

# Virginia On-Farm Soybean Research

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

## 2024

by the following Extension Faculty:

Scott Reiter, Prince George County  
Stephanie Romelczyk, Westmoreland County  
Taylor Clarke, Mecklenburg County  
Hélène Doughty, Northampton County  
Roy Flanagan, City of Virginia Beach  
Mackenzie Gunn, Amelia County  
Bruce Jones, Appomattox County  
Joanne Jones, Charlotte County  
Trent Jones, Lancaster/Northumberland Counties  
Robbie Longest, Essex County  
Theresa Pittman, Accomack County  
Nathan Sedghi, City of Chesapeake  
Megan Williams, King George/Caroline Counties  
David Langston, Virginia Tech – Tidewater AREC  
Carrie Ortel, Virginia Tech – Tidewater AREC

 **Virginia Cooperative Extension**  
Virginia Tech. • Virginia State University



## 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 620,000 acres of soybeans valued at approximately \$350 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 28th year of this multi-county cooperative effort and further work is planned for 2025. 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.



**DISCLAIMER:** Commercial products are named in this publication for informational purposes only. Virginia Cooperative Extension does not endorse these products and does not intend discrimination against other products that also might be suitable.

## Table of Contents

<b>GENERAL SUMMARY .....</b>	<b>5</b>
Trait Data for 2024 VCE On-farm Soybean Varieties XtendFlex .....	6
Trait Data for 2024 VCE On-farm Soybean Varieties Enlist E3.....	7
Seed Treatment Data for On-Farm Soybean Variety Comparisons XtendFlex.....	8
Seed Treatment Data for On-Farm Soybean Variety Comparisons Enlist E3.....	9
Soybean Herbicide Systems and Herbicide Selection Chart.....	10
<b>MATURITY GROUP 4 VARIETY COMPARISONS – XtendFlex .....</b>	<b>11</b>
2024 Overall Group 4 Comparison .....	12
Appomattox County Maturity Group 4 Soybean Comparisons .....	13
Brunswick County Maturity Group 4 Soybean Comparisons .....	14
Charlotte County Maturity Group 4 Soybean Comparisons.....	15
City of Chesapeake Maturity Group 4 Soybean Comparisons.....	16
Prince George County Maturity Group 4 Soybean Comparisons .....	17
<b>MATURITY GROUP 5 VARIETY COMPARISONS – XtendFlex .....</b>	<b>18</b>
2024 Overall Group 5 Comparisons.....	19
Brunswick County Maturity Group 5 Soybean Comparisons .....	20
City of Chesapeake Maturity Group 5 Soybean Comparisons.....	21
Prince George County Maturity Group 5 Soybean Comparisons .....	22
<b>MATURITY GROUP 4 &amp; 5 VARIETY COMPARISONS – Enlist E3 .....</b>	<b>23</b>
2024 Overall Group 4 Enlist Comparisons.....	24
2024 Overall Group 5 Enlist Comparisons.....	25
Brunswick County Group 4 Enlist Soybean Comparisons.....	26
City of Chesapeake Group 4 Enlist Soybean Comparisons.....	27
Eastern Shore Enlist Group 4 Soybean Comparisons .....	28
Essex County AG Expo Enlist Group 4 Soybean Comparisons.....	29
Westmoreland County Enlist Group 4 Soybean Comparisons.....	30
Brunswick County Enlist Group 5 Soybean Comparisons.....	31
City of Chesapeake Group 5 Enlist Soybean Comparisons.....	32
Eastern Shore Enlist Group 5 Soybean Comparisons .....	33
Essex County AG Expo Enlist Group 5 Soybean Comparisons.....	34
<b>Other Research.....</b>	<b>35</b>
Essex County AG EXPO Soybean Potassium Response Study .....	36
King George County Soybean Potassium Response Study .....	37
Essex County Velum In-Furrow Soybean Study.....	38
Westmoreland and Essex Counties Rappahannock River Salinity Monitoring .....	39

**PHOTOS:** Courtesy of Hélène Doughty, Laura Siegle, Robbie Longest, and Stephanie Romelczyk

## GENERAL SUMMARY

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 2024 was no different. Early season conditions were generally favorable across the Commonwealth. June presented some very dry conditions for most locations. While good for wheat harvest, early planted soybeans suffered some yield loss and some double-crop plantings were delayed. July brought some much-needed rain with some locations recording 10 inches. August through September was a period of sporadic rainfall and variable drought conditions. According to the US Drought Monitor, we had more widespread drought concerns in 2024 compared to the previous two years. However, judging by the reported yields across the trial locations the rainfall received was timely. This was definitely one of the best soybean harvest seasons we experienced with 40 rain-free days from October 3 through early November.

Maturity Group (MG) 4 & 5 varieties were compared across multiple locations in 2024. This work is performed in concert with the Virginia Official Variety Tests (<https://bit.ly/VTSoybeanOVT>) and offers producers even stronger yield comparison information that they can use when making planting decisions.

Roundup Ready XtendFlex soybean varieties were submitted for testing at six locations. Enlist E3 varieties were tested at five locations this year. 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 2025.

Several additional trials were also conducted. Velum fungicide/nematicide was evaluated in a location with a history of nematode pressure. Potassium fertilization and tissue testing was evaluated at two locations by Dr. Carrie Ortel. Check out those pages for details on treatments and results.

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 and the effects of drought on water quality downstream.

We hope you find this information useful. If you have ideas for 2025 on-farm research or would like to be a cooperator in 2025, please contact your local Virginia Cooperative Extension Agriculture Agent.

## Trait Data for 2024 VCE On-farm Soybean Varieties 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	AG47XF5	4.7	XF/SR	R	-	P	VG	-	VG
Asgrow	AG49XF3	4.9	XF	R3	S	G	G	-	VG
Channel	4821RXF/SR	4.8	XF/SR	R	S	G	G	-	G
Dyna-Gro	S47XF23S	4.7	XF/STS	R3	P	G	G	-	E
Dyna-Gro	S49XF43S	4.9	XF/STS	MR3	F	VG	G	-	E
HiSOY	HS 44F30	4.4	XF/STS	VG	-	VG	VG	-	-
HiSOY	HS 46F00	4.6	XF/STS	VG	-	-	G	-	-
Pioneer	P46A90LX	4.6	LL/X	R	F	G	G	MS	R
Progeny	P 4691XFS	4.6	XF/STS	R	-	P	P	-	E
Progeny	P 4947XFS	4.9	XF/STS	R	F	G	G	-	E
Revere	RV 44-F44	4.3	XF/SR	R3, MR14	S	P	VG	-	R
Revere	RV 49-F36	4.9	XF/SR	R3, MR14	-	F-G	P	-	R
USG	7474XFS	4.7	XF/STS	R3, MR14	S	-	MR	-	R
USG	7495XFS	4.9	XF/STS	MR3, MR14	S	MR	MR	-	MR
Asgrow	AG50XF5	5.0	XF	R	S	F	G	-	VG
Asgrow	AG53XF2	5.3	XF/SR	R3	S	G	G	-	VG
Channel	5024RXF/SR	5.0	XF/SR	R	S	-	G	-	VG
Channel	5723RXF/SR	5.7	XF/SR	R	R	F	G	-	VG
Dyna-Gro	S55XF95	5.5	XF	R1, R3 (Peking)	G	VG	G	-	E
Dyna-Gro	S58XF24	5.8	XF	R3	VG	-	G	-	E
HiSOY	HS 54F30	5.4	XF/STS	VG	R	-	VG	-	R
HiSOY	HS 56F00	5.6	XF	VG	-	-	-	-	-
Pioneer	P50A08LX	5.0	LL/X	R	P	G	VG	MS	R
Progeny	P 5056XFS	5.0	XF/STS	-	P	P	F	-	E
Revere	RV 53-F84	5.3	XF/SR	MR3	MS	E	F-G	-	R
Revere	RV 5735XFS	5.7	XF/SR	R3, MR14	R	-	A	-	R
USG	7543XF	5.4	XF	S	S	VG	VG	-	E

R = Resistant  
S = Susceptible  
MR = Moderately resistant  
P = Poor

M = Moderate  
MS = Moderately susceptible  
A = Average  
F = Fair

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

XF = XtendFlex  
X = Xtend  
STS, SR, BOLT = Tolerant to sulfonylurea herbicides

E3 = Enlist E3  
LL= LibertyLink

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

## Trait Data for 2024 VCE On-farm Soybean Varieties Enlist E3

<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>
Channel	CT4924E	4.9	E3/SR	R3, MR14	-	G	-	-	-
ChemGro	C4554E	4.5	E3	R	-	-	VG	-	E
ChemGro	C4957ES	4.9	E3/STS	R	-	-	-	E	E
Dyna-Gro	S45EN25	4.5	E3	R3	S	VG	G	-	E
Dyna-Gro	S48EN73	4.8	E3	R3	P	G	G	-	E
HiSOY	HS 45E00	4.5	E3	VG	-	VG	VG	-	-
HiSOY	HS 47E30	4.7	E3	VG	-	VG	VG	-	-
Mid-Atlantic	MAS4423E3	4.4	E3	R	-	VG	VG	-	MR
Mid-Atlantic	MAS4623E3/STS	4.6	E3/STS	R	-	VG	G	-	R
NK	NK42-A6E3S	4.2	E3/STS	MR3	G	VG	VG	-	E
NK	NK47-G5E3S	4.7	E3/STS	MR3	G	VG	G	-	VG
Pioneer	P48A14E	4.8	E3	R	F	F	G	HT	G
Revere	46-E67	4.6	E3	R3, MR14	S	VG	F-G	-	R
Revere	47-E74	4.7	E3	-	S	VG	VG	-	R

Channel	CT5225E	5.2	E3	R3, MR14	-	G	-	-	-
Dyna-Gro	S51EN62	5.1	E3	S	P	VG	VG	-	E
NK	NK52-D6E3	5.2	E3	R3	VG	VG	VG	-	E
Pioneer	P50Z95E	5.0	E3	R	F	F	G	MS	R
Pioneer	P52A14SE	5.2	E3/STS	R	E	G	G	MS	R
Revere	CT 5293E3	5.2	E3	R3	MR	E	VG	-	R
Revere	5429E	5.4	E3	R3, MR14	MR	E	G	-	R

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 XtendFlex

Seed Treatments on Submitted Xtend-XtendFlex Varieties						
Company	Brand	Treatment Brand Name (Contents)	Insecticide	Fungicide	Nematicide	Inoculant
			None			
Asgrow	AG47XF5	Acceleron Seed Applied Solutions (Standard)	X	X		
Asgrow	AG49XF3	Acceleron Seed Applied Solutions (Standard)	X	X		
Channel	4821RXF/SR	Acceleron Seed Applied Solutions (Standard) + ILLeVo	X	X	X	
Dyna Gro	S47XF23S	Equity Vayo + Saltro	X	X	X	
Dyna Gro	S49XF43S	Equity Vayo + Saltro	X	X	X	
HISOY	HS 46F00	Acceleron Seed Applied Solutions (Standard) + Saltro + Novozymes Cue	X	X	X	X
HISOY	HS 44F30	Acceleron Seed Applied Solutions (Standard) + Saltro + Novozymes Cue	X	X	X	X
Pioneer	P46A90LX	LumiGen + LumiTreo + ILEVO HL ( B. pumilis, amyloliquifaciens)	X	X	X	X
Progeny	P 4691XFS	Proservo				
Progeny	P 4947XFS	Proservo				
Reverse Seed	RV 44-F44	Radius Premium + Preside Ultra inoculant	X	X		X
Reverse Seed	RV 49-F36	Radius Premium + Verdesian inoculant	X	X		X
USG	7474XFS	Rancona, metalaxyl, imidacloprid	X	X		
USG	7495XFS	Rancona, metalaxyl, imidacloprid	X	X		
Asgrow	AG53XF2	Acceleron Seed Applied Solutions (Standard)	X	X		
Asgrow	AG50XF5	Acceleron Seed Applied Solutions (Standard)	X	X		
Channel	5024RXF	Acceleron Seed Applied Solutions (Standard) + ILLeVo HL	X	X	X	
Channel	5723RXF/SR	Acceleron Seed Applied Solutions (Standard) + ILLeVo HL	X	X	X	
Dyna Gro	S55XF95	Equity Vayo+ Saltro	X	X	X	
Dyna Gro	S58XF24	Equity Vayo+ Saltro	X	X	X	
HISOY	HS 56F00					X
HISOY	HS 54F30					X
Pioneer	P50A08LX	LumiGen + LumiTreo + ILLeVo HL ( B. pumilis, amyloliquifaciens)	X	X	X	X
Progeny	P 5056XFS	Proservo				
Reverse Seed	RV 53-F84	Radius Premium + Preside Ultra inoculant + Saltro + Impact ST + Stabilize ST	X	X	X	X
Reverse Seed	RV 5735XFS	Radius Premium + Primo inoculant	X	X	X	X
USG	7543XF	<i>Treated - no labeling</i>				



# Seed Treatment Data for On-Farm Soybean Variety Comparisons Enlist E3

Seed Treatments on Submitted Enlist E3 Varieties			Insecticide	Fungicide	Nematicide	Inoculant	Biological
Company	Brand	Treatment Brand Name (Contents)	None				
Channel	CT4924E						
ChemGro	C4554E	<i>Treated but not listed</i>					
ChemGro	C4957ES	GroTek + Chitosan + N Force inoculant	X	X		X	X
Dyna-Gro	S45EN25	Equity Vayo + Salstro	X	X	X		
Dyna-Gro	S48EN73	Equity Vayo + Salstro	X	X	X		
HISOY	HS 45E00	Acceleron Seed Applied Solutions (Standard) + Salstro + Novozymes Cue	X	X	X		X
HISOY	HS 47E30	Acceleron Seed Applied Solutions (Standard) + Salstro + Novozymes Cue	X	X	X		X
Mid-Atlantic	MAS4423E3						
Mid-Atlantic	MAS4623E3/STS						
NK	NK42-A6E3S	Cruiser MAXX APX + Salstro	X	X	X		
NK	NK47-G5E3S	Cruiser MAXX APX + Salstro	X	X	X		
Pioneer	P48A14E	LumiGen + LumiTreo + ILEVO HL ( B. pumilis, amyloliquifaciens)	X	X	X		X
Revere	46-E67	Radius Premium + Preside Ultra inoculant	X	X		X	
Revere	47-E74	Radius Premium + Preside Ultra inoculant	X	X		X	
Channel	CT5225E	Acceleron Seed Applied Solutions (Standard)	X	X			
Dyna-Gro	S51EN62	DynaShield FM + Salstro	X	X	X		
NK	NK52-D6E3	Cruiser MAXX APX + Salstro	X	X	X		
Pioneer	P50Z95E	LumiGen + LumiTreo + ILLeVo HL ( B. pumilis, amyloliquifaciens)	X	X	X		X
Pioneer	P52A14SE	LumiGen + LumiTreo + ILLeVo HL ( B. pumilis, amyloliquifaciens)	X	X	X		X
Revere	CT 5293E3	Radius Premium + Preside Ultra inoculant	X	X		X	
Revere	5429E	Radius Premium + Preside Ultra inoculant	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
Conventional		Liberty Generics	XtendiMax Engenia Tavium	Enlist One Enlist Duo (premix)	Synchrony XP Classic Harmony GT Permit Plus Generics	Alite 27 <sup>1</sup>
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 – XtendFlex**

## 2024 Overall Group 4 Comparison

Company Brand	Appomattox	Brunswick	Charlotte	Chesapeake	Prince George	Overall Average	Average Relative Yield
HiSOY HS 46F00	73.7	45.8	68.3	41.3	67.0	59.2	107
Channel 4821RXF/SR	63.7	46.8	65.3	47.4	66.9	58.0	107
Asgrow AG49XF3	66.9	45.8	60.4	47.2	70.2	58.1	106
Dyna-Gro S49XF43S		49.7	62.7	44.6	61.9	54.7	106
Revere RV 49-F36	63.5	49.4	58.0	45.3	58.8	55.0	102
Revere RV 44-F44	63.1	42.1	59.2	46.7	64.3	55.1	101
HiSOY HS 44F30	77.1	39.0	59.3		64.1	59.9	101
Progeny P 4947XFS	62.9	43.1	56.8	40.9	66.8	54.1	99
Pioneer P46A90LX	66.9	40.2	64.0	35.7	65.3	54.4	98
Asgrow AG47XF5	68.4	41.1	56.1	34.7	66.6	53.4	96
USG 7495XFS	54.3	43.1	57.1	44.4	60.9	51.9	96
Dyna-Gro S47XF23S	72.2	46.6		26.2	63.2	52.0	95
USG 7474XFS	60.2	41.4	61.7	35.1	64.2	52.5	95
Progeny P 4691XFS	50.2	36.2	66.2	35.3	67.6	51.1	92
	<b>64.9</b>	<b>43.6</b>	<b>61.2</b>	<b>40.4</b>	<b>64.8</b>		

Varieties missing from some locations due to seed not being available at planting date or not enough seed supplied.  
 Average Relative Yield is the relationship of the yield to the location average. It is a percentage above or below the average yield for the location.  
 100 = average





## Charlotte County Maturity Group 4 Soybean Comparisons

**Cooperators:**                   **Producer:** Grind-N-Stone Farms; The Poindexter Family  
**Extension:** Joanne Jones, VCE-Charlotte  
 Bruce Jones, VCE-Appomattox  
**Previous Crop:** Corn  
**Soil Type:** Appling fine sandy loam  
**Tillage:** No-till  
**Planting Date:** April 30, 2024  
**Seeding Rate/Row Spacing:** 15-inch rows  
**Fertilization:** 1.5 tons chicken litter  
**Crop Protection:** May: 1.5 qt generic glyphosate; 3.25 oz Valor XLT; 12.8 oz Engenia; 8 oz Grounded surfactant  
 June: 1.25 qt generic glyphosate; 12.8 oz Engenia; 1/2 lb Axilo Mix 5 micronutrients; 6 oz Dynamic surfactant  
**Harvest Date:** October 30, 2024  
**Harvest Equipment:** R52 Gleaner Combine + weigh wagon

Brand	Variety	Moisture%	Yield (bu/A)
Asgrow	AG47XF5	12.4	56.1
Channel	4821RXF/SR	12.8	65.3
USG	7495XFS	12.8	57.1
Progeny	P 4947XFS	12.6	56.8
Revere	RV 49-F36	13.2	58.0
Asgrow	AG49XF3	12.5	60.4
HiSOY	HS 46F00	12.4	68.3
Pioneer	P46A90LX	12.4	64.0
Dyna-Gro	S49XF43S	12.7	62.7
USG	7474XFS	12.4	61.7
Progeny	P 4691XFS	12.5	66.2
HiSOY	HS 44F30	12.8	59.3
Revere	RV 44-F44	12.4	59.2
	<b>AVERAGE</b>	<b>12.6</b>	<b>61.2</b>

**Discussion:** This Charlotte location produced exceptional yields even with drought conditions during the season.

## City of Chesapeake Maturity Group 4 Soybean Comparisons

**Cooperators:**                    **Producer:** C. Frank Brickhouse, Jr.  
**Extension:** Roy D. Flanagan III, VCE – Virginia Beach  
 Nathan Sedghi, Ph.D., VCE - Chesapeake  
**Previous Crop:** Corn  
**Soil Type:** Acredale silt loam  
**Tillage:** Conventional tillage  
**Planting Date:** June 17, 2024  
**Seeding Rate/Row Spacing:** 160,000 seed/acre; 30-inch rows  
**Fertilization:** 200 lb. 0-0-60  
**Crop Protection:** 1 pint of Reflex and 1 quart of Roundup + 16 ounces CELP  
**Harvest Date:** November 4, 2024  
**Harvest Equipment:** JD 9860 STS with CaseIH FD 235 header

Brand	Variety	Moisture%	Yield (bu/A)
Revere	RV 44-F44	13.0	46.7
Pioneer	P46A90LX	13.0	35.7
HiSOY	HS 46F00	12.7	41.3
Progeny	P 4691XFS	13.1	35.3
Dyna-Gro	S47XF23S	12.7	26.2
Asgrow	AG47XF5	12.6	34.7
USG	7474XFS	12.6	35.1
Channel	4821RXF/SR	13.0	47.4
Progeny	P 4947XFS	12.9	40.9
Revere	RV 49-F36	12.9	45.3
Asgrow	AG49XF3	12.8	47.2
USG	7495XFS	12.5	44.4
Dyna-Gro	S49XF43S	12.8	44.6
	<b>AVERAGE</b>	<b>12.8</b>	<b>40.4</b>

**Discussion:** Dry soil conditions at planting led to sporadic germination and stand issues. Yields reflect these planting challenges.



## Prince George County Maturity Group 4 Soybean Comparisons

**Cooperators:**                    **Producer:** Sean Finney  
**Extension:** Scott Reiter, VCE - Prince George  
**Previous Crop:** Wheat with straw baled  
**Soil Type:** Lynchburg loam  
**Tillage:** No-till  
**Planting Date:** June 18, 2024  
**Seeding Rate/Row Spacing:** 220,000 seed/acre; 7.5-inch rows  
**Fertilization:** 120-40-120-20S to wheat  
**Crop Protection:** June 28 - 1 quart Roundup + 22 oz XtendiMax + 6 oz Besiege  
    August 24 - 4 oz Stratego YLD + 6 oz Besiege  
    4 lbs BigSweetYield  
**Harvest Date:** October 31, 2024  
**Harvest Equipment:** John Deere 9500 + weigh wagon

Brand	Variety	Moisture%	Yield (bu/A)
CHECK - Channel	5024 RXF/SR	13.2	67.1
Progeny	P 4691XFS	13.0	67.6
Progeny	P 4947XFS	12.9	66.8
HiSOY	HS 44F30	12.3	64.1
HiSOY	HS 46F00	12.7	67.0
Channel	4821RXF/SR	12.8	66.9
USG	7474XFS	12.6	64.2
USG	7495XFS	12.1	60.9
Dyna-Gro	S47XF23S	12.5	63.2
Dyna-Gro	S49XF43S	12.5	61.9
Revere	RV 44-F44	12.5	64.3
Revere	RV 49-F36	12.7	58.8
Asgrow	AG47XF5	12.4	66.6
Asgrow	AG49XF3	12.6	70.2
Pioneer	P46A90LX	12.3	65.3
CHECK - Channel	5024 RXF/SR	12.7	66.1
	<b>AVERAGE</b>	<b>12.6</b>	<b>65.1</b>

**Discussion:** Stellar yields for double-crop soybeans planted in mid-June! This location was planted under very dry conditions in June. The first rainfall was about 2 weeks after planting. Rains continued to be timely in August and September with a dry October.



## **MATURITY GROUP 5 VARIETY COMPARISONS – XtendFlex**

## 2024 Overall Group 5 Comparisons

Company Brand	Brunswick	Chesapeake	Prince George	Overall Average	Average Relative Yield
Asgrow AG53XF2	46.0	51.4	69.6	55.7	112
USG 7543XF	51.5	52.2	56.2	53.3	110
Asgrow AG50XF5	43.4	48.0	69.5	53.7	107
Progeny P 5056XFS	39.9	54.5	64.0	52.8	106
HiSOY HS 56F00	41.0	55.1	58.2	51.4	104
Dyna-Gro S55XF95	37.6	53.6	61.8	51.0	103
Channel 5723RXF/SR	39.4	50.3	54.7	48.2	98
Dyna-Gro S58XF24	41.6	41.8	58.6	47.3	96
HiSOY HS 54F30	39.7	41.0	61.1	47.3	95
Revere RV 53-F84	43.1	36.2	62.3	47.2	95
Revere RV 5735XFS	40.6	41.4	58.7	46.9	94
Pioneer P50A08LX	39.9	37.6	63.7	47.1	94
Channel 5024RXF/SR	31.1	37.9	62.5	43.8	86

**41.2                      46.2                      61.6**

Average Relative Yield is the relationship of the yield to the location average. It is a percentage above or below the average yield for the location.  
100 = average

## Brunswick County Maturity Group 5 Soybean Comparisons

**Cooperators:**                    **Producer:**     Roberts Farm  
**Extension:**                    Taylor Clarke, VCE-Mecklenburg  
    Mackenize Gunn, VCE-Amelia  
**Previous Crop:**                    Wheat for grain  
**Soil Type:**                        Emporia sandy loam  
**Tillage:**                            No-till  
**Planting Date:**                    June 18, 2024  
**Seeding Rate/Row Spacing:**     186,000 seed/A; 15-inch; JD 1780 planter  
**Fertilization:**                    P and K applied to wheat crop  
**Crop Protection:**                32oz Roundup, 32oz Liberty and 32oz AMS pre and post  
**Harvest Date:**                    November 8, 2024  
**Harvest Equipment:**             John Deere 9670 + weigh wagon

Brand	Variety	Moisture%	Yield (bu/A)
CHECK - Asgrow	56XF2	14.5	33.6
Revere	RV 5735XFS	14.9	40.6
Revere	RV 53-F84	15.5	43.1
Channel	5024RXF/SR	15.3	31.1
Dyna-Gro	S58XF24	14.7	41.6
Dyna-Gro	S55XF95	14.4	37.6
Channel	5723RXF/SR	14.6	39.4
Progeny	P 5056XFS	14.9	39.9
USG	7543XF	14.8	51.5
Pioneer	P50A08LX	14.1	39.9
Asgrow	AG53XF2	14.4	46.0
Asgrow	AG50XF5	14.1	43.4
HiSOY	HS 54F30	14.4	39.7
HiSOY	HS 56F00	14.4	41.0
CHECK - Asgrow	56XF2	14.4	41.5
	<b>AVERAGE</b>	<b>14.6</b>	<b>40.7</b>

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

## City of Chesapeake Maturity Group 5 Soybean Comparisons

**Cooperators:**  
**Producer:** C. Frank Brickhouse, Jr.  
**Extension:** Roy D. Flanagan III, VCE – Virginia Beach  
 Nathan Sedghi, Ph.D., VCE - Chesapeake  
**Previous Crop:** Corn  
**Soil Type:** Acredale silt loam  
**Tillage:** Conventional tillage  
**Planting Date:** June 17, 2024  
**Seeding Rate/Row Spacing:** 160,000 seed/acre; 30-inch rows  
**Fertilization:** 200 lb. 0-0-60  
**Crop Protection:** 1 pint of Reflex and 1 quart of Roundup + 16 ounces CELP  
**Harvest Date:** November 4, 2024  
**Harvest Equipment:** JD 9860 STS with CaseIH FD 235 header

Brand	Variety	Moisture%	Yield (bu/A)
Channel	5024RXF/SR	13.0	37.9
Progeny	P 5056XFS	12.9	54.5
Asgrow	AG50XF5	12.6	48.0
Pioneer	P50A08LX	12.0	37.6
Revere	RV 53-F84	12.7	36.2
Revere	RV 5735XFS	12.6	41.4
Asgrow	AG53XF2	12.6	51.4
HiSOY	HS 54F30	12.7	41.0
USG	7543XF	12.5	52.2
Dyna-Gro	S55XF95	12.5	53.6
HiSOY	HS 56F00	12.6	55.1
Channel	5723RXF/SR	12.5	50.3
Dyna-Gro	S58XF24	12.5	41.8
	<b>AVERAGE</b>	<b>12.6</b>	<b>46.2</b>

**Discussion:** Dry soil conditions at planting led to sporadic germination and stand issues. Yields reflect these planting challenges.

## Prince George County Maturity Group 5 Soybean Comparisons

**Cooperators:**  
**Producer:** Sean Finney  
**Extension:** Scott Reiter, VCE-Prince George  
**Previous Crop:** Wheat with straw baled  
**Soil Type:** Lynchburg loam  
**Tillage:** No-till  
**Planting Date:** June 18, 2024  
**Seeding Rate/Row Spacing:** 220,000 seed/acre; 7.5-inch  
**Fertilization:** 120-40-120-20S to wheat  
**Crop Protection:** June 28 - 1 quart Roundup + 22 oz XtendiMax + 6 oz Besiege  
 August 24 - 4 oz Stratego YLD + 6 oz Besiege  
 4 lbs BigSweetYield  
**Harvest Date:** November 22, 2024  
**Harvest Equipment:** John Deere 9500 + weigh wagon

Brand	Variety	Moisture%	Yield (bu/A)
CHECK - Channel	5024RXF/SR	12.7	66.1
Pioneer	P50A08LX	14.5	63.7
Asgrow	AG50XF5	14.8	69.5
Asgrow	AG53XF2	14.7	69.6
Revere	RV 53-F84	14.5	62.3
Revere	RV 5735XFS	14.4	58.7
Dyna-Gro	S55XF95	14.4	61.8
Dyna-Gro	S58XF24	14.6	58.6
USG	7543XF	14.5	56.2
HiSOY	HS 54F30	14.6	61.1
HiSOY	HS 56F00	14.8	58.2
Progeny	P 5056XFS	14.8	64.0
Channel	5723RXF/SR	14.6	54.7
Channel	5024RXF/SR	14.6	62.5
CHECK - Channel	5024RXF/SR	14.9	60.3
	<b>AVERAGE</b>	<b>14.5</b>	<b>61.8</b>

**Discussion:** Stellar yields for double-crop soybeans planted in mid-June! This location was planted under very dry conditions in June. The first rainfall was about 2 weeks after planting. Rains continued to be timely in August and September with a dry October.



## **MATURITY GROUP 4 & 5 VARIETY COMPARISONS – Enlist E3**

## 2024 Overall Group 4 Enlist Comparisons

Company	Brand	Ag Expo Essex	Brunswick	Chesapeake	Northampton	Westmoreland	Overall Average	Average Relative Yield
Pioneer	P48A14E	66.6	41.8	50.1	56.5	71.1	57.2	108
Dyna-Gro	S48EN73	69.9	46.7	47.5	49.1	66.7	56.0	106
Chemgro	C4957ES	73.7	41.8	46.5	50.9	68.1	56.2	105
HiSOY	HS 47E30	64.3	41.8	44.9	53.9	71.1	55.2	104
Dyna-Gro	S45EN25	68.0	33.0	49.4	48.8	71.1	54.0	100
Channel	CT4924E	61.1	36.0		48.9	72.2	54.6	96
Chemgro	C4554E	62.8	44.5	36.4	47.5	62.4	50.7	95
Revere	47-E74	60.2	37.8	33.7	53.3	72.9	51.6	95
HiSOY	HS 45E00	70.6	37.7	29.1	42.1	67.3	49.4	90
Mid-Atlantic	MAS4423E3	61.4		40.3	50.2			
Revere	46-E67	70.8			51.4	60.1		
Mid-Atlantic	MAS4623E3/STS			40.5	49.2			
NK	NK42-A6E3S	70.6						
NK	NK47-G5E3S	65.3						
		66.6	40.1	41.8	50.2	68.3		

NK Seed was only entered at the Ag Expo location.

Varieties missing from some locations due to seed not being available at planting date or not enough seed supplied.

Average Relative Yield is the relationship of the yield to the location average. It is a percentage above or below the average yield for the location.  
100 = average



## 2024 Overall Group 5 Enlist Comparisons

Company Brand	Ag Expo Essex	Brunswick	Chesapeake	Northampton	Overall Average	Average Relative Yield
Pioneer P50Z95E	82.0	40.8	35.3	52.5	52.7	109
Channel CT5225E	53.8	48.5	40.4	51.4	48.5	105
Dyna-Gro S51EN62	58.8	42.6	39.2	54.5	48.8	104
Revere 5429E	54.8	42.3	43.0	50.5	47.6	103
Revere 5293E	74.2	45.0	37.3	39.1	48.9	102
Pioneer P52A14SE	51.4	25.5	43.7	25.6	36.6	78
NK NK52-D6E3	69.0					



NK Seed was only entered at the Ag Expo location.

Average Relative Yield is the relationship of the yield to the location average. It is a percentage above or below the average yield for the location.

100 = average



## City of Chesapeake Group 4 Enlist Soybean Comparisons

**Cooperators:**                    **Producer:** C. Frank Brickhouse, Jr.  
**Extension:** Roy D. Flanagan III, VCE – Virginia Beach  
    Nathan Sedghi, Ph.D., VCE - Chesapeake  
**Previous Crop:** Corn  
**Soil Type:** Acredale silt loam  
**Tillage:** Conventional tillage  
**Planting Date:** June 17, 2024  
**Seeding Rate/Row Spacing:** 160,000 seed/acre; 30-inch rows  
**Fertilization:** 200 lb. 0-0-60  
**Crop Protection:** 1 pint of Reflex and 1 quart of Roundup + 16 ounces CELP  
**Harvest Date:** November 4, 2024  
**Harvest Equipment:** JD 9860 STS with CaseIH FD 235 header

Brand	Variety	Moisture%	Yield (bu/A)
Mid-Atlantic	MAS4423E3	14.1	40.3
Chemgro	C4554E	13.9	36.4
Dyna-Gro	S45EN25	14.1	49.4
HiSOY	HS 45E00	14.1	29.1
Mid-Atlantic	MAS4623E3/STS	13.7	40.5
HiSOY	HS 47E30	13.7	44.9
Revere	47-E74	13.4	33.7
Dyna-Gro	S48EN73	13.6	47.5
Pioneer	P48A14E	12.8	50.1
Chemgro	C4957ES	13.3	46.5
	<b>AVERAGE</b>	<b>13.7</b>	<b>41.8</b>

**Discussion:** Dry soil conditions at planting led to sporadic germination and stand issues. Yields reflect these planting challenges.

## Eastern Shore Enlist Group 4 Soybean Comparisons

**Cooperators:**                    **Producer:** Will Atkinson / Atkinson Farms  
**Extension:** Hélène Doughty, VCE - Northampton County  
    Theresa Pittman, VCE - Accomack County  
**Previous Crop:** Cotton  
**Soil Type:** Bojac sandy loam  
**Tillage:** No-till  
**Planting Date:** June 4, 2024  
**Seeding Rate/Row Spacing:** 150,000 seed/A; 30-inch row  
**Fertilization:** 100 lbs 0-0-60  
**Crop Protection:** Liberty 30 oz / acre (2 applications); Besiege 9 oz / acre (1 application)  
**Harvest Date:** November 1, 2024  
**Harvest Equipment:** John Deere 780

Brand	Variety	Moisture%	Yield (bu/A)
HiSOY	HS 47E30	12.9	53.9
HiSOY	HS 45E00	12.7	42.1
Chemgro	C4554E	12.6	47.5
Chemgro	C4957ES	12.4	50.9
Mid-Atlantic	MAS4423E3	12.6	50.2
Mid-Atlantic	MAS4623E3/STS	12.7	49.2
Pioneer	P48A14E	12.0	56.5
Channel	CT4924E	12.8	48.9
Revere	46-E67	12.6	51.4
Revere	47-E74	12.3	53.3
Dyna-Gro	S48EN73	11.8	49.1
Dyna-Gro	S45EN25	12.5	48.8
	<b>AVERAGE</b>	<b>12.5</b>	<b>50.2</b>

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

## Essex County AG Expo Enlist Group 4 Soybean Comparisons

**Cooperators:**                   **Producer:**     Level Green Farm - The Ellis Family  
**Extension:**                    Robbie Longest, VCE - Essex  
   Dr. Carrie Ortel, Chris Buck, Erin Myers, Ronald Daughtrey  
   - VA Tech Soybean Agronomy  
**Industry:**                    Participating seed companies  
**Previous Crop:**                Corn followed by barley cover crop  
**Soil Type:**                    Tetotum loam, State fine sandy loam  
**Tillage:**                        No-till  
**Planting Date:**                May 22, 2024  
**Seeding Rate/Row Spacing:** 140,000; 15-inch rows  
**Fertilization:**                150 lbs./A potash broadcast (0-0-60)  
   Foliar fertilizer (2x) - 1 qt./A Quantum  
**Crop Protection:**            Burndown: 1 qt./A Roundup + 6 oz./A 2,4-D  
   Post: 1 qt./A Roundup + 18 oz./A Enlist  
   Insecticide: 2 oz./A Sniper  
   Fungicide: 10 oz./A Revytek  
**Harvest Date:**                October 30, 2024  
**Harvest Equipment:**        Wintersteiger plot combine

Brand	Variety	Moisture%	Yield (bu/A)
CHECK - Pioneer	P48A14E	11.9	78.1
NK	NK42-A6E3S	11.8	70.6
Dyna-Gro	S45EN25	11.8	68.0
HiSOY	HS 45E00	12.0	70.6
Mid-Atlantic	MAS4423E3	12.0	61.4
Chemgro	C4554E	11.7	62.8
Revere	46-E67	11.2	70.8
Revere	47-E74	11.2	60.2
HiSOY	HS 47E30	11.0	64.3
NK	NK47-G5E3S	11.1	65.3
Dyna-Gro	S48EN73	11.0	69.9
CHECK - Pioneer	P48A14E	11.5	66.6
Channel	CT4924E	11.6	61.1
Chemgro	C4957ES	11.1	73.7
	<b>AVERAGE</b>	<b>11.5</b>	<b>67.4</b>

**Discussion:** This plot tested the MG 4 Enlist varieties at the VA Ag Expo. Overall yields were very good with a plot average yield of 67.4 bu./A. The location was very dry June through July; however, stands were very good, and late season growth and development supported good yields. Equipment malfunction resulted in erroneous yield data for Mid-Atlantic MAS4623; consequently, the yield was not included in the results. Pioneer P48A14E was used as a check.





## City of Chesapeake Group 5 Enlist Soybean Comparisons

**Cooperators:**                    **Producer:** C. Frank Brickhouse, Jr.  
**Extension:** Roy D. Flanagan III, VCE – Virginia Beach  
 Nathan Sedghi, Ph.D., VCE - Chesapeake  
**Previous Crop:** Corn  
**Soil Type:** Acredale silt loam  
**Tillage:** Conventional tillage  
**Planting Date:** June 17, 2024  
**Seeding Rate/Row Spacing:** 160,000 seed/acre; 30-inch rows  
**Fertilization:** 200 lb. 0-0-60  
**Crop Protection:** 1 pint of Reflex and 1 quart of Roundup + 16 ounces CELP  
**Harvest Date:** November 4, 2024  
**Harvest Equipment:** JD 9860 STS with CaseIH FD 235 header

Brand	Variety	Moisture%	Yield (bu/A)
Pioneer	P50Z95E	12.9	35.3
Dyna-Gro	S51EN62	13.3	39.2
Channel	CT5225E	13.9	40.4
Revere	5293E	12.7	37.3
Pioneer	P52A14SE	13.1	43.7
Revere	5429E	13.0	43.0
	<b>AVERAGE</b>	<b>13.2</b>	<b>39.8</b>

**Discussion:** Dry soil conditions at planting led to sporadic germination and stand issues. Yields reflect these planting challenges.



## Eastern Shore Enlist Group 5 Soybean Comparisons

**Cooperators:**                    **Producer:** Will Atkinson / Atkinson Farms  
**Extension:** Hélène Doughty, VCE - Northampton County  
    Theresa Pittman, VCE - Accomack County  
**Previous Crop:** Cotton  
**Soil Type:** Bojac sandy loam  
**Tillage:** No-till  
**Planting Date:** June 4, 2024  
**Seeding Rate/Row Spacing:** 150,000 seed/A; 30-inch row  
**Fertilization:** 100 lbs 0-0-60  
**Crop Protection:** Liberty 30 oz / acre (2 applications); Besiege 9 oz / acre (1 application)  
**Harvest Date:** November 1, 2024  
**Harvest Equipment:** John Deere 780

Brand	Variety	Moisture%	Yield (bu/A)
Dyna-Gro	S51EN62	12.3	54.5
Pioneer	P50Z95E	15.2	52.5
Revere	5429E	12.6	50.5
Revere	5293E	12.9	39.1
Pioneer	P52A14SE	13.4	25.6
Channel	CT5225E	13.6	51.4
	<b>AVERAGE</b>	<b>13.3</b>	<b>45.6</b>

**Discussion:** Two varieties yielded much lower than the trial average (Revere 5293E and Pioneer P52A14SE). Revere 5293E was very short at maturity. Pioneer P52A14SE had a lot of green stems at harvest. There was also ragweed pressure in parts of the field affecting multiple varieties.

## Essex County AG Expo Enlist Group 5 Soybean Comparisons

**Cooperators:**                    **Producer:**      Level Green Farm - The Ellis Family  
**Extension:**                    Robbie Longest, VCE - Essex  
    Trent Jones, VCE - Northumberland/Lancaster  
    Dr. Carrie Ortel, Chris Buck, Erin Myers, Ronald Daughtrey  
    - VA Tech Soybean Agronomy  
  
**Industry:**                    Participating seed companies  
**Previous Crop:**                    Corn followed by barley cover crop  
**Soil Type:**                        Tetotum loam, State fine sandy loam  
**Tillage:**                         No-till  
**Planting Date:**                    May 22, 2024  
**Seeding Rate/Row Spacing:**      140,000; 15-inch rows  
**Fertilization:**                    150 lbs./A potash broadcast (0-0-60)  
    Foliar fertilizer (2x) - 1 qt./A Quantum  
**Crop Protection:**                    Burndown: 1 qt./A Roundup + 6 oz./A 2,4-D  
    Post: 1 qt./A Roundup + 18 oz./A Enlist  
    Insecticide: 2 oz./A Sniper  
    Fungicide: 10 oz./A Revytek  
  
**Harvest Date:**                    November 13, 2024  
**Harvest Equipment:**                Wintersteiger plot combine

Brand	Variety	Moisture%	Yield (bu/A)
Pioneer	P50Z95E	12.8	82.0
Dyna-Gro	S51EN62	13.4	58.8
Channel	CT5225E	13.4	53.8
Revere	5293E	12.8	74.2
Pioneer	P52A14SE	13.6	51.4
NK	NK52-D6E3	13.6	69.0
Revere	5429E	13.1	54.8
CHECK - Pioneer	P48A14E	12.9	80.9
	<b>AVERAGE</b>	<b>13.2</b>	<b>65.6</b>

**Discussion:** This plot tested the MG 5 Enlist varieties at the VA Ag Expo. Overall yields were very good with a plot average yield of 65.6 bu./A. The location was very dry June through July; however, stands were very good, and late season growth and development supported good yields. Pioneer P48A14E was used as a check. The MG 5 varieties were harvested later than the MG 4 varieties due to equipment breakdown.



## Other Research

## Essex County AG EXPO Soybean Potassium Response Study

**Cooperators:**                    **Producer:** Level Green Farm - The Ellis Family  
**Extension:** Robbie Longest, VCE – Essex County  
 Dr. Carrie Ortel, Chris Buck, Erin Myers, Ronald Daughtrey - VA Tech  
 Soybean Agronomy  
**Previous Crop:** Corn followed by barley cover crop  
**Soil Type:** Tetotum loam, State fine sandy loam  
**Tillage:** No-till  
**Variety:** Pioneer P48A14E  
**Planting Date:** May 22, 2024  
**Seeding Rate/Row Spacing:** 140,000; 15-inch rows  
**Fertilization:** Treatments of preplant MOP (0-0-60)  
**Crop Protection:** Burndown: 1 qt./A Roundup + 6 oz./A 2,4-D  
 Post: 1 qt./A Roundup + 18 oz./A Enlist  
 Insecticide: 2 oz./A Sniper  
 Fungicide: 10 oz./A Revytek  
**Harvest Date:** October 30, 2024  
**Harvest Equipment:** Wintersteiger plot combine

Treatment (lb K <sub>2</sub> O/A)	Leaf K Concentration (% K)					Yield (bu/A)
	5 days after R1	15 days after R1	30 days after R1	45 days after R1	60 days after R1	
0	1.84	2.05	1.28	1.13	0.96	75.8 c
40	1.82	2.27	1.44	1.23	1.14	79.3 b
80	1.76	2.22	1.4	1.18	1.12	82.9 a
120	1.86	2.24	1.38	1.16	1.12	81.8 a
160	1.96	2.2	1.45	1.32	1.27	77.2 c
<b>AVERAGE</b>	<b>1.85</b>	<b>2.18</b>	<b>1.39</b>	<b>1.21</b>	<b>1.13</b>	<b>79.0</b>
					<b>P Value</b>	<b>0.02521 *</b>
					<b>LSD (0.05)</b>	<b>1.75</b>

**Discussion:** While there were no visual potassium (K) deficiency symptoms at the Ag Expo K response trial, there was a significant yield response to the K rate treatments. The primary objective of this research was to validate the dynamic critical K concentration curve as an improved diagnostic tool interpreting tissue tests in Virginia soybean production. This dynamic critical concentration was developed in Arkansas in irrigated soybeans (Slaton et al., 2021). The data collected agrees with the dynamic critical concentration curve; however, more data is required to confirm the diagnostic tool is appropriate for Virginia.

**In this test, K deficiency was yield-limiting without any visual symptoms, known as hidden hunger. This emphasizes the importance of monitoring the crop nutrient status through tissue testing and accurate interpretation of the results.**

## King George County Soybean Potassium Response Study

**Cooperators:**                    **Producer:** Jay Hundley  
**Extension:** Robbie Longest, VCE – Essex  
 Megan Williams, VCE- Caroline & King George  
 Dr. Carrie Ortel, Chris Buck, Erin Myers, Ronald Daughtrey - VA Tech  
 Soybean Agronomy  
**Previous Crop:** Corn  
**Soil Type:** Wickham fine sandy loam  
**Tillage:** No-till  
**Variety:** Dyna-Gro S49XF43S  
**Planting Date:** June 2, 2024  
**Seeding Rate/Row Spacing:** 140,000; 15-inch rows  
**Fertilization:** 140 lb/A 11-50-0 plus preplant treatments MOP (0-0-60)  
**Crop Protection:** Burndown: 2.6 oz./A Zidua SC + 1 qt./A Roundup  
 Post: 1 qt./A Roundup + 1 qt./A Liberty  
 Insecticide: 8 oz./A Besiege  
 Fungicide: 13.7 oz./A Miravis Top  
**Harvest Date:** October 29, 2024  
**Harvest Equipment:** Wintersteiger plot combine

Treatment (lb K <sub>2</sub> O/A)	Leaf K Concentration (% K)					Yield (bu/A)
	5 days after R1	15 days after R1	30 days after R1	45 days after R1	60 days after R1	
0	2.42	2.23	1.88	1.74	1.74	71.7
40	2.54	2.27	1.86	1.70	1.76	69.6
80	2.43	2.23	1.89	1.74	1.76	65.2
120	2.43	2.31	1.85	1.80	1.66	67.8
160	2.60	2.27	1.92	1.74	1.66	65.1
<b>AVERAGE</b>	<b>2.48</b>	<b>2.26</b>	<b>1.88</b>	<b>1.74</b>	<b>1.72</b>	<b>67.8</b>
					<b>P Value</b>	<b>NS</b>

**Discussion:** At this location, there was not a significant yield response to potassium (K) fertilizer treatments. This is likely because the soil test K was 105 ppm K, categorized as “high” soil K availability. Similarly, all tissue tests continually measured above the critical concentration indicating K was not yield limiting.

The decrease in leaf-K concentration during the reproductive growth stages is expected as a result of the mobility of K in the plant. During the reproductive growth stages, K moves from the leaves into the developing pods and seeds, leaving lower K concentrations in the leaves without a K deficiency.

## Essex County Velum In-Furrow Soybean Study

**Cooperators:**                    **Producer:** Cloverfield Enterprises  
**Extension:** Robbie Longest, VCE-Essex  
 David Langston, Extension Plant Pathologist  
**Previous Crop:** Wheat  
**Soil Type:** Molena loamy sand  
**Tillage:** No-till  
**Planting Date:** June 27, 2024  
**Variety:** USG 7595ET  
**Seeding Rate/Row Spacing:** 170,000; 15-inch rows  
**Fertilization:** 205 lb./A (0-0-60) - Feb. 22, 2024  
 Radiate (2 oz./A) - July 3, 2024  
 Brant Smart KB (1 qt./A) - Aug. 15, 2024  
 Brant Smart Trio (1 qt./A) - Aug. 15, 2024  
**Crop Protection:** Roundup (1qt./A) - July 3, 2024  
 LI700 (2 oz./A) - July 3, 2024  
 Besiege (8.0 oz./A) - Aug. 15, 2024  
 Miravis Top (13.7 oz./A) - Aug. 15, 2024  
 Roundup (1 qt./A) - Aug. 15, 2024  
**Harvest Date:** November 18, 2024

Treatment	Replication	Moisture%	Yield (bu/A)
No Velum (Check)	1	12.3	57.0
Velum	1	11.7	53.7
No Velum (Check)	2	11.7	54.7
Velum	2	11.7	57.9
No Velum (Check)	3	11.7	54.0
Velum	3	11.8	56.7
No Velum (Check)	4	11.6	59.9
Velum	4	12.0	57.9
	<b>AVERAGE NO VELUM</b>	<b>11.8</b>	<b>56.4</b>
	<b>AVERAGE VELUM</b>	<b>11.8</b>	<b>56.6</b>

**Discussion:** This plot evaluated the use of Velum (fluopyram) in-furrow in an irrigated double-cropped soybean field that has had a history of heavy soybean parasitic nematodes. The producer planted alternating strips across the field with and without application of Velum in-furrow at planting at the labeled rate. Averaging across the replications, the no Velum check average was 56.4 bu./A compared to the Velum treatment average of 56.6 bu./A. These results suggest that there is no difference in yield result. This is the second year of study evaluating this product on-farm, and it is difficult to determine if there is a significant and consistent yield response for this product, as nematode populations vary greatly across a field and location.

## Westmoreland and Essex Counties Rappahannock River Salinity Monitoring

**Cooperators:** **Producers:** Eagle Tree Farm, Cloverfield Enterprises, Lois's Produce  
**Extension:** Stephanie Romelczyk, VCE - Westmoreland  
 Robbie Longest, VCE - Essex

**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 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 in Westmoreland and Essex Counties monitored the salinity level of the Rappahannock on a weekly basis beginning in June and continuing 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. In some cases, the sample time was not recorded (NR).

Rappahannock River at Leedstown (Westmoreland County):

Date of Sample	Sample Time	Rappahannock Salinity at Leedstown (ppm)
6/21/2024	NR	217
6/28/2024	4:28 PM	336
7/8/2024	3:26 PM	497
7/26/2024	11:28 AM	1330
8/2/2024	12:26 PM	1085
8/7/2024	NR	833
8/16/2024	12:32 PM	574
8/23/2024	12:38 PM	553
9/5/2024	12:34 PM	861
9/13/2024	12:13 PM	1330
9/18/2024	12:42 PM	1470
9/26/2024	12:44 PM	2065
10/14/2024	1:42 PM	196
10/24/2024	10:38 AM	399

Peedee Creek in Leedstown (Westmoreland County):

Date of Sample	Sample Time	Peedee Creek Salinity (ppm)
6/21/2024	NR	217
6/28/2024	4:38 PM	315
7/8/2024	3:36 PM	336
7/26/2024	11:37 AM	301

8/2/2024	12:36 PM	406
8/7/2024	NR	350
8/16/2024	12:42 PM	294
8/23/2024	12:47 PM	210
9/5/2024	12:42 PM	371
9/13/2024	12:21 PM	560
9/18/2024	12:50 PM	651
9/26/2024	12:35 PM	1330
10/24/2024	10:26 PM	350

Cloverfield in Champlain (Essex County):

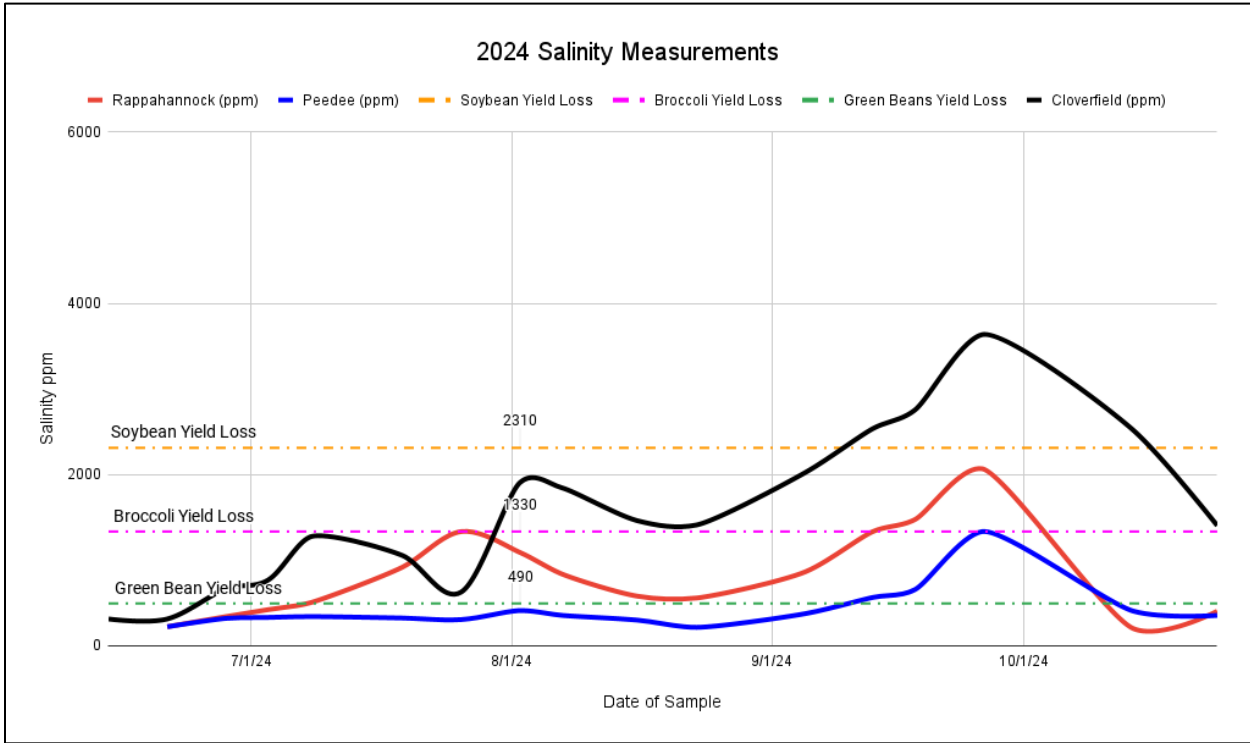
Date of Sample	Cloverfield Salinity (ppm)
6/14/2024	308
6/21/2024	308
6/28/2024	665
7/3/2024	763
7/9/2024	1267
7/19/2024	1050
7/25/2024	623
8/2/2024	1904
8/7/2024	1841
8/14/2024	1456
8/23/2024	1407
9/4/2024	2023
9/13/2024	2534
9/19/2024	2751
9/26/2024	3633
10/14/2024	2516
10/25/2024	1400

In 2024, all locations began with salinity levels below the green bean threshold. The Cloverfield location surpassed the green bean threshold at the end of June (6/28) and the Rappahannock Leedstown location surpassed that threshold in early July (7/8). The salinity in the PeeDee creek remained low until early September when it exceeded the green bean threshold (9/13) and met the broccoli threshold (9/26). The Cloverfield location had three peaks in salinity during the year, while the two Westmoreland locations had two. The Cloverfield location surpassed the broccoli threshold on 8/2 and surpassed the soybean threshold on 9/13. The Rappahannock River in Leedstown surpassed the broccoli threshold on 9/18 and did not exceed the soybean threshold.

Historical data from this study was used to develop a VCE Publication: Understanding Salinity in Tidal Waters: Information for Irrigators (BSE-349P), available online:







Graph 1. This graph shows the salinity readings at the three sites from June through October in 2024. The thresholds for yield losses due to salinity are shown for green beans, broccoli and soybeans.



Center pivot irrigation at the Cloverfield location.

Visit Virginia Cooperative Extension: [ext.vt.edu](http://ext.vt.edu)

Virginia Cooperative Extension is a partnership of Virginia Tech, Virginia State University, the U.S. Department of Agriculture, and local governments. Its programs and employment are open to all, regardless of age, color, disability, sex (including pregnancy), gender, gender identity, gender expression, genetic information, ethnicity or national origin, political affiliation, race, religion, sexual orientation, or military status, or any other basis protected by law.

2025

SPES-662NP