51.6	42.9	46.6	35.5	44.9	101
Revere Seed	5386X	52.0	26.9	62.4	41.3	47.2	49.2	35.5	44.9	101
Dyna Gro	S56XT99	45.1	25.5	61.4	48.0	41.2	47.8	41.0	44.3	99
Progeny	P 5554RX	47.5	26.3	53.5	51.9	39.5	45.1	42.7	43.8	99
NK Seed	S52-Y7X	50.3	29.0	58.8	47.6	35.3	42.8	42.3	43.7	99
Progeny	P 5252RX	46.0	26.1	58.1	44.4	44.7	45.5	36.3	43.0	97
MorSoy	MS 5640XF	51.3	25.3	51.6	48.5	43.1	42.5	35.9	42.6	96
NK Seed	NK57-A3XF	39.6	23.2	58.7	55.3	41.3	41.3	39.0	42.6	95
Dyna Gro	S54XF62	43.3	24.1	56.2	47.7	39.3	44.6	41.3	42.4	95
USG	7562XF	39.2	30.1		42.3	40.8	44.0	36.7	38.9	94
Hubner	H51-22XF	50.6	25.1	60.0	46.0	30.0	44.1	38.7	42.1	94
<b>Location Average</b>		<b>49.3</b>	<b>26.8</b>	<b>59.2</b>	<b>49.9</b>	<b>40.8</b>	<b>46.3</b>	<b>39.6</b>		

**NOTES:**

Missing varieties were not planted at those locations due to seed availability.

## Appomattox County Maturity Group 5 Soybean Comparisons

**Cooperators:**                   **Producer:**       Dark Leaf Farm  
**Extension:**                   Bruce Jones; VCE - Appomattox  
   Joanne Jones; VCE - Charlotte  
**Previous Crop:**                   Soybeans; Rye cover crop  
**Soil Type:**                       Georgeville - Brockroad loam  
**Tillage:**                         No-till  
**Planting Date:**                 June 25, 2022  
**Seeding Rate/Row Spacing:**   200,000 seed per acre; 7.5-inch rows  
**Fertilization:**                 11-52-60  
**Crop Protection:**               Gramoxone burndown 5/10/22; glyphosate 6/18/22; glyphosate 7/22/22;  
   no preplant residual due to crop rotation plans for 2023. Weed control  
   very good related to heavy rye cover crop.  
**Harvest Date:**                 November 10, 2022  
**Harvest Equipment:**           Gleaner R52

Brand	Variety	Moisture%	Yield (bu/A)
Pioneer	P54A36SX	12.1	54.7
Progeny	P 5252RX	11.8	46.0
NK Seed	NK57-A3XF	11.7	39.6
Dyna Gro	S56XT99	11.1	45.1
MorSoy	MS 5398RXT	10.9	51.2
USG	7562XF	10.7	39.2
Dyna Gro	S54XF62	10.9	43.3
Revere Seed	5386X	10.8	52.0
Progeny	P 5554RX	11.3	47.5
MorSoy	MS 5640XF	11.2	51.3
Pioneer	P52A05X	11.2	52.3
NK Seed	S52-Y7X	11.0	50.3
Revere Seed	5029XF	11.4	55.7
Asgrow	AG53XF2	11.3	60.1
Hubner	H51-22XF	10.8	50.6
	<b>AVERAGE</b>	<b>11.2</b>	<b>49.3</b>

**Discussion:** Conditions were very dry during the late summer/early fall at this plot location. Yields were much better than expected considering the late planting date. Use this and other yield data for the most effective variety selection.

## Brunswick County Maturity Group 5 Soybean Comparisons

<b>Cooperators:</b>	<b>Producer:</b>	William and Howard Wright
	<b>Extension:</b>	Taylor Clarke
<b>Previous Crop:</b>		Flue-cured tobacco followed by wheat for grain
<b>Soil Type:</b>		Appling sandy loam
<b>Tillage:</b>		No-till with conservation subsoiler before planting
<b>Planting Date:</b>		June 24, 2022
<b>Seeding Rate/Row Spacing:</b>		215,000 seed/acre; 18-inch rows
<b>Fertilization:</b>		P and K applied to wheat
<b>Crop Protection:</b>		Burndown - 32 oz Gramoxone 3.0 + 28 oz BroadAxe Post - 12.8 oz Engenia + 40 oz Warrant
<b>Harvest Date:</b>		November 21, 2022
<b>Harvest Equipment:</b>		Gleaner R42 w/ 15 ft flex head

Brand	Variety	Moisture%	Yield (bu/A)
Asgrow	AG56XF2	12.4	29.9
Asgrow	AG53XF2	12.2	29.8
Asgrow	AG54XF0	12.5	28.5
Pioneer	P52A05X	12.1	28.7
Pioneer	P54A36SX	12.4	27.5
USG	7562XF	11.9	30.1
Hubner	H51-22XF	12.3	25.1
Dyna Gro	S56XT99	12.3	25.5
Dyna Gro	S54XF62	12.6	24.1
Progeny	P 5252RX	12.3	26.1
Progeny	P 5554RX	12.3	26.3
Revere Seed	5029XF	12.6	27.6
Revere Seed	5386X	12.2	26.9
NK Seed	S52-Y7X	12.3	29.0
NK Seed	NK57-A3XF	11.9	23.2
MorSoy	MS 5398RXT	11.9	25.2
MorSoy	MS 5640XF	13.5	25.3
	<b>AVERAGE</b>	<b>12.3</b>	<b>27.0</b>

**Discussion:** Plot yields suffered from a cumulative rainfall deficit of 3 inches between August 1 and September 15 from the 5-year average. Use this and other yield data for the most effective variety selection.



## Charlotte County Maturity Group 5 Soybean Comparisons

**Cooperators:**                    **Producer:** Grind - N - Stone Farms - The Poindexter Family  
**Extension:** Joanne Jones: VCE - Charlotte  
 Bruce Jones: VCE - Appomattox  
**Previous Crop:** Corn: Wheat cover crop  
**Soil Type:** Cecil fine sandy loam  
**Tillage:** No-till  
**Planting Date:** June 3, 2022  
**Seeding Rate/Row Spacing:** 11 row planter 15 inch spacing; 140,000 seed /acre  
**Fertilization:** 0-30- 60  
**Crop Protection:** May 13: 12.8 oz Engenia, 3.25 oz Envive, 2 qt Gramoxone, 1 pt Hellfire surfactant; June 10: 1 qt glyphosate, 12.8 oz Engenia, 80/20 surfactant; June 28: 1 qt glyphosate, 12.8 oz Engenia, 1.3 oz Province II, 80/20 surfactant  
**Harvest Date:** November 22, 2022  
**Harvest Equipment:** Gleaner R52

Brand	Variety	Moisture%	Yield (bu/A)
NK Seed	NK57-A3XF	11.1	58.7
Dyna Gro	S54XF62	11.4	56.2
Asgrow	AG53XF2	11.4	62.8
Pioneer	P52A05X	10.9	59.1
NK Seed	S52-Y7X	10.7	58.8
Pioneer	P54A36SX	10.9	55.7
Asgrow	AG54XF0	10.6	62.6
Revere Seed	5386X	10.1	62.4
Dyna Gro	S56XT99	10.5	61.4
Revere Seed	5029XF	10.9	63.2
Progeny	P 5252RX	10.7	58.1
Progeny	P 5554RX	10.6	53.5
Hubner	H51-22XF	10.5	60.0
MorSoy	MS 5640XF	10.5	51.6
MorSoy	MS 5398RXT	10.5	63.2
	<b>AVERAGE</b>	<b>10.8</b>	<b>59.2</b>

**Discussion:** An excellent season for soybeans in 2022.



## Cities of Chesapeake/Virginia Beach Maturity Group 5 Soybean Comparisons

**Cooperators:**                    **Producer:** C. Frank Brickhouse  
**Extension:** Roy D. Flanagan III & Nathan Sedghi  
**Previous Crop:** Corn  
**Soil Type:** Acredale silt loam  
**Tillage:** Ridge-type conventional tillage  
**Planting Date:** May 23, 2022  
**Seeding Rate/Row Spacing:** 160,000 seed/acre on 30-inch rows  
**Fertilization:** None before soybeans  
**Crop Protection:** 1 pt Reflex and 1 qt Roundup + 16 oz *CE* LP  
**Harvest Date:** December 13, 2022  
**Harvest Equipment:** John Deere 95 with 213 grain platform

Brand	Variety	Moisture%	Yield (bu/A)
Hubner	H51-22XF	13.5	46.0
Progeny	P 5554RX	13.4	51.9
Asgrow	AG53XF2	13.3	54.2
MorSoy	MS 5640XF	13.6	48.5
USG	7562XF	13.7	42.3
Progeny	P 5252RX	13.9	44.4
Dyna Gro	S56XT99	13.7	48.0
Asgrow	AG54XF0	13.9	58.8
MorSoy	MS 5398RXT	12.1	52.5
Revere Seed	5386X	12.8	41.3
Pioneer	P54A36SX	12.4	51.6
NK Seed	NK57-A3XF	12.7	55.3
Revere Seed	5029XF	13.1	60.2
NK Seed	S52-Y7X	13.0	47.6
Pioneer	P52A05X	13.0	47.3
Dyna Gro	S54XF62	13.4	47.7
	<b>AVERAGE</b>	<b>13.2</b>	<b>49.9</b>

**Discussion:** Use this and other yield data for the most effective variety selection.

## Mecklenburg County Maturity Group 5 Soybean Comparisons

**Cooperators:**                    **Producer:** John Manning  
**Extension:** Taylor Clarke, Mecklenburg  
 Sara Rutherford, Greenville/Emporia  
**Previous Crop:** Soybean with rye cover crop  
**Soil Type:** Appling fine sandy loam  
**Tillage:** No-till  
**Planting Date:** June 6, 2022  
**Seeding Rate/Row Spacing:** 154,000 seed/acre; 18-inch rows  
**Fertilization:** 200 lbs 0-0-60  
**Crop Protection:** Burndown - 1 qt generic glyphosate, 1 pt 2,4-D, 3.0 oz Envide  
 Post - Glyphosate and fomesafen  
**Harvest Date:** December 13, 2022  
**Harvest Equipment:** John Deere 4420 w/ 215 Flexhead

Brand	Variety	Moisture%	Yield (bu/A)
Asgrow	AG53XF2	14.8	44.5
Asgrow	AG54XF0	15.4	39.2
Pioneer	P52A05X	15.1	36.0
Pioneer	P54A36SX	15.0	42.9
USG	7562XF	14.8	40.8
Hubner	H51-22XF	14.9	30.0
Dyna Gro	S56XT99	14.8	41.2
Dyna Gro	S54XF62	15.1	39.3
Progeny	P 5252RX	15.0	44.7
Progeny	P 5554RX	15.0	39.5
Revere Seed	5029XF	15.1	44.7
Revere Seed	5386X	14.9	47.2
NK Seed	S52-Y7X	14.8	35.3
NK Seed	NK57-A3XF	14.8	41.3
MorSoy	MS 5398RXT	14.7	43.2
MorSoy	MS 5640XF	14.8	43.1
Dyna Gro	S56XF01	14.7	39.0
Dyna Gro	S51EN62	14.7	40.9
Asgrow	AG 57XF1	14.3	40.7
Asgrow	AG 55XF0	14.2	39.6
Asgrow	AG56XF2	14.3	38.6
Asgrow	AG 52XF0	14.7	37.6
Asgrow	AG 56XF2 ILEVO	14.3	37.7
	<b>AVERAGE</b>	<b>14.8</b>	<b>40.3</b>

**Discussion:** This location yielded surprisingly well with the extremely dry conditions in August and September. Use this and other yield data for the most effective variety selection.

## Prince George County Maturity Group 5 Soybean Comparisons

**Cooperators:**                   **Producer:** Sean Finney  
**Extension:** Scott Reiter, Prince George  
**Previous Crop:** Wheat with straw baled  
**Soil Type:** Montross and Aycok silt loam  
**Tillage:** No-till  
**Planting Date:** June 15, 2022  
**Seeding Rate/Row Spacing:** 220,000 seed/acre; 7.5 inches  
**Fertilization:** 110-40-120 to wheat  
**Crop Protection:** 1 qt glyphosate + 22 oz XtendiMax - June 30  
**Harvest Date:** November 22, 2022  
**Harvest Equipment:** John Deere 9500 918 platform + weigh wagon

Brand	Variety	Moisture%	Yield (bu/A)
Check - AgriGold	G 4813XF	11.9	42.7
Asgrow	AG53XF2	12.1	52.9
Asgrow	AG54XF0	12.2	48.7
Pioneer	P52A05X	11.6	49.7
Pioneer	P54A36SX	12.1	46.6
USG	7562XF	11.6	44.0
Hubner	H51-22XF	11.9	44.1
Dyna Gro	S56XT99	12.2	47.8
Dyna Gro	S54XF62	12.2	44.6
Progeny	P 5252RX	12.1	45.5
Progeny	P 5554RX	12.0	45.1
Revere Seed	5029XF	12.2	48.7
Revere Seed	5386X	12.2	49.2
NK Seed	S52-Y7X	11.8	42.8
NK Seed	NK57-A3XF	11.7	41.3
MorSoy	MS 5398RXT	12.0	46.4
MorSoy	MS 5640XF	12.1	42.5
Check - AgriGold	G 4813XF	12.0	46.2
	<b>AVERAGE</b>	<b>12.0</b>	<b>46.1</b>

**Discussion:** This location produced very good yields despite drought conditions in August and September. The early maturity varieties tended to yield better likely due to access to stored soil moisture available in early August. Use this and other yield data for the most effective variety selection.

## City of Suffolk Maturity Group 5 Soybean Comparisons

<b>Cooperators:</b>	<b>Producer:</b>	Matt Wilkins, MBM Farms
	<b>Extension:</b>	Elizabeth Cooper, City of Suffolk
<b>Previous Crop:</b>		Wheat (double-crop)
<b>Soil Type:</b>		Goldsboro fine sandy loam
<b>Tillage:</b>		No-till
<b>Planting Date:</b>		June 18, 2022
<b>Seeding Rate/Row Spacing:</b>		200,000 seeds per acre; 18-inch spacing
<b>Fertilization:</b>		1 ton chicken litter 10/31/21, 25 gpa 24-0-0-3 1/11/22, 25 gpa 24-0-0-3 2/15/22
<b>Crop Protection:</b>		6/18/22 1 qt Roundup and 10 oz. Veritas, 7/1/22 1 qt Roundup and 16 oz Reflex, 8/26/22 8 oz Besiege and 4 oz Stratego YLD
<b>Harvest Date:</b>		December 11, 2022
<b>Harvest Equipment:</b>		John Deere 9500

Brand	Variety	Moisture%	Yield (bu/A)
NK Seed	NK57-A3XF	15.5	39.0
Pioneer	P52A05X	15.1	45.3
Revere Seed	5029XF	15.0	48.5
Dyna Gro	S54XF62	15.6	41.3
Asgrow	AG54XF0	15.6	39.7
Progeny	P 5554RX	15.2	42.7
USG	7562XF	15.4	36.7
MorSoy	MS 5640XF	15.9	35.9
NK Seed	S52-Y7X	15.5	42.3
Dyna Gro	S56XT99	15.4	41.0
Progeny	P 5252RX	15.4	36.3
Asgrow	AG53XF2	15.7	35.0
MorSoy	MS 5398RXT	15.1	39.4
Revere Seed	5386X	15.3	35.5
Pioneer	P54A36SX	15.5	35.5
Hubner	H51-22XF	14.3	38.7
	<b>AVERAGE</b>	<b>15.3</b>	<b>39.5</b>

**Discussion:** Conditions were favorable at harvest, but periods of drought did affect growth and pod fill. Long periods of rain and damp conditions pushed back harvest as well as several unavoidable equipment breakdowns.



## **Other Soybean Weed Control System Tests**

## Brunswick County LibertyLink Soybean Comparisons

**Cooperators:**                    **Producer:** William and Howard Wright  
**Extension:** Taylor Clarke, Sara Rutherford  
**Previous Crop:** Flue-cured tobacco followed by wheat for grain  
**Soil Type:** Appling Mattaponi complex  
**Tillage:** No-till with conservation ripper before planting  
**Planting Date:** June 29, 2022  
**Seeding Rate/Row Spacing:** 215,000 on 18" rows  
**Fertilization:** P and K applied at wheat planting  
**Crop Protection:** Burndown: 32 oz Gramoxone and 21 oz generic metolachlor  
Post: 25 oz Roundup PowerMax3, 32 oz Liberty, 1.5 qt Warrant  
**Harvest Date:** November 23, 2022  
**Harvest Equipment:** Gleaner R42 with 16' flex head

Brand	Variety	Moisture%	Yield (bu/A)
Axis	5412E	11.4	28.0
Pioneer	P53T90E	11.2	24.9
Pioneer	P49T62E	10.9	40.3
Pioneer	P48A14E	11.0	36.6
Dyna Gro	S45ES10	10.8	31.7
Dyna Gro	S49EN12	11.0	33.4
Dyna Gro	S51EN62	11.0	37.8
MorSoy	MS 5110E	11.0	39.7
MorSoy	MS 5461E	10.9	21.4
Revere Seed - Innotech	4737E3	11.0	34.5
Revere Seed	4927E3S	11.2	18.8
Revere Seed - Innotech	5360E3	10.9	32.0
Revere Seed	5429E3	10.9	25.7
Progeny	P 4775E3S	10.7	35.2
Progeny	P 5521E3	10.8	32.5
Southern Harvest	SH 4622E3	11.1	21.1
Southern Harvest	SH 5223E3	10.5	29.7
Southern Harvest	SH 5523E3	11.1	29.2
DONMARIO Seeds	DM46E62	11.1	22.2
USG	7451ET	10.9	20.6
USG	7542ET	10.7	19.8
AgriGold	G 4881E3	11.1	20.9
AgriGold	G 4655E3	11.1	20.9
Check	Axis 5622XFS	10.8	16.5
	<b>AVERAGE</b>	<b>11.0</b>	<b>28.1</b>

**Discussion:** Revere IS4737E3, Revere IS5360E3, Southern Harvest 5223E3, AgriGold 4881E3, and AgriGold 4655E3 suffered from poor stand establishment estimated at approximately 50% of intended but were relatively uniform across plot. Reason for their poor stand establishment was not identified but may have been due to lodging of varieties in the on-farm wheat plot conducted in this field this spring. The last six plots suffered due to transition to a side slope in the field. From August 6th until September 30th accumulated rainfall was 5" below the 5-year average.

## Brunswick County XtendFlex Soybean Comparisons

**Cooperators:** William Wright, Howard Wright and Mallory Blackwell  
**Producer:** Taylor Clarke  
**Extension:** Spencer Kirby, Agricultural Specialist IV SPAREC  
**Previous Crop:** Flue-cured tobacco followed by wheat for grain  
**Soil Type:** 50% Appling Mattaponi complex, 50% Cecil sandy clay loam  
**Tillage:** No-tilled into wheat stubble after conservation ripper  
**Planting Date:** June 29, 2022  
**Seeding Rate/Row Spacing:** 215,000 on 18" rows  
**Fertilization:** P and K applied to wheat  
**Crop Protection:** Burndown: 32 oz Gramoxone and 21oz generic metolachlor  
 Post: 25 oz Roundup PowerMax3, 32 oz Liberty, 1.5 qt Warrant  
**Harvest Date:** November 23, 2022  
**Harvest Equipment:** Gleaner R42 w/ 16' flex head

Brand	Variety	Moisture%	Yield (bu/A)
Check	Axis 5622XFS	12.1	30.0
Axis	5921XFS	11.6	27.7
Asgrow	AG57XF1	11.4	28.5
Asgrow	AG56XF2	11.6	28.4
Asgrow	AG55XF0	11.8	27.9
Asgrow	AG53XF2	11.5	27.2
Asgrow	AG54XF0	11.9	28.2
Asgrow	AG54XF0 ILEVO	11.8	23.4
Asgrow	AG52XF0	11.8	24.9
Hubner	H51-22XF	12.0	18.2
Dyna Gro	S56XF01	11.9	17.0
Dyna Gro	S54XF62	12.0	17.8
Revere Seed	5029XF	12.0	20.8
MorSoy	MS 5640XF	12.3	28.4
NK Seed	NK57-A3XF	11.1	30.3
USG	7562XF	10.9	35.6
Asgrow	AG46XF2	11.7	26.1
Asgrow	AG48XF2	11.8	19.0
USG	7461XFS	11.6	16.9
Hubner	H47-30XF	11.5	18.3
Hubner	H48-31XF	11.5	15.0
Dyna Gro	S48XF61S	11.3	18.6
Dyna Gro	S46XF31S	11.3	24.2
Check	Axis 5622XFS	11.5	21.9
	<b>AVERAGE</b>	<b>11.7</b>	<b>23.9</b>

**Discussion:** From August 6 until September 30, the accumulated rainfall was 5" below 5-year average. The plots of USG 7461XFS, Hubner H47-30XF, Hubner H48-31XF, and DG S48XF61S were on an eroded southern exposed side slope.





## Other Research



## 2022 Overall Group 3 Comparisons

<b>Brand</b>	<b>Variety</b>	<b>Caroline - Ag Expo</b>
Dyna Gro	S38XF22	76.4
Pioneer	P39A58X	68.8
USG	7392XFS	66.8
Seed Consultants	SC8379X	66.2
Revere Seed	3908XFS	65.6
Pioneer	P38A92X	63.7
Dyna Gro	S39XF41	63.5
Asgrow	AG35XF1	59.0
Asgrow	AG38XF1	57.0
<b>Location Average</b>		<b>65.2</b>

## Caroline County AG EXPO Maturity Group 3 Soybean Study

<b>Cooperators:</b>	<b>Producer:</b>	Mill Creek Farm
	<b>Extension:</b>	M. Broaddus, R. Longest, S. Romelczyk, T. Jones, D. Holshouser
	<b>Industry:</b>	Hubner Seed, Rappahannock Seed
<b>Previous Crop:</b>		Soybeans
<b>Soil Type:</b>		Bojac sandy loam
<b>Tillage:</b>		No-till
<b>Planting Date:</b>		May 20, 2022
<b>Seeding Rate/Row Spacing:</b>		120,000 seed/acre; 30"
<b>Fertilization:</b>		200 lbs. 11-52-0 (MAP) per acre
<b>Crop Protection:</b>		1. 32 oz. Gramoxone, 16 oz. 2, 4-D 2. 32 oz. Roundup PowerMax, 2.5 oz. Anthem Flex 3. 13.7 oz. Miravis Top, 2 qt. Maximum N-Pact K, 1 pt. Borosol, 2.5 oz. Tombstone
<b>Harvest Date:</b>		November 14, 2022
<b>Harvest Equipment:</b>		Fendt 8T

Brand	Variety	Moisture%	Yield (bu/A)
Check	H44-42XF	13.5	76.3
Pioneer	P39A58X	14.1	68.8
Pioneer	P38A92X	13.7	63.7
Dyna Gro	S38XF22	13.4	76.4
Dyna Gro	S39XF41	14.0	63.5
USG	7392XFS	14.2	66.8
Revere Seed	3908XFS	14.2	65.6
Asgrow	AG35XF1	14.1	59.0
Asgrow	AG38XF1	14.3	57.0
Seed Consultants	SC8379X	13.8	66.2
Check	H44-42XF	13.4	60.1
	<b>AVERAGE</b>	<b>13.9</b>	<b>65.8</b>

**Discussion:** Although August of 2023 was unusually dry, all the varieties did very well in Bojac sand.

## Prince George Biological Soybean Seed Treatment Study

**Cooperators:**                   **Producer:** Sean Finney  
**Extension:** Scott Reiter, Prince George  
**Previous Crop:** Wheat with straw baled  
**Soil Type:** Montross and Aycock silt loam  
**Tillage:** No-till  
**Planting Date:** June 15, 2022  
**Variety:** Great Heart 5422XF  
**Seeding Rate/Row Spacing:** 220,000 seed/acre; 7.5-inch row  
**Fertilization:** 110-40-120 to wheat  
**Crop Protection:** 1 qt glyphosate + 22 oz XtendiMax - June 30  
**Harvest Date:** November 22, 2022  
**Harvest Equipment:** John Deere 9500 918 platform + weigh wagon

Treatment	Replication	Moisture %	Plant Population	Test Weight	Yield (bu/A)
Treated	1	12.2	224017	59.1	45.5
Untreated	1	12.0	195244	58.7	46.2
Treated	2	12.1	197299	58.8	45.3
Untreated	2	11.9	195244	59.6	45.9
Treated	3	11.9	211686	58.7	46.3
Untreated	3	11.8	203465	59.1	45.2
Treated --- Average		12.1 b	211001	58.9	45.7
Untreated --- Average		11.9 a	197984	59.1	45.8
Difference		0.2	13016	0.2	0.1
LSD (0.1)		0.1	NS	NS	NS

**Discussion:** This trial evaluated Sunrise BioBuild™ Soy Bio ST + R applied as an on-farm seed treatment. This product contains the following: *Azospirillum brasiliense*, *Bacillus licheniformis*, *B. amyloliquefaciens*, *B. subtilis*, *Pseudomonas fluorescens*, *Rhizobium*. Seed was treated by tumbling measured seed in a tub while adding the liquid product. There was not a difference in yield, stand counts, or test weight for this study. Statistically, there is a slight difference in moisture content however with dry seed this has limited impact. Stand counts were taken three weeks after planting by sampling three locations in each plot. Growers are encouraged to continue to evaluate biological products for potential yield enhancement affects.

## Middlesex Conventional Double-Cropped Soybean Variety Study

<b>Cooperators:</b>	<b>Producer:</b>	Montague Farms and MTG Partners
	<b>Extension:</b>	Robbie Longest, VCE - Essex Frank Long, VCE - Middlesex
	<b>Industry:</b>	Participating seed companies
<b>Previous Crop:</b>		Wheat
<b>Soil Type:</b>		Kempsville sandy loam
<b>Tillage:</b>		No-till
<b>Planting Date:</b>		June 27, 2022
<b>Seeding Rate/Row Spacing:</b>		~180,000; 15-inch rows
<b>Fertilization:</b>		30-80-120-12S + Boron before wheat
<b>Crop Protection:</b>		<u>Burndown:</u> Roundup (1 qt/ac), Fierce EZ (6 oz/ac), Spectrum (5 oz/ac) with 12.5 gallons water <u>Post:</u> Flexstar (24 oz/ac), Clethodim (16 oz/ac), Spectrum (5 oz/ac) with 12.5 gallons water <u>Fungicide and Insecticide:</u> None applied
<b>Harvest Date:</b>		November 15, 2022
<b>Harvest Equipment:</b>		John Deere S670 w/ 35' Draper Header

<b>Treatment</b>	<b>Moisture%</b>	<b>Test Weight (lbs/bu)</b>	<b>Yield (bu/A)</b>
Virtue V4720	15.8	46.6	46.7
Dyna Gro S4751STS	14.8	54.0	57.9
Dyna Gro S4931N	14.6	52.7	57.6
Virtue V4921S	14.5	53.8	59.0
Stine 49M02	15.2	52.2	44.1
VT V16-0293	13.5	54.7	46.6
Stine 51N20	14.6	54.5	55.9
VT V18-2423	15.2	54.9	55.3
Virtue V5422	15.4	55.8	56.3
MFS V16-1341	14.8	56.6	48.0
MFS 885	15.0	56.7	52.6
MFS V17-0927HS	16.2	56.2	42.8
MFS 51P1 (CHECK)	15.7	56.5	51.5
	<b>15.0</b>	<b>54.2</b>	<b>51.9</b>

**Discussion:** This plot evaluated 13 conventional non-GMO soybean varieties in a double-crop system. Overall, yields were very good and the plot averaged 51.9 bu/ac, considering the dry weather that was experienced in late August and early September. MFS 51P1 was used as a check. Local data for conventional non-GMO soybean varieties is useful to help producers make appropriate variety selections and incorporate this alternative market option for export non-GMO soybeans into their operation to take advantage of premiums that may exist for such markets.

## Mecklenburg Nematode Soybean Seed Treatment Study

<b>Cooperators:</b>	<b>Producer:</b>	John Manning
	<b>Extension:</b>	Taylor Clarke
<b>Previous Crop:</b>		Soybeans with rye cover crop
<b>Soil Type:</b>		Appling fine sandy loam
<b>Tillage:</b>		No-till
<b>Planting Date:</b>		June 6, 2022
<b>Variety:</b>		See treatments
<b>Seeding Rate/Row Spacing:</b>		154,000 seed/acre; 15 inches
<b>Fertilization:</b>		200 pounds 0-0-60
<b>Crop Protection:</b>		Burndown - 1qt generic glyphoste, 1pt 2,4-D, 3.0 oz Envive Post - Glyphosate and fomesafen
<b>Harvest Date:</b>		December 12, 2022
<b>Harvest Equipment:</b>		John Deere 4420 w/ 215 Flex head

Treatment	Replication	Moisture%	Yield (bu/A)
Asgrow AG54XF0	1	14.7	32.1
Asgrow AG54XF0 ILEVO	1	14.8	38.6
Asgrow AG52XF0	1	14.6	35.2
Asgrow AG56XF2	1	14.2	35.4
Asgrow AG56XF2 ILEVO	1	14.2	34.8
Asgrow AG54XF0 ILEVO	2	14.3	36.8
Asgrow AG56XF2 ILEVO	2	14.4	33.8
Asgrow AG54XF0	2	14.4	35.2
Asgrow AG52XF0	2	14.4	33.5
Asgrow AG56XF2	2	14.2	35.7
Asgrow AG56XF2	3	13.8	37.2
Asgrow AG56XF2 ILEVO	3	14.1	36.3
Asgrow AG54XF0 ILEVO	3	14.1	37.2
Asgrow AG52XF0	3	14.6	30.4
Asgrow AG54XF0	3	14.5	41.5
Asgrow AG56XF2	Average	14.1	36.1
Asgrow AG56XF2 ILEVO	Average	14.2	35.0
Asgrow AG54XF0 ILEVO	Average	14.4	37.5
Asgrow AG54XF0	Average	14.5	36.3
Asgrow AG52XF0	Average	14.5	33.0
LSD (0.10)		NS	NS

**Discussion:** This replicated trial compared various levels of nematode resistance and ILEVO fungicide/nematicide seed treatment. AG 54XF0 = SCN susceptible, RKN = moderate; AG 52XF0 = SCN R3, RKN susceptible; AG 56XF2 = SCN R1,3, RKN resistant. Differences among treatments were very small. The nematode resistance and ILEVO treatments were not statistically different in this trial.

## Brunswick Nematode Soybean Seed Treatment Study

**Cooperators:**                    **Producer:** J.N. Gibbs  
**Extension:** Taylor Clarke  
**Previous Crop:** Soybeans small grain cover  
**Soil Type:** Appling fine sandy loam  
**Tillage:** No-till  
**Planting Date:** May 20, 2022  
**Variety:** See treatments  
**Seeding Rate/Row Spacing:** 154,000 seed/acre; 15 inches  
**Fertilization:** P and K spread variable rate by grid samples and 150 lbs of 10.5-0-30.5-12S  
**Crop Protection:** Burndown: 40 oz Roundup, 3 oz Fierce, and 3 oz Radiant  
Post: 40 oz Roundup  
**Harvest Date:** November 10, 2022  
**Harvest Equipment:** John Deere 9670 w/ 625 Flex head

Treatment	Replication	Moisture%	Yield (bu/A)
Asgrow AG57XF1	1	13.6	35.1
Asgrow AG54XF0	1	13.8	39.9
Asgrow AG54XF0 ILEVO	1	13.8	42.5
Asgrow AG52XF0	1	13.9	45.6
Asgrow AG57XF1	1	13.6	38.4
Asgrow AG56XF2 ILEVO	1	13.7	39.2
Asgrow AG56XF2	1	13.7	41.4
Asgrow AG52XF0	1	13.7	41.1
Asgrow AG57XF1	1	13.3	35.9
		<b>13.7</b>	<b>39.9</b>

**Discussion:** This strip trial compared various levels of nematode resistance and ILEVO fungicide/nematicide seed treatment. AG 54XF0 = SCN susceptible, RKN = moderate; AG 52XF0 = SCN R3, RKN susceptible; AG 56XF2 = SCN R1,3, RKN resistant; AG 57XF1 = SCN susceptible, RKN resistant. We cannot draw any strong conclusions from this location as to whether the treatments provided a yield response. As with many locations, early maturing varieties yielded better due to soil moisture levels. This data will be aggregated with other nematode trials across the region.

## Westmoreland and Essex Counties Rappahannock River Salinity Monitoring

**Cooperators:**           **Producers:**   B & S Farms, Inc, Cloverfield Enterprises, Lois’s Produce  
**Extension:**           Robbie Longest, VCE - Essex  
Stephanie Romelczyk, VCE – Westmoreland  
Anthony Ching, VCE – Summer Intern

**Discussion:** The Rappahannock River is one of many tidal rivers in Virginia, meaning that the flow and the water level are affected by tide. The Rappahannock is generally considered freshwater northwest of Port Royal and is too salty for irrigation water southeast of Tappahannock. The area in between, which runs through Westmoreland and Essex Counties, fluctuates in salinity level throughout the summer. High salinity levels correlate typically with low discharge measured in Fredericksburg. Basically, when there is less rain northwest of Port Royal, salinity levels increase in the Leedstown-Loretto area of the river.

Farmers on both sides of the river in the Leedstown-Loretto area rely on the river and its tributaries to irrigate their crops. Crops range from traditional grain crops of corn and soybeans to a wide variety of vegetables. Plants vary in their sensitivity to salinity. One of the most sensitive vegetable crops is green beans with injury occurring as low as 490 ppm. Soybeans are more tolerant of salinity and can withstand salinity levels up to 2310 ppm. Broccoli, a common crop in the area, is moderately tolerant of salinity and can tolerate salinity levels up to 1330 ppm.

ANR Extension Agents and VCE summer interns in Westmoreland and Essex Counties monitored the salinity level of the Rappahannock on a weekly basis beginning around June or July and continued into the fall. Salinity is measured using a Hanna HI 9811 meter that reads electrical conductivity (EC). Three sites are monitored: the Rappahannock River in Leedstown, the Peedee Creek, which flows into the Rappahannock at Leedstown, and another tributary of the Rappahannock River at Cloverfield. The EC is read in mS/cm, so for ease of communication with farmers, the reading is converted to ppm. Weekly alerts are sent to area farmers to guide irrigation usage and frequency.

Following are the weekly measurements taken at the three locations. Readings at Cloverfield were started later and ended earlier than the other two locations. Irrigation at that location is focused on corn and soybeans, so there is little need to continue sampling after irrigation is discontinued in soybeans; however, irrigation in vegetables continues well into the fall, so sampling continued at the two Westmoreland locations.

Rappahannock River at Leedstown (Westmoreland County):

Date of Sample	Sample Time	Rappahannock Salinity at Leedstown (ppm)
6/15/22	11:30 am	98
6/22/22	11:43 am	105
6/29/22	9:37 am	112
7/6/22	10:22 am	119
7/14/22	10:55 am	63
7/27/22	10:57 am	56
8/2/22	11:10 am	91
8/10/22	10:40 am	84
8/17/22	10:59 am	455
8/24/22	10:42 am	245
8/31/22	2:41 pm	546
9/7/22	11:07 am	819
9/14/22	2:15 pm	1309
9/21/22	3:50 pm	1519

9/29/22	2:22 pm	1386
10/12/22	11:15 am	2331
10/21/22	10:06 am	2030

Peedee Creek in Leedstown (Westmoreland County):

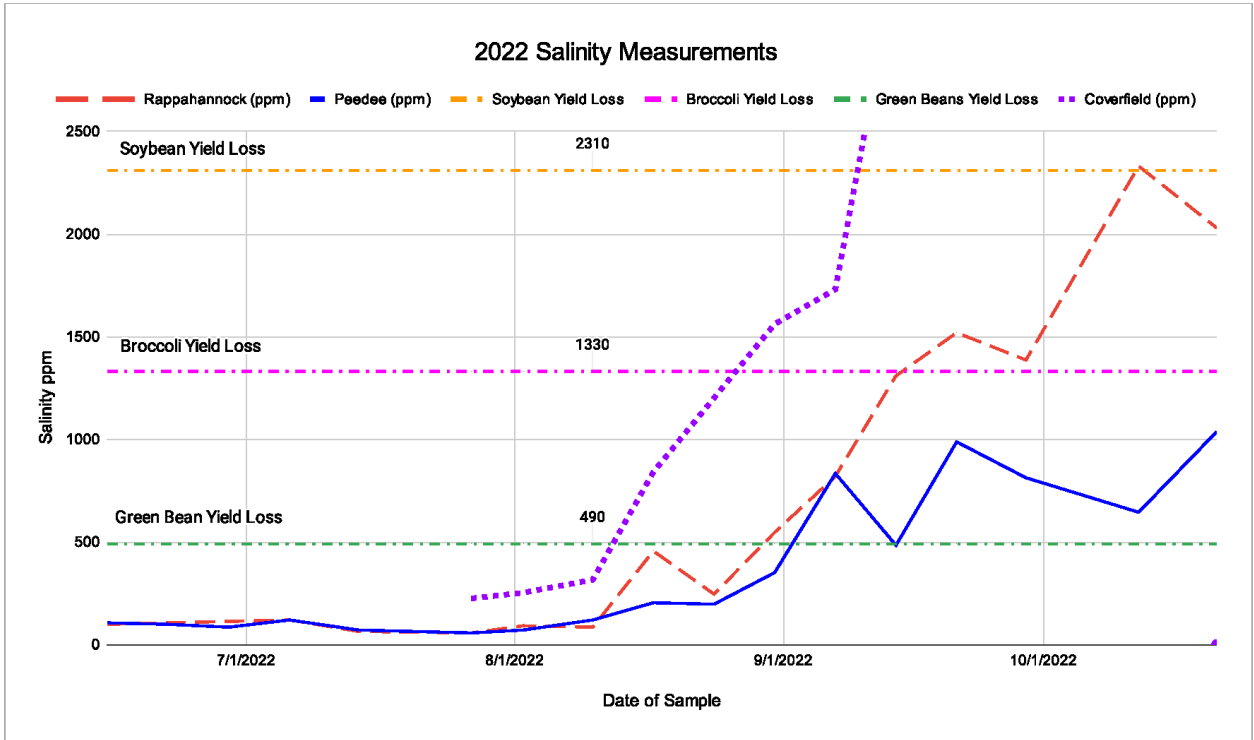
Date of Sample	Sample Time	Peedee Creek Salinity (ppm)
6/15/22	12:00 pm	105
6/22/22	11:54 am	98
6/29/22	9:53 am	84
7/6/22	10:22 am	119
7/14/22	10:44 am	70
7/27/22	11:08 am	56
8/2/22	11:21 am	70
8/10/22	10:57 am	119
8/17/22	11:09 am	203
8/24/22	10:58 am	196
8/31/22	2:49 pm	350
9/7/22	11:15 am	833
9/14/22	2:25 pm	483
9/21/22	3:57 pm	987
9/29/22	2:31 pm	812
10/12/22	12:17 pm	644
10/21/22	10:17 am	1036

Cloverfield in Champlain (Essex County):

Date of Sample	Sample Time	Cloverfield Salinity (ppm)
7/28/22	1:00 pm	224
8/4/22	2:00 pm	252
8/10/22	12:00 pm	315
8/18/22	2:45 pm	840
9/2/22	12:30 pm	1561
9/7/22	1:00 pm	1730
9/14/22	12:45 pm	3311
7/28/22	1:00 pm	224

In 2022, the Cloverfield location surpassed the green bean threshold in mid-August (8/18) and the two Westmoreland locations surpassed that threshold in late August (Rappahannock at Leedstown 8/31) and early September (Peedee 9/7). The Peedee Creek location never surpassed the broccoli threshold. The Cloverfield location surpassed the broccoli threshold on 9/6 and surpassed the soybean threshold on 9/13; sampling was ended 9/13. The Rappahannock River in Leedstown surpassed the broccoli threshold on 9/21 and the soybean threshold on 10/12. By that point, irrigation in soybeans had ceased, so there was no danger to the soybean crop.





Graph 1. This graph shows the salinity readings at the three sites from June through October in 2022. The thresholds for yield losses due to salinity are show for green beans, broccoli and soybeans.



Center pivot irrigation at the Cloverfield location.

## Nottoway County Maturity Group 4 Soybean Disease Comparisons

**Cooperators:** Producer: Southern Piedmont AREC  
 Extension: Dr. Carol Wilkinson, Professor  
 Dr. Yuan Zeng, Assistant Professor and Extension Plant Pathologist  
**Previous Crop:** Tall fescue sod  
**Soil Type:** Helena/Wehadkee-Chewacla complex  
**Tillage:** Conventional tillage  
**Planting Date:** June 28, 2022  
**Seeding Rate/Row Spacing:** 180,000 seed per acre; 30-inch rows  
**Fertilization:** 432 lbs 5-10-10 per acre  
**Crop Protection:** June 27, 2022 BroadAxe XC 1 qt per acre; August 24, 2022 Buccaneer Plus 1 qt per acre  
**Harvest Date:** December 14, 2022  
**Harvest Equipment:** Wintersteiger Elite 2000

Brand	Variety	Frogeye Leaf Spot Severity %	Cercospora Leaf Blight Severity %	Moisture%	Yield @ 13% moisture (bu/A)
Asgrow	AG46XF2	4.75	20.0	16.2	25.1
Asgrow	AG48XF2	7.25	5.0	14.9	32.6
Pioneer	P46A86X	0.25	13.3	16.6	27.6
Pioneer	P47A25BX	2.75	16.3	14.8	35.3
USG	7461XFS	9	23.8	14.0	33.8
Hubner	H47-30XF	3.5	12.5	13.8	31.4
Hubner	H48-31XF	1.5	12.5	15.6	32.3
Dyna Gro	S48XF61S	7.5	21.3	15.6	31.7
Dyna Gro	S46XF31S	5	20.0	15.7	31.1
Progeny	P 4821RX	8.5	22.5	16.2	36.6
Progeny	P 4604XFS	5	6.3	15.6	31.8
Revere Seed	4606XFS	6	26.3	15.3	32.3
Revere Seed	4806XS	3.75	15.0	14.0	27.4
NK Seed	NK45-P9XF	0	26.7	16.4	30.5
NK Seed	NK44-J4XFS	3.5	11.7	16.3	32.6
MorSoy	MS 4640XF	3.75	22.5	14.3	32.2
MorSoy	MS 4852XF	1.25	40.0	15.7	35.6
DONMARIO Seeds	DM45X61S	1	20.0	16.2	35.0
AgriGold	G 4615XF	5	30.0	17.2	31.2
AgriGold	G 4813XF	4.5	25.0	15.4	37.3
	<b>AVERAGE</b>	<b>4.2</b>	<b>19.5</b>	<b>15.5</b>	<b>32.2</b>

**Discussion:** Frogeye leaf spot severity and *Cercospora* leaf blight severity were rated by visually assessing the percentage of the symptomatic leaf area on plants in the middle two rows of each plot at reproductive growth stages from R3 to R7. Each variety contains four replicate plots and each disease severity data is the mean of four replicates at the R6 stage. No significant differences of soybean yields

(13% moisture) and *Cercospora* leaf blight severity were observed among varieties (P-values > 0.05); however, some varieties were more tolerant to Frogeye leaf spot (P-values < 0.05). NK45-P9XF, P46A86X, DM45X61S, MS4852XF, and H48-31XF were considered tolerant varieties to Frogeye leaf spot compared to other varieties.

Soybean yield, Frogeye leaf spot severity and *Cercospora* leaf blight severity were compared across groupings planted at the Southern Piedmont AREC: Maturity Group 4 (MG4), Maturity Group 5 (MG5), and LibertyLink (LL). Statistical analysis found that soybean yields at 13% moisture were significantly different among groups; MG4 and MG 5 had higher yields than the LL group. Disease severities of Frogeye leaf spot were significantly different among the three groups, with the ranking of MG5 > MG4 > LL. Disease severities of *Cercospora* leaf blight of MG 5 and MG4 were similar, but they were significantly higher than LL group.

## Nottoway County Maturity Group 5 Soybean Disease Comparisons

**Cooperators:**   **Producer:**   Southern Piedmont AREC  
                           **Extension:**   Dr. Carol Wilkinson, Professor  
   Dr. Yuan Zeng, Assistant Professor and Extension Plant Pathologist  
**Previous Crop:**                   Tall fescue sod  
**Soil Type:**                        Helena/Wehadkee-Chewacla complex  
**Tillage:**                            Conventional tillage  
**Planting Date:**                   June 28, 2022  
**Seeding Rate/Row Spacing:**   180,000 seed per acre; 30-inch rows  
**Fertilization:**                    432 lbs 5-10-10 per acre  
**Crop Protection:**                June 27, 2022 BroadAxe XC 1 qt per acre; August 24, 2022 Buccaneer Plus 1 qt per acre  
**Harvest Date:**                    December 14, 2022  
**Harvest Equipment:**            Wintersteiger Elite 2000

Brand	Variety	Frogeye Leaf Spot Severity %	Cercospora Leaf Blight Severity %	Moisture%	Yield @ 13% moisture (bu/A)
Asgrow	AG53XF2	0.0	13.8	15.5	30.9
Asgrow	AG54XF0	6.8	12.5	16.6	33.7
Pioneer	P52A05X	3.5	25.0	14.9	35.5
Pioneer	P54A36SX	4.5	16.3	15.7	38.5
USG	7562XF	8.5	18.8	14.6	35.3
Hubner	H51-22XF	4.8	20.0	15.8	32.5
Dyna Gro	S56XT99	1.0	11.3	15.7	32.0
Dyna Gro	S54XF62	2.0	22.5	16.0	33.1
Progeny	P 5252RX	0.0	30.0	16.2	35.8
Progeny	P 5554RX	0.0	15.0	15.6	30.4
Revere Seed	5029XF	3.0	32.5	15.2	37.1
Revere Seed	5386X	1.0	11.3	14.8	33.6
NK Seed	S52-Y7X	6.8	27.5	16.8	33.2
NK Seed	NK57-A3XF	1.5	3.8	14.9	34.4
MorSoy	MS 5398RXT	1.5	10.0	16.3	32.9
MorSoy	MS 5640XF	0.5	5.0	15.6	27.3
	<b>AVERAGE</b>	<b>2.8</b>	<b>17.2</b>	<b>15.6</b>	<b>33.5</b>

**Discussion:** Frogeye leaf spot severity and *Cercospora* leaf blight severity were rated by visually assessing the percentage of the symptomatic leaf area on plants in the middle two rows of each plot at reproductive growth stages from R3 to R7. Each variety contains four replicate plots and each disease severity data is the mean of four replicates at the R6 stage. No significant differences of soybean yields (13% moisture) were observed among varieties (P-value > 0.05). Some varieties were more tolerant to Frogeye leaf spot and/or *Cercospora* leaf blight (P-values < 0.05). For example, AG53XF2, P 5252RX, P 5554RX, MS 5640XF, 5386X, S56T99 were tolerant to Frogeye leaf spot, while NK57-A3XF and MS 5398RXT were tolerant to Frogeye leaf spot and *Cercospora* leaf blight.

Soybean yield, Frogeye leaf spot severity and *Cercospora* leaf blight severity were compared across groupings planted at the Southern Piedmont AREC: Maturity Group 4 (MG4), Maturity Group 5 (MG5), and LibertyLink (LL). Statistical analysis found that soybean yields at 13% moisture were significantly different among groups; MG4 and MG 5 had higher yields than the LL group. Disease severities of Frogeye leaf spot were significantly different among the three groups, with the ranking of MG5 > MG4 > LL. Disease severities of *Cercospora* leaf blight of MG 5 and MG4 were similar, but they were significantly higher than LL group.

## Nottoway County LibertyLink Soybean Disease Comparisons

**Cooperators:**   **Producer:**   Southern Piedmont AREC  
                           **Extension:**   Dr. Carol Wilkinson, Professor  
   Dr. Yuan Zeng, Assistant Professor and Extension Plant Pathologist  
**Previous Crop:**           Tall fescue sod  
**Soil Type:**                Helena/Wehadkee-Chewacla complex  
**Tillage:**                 Conventional tillage  
**Planting Date:**         June 28, 2022  
**Seeding Rate/Row Spacing:** 180,000 seed per acre; 30-inch rows  
**Fertilization:**           432 lbs 5-10-10 per acre  
**Crop Protection:**       June 27, 2022 BroadAxe XC 1 qt per acre; August 24, 2022 Buccaneer Plus 1 qt per acre  
**Harvest Date:**           December 14, 2022  
**Harvest Equipment:**     Wintersteiger Elite 2000

<b>Brand</b>	<b>Variety</b>	<b>Frogeye Leaf Spot Severity %</b>	<b>Cercospora Leaf Blight Severity %</b>	<b>Moisture%</b>	<b>Yield @ 13% moisture (bu/A)</b>
AgriGold	G 4655E3	1.5	12.9	15.7	25.5
AgriGold	G 4881E3	2.0	13.1	15.0	28.0
USG	7542ET	1.0	13.3	16.1	28.6
USG	7451ET	3.0	13.2	13.8	26.4
DONMARIO Seeds	DM46E62	1.3	13.0	15.8	23.4
Southern Harvest	SH 5523E3	3.0	12.9	15.6	29.8
Southern Harvest	SH 5223E3	1.5	12.7	15.3	25.2
Southern Harvest	SH 4622E3	1.5	12.7	15.0	26.9
Progeny	P 5521E3	1.0	13.2	15.1	29.1
Progeny	P 4775E3S	3.0	13.5	14.8	29.5
Revere Seed	5429E3	1.5	13.9	15.3	30.9
Revere Seed - Innotech	5360E3	2.0	15.0	15.6	21.0
Revere Seed	4927E3S	3.5	14.0	15.5	25.9
Revere Seed - Innotech	4737E3	1.5	13.9	15.0	20.0
MorSoy	MS 5461E	0.5	13.9	15.2	28.9
MorSoy	MS 5110E	1.5	14.6	14.9	26.5
Dyna Gro	S51EN62	4.0	14.1	17.7	25.7
Dyna Gro	S49EN12	1.5	14.5	14.3	25.4
Dyna Gro	S45ES10	2.5	15.7	15.2	27.9
Pioneer	P48A14E	1.5	17.5	14.4	27.8
Pioneer	P49T62E	1.5	16.3	14.8	23.7
Pioneer	P53T90E	2.5	17.5	15.2	24.8
	<b>AVERAGE</b>	<b>1.9</b>	<b>14.1</b>	<b>15.2</b>	<b>26.4</b>

**Discussion:** Frogeye leaf spot severity and *Cercospora* leaf blight severity were rated by visually assessing the percentage of the symptomatic leaf area on plants in the middle two rows of each plot at reproductive growth stages from R3 to R7. Each variety contains four replicate plots and each disease severity data is the mean of four replicates at the R6 stage. No significant differences of soybean yields (13% moisture) were observed among varieties (P-value > 0.05). Most of the tested varieties were tolerant to Frogeye leaf spot, while S51EN62 was the most susceptible variety to Frogeye leaf spot (P-values < 0.05). All varieties were susceptible to *Cercospora* leaf blight. Of all tested varieties, P48A14E was more susceptible to *Cercospora* leaf blight (P-values < 0.05) compared to other varieties.

Soybean yield, Frogeye leaf spot severity and *Cercospora* leaf blight severity were compared across groupings planted at the Southern Piedmont AREC: Maturity Group 4 (MG4), Maturity Group 5 (MG5), and LibertyLink (LL). Statistical analysis found that soybean yields at 13% moisture were significantly different among groups; MG4 and MG 5 had higher yields than the LL group. Disease severities of Frogeye leaf spot were significantly different among the three groups, with the ranking of MG5 > MG4 > LL. Disease severities of *Cercospora* leaf blight of MG 5 and MG4 were similar, but they were significantly higher than LL group.

## Threecornered Alfalfa Hopper Study

**Cooperators:** Bobby Bradley, Adam Davis  
**Producer:** Elizabeth Cooper, City of Suffolk  
**Extension:** Dr. Sally Taylor, Assistant Professor and Extension Entomologist  
 Sean Malone, Research Specialist, Tidewater AREC

Threecornered alfalfa hopper, *Spissistilus festinus* (Say) (Hemiptera: Membracidae), is a ubiquitous pest of soybean that causes yield loss in certain scenarios. Plant lodging, and significant stand loss, from this insect has occurred in Virginia's Piedmont since at least 2017. There is a need to determine if chemical control (e.g., foliar and/or seed-applied insecticides) can be used to minimize plant injury and preserve yield. We hypothesized that control with insecticides will vary depending on infestation timing, which is not known, and foliar insecticides will provide the best control when applied at or near the time pests arrive. In 2021, we evaluated spray timings based on plant development and estimated infestation timings using yellow sticky traps and timed visual observations. The insecticide that was used for these tests was bifenthrin @ 6.4 oz/acre and all seed had an imidacloprid seed treatment applied (0.2336 mg ai/seed, Acceleron).

We identified two population peaks (late May and one month later in late June) potentially related to herbicide applications and small grain harvest. No insecticide application yielded higher than unsprayed plots and there was a high amount of variability within treatments. Effects of spraying may have also been minimized by compensation of the soybean crop. Soybeans can produce more pods per plant, more seeds per pod, and heavier seeds when there are fewer surrounding plants to compete for sunlight and nutrients. This trend is not consistent in all experiments, suggesting that environmental factors can limit plant compensation. Current recommendations for producers as a result of this research include promoting fast growth of the plants through standard good agronomic practices such as managing planting times, soil health and available nutrients. Additionally, managing soybeans to be 12 inches or taller when harvesting neighboring hay or small grains will help avoid creating high risk scenarios for insect infestation.

**Table 1:** Insecticide treatment and the number of pods per plant, total pod plus seed weight per plant and seed weight per m<sup>2</sup> at Bradley location 1. Ten plants were sampled per plot at each location. Plants were returned to the laboratory where pods were removed and shelled by hand.

#	Treatment	Total pods per plant	Pod + seed weight (g) per plant	Seed weight (g) per m <sup>2</sup>
1	Untreated	62.4	39.5	347.98
2	Weekly sprays beginning at cotyledon	58.5	37.7	457.60
3	Cotyledon spray	55.1	34.4	460.38
4	1st trifoliolate spray	58.4	37.7	466.30
5	2nd trifoliolate spray	58.6	37.4	431.25
6	3rd trifoliolate spray	64.7	40.2	489.58
	LSD	24.68	16.26	187.49
	P(F)	0.97	0.98	.67



**Table 2:** Insecticide treatment and the number of pods per plant, total pod plus seed weight per plant and seed weight per m<sup>2</sup> at Bradley location 2. Ten plants were sampled per plot at each location. Plants were returned to the laboratory where pods were removed and shelled by hand.

#	Treatment	Total pods per plant	Pod + seed weight (g) per plant	Seed weight (g) per m <sup>2</sup>
1	Untreated	65.0	30.2	576.03
2	Weekly sprays beginning at cotyledon	72.5	32.5	572.20
3	Cotyledon spray	89.4	41.4	605.98
4	1st trifoliolate spray	74.5	34.2	490.35
5	2nd trifoliolate spray	66.4	31.2	531.75
6	3rd trifoliolate spray	75.2	35.4	554.68
	LSD	20.99	9.77	252.79
	P(F)	0.23	0.23	0.94

**Table 3:** Insecticide treatment and the number of pods per plant, total pod plus seed weight per plant and seed weight per m<sup>2</sup> at Davis location 1. Ten plants were sampled per plot at each location. Plants were returned to the laboratory where pods were removed and shelled by hand.

#	Treatment	Total pods per plant	Pod + seed weight (g) per plant	Seed weight (g) per m <sup>2</sup>
1	Untreated	48.1	27.8	485.53
2	Weekly sprays beginning at 1 <sup>st</sup> trifoliolate	44.6	25.1	533.85
3	1st trifoliolate spray	49.9	29.3	544.83
4	2nd trifoliolate spray	45.4	26.4	518.95
5	3rd trifoliolate spray	47.1	26.9	504.85
6	4th trifoliolate spray	42.4	24.0	474.30
	LSD	15.89	9.70	195.29
	P(F)	0.93	0.88	0.97

**Table 4:** Insecticide treatment and the number of pods per plant, total pod plus seed weight per plant and seed weight per m<sup>2</sup> at Davis location 2. Ten plants were sampled per plot at each location. Plants were returned to the laboratory where pods were removed and shelled by hand.

#	Treatment	Total pods per plant	Pod + seed weight (g) per plant	Seed weight (g) per m <sup>2</sup>
1	Untreated	28.1	14.8	293.17
2	Weekly sprays beginning at cotyledon	26.5	14.0	371.70
3	Cotyledon spray	31.1	17.5	424.35
4	1st trifoliolate spray	24.6	13.8	299.88
5	2nd trifoliolate spray	23.5	12.4	370.00
6	3rd trifoliolate spray	27.4	14.6	340.13
	LSD	11.59	6.09	142.67
	P(F)	0.75	0.61	0.38

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