



# Virginia Cooperative Extension

Virginia Tech • Virginia State University

[www.ext.vt.edu](http://www.ext.vt.edu)

## Virginia On-Farm Soybean Test Plots

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



# 2014



*Conducted and summarized by:*

*John Allison, Extension Agent, New Kent County and Charles City Counties*

*Keith Balderson, Extension Agent, Essex County*

*Taylor Clarke, Extension Agent, Mecklenburg County*

*Brittany Council, Extension Agent, Greensville County*

*Roy Flanagan, Extension Agent, City of Virginia Beach*

*Bruce Jones, Extension Agent, Appomattox County*

*Watson Lawrence, Extension Agent, City of Chesapeake*

*Laura Maxey-Nay, Extension Agent, Hanover County*

*David Moore, Extension Agent, Middlesex County*

*J. Scott Reiter, Extension Agent, Prince George County*

*Stephanie Romelczyk, Extension Agent, Westmoreland County*

*Laura Siegle, Extension Agent, Amelia County*

*Glenn Slade, Extension Agent, Surry County*

*Landre Toulson, Extension Agent, King William/King Queen Counties*

*Lindy Tucker, Extension Agent, Lunenburg County*

*Kelvin Wells, Extension Agent, Sussex County*

*Dr. David Holshouser, Extension Soybean Specialist, Virginia Tech*



## Introduction

These demonstration and research plot results are an 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 opportunity to improve yields and profits, which improves quality of life for them and their families.

The success of these on-farm plots 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 web site (<http://pubs.ext.vt.edu>). This information reaches hundreds of Virginia soybean and grain producers plus agribusinesses, impacting over 500,000 acres of soybeans valued at over \$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 producer or agribusiness professional wishing to receive a copy of this publication should contact their local Extension Agent who can request a copy from David Moore in Middlesex County at 804-758-4120 or contact [damoore3@vt.edu](mailto:damoore3@vt.edu).

This is the eighteenth year of this multi-county cooperative effort and further work is planned for 2015. 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:** Trade and brand names are used only for educational purposes, and Virginia Cooperative Extension does not guarantee or warrant the standards of the product, nor does Virginia Cooperative Extension imply approval of the product to the exclusion of others which may also be suitable.

## TABLE OF CONTENTS

GENERAL SUMMARY	4
<b>OVERALL MATURITY GROUP 4 SOYBEAN COMPARISONS</b>	<b>6</b>
APPOMATTOX COUNTY MATURITY GROUP 4 COMPARISON	7
MIDDLESEX COUNTY MATURITY GROUP 4 COMPARISON	8
KING & QUEEN COUNTY MATURITY GROUP 4 COMPARISON	10
PRINCE GEORGE COUNTY MATURITY GROUP 4 COMPARISON	12
WESTMORELAND COUNTY MATURITY GROUP 4 COMPARISON	13
<b>OVERALL MATURITY GROUP 5 SOYBEAN COMPARISONS</b>	<b>15</b>
APPOMATTOX COUNTY MATURITY GROUP 5 COMPARISON	16
BRUNSWICK COUNTY MATURITY GROUP 5 COMPARISON	17
CHESAPEAKE MATURITY GROUP 5 COMPARISON	19
GREENSVILLE COUNTY MATURITY GROUP 5 COMPARISON	20
KING & QUEEN COUNTY MATURITY GROUP 5 COMPARISON	21
MECKLENBURG/LUNENBURG MATURITY GROUP 5 COMPARISON	23
PRINCE GEORGE COUNTY MATURITY GROUP 5 COMPARISON	25
NEW KENT COUNTY MATURITY GROUP 5 COMPARISON	26
GLOUCESTER COUNTY LIBERTY LINK SOYBEANS	28
BIO-START® TREATMENT EVALUATION	29
LATE-SEASON FOLIAR FUNGICIDE EVALUATION	30
LATE-SEASON WHEEL TRACKING EVALUATION	31
ROOT-KNOT NEMATODE MONITORING	32
VALIDATION OF FOLIAR FUNGICIDE DECISION-MAKING	33
TRACKING NUTRITIONAL CONTENT IN SOYBEANS	35

## GENERAL SUMMARY

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

As in the past, agents have compared maturity group 4 & 5 varieties across multiple locations. 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.

Maturity Group 4 and 5 varieties were compared at several locations across Eastern Virginia, six (6) locations for Group 4 and eight (8) locations for Group 5. Due to heavy infestation of sudden death syndrome (SDS) and soybean cyst nematode (SCN), the Ag Expo (Bleak House Farm) results are not presented. In Gloucester County, an evaluation of some Liberty Link varieties yielded well. Please contact cooperating agents about results in individual test locations.

In King & Queen County, the use of a biological product, "*Rhizo-Boost*" was evaluated on full season maturity group 4 soybeans. Five replications in a side-by-side strip trial showed no visual or yield differences.

In Essex, late season fungicides were applied to field to prevent/control soybean disease. The influence of the wheel tracking was also taken into account and yields were taken. By taking into account the decrease in yield caused by the wheel tracks and the costs of fungicide application, this process is little better than "breakeven".

In Essex, Root-Knot Nematode (RKN) populations were observed and followed during the growing season in a known infested field. The growing crop was corn, originally thought to be a rotational crop to reduce RKN numbers.

In nine (9) locations in Middlesex, King & Queen and Gloucester, nutrients were tracked in the plant during the growing season. A&L Eastern Labs provided the information from tissue samples taken at 4-5 different stages and to track levels at various stages of growth. This testing was done to see if there were any limiting nutrients for the soybeans. In 2015, more nutritional related work may be planned.

## MATURITY GROUP 4 VARIETY COMPARISONS



**2014 OVERALL MATURITY GROUP 4 COMPARISON**

Brand	Variety	King &		West-		Prince	
		Queen	Appomatox	Middlesex	morland	George	Average
Doebler's	RPM DB4715RR	50.5	32.5	71.3	36.7	61.5	50.5
Hubner	H48-13R2STS	44.4	36.3	66.2	41.1	61.0	49.8
CPS/Dyna-Gro	S48RS53	52.2	26.3	69.2	40.5	58.9	49.4
Asgrow	AG4632	44.5	34.0	64.7	41.4	61.0	49.1
Pioneer	P46T21R	47.3	38.4	66.4	38.7	51.2	48.4
Pioneer	P48T53R	46.1	35.0	63.1	42.8	53.6	48.1
CPS/Dyna-Gro	S46RY85	45.2	31.1	68.9	41.0	52.7	47.8
Progeny	P4850RYS	----	25.1	65.9	40.0	59.6	47.7
USG	74B81R	45.6	28.5	65.3	40.2	55.6	47.0
Bayer/HBK	RY4721	39.7	25.8	68.5	40.2	60.3	46.9
Doebler's	RPM DB4415RR	47.0	28.4	66.3	35.8	56.8	46.9
Channel	4806R2/STS	42.1	30.5	61.9	38.9	58.7	46.4
Seed Consultants	SCS9474RR	46.8	26.3	61.8	38.6	58.2	46.3
Asgrow	AG4934	41.6	27.8	67.5	40.4	51.2	45.7
Channel	4508R2/SR	38.1	35.3	57.2	39.4	57.2	45.4
Hubner	H49-15R2SR	42.4	30.6	64.4	41.1	47.3	45.2
Great Heart	GT-500CR2	42.5	27.8	63.4	40.8	51.2	45.1
Southern States	SS4312hR2	35.9	29.6	62.0	40.1	57.3	45.0
Southern States	SS4917hR2	39.7	24.2	62.1	38.5	57.1	44.3
Progeny	P4788RY	33.2	30.4	53.3	37.9	61.7	43.3
USG	7495	----	31.9	----	----	54.2	43.1
Bayer/HBK	RY4620	28.7	24.9	59.6	39.5	51.2	40.8
Site Average		42.7	30.0	64.2	39.7	56.3	46.5

## 2014 APPOMATTOX COUNTY MATURITY GROUP 4 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Joanne Jones  
 Extension: Bruce Jones  
**Previous Crop:** Soybean (2013 full season), wheat  
**Soil Type:** Mattaponi-Cecil Complex, 2 to 7 percent slopes  
**Tillage** No-till into wheat stubble  
**Planting Date:** June 30, 2014  
**Planting Equipment:** John Deere 750  
**Seeding Rate/Row Spacing:** 275,000 seed per acre in 7 inch rows  
**Fertilization:** 18-46-60  
**Crop Protection:** Pre-Plant: 2 pints Glyphosate  
 Post: 2 pints Glyphosate  
**Harvest Date:** November 5, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Asgrow	AG4632	10.5	34.0
Asgrow	AG4934	8.7	27.8
Bayer/HBK	4620RY	8.6	24.9
Bayer/HBK	4721RY	8.5	25.8
Channel	4806R2/STS	8.5	30.5
Doebler's	RPM DB4415RR	8.5	28.4
Doebler's	RPM DB4715RR	8.8	32.5
CPS/Dyna-Gro	S46RY85	8.7	31.1
CPS/Dyna-Gro	S48RS53	11.4	26.3
Hubner	H48-13R2STS	9.3	36.3
Pioneer	P46T21R	8.7	38.4
Pioneer	P48T53R	8.5	35.0
Progeny	P4788RY	8.4	30.4
Progeny	P4850RYS	8.4	25.1
Seed Consultants	SCS9474RR	8.4	26.3
Southern States	SS4312nR2	8.4	29.6
Southern States	SS4917nR2	10.1	24.2
USG	74B81R	8.4	28.5
Channel	4508	9.5	35.3
USG	7495	9.0	31.9
Doebler's	RPM DB4415RR	8.8	31.2
Hubner	H49-15R2SR	8.9	30.6

**Discussion:** Use this and other Virginia Tech on-farm replicated soybean variety comparisons when making planting decisions for 2015.

## 2014 MIDDLESEX MATURITY GROUP 4 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Wayne Burch  
 Extension: David Moore, VCE-Middlesex  
 Dorothy Baker/Robbie Longest-Summer Interns  
 Industry: Participating Companies  
**Previous Crop:** Soybeans  
**Soil Type:** Emporia Loam  
**Tillage/Row Spacing** No-till in 30" rows  
**Planting Date:** May 28, 2014  
**Seeding Rate:** 140,000  
**Fertilization:** None (Biosolids +140#K 2013)  
 Foliar Molybdenum + Brant Smart Tri-July 31  
**Crop Protection:** Burndown: Glyphosate + Envive  
 June 26: 1 Qt. Glyphosate  
 July 31: 3.85 oz. Ravage +Domark +Glyphosate + FirstRate  
**Harvest Date:** October 24, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Check (Stine)	48RD00	14.7	65.7
Bayer/HBK	RY4721	14.6	68.5
Bayer/HBK	RY4620	14.5	59.6
Pioneer	P46T21R	14.4	66.4
Pioneer	P48T53R	14.3	63.1
Asgrow	AG4632	14.2	64.7
Asgrow	AG4934	14.3	67.5
Check (Stine)	48RD00	14.1	62.2
Seed Consultants	SCS9474RR	14.2	61.8
Channel	4508R2/SR	14.3	57.2
Channel	4806R2/STS	14.1	61.9
Progeny	P4788RY	14.2	53.3
Progeny	P4850RYS	14.1	65.9
Doebler's	RPM DB4415RR	13.9	66.3
Doebler's	RPM DB4715RR	13.5	71.3
CPS/Dyna-Gro	S48RS53	13.5	68.9
CPS/Dyna-Gro	S46RY85	13.4	69.2
Check (Stine)	48RD00	13.5	63.5
Great Heart	HT-500CR2S	13.0	63.4
USG	74B81R	13.3	65.3
Hubner	H48-13R2STS	13.4	66.2
Hubner	H49-15R2SR	13.5	64.4
Southern States	SS4312nR2	13.2	62.0
Southern States	SS4917nR2	13.5	62.1

Armor-producer entry	42-M1	13.4	56.9
Armor-producer entry	47-R13	13.5	66.0
Armor-producer entry	49-R56	13.6	62.3
Armor-producer entry	4744R2	13.6	61.4
Check (Stine)	48RD00	13.65	65.0

**Discussion:**

This is a very good plot. The average yield across the entire plot was almost 64 bushels per acre. This is the second year of beans and the producer plans to plant soybeans again next year in same field. Yields of some early planted MG 4 soybeans were hurt when it began to get hot and dry around mid-June. In the lower middle peninsula this year, we have been very fortunate with corn and soybean yields.

Use this and other Virginia Tech on-farm soybean variety plot information when making planting decisions for 2015.

## 2014 KING & QUEEN MATURITY GROUP 4 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Craig Leggett  
 Extension: David Moore, VCE-Middlesex  
 Dorothy Baker, Summer Intern  
 Industry: Participating Companies  
**Previous Crop:** Fescue  
**Soil Type:** State Fine Sandy Loam  
**Tillage** No-Till in 7.5 inch rows  
**Planting Date:** June 27, 2014  
**Seeding Rate/Row Spacing:** 200,000  
**Fertilization:** 10-0-90 pre-plant  
 Brant Smart trio with post application  
**Crop Protection:** Burndown: Glyphosate + 2, 4-D  
 Post: Glyphosate + First Rate  
**Harvest Date:** November 14, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Bayer/HBK	RY4721	12.2	39.7
Check (Asgrow)	AG5332	12.4	39.5
Bayer/HBK	RY4620	12.9	28.7
Check	Asgrow AG5332	13.0	37.4
Progeny	P4788RY	12.9	33.2
Check (Asgrow)	AG5332	***planting	***malfunction
Progeny	P4850RYS	***planting	***malfunction
Check (Asgrow)	AG5332	13.0	39.3
Southern States	SS4312nR2	13.2	35.9
Check (Asgrow)	AG5332	12.9	38.4
Southern States	SS4917nR2	13.0	39.7
Check (Asgrow)	AG5332	13.1	37.3
Asgrow	AG4934	13.0	41.6
Check (Asgrow)	AG5332	13.2	43.3
Asgrow	AG4632	13.0	44.5
Check (Asgrow)	AG5332	12.9	48.3
Seed Consultants	SCS9474RR	13.0	46.8
Check (Asgrow)	AG5332	12.7	50.2
Pioneer	P46T21R	13.0	47.3
Check (Asgrow)	AG5332	12.5	49.4
Pioneer	P48T53R	12.4	46.1
Check (Asgrow)	AG5332	12.7	53.4
CPS/Dyna-Gro	S46RY85	12.9	45.2
Check (Asgrow)	AG5332	12.8	50.9

CPS/Dyna-Gro	S48RS53	12.6	52.2
Check (Asgrow)	AG5332	12.6	51.4
Channel	4508R2/SR	12.7	38.1
Check (Asgrow)	AG5332	12.8	56.0
Hubner	H49-15R2STS	12.7	42.4
Check (Asgrow)	AG5332	12.7	49.3
Hubner	H48-13R2SR	12.6	44.4
Check (Asgrow)	AG5332	12.7	50.8
Channel	4806R2/STS	12.6	42.1
Check (Asgrow)	AG5332	12.7	48.9
Great Heart	GT-500CR2S	12.7	42.5
Check (Asgrow)	AG5332	12.7	47.3
USG	74B81R	12.6	45.6
Check (Asgrow)	AG5332	12.7	49.3
Doebler's	RPM DB4715RR	12.3	50.5
Check (Asgrow)	AG5332	12.6	49.3
Doebler's	RPM DB4415RR	12.7	47.0

**Discussion:** These soybeans did very well. The producer picked this field up to rent very late in the season. It was in grass and had only been mowed for the past several years. Lots of small sweet gum trees, vines etc.

Use this and other Virginia Tech on-farm soybeans variety information when making planting decisions for 2015.

## 2014 PRINCE GEORGE MATURITY GROUP 4 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Paul Cerny and Sean Finney  
 Extension: Scott Reiter, Prince George  
 Industry: Participating Seed Suppliers  
**Previous Crop:** Wheat with straw removed  
**Soil Type:** Lynchburg loam & Montross silt loam  
**Tillage:** No-till  
**Planting Date:** June 19, 2014  
**Seeding Rate/Row Spacing:** 210,000 seed per acre; 7 inch rows  
**Fertilization:** 120 N – 60 P2O5 – 100 K2O to wheat  
**Crop Protection:** 1 quart glyphosate, early July  
**Harvest Date:** November 16, 2014

Brand	Variety	Moisture%	Yield (bu/A) @ 13%
Asgrow	AG4632	13.3	61.0
Asgrow	AG4934	13.1	51.2
Pioneer	P46T21R	13.0	51.2
Pioneer	P48T53R	12.9	53.6
Southern States	SS4312nR2	13.1	57.3
Southern States	SS4917nR2	13.4	57.1
USG	74B81R	13.4	55.6
USG	7495	13.2	54.2
Hubner	H49-15R2SR	13.2	47.3
Hubner	H48-13R2STS	13.2	61.0
CPS/Dyna-Gro	S46RY85	13.1	52.7
CPS/Dyna-Gro	S48RS53	13.0	58.9
Channel	4508R2SR	13.2	57.2
Channel	4806R2STS	13.2	58.7
Great Heart	GT-500CR2S	13.0	51.2
Bayer/HBK	RY4620	13.0	51.2
Bayer/HBK	RY4721	13.2	60.3
Progeny	P4788RY	13.3	61.7
Progeny	P4850RYS	13.1	59.6
Doebler's	RPM DB4415RR	12.6	56.8
Doebler's	RPM DB4715RR	12.5	61.5
Seed Consultants	SCS9474RR	12.8	58.2
	<b>Average</b>	<b>13.1</b>	<b>56.3</b>

**Discussion:** An excellent set of double crop soybeans. No insecticides or fungicides were applied this season due to low pest pressure. Rainfall was timely in August though not over abundant.

## 2014 WESTMORELAND MATURITY GROUP 4 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: F.F. Chandler, Jr.  
 Extension: Stephanie Romelczyk, VCE-Westmoreland  
 Keith Balderson, VCE-Essex  
 Robbie Longest, Summer Intern  
 Industry: Participating Companies  
**Previous Crop:** Corn  
**Soil Type:** Kempsville Loam  
**Tillage** No-Till in 30 inch rows  
**Planting Date:** June 4, 2014  
**Seeding Rate** 140,000 seeds/A  
**Fertilization:** 20-50-70  
 At R1: Reinforce K (1 gal.) + Foliar Boron (1 pt.)  
**Crop Protection:** Burn: Gramoxone (3 pt.) + 2,4-D (3/4 pt.), + Envive (3.5oz)  
 Post: Glyphosate (32 oz.) + Radiate (2 oz.)  
 R1: Quadris Top (8 oz.) + Sniper (6 oz.)  
**Harvest Date:** October 31, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Pioneer	P48T53R	13.0	42.8
Asgrow	AG4632	13.0	41.4
Hubner	H48-13R2STS	12.5	41.1
Hubner	H49-15R2SR	12.9	41.1
CPS/Dyna-Gro	S46RY85	12.8	41.0
Great Heart	GT-500CR2S	13.0	40.8
CPS/Dyna-Gro	S48RS53	12.7	40.5
Asgrow	AG4934	13.2	40.4
Bayer/HBK	4721RY	12.9	40.4
USG	74B81R	13.0	40.2
Southern States	SS4312nR2	13.2	40.1
Progeny	P4850RYS	12.8	40.0
Bayer/HBK	4620RY	12.8	39.5
Channel	4508R2/SR	12.7	39.4
Channel	4806R2/STS	12.5	38.9
Pioneer	P46T21R	13.2	38.7
Seed Consultants	SCS9474RR	13.0	38.6
Southern States	SS4917nR2	12.3	38.5
Progeny	P4788RY	13.2	37.9
Doebler's	RPM DB4715RR	13.0	36.7
Doebler's	RPM DB4415RR	12.9	35.8

**Discussion:** Use this and other on-farm soybean variety comparisons when making planting decisions for 2015.

**MATURITY GROUP 5 VARIETY COMPARISONS**



**2014 OVERALL MATURITY GROUP 5 COMPARISON**

Brand	Variety	King & Queen	New Kent	Appo- mattox	Chesa- peake	Green- ville	Prince George	Brunswick	Lunenburg	Average
Hubner	H58-12R2	69.2	48.7	29.8	49.5	39.6	44.8	64.3	50.0	49.5
Asgrow	AG5332	68.1	50.2	23.5	48.6	47.0	54.8	64.2	37.4	49.2
Bayer/HBK	RY5421	61.1	43.1	30.5	42.4	61.2	50.0	67.3	37.3	49.1
Asgrow	AG5533	60.8	49.8	25.0	50.3	41.6	51.3	66.2	44.9	48.7
Great Heart	GT-572CR2	63.3	45.8	27.3	40.7	43.0	52.7	67.6	47.1	48.4
USG	7553nRS	63.8	43.2	30.8	48.3	48.7	44.8	66.0	39.8	48.2
Progeny	P5555RY	66.7	50.5		49.5	39.5	57.3	52.4	40.3	48.0
Channel	5805R2	71.1	43.5	28.4	45.0	43.3	53.0	61.1	37.8	47.9
USG	75J90R	62.2	46.7	28.0	48.1	41.3	51.8	63.5	40.5	47.8
CPS/Dyna-Gro	S52RY75	56.4	43.2	29.4	47.5	40.6	59.2	64.1	40.8	47.7
CPS/Dyna-Gro	32RY55	64.4	45.2		48.5		50.7	61.9	38.4	47.5
Channel	5307R2/STS	67.5	48.7	24.9	44.2	43.6	50.6	57.8	37.1	46.8
Pioneer	P56T03R	67.7	47.5	31.7	39.4	43.2	41.0	59.4	43.2	46.6
Doebler's	RPM DB5215RR	65.4	48.0		43.8		47.2	60.8	32.4	46.0
Progeny	P5213RY	65.1	50.4	28.4	46.3	39.6	54.8	61.7	21.0	45.9
Pioneer	P50T64R	63.9	51.1	26.2	44.1	34.2	51.5	55.8	34.9	45.2
Seed Consultants	SCS9544RR	56.3	39.2	29.5	40.9	40.6	49.0	63.2	43.0	45.2
Hubner	H55-13R2	57.9	43.4	23.2	39.6		48.9	55.8	43.1	44.4
Bayer/HBK	RY5221	67.0	47.9	21.9	38.4		54.2	55.1	26.7	44.3
Site Average										47.2
		64.1	46.6	27.4	45.0	43.1	50.9	61.5	38.7	47.2

## 2014 APPOMATTOX COUNTY MATURITY GROUP 5 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Joanne Jones  
 Extension: Bruce Jones  
**Previous Crop:** Soybean (2013 full season), Wheat  
**Soil Type:** Mattaponi-Cecil Complex, 2 to 7 percent slopes  
**Tillage:** No-till into wheat stubble  
**Planting Date:** June 30, 2014  
**Seeding Rate/Row Spacing:** 275,000 seeds/A; 7.5 inch rows- John Deere 750  
**Fertilization:** 18-46-60  
**Crop Protection:** Pre-Plant: 2 pints Glyphosate  
 Post: 2 pints Glyphosate  
**Harvest Date:** November 5, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Asgrow	AG5332	8.4	23.5
Asgrow	AG5533	8.5	25.0
Bayer/HBK	RY5221	8.7	21.9
Bayer/HBK	RY5421	9.2	30.5
Channel	5307R2/STS	9.3	24.9
Channel	5805R2	9.0	28.4
CPS-Dyna-Gro	S52RY75	12.7	29.4
Great Heart	GT-572CR2	14.5	27.3
Great Heart	GT-500CR2S	10.8	27.8
Hubner	H58-12R2	12.8	29.8
Hubner	H55-13R2	12.4	23.2
Pioneer	P50T64R	8.5	26.2
Pioneer	P56T03R2	8.4	31.7
Progeny	P5213RY	14.2	28.4
Seed Consultants	SCS9544RR	10.5	29.5
USG	7553nRS	18.3	30.8
USG	75J90R	21.8	28.0

### Discussion:

Use this and other Virginia Tech on-farm soybean variety comparisons when making planting decisions for 2015.

## 2014 BRUNSWICK COUNTY MATURITY GROUP 5 SOYBEAN VARIETY COMPARISONS

**Cooperators:** Producer: Doug and Jonathan Harrison  
 Extension: Taylor Clarke, Lindy Tucker, Laura Siegle  
 Industry: Participating Companies  
**Previous Crop:** Flue-Cured Tobacco/Small Grain cover crop  
**Soil Type:** Appling-Mattaponi Complex  
**Tillage:** No-till  
**Planting Date:** May 22, 2014  
**Seeding Rate/Row Spacing:** 140-150,000 in 15" rows with Great Plains no-till drill  
**Fertilization:** 0-30-60  
**Crop Protection:** Glyphosate burn-down, Glyphosate Post  
**Harvest Date:** November 9, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Check (CPS/Dyna-Gro)	DG32RY55	14.6	54.0
Progeny	P5555RY	14.4	52.4
Hubner	H55-13R2	14.2	55.8
Pioneer	P50T64R	13.9	55.8
Asgrow	AG5332	13.4	64.2
Check (CPS/Dyna-Gro)	DG32RY55	13.8	68.5
Bayer/HBK	RY5421	13.7	67.3
Doebler's	RPM DB5215RR	13.5	60.8
CPS/Dyna-Gro	S52RY75	13.6	64.1
Channel	5307R2/STS	14.2	57.8
Check (CPS/Dyna-Gro)	32RY55	14.1	68.8
Seed Consultants	SCS 9544RR	13.2	63.2
USG	7553nRS	13.0	66.0
Great Heart Seed	GT 572C R2	13.8	67.6
Hubner	H58-12R2	13.5	64.3
Check (CPS/Dyna-Gro)	32RY55	13.9	63.3
Channel	5805R2	13.9	61.1
Bayer/HBK	RY5221	15.5	55.7
Asgrow	AG5533	14.1	66.2
Pioneer	P56T03R2	13.7	59.4
Check (CPS/Dyna-Gro)	32RY55	13.6	62.5
Progeny AG	P5213RY	14.1	61.7
USG	75J90R	14.3	63.5
CPS/Dyna-Gro	56RY84	14.1	63.8
CPS/Dyna-Gro	39RY57	13.6	60.9
Check (CPS/Dyna-Gro)	32RY55	14.0	54.5

**Comments**

The plots had extremely good yields, with a range from 52.4 to 68.8bu/acre. The overall test average including checks was 61.7bu/acre. The check variety, Dyna-Gro 32RY55 averaged 61.9bu/acre. The yield of the Progeny 5555R plot had to be adjusted due to missing rows from a drill malfunction and the resulting yield may not reflect the true performance of this variety. The top five yielding varieties compared to the closest check variety plots were (1) Dyna-Gro 56RY84, (2) Dyna-Gro 39RY57, (3) Asgrow 5533, (4) USG 75J90R, and (5) Progeny 5213RY. The 5 lowest yielding varieties as compared to the nearest checks were Channel 5307R2/STS, Pioneer 50T64R, HBK 5221RY, Doeblers DB5215RR and Progeny 5555RY. Besides Progeny 5555RY these varieties were more adversely affected by Cercospora leaf spot and had noticeably more purple seed stain and damaged seed.

## 2014 CHESAPEAKE MATURITY GROUP 5 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Russell Temple  
 Extension: Watson Lawrence  
 Industry: Participating Seed Companies  
**Previous Crop:** Corn  
**Soil Type:** Tomotley-Deloss Complex  
**Tillage:** No-till  
**Planting Date:** June 27, 2014  
**Seeding Rate/Row Spacing:** 140,000 seed/acre on 24 inch rows  
**Fertilization:** 300 lbs. 7-18-34 + Mn  
**Crop Protection:** Glyphosate @ 1 ¼ qts. + Flexstar @ 12 oz.) per acre post-emergence  
**Harvest Date:** November 21, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Pioneer – Check	P95Y50	12.8	40.44
Bayer/HBK	RY5421	12.7	42.37
Bayer/HBK	RY5221	12.7	38.44
Pioneer	P50T64R	12.1	44.13
Pioneer	P56T03R2	12.4	39.35
Great Heart	GT-572CR2	11.9	40.65
Seed Consultant	SCS9544RR	12.1	40.90
Pioneer – Check	P95Y50	12.4	40.83
Progeny	P5555RY	12.2	49.47
Progeny	P5213RY	12.0	46.26
CPS/Dyna-Gro	32Y55	12.3	48.50
CPS/Dyna-Gro	S52RY75	12.4	47.50
Hubner	H58-12 R2	11.9	49.53
Hubner	H55-13 R2	11.4	39.63
Asgrow	AG5332	11.8	48.62
Asgrow	AG5533	11.5	50.27
Channel	5307R2/STS	12.1	44.24
Pioneer – Check	95Y50	11.3	43.90
Channel	5805R2	11.9	44.95
Doebler's	RPM DB5215RR	10.5	43.81
USG	7553	10.5	48.34
USG	75J90R	11.7	48.14
Pioneer	P95Y71	11.0	44.48
Pioneer – Check	P95Y50	11.1	41.19
<b>Average</b>			<b>44.43</b>

**Discussion:** Varieties were planted in field with consistent soil type. Pioneer 95Y50 was planted at intervals as a check. Corn earworm pressure was low avoiding need of a fall insecticide spray. Test weights were uniform around 58 and seed quality was very good with no seed stain or other damage. Varieties are listed in order of planting.

## 2014 GREENSVILLE MATURITY GROUP 5 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Joey Doyle  
 Extension: Brittany Council, VCE-Greenville  
 Kelvin Wells, VCE-Sussex  
 Industry: Participating Companies  
**Previous Crop:** Cotton  
**Soil Type:** Slagle Fine Sandy Loam  
**Tillage:** No-Till  
**Planting Date:** June 2, 2014  
**Seeding Rate:** 3-4 seeds per row foot  
**Fertilization:** 30-70-90  
**Crop Protection:** Glyphosate Burndown, Glyphosate Post  
**Harvest Date:** November 16, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Channel	5805R2	12.1	43.3
Bayer/HBK	RY5421	12.8	61.2
Channel	5307R2/STS	13.0	43.6
USG	75J90R	13.0	41.3
Pioneer	P50T64R	13.4	34.2
Progeny	P5555RY	13.0	39.5
Asgrow	AG5332	13.0	47.0
Great Heart	GT-572CR2	13.3	43.0
Asgrow	AG5533	13.2	41.6
Progeny	P5213RY	13.0	39.6
Pioneer	P56T03R2	12.8	43.2
Hubner	H58-12R2	13.0	39.6
CPS/Dyna-Gro	DGS52RY75	12.0	40.6
Seed Consultants	SCS9544RR	12.7	40.6
USG	7553nRS	12.1	48.7

**Discussion;** Use this and other Virginia Tech on-farm variety comparison information when making planting decisions for 2015.

## 2014 KING & QUEEN MATURITY GROUP 5 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Craig Leggett, William D. Carlton  
 Extension: David Moore, VCE-Middlesex  
 Dorothy Baker, VCE Intern  
 Industry: Participating Companies  
**Previous Crop:** Corn  
**Soil Type:** Emporia & Slagle Sandy Loams  
**Tillage/Row Spacing** No-Tillage in 7.5 inch rows  
**Planting Date:** June 3, 2014  
**Seeding Rate/Row Spacing:** 170,000  
**Fertilization:** 1 Ton Lime  
**Crop Protection:** Burndown: Glyphosate + 2,4-D  
 Post: PowerMax + First Rate  
 Post: 6 oz. Approach + Brant Smart Trio + Lambda-Cy  
**Harvest Date:** November 5, 2014  
**Harvest Equipment:** John Deere 7720

Brand	Variety	Moisture%	Yield (bu/A)
Bayer/HBK	RY5421	12.6	61.1
Check (Asgrow)	AG5332	12.3	57.5
Bayer/HBK	RY5221	12.1	67.0
Check (Asgrow)	AG5332	12.0	60.5
Channel	5805R2	11.6	71.1
Check (Asgrow)	AG5332	11.5	62.3
Channel	5307R2/STS	11.4	67.5
Check (Asgrow)	AG5332	11.4	63.3
USG	75J90R	10.9	62.2
Check (Asgrow)	AG5332	11.0	65.9
USG	7553nRS	11.3	63.8
Check (Asgrow)	AG5332	10.7	56.7
Pioneer	P56T03R2	11.2	67.7
Check (Asgrow)	AG5332	11.0	62.6
Pioneer	P50T64R	11.2	63.9
Check (Asgrow)	AG5332	10.9	66.0
Doebler's	RPM DB5215RR	11.1	65.4
Check (Asgrow)	AG5332	10.5	60.7
Progeny	P5213RY	10.9	65.1
Check (Asgrow)	AG5332	11.3	53.1
Progeny	P5555RY	11.3	66.7
Check (Asgrow)	AG5332	11.3	56.8
Asgrow	AG5332	11.3	68.1
Check (Asgrow)	AG5332	11.3	61.0
Asgrow	AG5533	10.9	60.8

Check (Asgrow)	AG5332	11.0	55.3
Greatheart	GT-572CR2	10.8	63.3
Check (Asgrow)	AG5332	10.9	62.7
Hubner	H55-13R2	11.1	57.9
Check (Asgrow)	AG5332	10.6	60.6
Hubner	H58-12R2	11.1	69.2
Check (Asgrow)	AG5332	11.3	59.6
Seed Consultants	SCS9544RR	11.4	56.3
Check (Asgrow)	AG5332	11.5	56.0
CPS/Dyna-Gro	32RY55	11.8	64.4
Check (Asgrow)	AG5332	11.7	59.3
CPS/Dyna-Gro	S52RY75	11.2	56.4

**Discussion:** What a great plot! In hindsight, we planted a little thick. Some lodging occurred, but all in all, very good yields. Use this and other Virginia Tech on-farm soybean variety plot information when making planting decisions for 2015.

## 2014 MECKLENBURG/LUNENBURG COUNTY MATURITY GROUP 5 SOYBEAN VARIETY COMPARISONS

**Cooperators:** Producer: Opie Farms  
 Extension: Taylor Clarke, Lindy Tucker, Laura Siegle  
 Industry: Participating Companies  
**Previous Crop:** Soybeans then Small Grains Cover Crop  
**Soil Type:** Appling Sandy Loam  
**Tillage:** No-till  
**Planting Date:** June 5, 2014  
**Seeding Rate/Row Spacing:** 140,000 in 15 inch rows  
**Fertilization:** None  
**Crop Protection:** Touchdown Pre and Flexstar GT Post  
**Harvest Date:** December 15, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Check (Dyna-Gro)	32RY55	12.9	32.9
Check (Progeny)	P5610	13.1	36.3
Progeny	P5555RY	13.7	40.3
Hubner	H55-13R2	13.6	43.1
Pioneer	P50T64R	12.8	34.9
Asgrow	AG5332	13.4	37.4
Check (Dyna-Gro)	32RY55	13.1	40.3
Check (Progeny)	P5610	13.3	34.5
Bayer/HBK	RY5421	13.3	37.3
Doebler's	DB5215RR	13	32.4
Dyna-Gro	S52RY75	13.1	40.8
Channel	5307R2/STS	13.1	37.1
Check (Dyna-Gro)	32RY55	13.1	42.7
Check (Progeny)	P5610	13	45.2
Seed Consultants	SCS9544RR	12.5	43.0
USG	7553nRS	12.2	39.8
Great Heart	GT-572CR2	12.4	47.1
Hubner	H58-12R2	12.5	50.0
Check (Progeny)	P 5610	12.7	49.1
Check (Dyna-Gro)	32RY55	12.7	42.4
<b>Farm Path</b>			
Check (Dyna-Gro)	32RY55	12.8	37.6
Check (Progeny)	P5610	12.8	33.6
Channel	5805R2	12.7	37.4
Bayer/HBK	RY5221	12.6	26.7
Asgrow	AG5533	12.8	44.9

Pioneer	P56T03R	12.6	43.2
Check (Dyna-Gro)	32RY55	12.5	41.5
Check (Progeny)	P5610	12.6	41.5
Progeny	P5213RY	12.2	21.0
USG	75J90R	12.2	40.5
Dyna-Gro	56RY84	12.5	35.8
Dyna-Gro	39RY57	12.2	32.2
Check (Progeny)	P5610	12.1	29.0
Check (Dyna-Gro)	32RY55	12.1	31.7

### **Comments**

This test was planted late (6/5/2014) for a full-season test, but data has some utility for a stress/low yield environment. Two check varieties were utilized every 4 plots, Dynagro 32RY55 and Progeny 5610. Both checks averaged 38.4bu/acre each across the test. The entire test including checks averaged 37.4 bu/acre. The 5 highest yielding varieties as compared to the nearest check varieties were (1) Hubner 55-13R, (2) Progeny 5555RY, (3) Asgrow 5533, (4) Hubner 58-12R, and (5) Dyna-gro 56RY84. The 5 lowest yielding varieties were Progeny 5213RY, HBK 5221RY, Doebler's 5215RR, Channel 5307RR/STS, and USG 7553nRS

## 2014 PRINCE GEORGE MATURITY GROUP 5 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Paul Cerny and Sean Finney  
 Extension: Scott Reiter, Prince George  
**Industry:** Participating Seed Suppliers  
**Previous Crop:** Wheat with straw removed  
**Soil Type:** Lynchburg loam & Montross silt loam  
**Tillage:** No-Till  
**Planting Date:** June 19, 2014  
**Seeding Rate/Row Spacing:** 210,000 seed per acre; 7 inch rows  
**Fertilization:** 120 N – 60 P2O5 – 100 K2O to wheat  
**Crop Protection:** 1 quart glyphosate, early July  
**Harvest Date:** November 16, 2014

Brand	Variety	Moisture%	Yield (bu/A) @ 13%
Asgrow	AG5332	13.0	54.8
Asgrow	AG5533	12.8	51.3
Pioneer	P50T64R	12.5	51.5
Pioneer	P56T03R2	12.8	41.0
USG	7553nRS	12.5	44.8
USG	75J90R	12.9	51.8
Hubner	H55-13R2	12.7	48.9
Hubner	H58-12R2	12.6	44.8
CPS/Dyna-Gro	S52RY75	12.7	59.2
CPS/Dyna-Gro	32RY55	12.8	50.7
Channel	5307R2STS	12.9	50.6
Channel	5805R2	13.0	53.0
Great Heart	GT-572CR2	12.5	52.7
Bayer/HBK	RY5221	13.0	54.2
Bayer/HBK	RY5421	12.9	50.0
Progeny	P5213RY	12.9	54.8
Progeny	P5555RY	12.8	57.3
Doebler's	RPM DB5215RR	12.5	47.2
Seed Consultants	SCS9544RR	12.5	49.0
CHECK	AG5332	12.6	53.8
	<b>Average</b>	<b>12.8</b>	<b>50.9</b>

**Discussion:** An excellent set of double crop soybeans. No insecticides or fungicides were applied this season due to low pest pressure. Rainfall was timely in August though not over abundant.

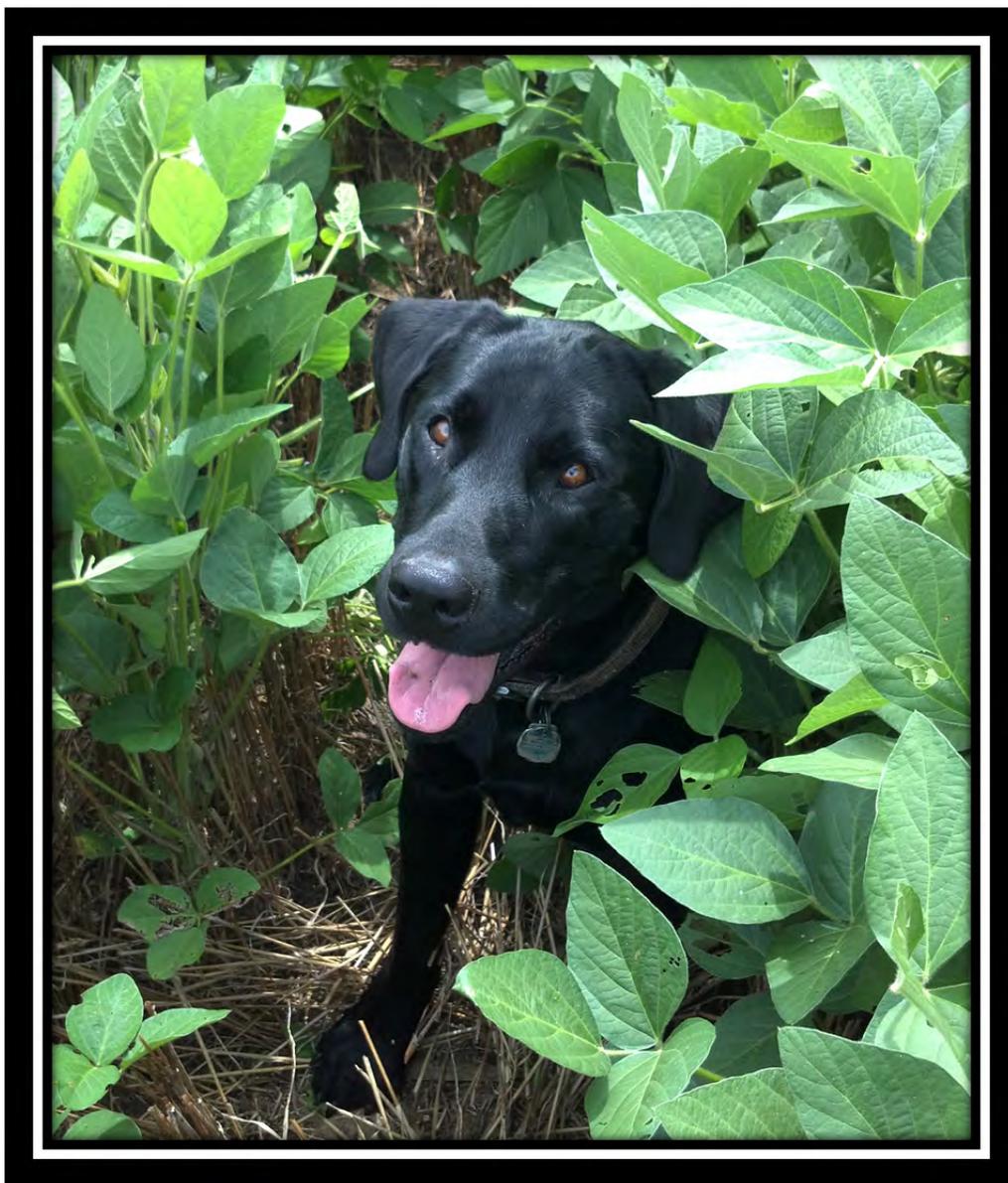
## 2014 NEW KENT MATURITY GROUP 5 SOYBEAN COMPARISON PLOT

**Cooperators:** Producer: Davis Produce  
 Extension: David Moore, VCE-Middlesex  
 John Allison, VCE-New Kent  
 Dorothy Baker, Summer Intern  
 Industry: Participating Companies  
**Previous Crop:** Wheat  
**Soil Type:** Altivista-Douge Sandy Loam  
**Tillage:** No Tillage in 15 inch rows  
**Planting Date:** July 1, 2014  
**Seeding Rate:** 195,000  
**Fertilization:** None  
**Crop Protection:** Burndown: Glyphosate + Metolachlor  
 Post: Glyphosate (July) + Tebuconazole (August)  
**Harvest Date:** November 15, 2014

Brand	Variety	Lodging 1=up,5=flat	Moisture%	Yield (bu/A)
Bayer/HBK	RY5421	3	11.1	43.1
Progeny	P5213RY	1	11.1	50.4
USG	75J90R	2	11.1	46.7
Asgrow	AG5533	3	11.1	49.8
Pioneer	P56T03R2	2	11.0	47.5
USG	7553nRS	1.5	10.9	43.2
Doebler's	RPM DB5215RR	2	10.9	48.0
Bayer/HBK	RY5221	1.5	10.9	47.9
Progeny	P5555RY	3.5	10.9	50.5
Pioneer	P50T64R	1	10.8	51.1
Asgrow	AG5332	2	10.8	50.2
Great Heart	GT-572CR2	2	10.8	45.8
Hubner	H55-13R2	3	10.8	43.4
Hubner	H58-12R2	3	10.8	48.7
Seed Consultants	SCS9544RR	2.5	10.8	39.2
CPS/Dyna-Gro	32RY55	2	10.7	45.2
CPS/Dyna-Gro	S52RY75	3.5	10.8	43.2

**Discussion:** Another very good plot! This was double crop soybean plot following a pretty good wheat crop. Use this and other Virginia Tech on-farm soybean variety plot information when making planting decisions for 2015.

**2014 TREATMENT TRIALS: LIBERT-LINK SOYBEANS, BIOLOGICALS, FUNGICIDES, WHEEL TRACKING, ROOT-KNOT NEMATODE SAMPLING, AND NUTRIENT TRACKING IN THE PLANT**



## 2014 GLOUCESTER MG 5 LIBERTY-LINK SOYBEAN COMPARISON

**Cooperators:** Producer: Greg Jenkins  
 Extension: David Moore, VCE-Middlesex  
 Industry: Blair Hasty, Meherrin AG & Chemical  
**Previous Crop:** Corn  
**Soil Type:** Lumbee Sandy Loam  
**Tillage:** Field Cultivator  
**Planting Date:** June 18, 2014  
**Seeding Rate/Row Spacing:** 160,000 in 15 inch rows  
**Crop Protection:** Burndown:  
 Post:  
**Harvest Date:** November 20, 2014

Brand	Variety	Moisture%	Yield (bu/A)
Pioneer	95L01	12.5	70.0
Progeny	P5160LL	12.7	65.6
Southern Harvest	SH5212	12.8	67.0
Southern Harvest	SH5215	12.5	64.5
Progeny	P5220LL	12.7	61.6
Pioneer	53T51L	12.7	60.3
Progeny	P5460LL	12.7	61.8
Southern Harvest	SH5515	12.6	66.9
Southern Harvest	SH5614	13.0	60.8
Southern Harvest	SH5912	12.8	69.0
Progeny	P5960LL	12.8	56.0

### Discussion:

In response to discovering Palmer Amaranth in his fields in 2013, producer decides to compare some Liberty-Link soybean varieties to see how they yield. From the results of this plot, I would say they are very comparable to Glyphosate tolerant soybeans.

Use this and other Virginia Tech on-farm soybean comparisons when making planting decisions for 2015.

## 2014 BIOSTART® Rhizo-Boost SOYBEAN TREATMENT PLOT

**Cooperators:** Producer: Robert Bland IV  
 Extension: David Moore, VCE-Middlesex  
 Dorothy Baker, Summer Intern  
 Industry: Charlie Hubbard, Southern States  
 Katie Lecker, BIO-CAT Microbials  
**Previous Crop:** Orchardgrass  
**Soil Type:** Emporia Sandy Loam  
**Tillage:** No-Till into 7.5 inch rows  
**Planting Date:** June 8, 2014  
**Variety:** Southern States 4700R2STS  
**Seeding Rate:** 140,000  
**Fertilization:**  
**Crop Protection:**  
**Harvest Date:** December 1, 2014

Treatment	Replication	Moisture%	Yield (bu/A)
Rhizo-Boost	1	13.9	61.1
None	1	13.9	61.1
Rhizo-Boost	2	14.0	63.0
None	2	13.8	64.2
Rhizo-Boost	3	13.8	62.7
None	3	13.6	62.8
Rhizo-Boost	4	13.7	61.3
None	4	13.7	63.2
<b>Avg. Rhizo-Boost</b>		<b>13.9</b>	<b>62.0</b>
<b>Avg. None</b>		<b>13.8</b>	<b>62.8</b>

**Discussion:** Rhizo-Boost is a microbial supplement (bacterial spores) that was added as a seed treatment to “increase nutrient uptake, stimulate root, shoot and plant growth, decrease plant stress, and improve yields.”

In this replicated side by side strip plot, there were no differences in yields when this product was added. In August, there were visual observations made of the growing crop and of the roots of the treated and untreated strips. There were no visual differences in the strips.

If you are curious of how some of these new “biologicals” work, then try them in a replicated side by side comparison.

## 2014 EVALUATION OF LATE SEASON FUNGICIDE AND INSECTICIDE APPLICATION ON FULL-SEASON SOYBEANS

**Cooperators:** Producer: Keith Balderson  
 Extension: Keith Balderson, VCE, Essex  
 Stephanie Romelczyk, VCE, Westmoreland  
 Industry: Curtis Packett, Crop Production Services  
**Previous Crop:** Corn followed by rye cover crop  
**Soil Type:** Suffolk sandy loam  
**Tillage:** Continuous no-tillage since 2002  
**Planting Date:** May 10, 2014  
**Variety:** Dyna-Gro 37RY47RRSTS  
**Seeding Rate/Row Spacing:** 120,000 seeds per acre in 7.5 inch rows  
**Fertilization:** 18-46-60 and Mn and Radiate PGR applied in post-emergence herbicides  
**Crop Protection:** Burndown herbicides: Roundup and 2, 4-D  
 Pre-emergence: Canopy EX  
 Post-emergence: Touchdown and Synchrony  
 Fungicide: Quadris Top at 8 oz. per acre on plots  
 Insecticide: Sniper at 6 oz. per acre on plots  
**Harvest Date:** October 7, 2014

Treatment	Replication	Moisture%	Yield (bu/A)
Quadris Top/Sniper	1	<13.0*	48.6
Check	1	<13.0	45.8
Quadris Top/Sniper	2	<13.0	54.3
Check	2	<13.0	49.4
<b>Ave. Quadris Top/Sniper</b>			<b>51.5</b>
<b>Aver. Check</b>			<b>47.6</b>

\* Moisture measurements were not taken but it is know that moisture was below 13% and no moisture conversion was used in calculating yields

**Discussion:** Frogeye leaf spot was prevalent in 2014 on susceptible varieties and this field was heavily infected and probably should have been treated earlier. Soybean aphids also came in late. However, due to dry conditions, the field was not treated at R5 and this plot was established at R6 to give some information relative to late season fungicide/insecticide applications to soybeans. In this plot, the fungicide/insecticide tank mix did increase yields. The yield response could have been from a combination of the fungicide and insecticide given the pressure from frogeye leaf spot and soybean aphids, but we believe the fungicide provided the most yield increase. Given the cost of the treatment and application at about \$30 per acre and the yield loss of just over 1 bushel per acre due to the sprayer tires, the treatment was about break-even with soybeans at \$10 per bushel. It would have interesting to see if the yield response would have been greater with a treatment at R5.

## 2014 EVALUATION OF LATE SEASON TIRE TRACKS IN FULL-SEASON SOYBEANS

**Cooperators:** Producer: Keith Balderson  
 Extension: Keith Balderson, VCE, Essex  
 Stephanie Romelczyk, VCE, Westmoreland  
**Previous Crop:** Corn followed by rye cover crop  
**Soil Type:** Suffolk Sandy Loam  
**Tillage:** Continuous no-tillage since 2002  
**Planting Date:** May 10, 2014  
**Variety:** Dyna-Gro 37RY47RRSTS  
**Seeding Rate/Row Spacing:** 120,000 seeds per acre in 7.5 inch rows  
**Fertilization:** 18-46-60 and Mn and Radiate PGR applied in post-emergence herbicides  
**Crop Protection:** Burndown:: Roundup and 2, 4-D  
 Pre-emergence: Canopy EX  
 Post-emergence: Touchdown and Synchrony  
 Fungicide: Quadris Top at 8 oz. per acre  
 Insecticide: Sniper at 6 oz. per acre  
**Harvest Date:** October 7, 2014

Treatment	Replication	Moisture%	Yield (bu/A)
Tracks	1	< 13.0*	43.3
No Tracks	1	<13.0	48.6
Tracks	2	<13.0	47.0
No Tracks	2	<13.0	54.3
<b>Average: Tracks</b>			<b>45.2</b>
<b>Average: No Tracks</b>			<b>51.5</b>
<b>Difference</b>			<b>(6.3)</b>
<b>Adjusted Difference</b>			<b>(1.26)</b>

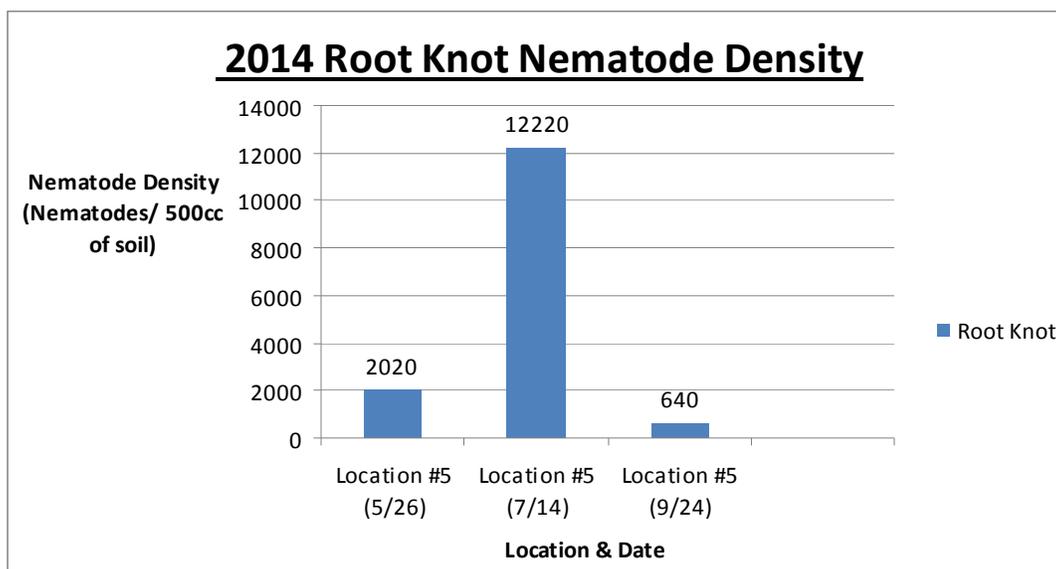
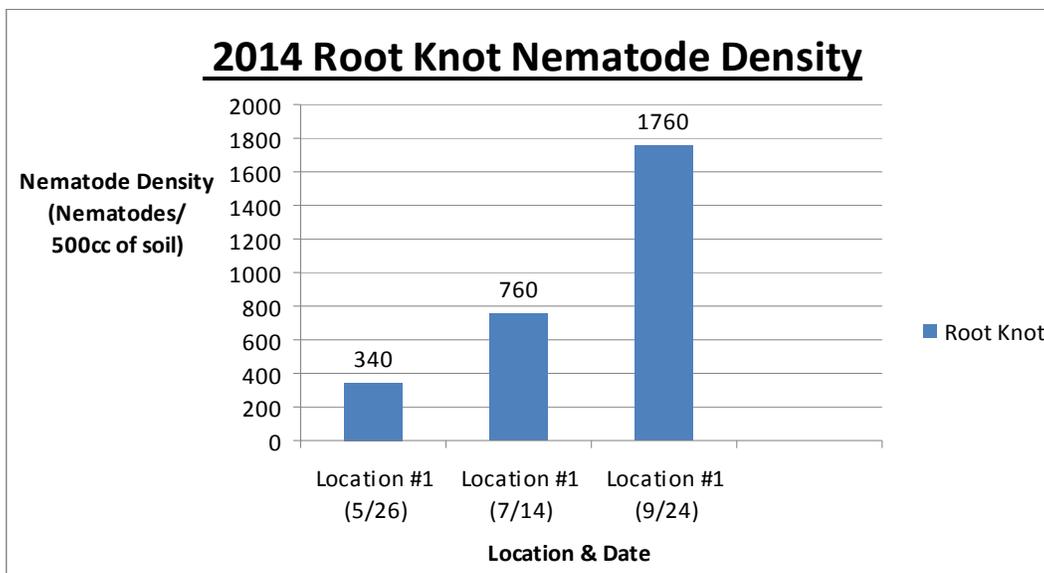
\* Moisture measurements were not taken but it is know that moisture was below 13% and no moisture conversion was used in calculating yields

**Discussion:** The soybean crop is often treated late in the season with insecticides and or fungicides in an effort to protect crop yield. These late season applications with ground equipment cause some crop loss and growers are interested in knowing the loss and evaluating the possibility of aerial application.

In this plot, an application of fungicide and insecticide was made very late (R6) to treat soybean aphids and frogeye leaf spot. There is an actual difference and an adjusted difference in yield reported. The spray applicator covered 90 feet and the combine covered 18 feet during harvest. Therefore, the average yield difference of 6.3 bushels per acre is actually 20% of the 6.3 bushels per acre, or approximately 1.26 bushels per acre. Some growers have actually installed tramlines on soybean planters to manage this potential loss and make late season application decisions easier.

## ROOT KNOT NEMATODE MONITORING

Root knot nematode has many hosts and can be quite damaging to soybeans. In the past, rotating to corn had been a recommendation for managing root knot nematodes. However, recently, that recommendation has been changed, as it is believed that corn is not only a host for root knot, but root knot can actually hurt corn yields. Below are root knot nematode assay results from the Virginia Nematode Laboratory from 2 locations in a corn field in the Northern Neck of Virginia where extremely high levels of nematodes have been documented. Soil samples were taken 3 times from the 2 different locations within the field during the growing season and just after corn harvest. The purpose for taking the samples was to document root knot nematode populations in the field and to determine if populations could increase on corn roots. Given the numbers from these assays, it does appear that root knot nematodes can increase on corn roots and corn is not a good rotational crop for managing this pest.



## 2014 VALIDATION OF A FOLIAR FUNGICIDE DECISION AID IN SOYBEAN

**Cooperators:** Producers: Glenn Dye, Keith Dunn, Cam Gibson, Matt Hickman, Don Meek, John Shepherd, Colin Whittington  
 Extension: Hillary Mehl, David Holshouser

**Treatments:** 1) Control; 2) Fungicide applied at R3 stage; 3) Fungicide applied based on decision aid (temperature & relative humidity)

**Experimental Design:** Randomized Complete Block with 3 or 4 reps

County	Variety	Treatment	Spray Date	Fungicide & Rate	Yield (bu/A) <sup>a</sup>
Orange	Asgrow AG4633	Control	NA		47.4 B
		R3	July 29	Priaxor - 4 oz/A	52.6 A
		Decision Aid	Aug 4	Priaxor - 4 oz/A	52.0 A
Culpeper	NK S41-J6	Control	NA		61.0 A
		R3	Aug 11	Priaxor - 4 oz/A	59.7 A
		Decision Aid	Aug 20	Priaxor - 4 oz/A	57.2 A
Stafford	Pioneer P39T67	Control	NA		67.8 A
		R3	Aug 7	Quadris Top - 11 oz/A	69.7 A
		Decision Aid	Aug 16	Quadris Top - 11 oz/A	70.2 A
Amelia	Armor 5363	Control	NA		41.4 C
		R3	Aug 15	Quadris Top - 10 oz/A	47.7 A
		Decision Aid	Aug 20	Quadris Top - 10 oz/A	46.1 B
Nottoway		Control	NA		45.4 B
		R3	Sept 16		46.7 A
		Decision Aid	Sept 26		46.7 A
Sussex	Hubner H53-12R2	Control	NA		30.0 B
		R3	Sept 3	Stratego YLD - 6 oz/A	34.2 A
		Decision Aid	Sept 16	Stratego YLD - 6 oz/A	32.7 A
Accomack	Channel 4206 & 4306	Control	NA		54.7 A
		R3	Sept 11	Stratego YLD - 4 oz/A	53.6 A
		Decision Aid	Sept 15	Stratego YLD - 4 oz/A	48.8 A

<sup>a</sup>Yields followed by the same letter within a location are not significantly different at 90% confidence level

**DISCUSSION:** Over 10 years of research in Virginia indicate that foliar fungicides only result in a significant soybean yield response one-third of the time. Foliar soybean disease development depends on optimum environmental conditions, primarily temperature (daily averages between 65 and 78°F) and relative humidity ( $\geq 95\%$  for  $\geq 10$ hrs/day). These experiments were conducted to validate a decision aid developed by Dr. Pat Phipps, former Virginia Tech Extension Plant Pathologist, to predict whether or

not, and when to make a foliar fungicide application to soybean. Treatments included a control, R3 stage (early pod development) application, and application based on the decision aid. At all sites, the decision aid predicted that a foliar fungicide was warranted, but recommended spraying 4 to 13 days after R3. Foliar fungicide resulted in a significant yield response in four of the seven sites. In Amelia County, the R3 application yielded 1.6 bushels more than the decision aid treatment. At this site, high levels of frogeye leaf spot were present in two of the three replications. These high levels of frogeye leaf spot were likely the reason for this difference as the decision aid was developed with *Cercospora* blight data. In Culpeper County, conditions were not favorable for disease development until the R5 stage, 13 days after the R3 application was made. There is a much lower probability of getting a yield response to fungicide if disease develops later in the season. In Accomack County, other diseases were present, especially sudden death syndrome (SDS). A non-uniform distribution of SDS increased variability between treatments and replications, resulting in non-significant differences.

In general, the model performed well. It wrongly predicted a yield response at only two sites (if the Accomack County site is ignored). At both of those sites, conditions were not right for disease development until 9 or 13 days after the R3 application, when the likelihood of a yield response is less. Although yields of the decision aid treatments were no greater than R3, the later application should have extended the fungicide effectiveness to later in the season. Although the model performed well, more validation is needed in 2015 before it is released to the public.

## NUTRITIONAL CONTENT OF SOYBEANS DURING GROWING SEASON

**Background:** This field work was initiated to better understand the nutrient content of soybean plants during the growing season. Overall, the purpose of this study is to find effective practices that result in optimal soybean yields in Virginia; especially in double crop situations. Tissue samples were taken at various growth stages and mailed to A & L Eastern Laboratories to determine nutritional content. Results of the tissue sample help us better understand the nutritional need of the plant at various stages. Results also help us understand if additional foliar “nutritionals” are needed. The chart below shows nutritional deficiencies and/or excesses from soybeans collected from nine (9) different locations around the lower middle peninsula. All samples were taken from the 2014 growing season. Some production information is included per plot below.

Plot 1 and plot 2 were full season soybeans; the remaining were double-crops. The full season plots had two additional samples taken. Plot information is as follows:

Plot	Variety	Plant Date	Nutrition/When	Harvest Date	Avg. Yield
1 FS	HBK4620	May 24	Yes, August 5	November 5	27 bushels
2 FS	DG S48RS53	May 23	Yes, August 5	October 29	59 bushels

3 (DC)	MFS-561	June 24	Yes, August 21	November 28	34 bushels
4 (DC)	S48D00	June 23	Yes, August 22	November 13	44 bushels
5 (DC)	4806R2/STS	July 4	No	November 28	41 bushels
6 (DC)	P46T53	June 24	Yes, August 24	November 13	41 bushels
7 (DC)	53RY23	June 19	Yes, July 15 August 15	November 15	44 bushels
8 (DC)	MA4666	June 25	Yes, August 7	November 10	47 bushels
9 (DC)	P 95Y60	June 28	Yes August 7	November 17	41 bushels

Samples were taken every two weeks during the season until plant maturity. The samples consisted of leaves picked from the most recently developed trifoliates of the soybean plant. The area where the sample was taken was always the same 25 square feet section of field. Samples began on June 24, 2014 for Plot 1 & 2 when soybeans were not yet into the reproductive stage. Samples were taken approximately every two weeks until senescence. Sampling for the double-crop soybeans did not commence until Week 3 (Week 2=July 6; Week 3 = July 24; Week 4 = August 12; Week 5 = August 25; Week 6 = September 5; Week 7 = September 23;)

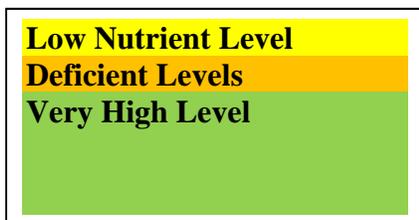
The following pages have the results of all tissue samples taken during the growing season. Also on the following pages are the nutrient levels of soil samples taken from each plot shortly after crop was planted. (Table with soil sample information follows)

**Soil Sample Information:**

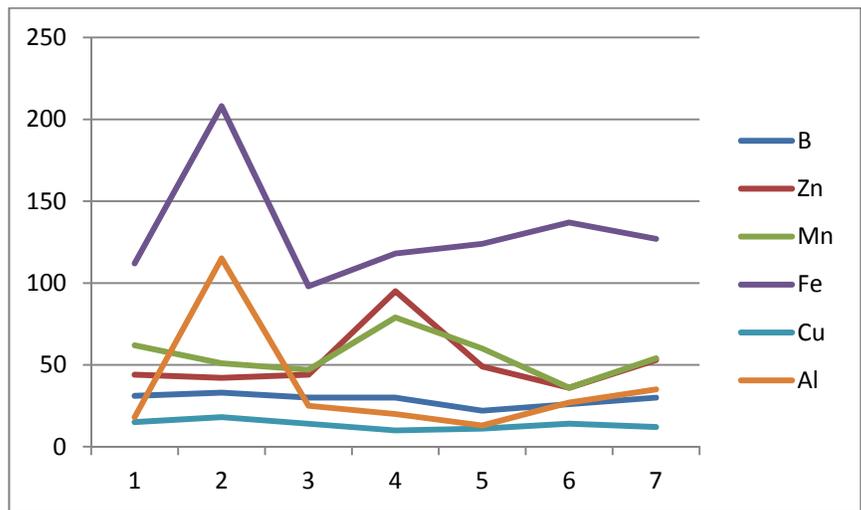
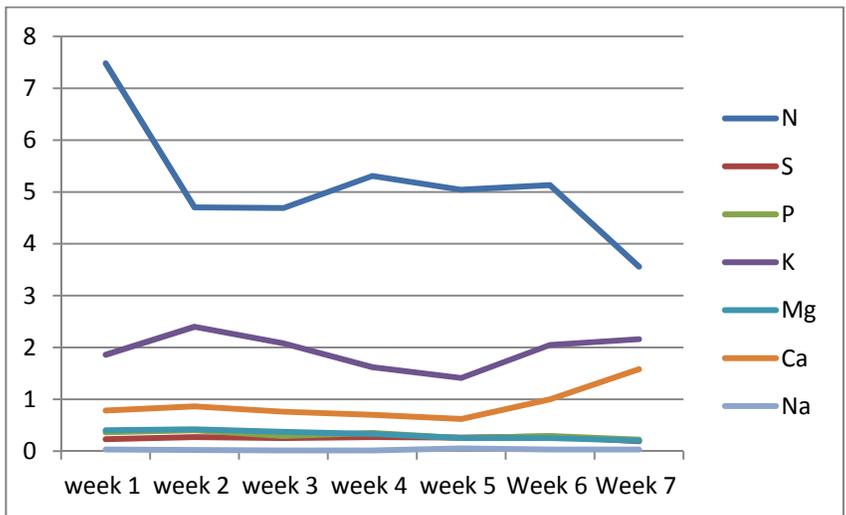
Plot	pH	P	K	Mg	Ca	Na	S	Zn	Mn	Fe	Cu	B
1	6.4	M	VH	H	M	VL	L	M	M	VH	H	L
2	6.5	VH	H	H	M	L	L	H	M	VH	M	L
3	6.1	H	M	M	M	VL	L	H	M	VH	H	L
4	6.3	VH	L	H	M	VL	VL	H	L	VH	M	VL
5	5.4	L	M	H	M	L	L	L	M	VH	M	VL
6	5.0	L	L	L	L	VL	L	M	H	VH	M	VL
7	5.1	VH	L	L	L	VL	VL	H	M	VH	H	VL
8	6.2	VH	M	H	M	VL	M	VH	M	VH	H	M
9	6.0	M	L	H	M	VL	M	H	M	VH	M	L

**Note:** Plots with soil pH numbers below 6.0 still had relatively high Buffer pH numbers, so these soils are still in pretty good shape as far as liming is concerned. Fertility-wise, there is a lot of variation in the amount of nutrients present. As expected, soils in the area are usually low in Sulfur and Boron, and high in Iron and Zinc. Another thing to notice here is that the soils have ample Manganese in them, but this nutrient is one of the first to become deficient in the plant. Remember that availability of nutrients is tied to soil pH levels. The purpose for sampling was to give the reader an idea of the nutrient levels in the soil prior to plant growth and the corresponding levels in the plant during the growing season.

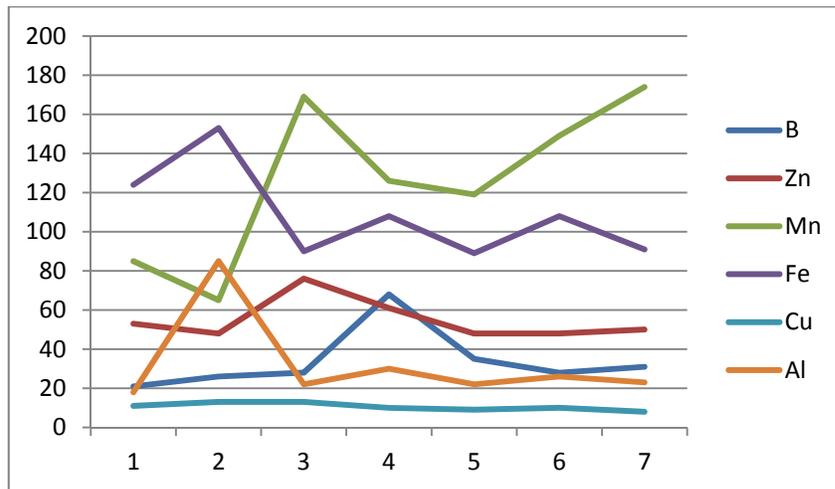
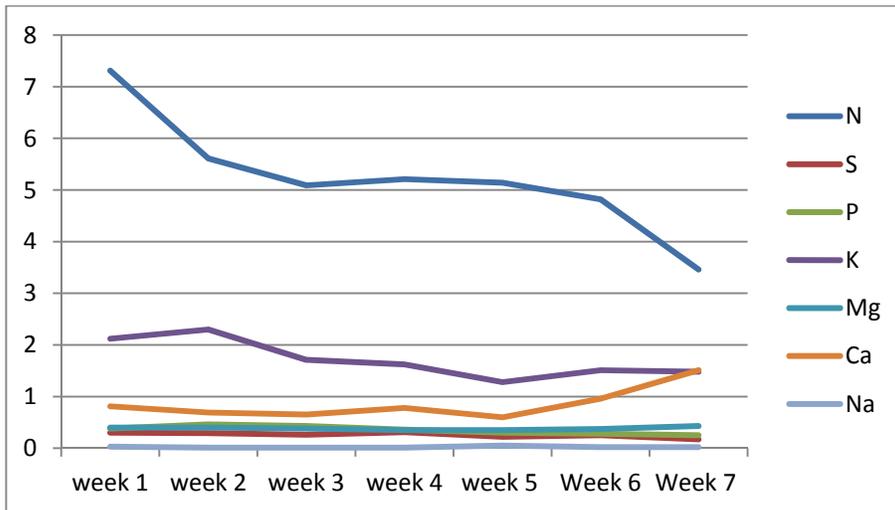
**Tissue Samples:** Only full season plots were sampled at Week 1 and Week 2. By Week 3, the full-season plots were at bloom. Double –crop plots were still blooming at the Week 4 sampling. Most of the post-emergent sprays took place between Week 3 and Week 4. By Week 5, all plots were in pod set or pod-fill stages. Samples taken at Week 5 and at Week 6 should show the results of any micronutrient additions. It should also be the time that the plant is running like a well-oiled machine. Root uptake of nutrients and foliar nutrient applications should have all kicked in by this time. By Week 7, most plots were showing signs of yellow leaves and senescence. At this point in the plants life, many nutrients, both major and minor will become low and deficient. The plant is shutting down by this time and is not expressing the nutrient levels in the leaves. Note: The key to use for the tissue results is below. Normal ranges have no color.



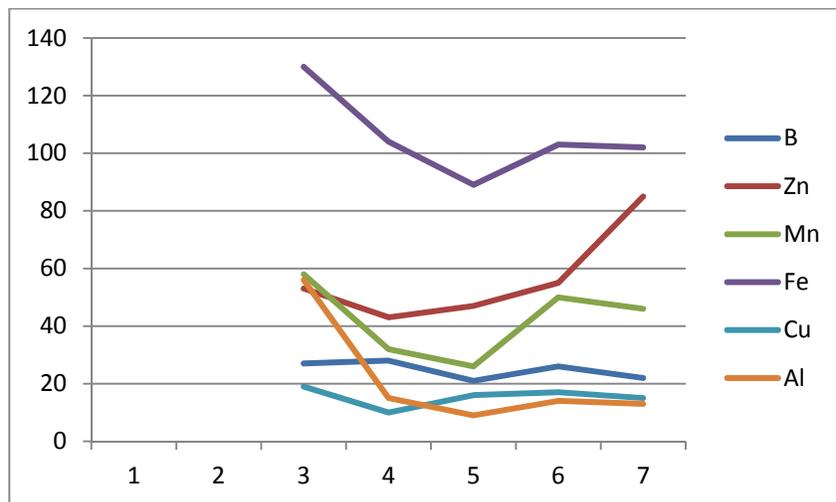
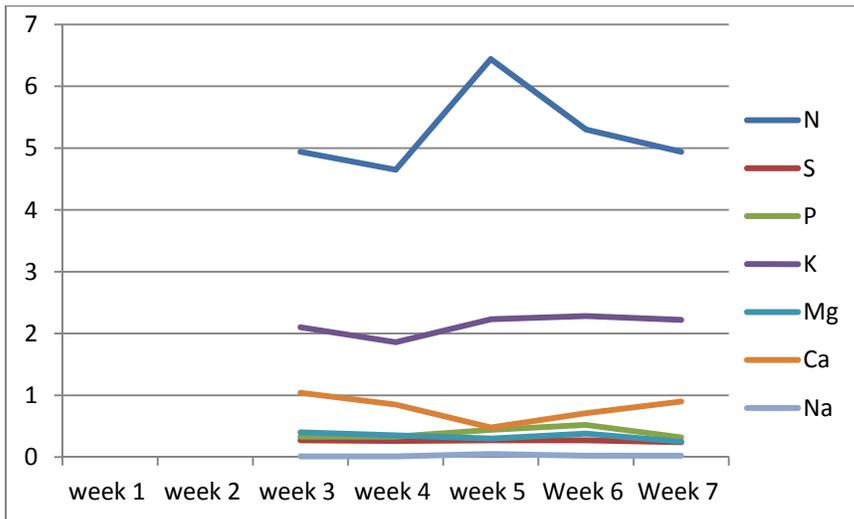
Plot 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N %</b>	7.48	4.7	4.69	5.31	5.04	5.13	3.56
<b>S</b>	0.23	0.27	0.25	0.27	0.26	0.28	0.19
<b>P</b>	0.36	0.4	0.29	0.35	0.25	0.29	0.22
<b>K</b>	1.86	2.4	2.08	1.62	1.41	2.05	2.16
<b>Mg</b>	0.4	0.42	0.37	0.33	0.25	0.25	0.2
<b>Ca</b>	0.78	0.86	0.76	0.7	0.62	1	1.58
<b>Na</b>	0.03	0.02	0.01	0.01	0.05	0.03	0.03
<b>B ppm</b>	31	33	30	30	22	26	30
<b>Zn</b>	44	42	44	95	49	36	53
<b>Mn</b>	62	51	47	79	60	36	54
<b>Fe</b>	112	208	98	118	124	137	127
<b>Cu</b>	15	18	14	10	11	14	12
<b>Al</b>	18	115	25	20	13	27	35



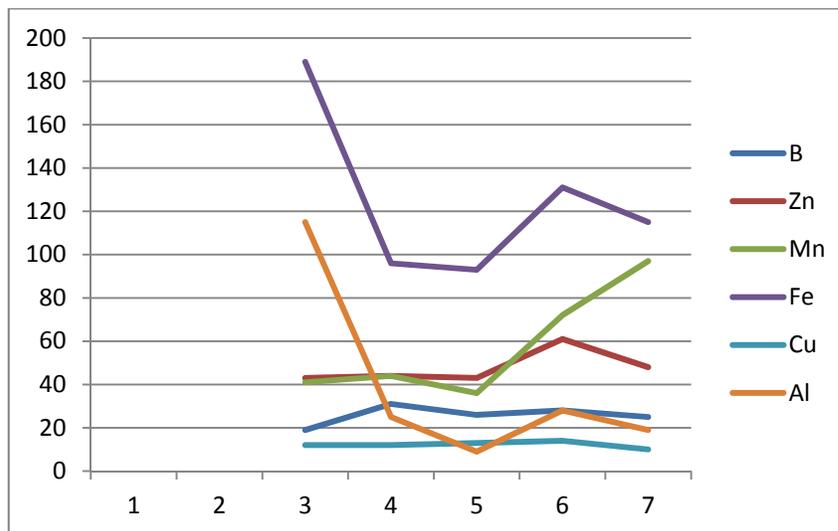
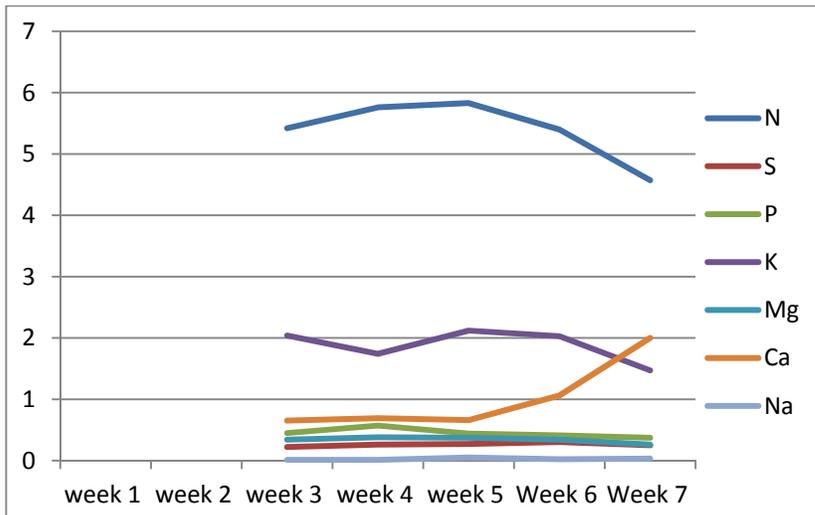
Plot 2	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	7.31	5.61	5.09	5.21	5.14	4.82	3.46
<b>S</b>	0.3	0.29	0.26	0.31	0.22	0.25	0.17
<b>P</b>	0.38	0.46	0.43	0.36	0.3	0.28	0.25
<b>K</b>	2.12	2.3	1.71	1.62	1.28	1.51	1.48
<b>Mg</b>	0.4	0.4	0.38	0.35	0.35	0.37	0.43
<b>Ca</b>	0.81	0.69	0.65	0.78	0.6	0.96	1.51
<b>Na</b>	0.03	0.01	0.01	0.01	0.05	0.02	0.02
<b>B ppm</b>	21	26	28	68	35	28	31
<b>Zn</b>	53	48	76	61	48	48	50
<b>Mn</b>	85	65	169	126	119	149	174
<b>Fe</b>	124	153	90	108	89	108	91
<b>Cu</b>	11	13	13	10	9	10	8
<b>Al</b>	18	85	22	30	22	26	23



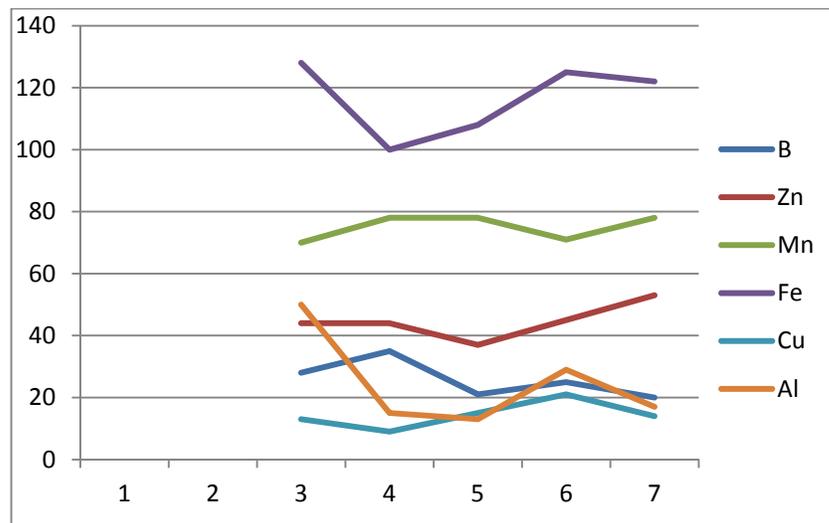
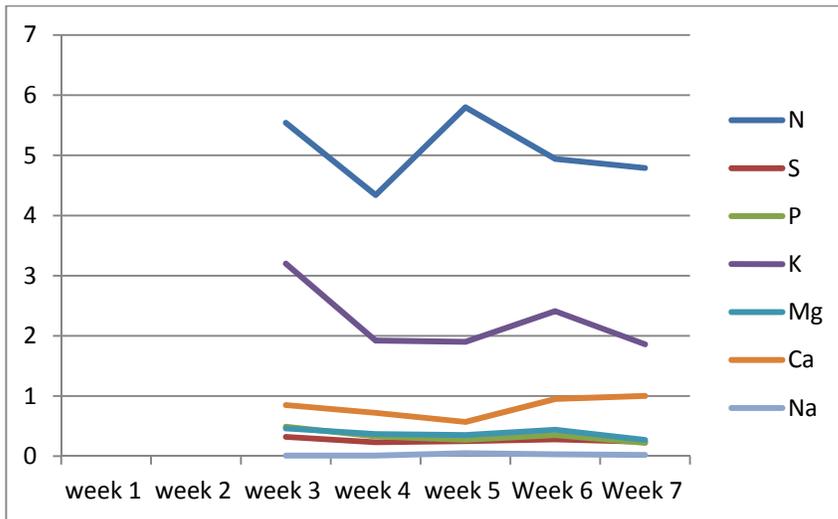
Plot 3	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	-	-	4.94	4.65	6.44	5.3	4.94
<b>S</b>	-	-	0.27	0.26	0.27	0.27	0.24
<b>P</b>	-	-	0.33	0.33	0.44	0.52	0.32
<b>K</b>	-	-	2.1	1.86	2.23	2.28	2.22
<b>Mg</b>	-	-	0.4	0.35	0.3	0.38	0.25
<b>Ca</b>	-	-	1.04	0.85	0.48	0.71	0.9
<b>Na</b>	-	-	0.01	0.01	0.05	0.02	0.02
<b>B ppm</b>	-	-	27	28	21	26	22
<b>Zn</b>	-	-	53	43	47	55	85
<b>Mn</b>	-	-	58	32	26	50	46
<b>Fe</b>	-	-	130	104	89	103	102
<b>Cu</b>	-	-	19	10	16	17	15
<b>Al</b>	-	-	56	15	9	14	13



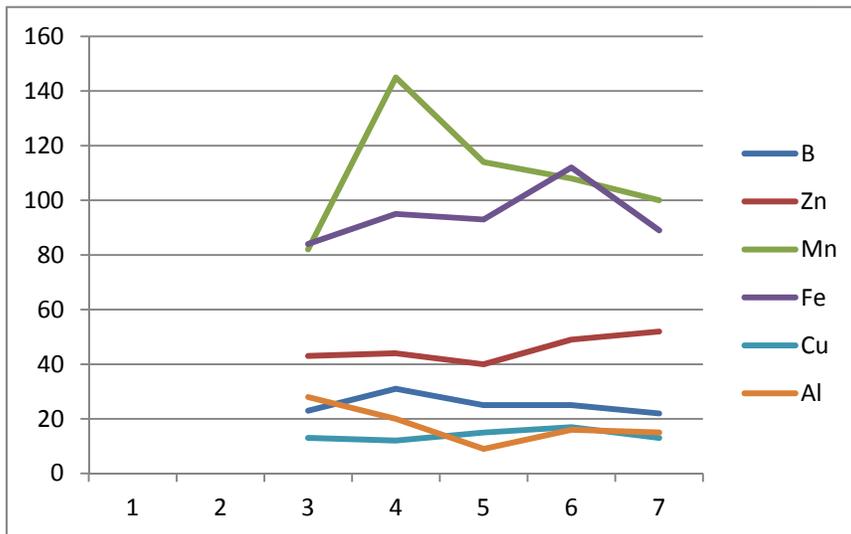
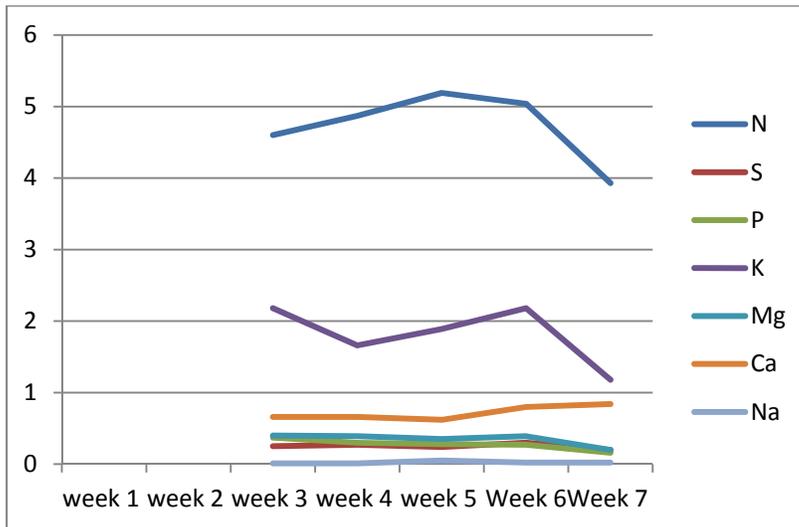
Plot 4	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	-	-	5.42	5.76	5.83	5.4	4.57
<b>S</b>	-	-	0.22	0.26	0.27	0.3	0.25
<b>P</b>	-	-	0.45	0.57	0.44	0.41	0.37
<b>K</b>	-	-	2.04	1.74	2.12	2.03	1.47
<b>Mg</b>	-	-	0.34	0.38	0.37	0.34	0.26
<b>Ca</b>	-	-	0.65	0.69	0.66	1.06	2
<b>Na</b>	-	-	0.01	0.01	0.05	0.02	0.03
<b>B ppm</b>	-	-	19	31	26	28	25
<b>Zn</b>	-	-	43	44	43	61	48
<b>Mn</b>	-	-	41	44	36	72	97
<b>Fe</b>	-	-	189	96	93	131	115
<b>Cu</b>	-	-	12	12	13	14	10
<b>Al</b>	-	-	115	25	9	28	19



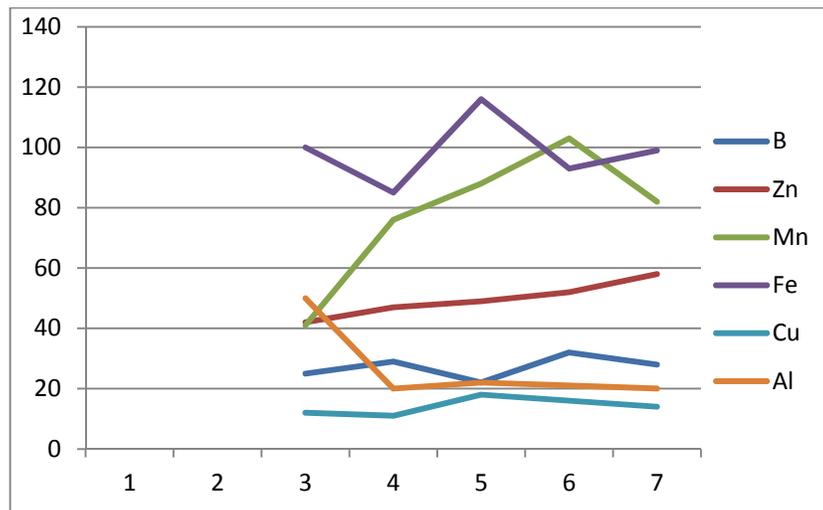
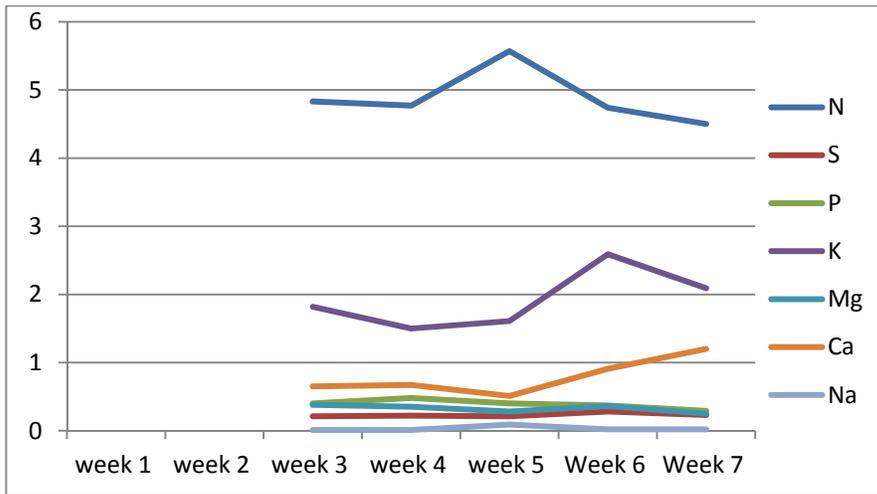
Plot 5	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	-	-	5.54	4.34	5.8	4.94	4.79
<b>S</b>	-	-	0.32	0.23	0.25	0.28	0.24
<b>P</b>	-	-	0.49	0.33	0.27	0.35	0.22
<b>K</b>	-	-	3.2	1.92	1.9	2.41	1.86
<b>Mg</b>	-	-	0.46	0.37	0.35	0.44	0.27
<b>Ca</b>	-	-	0.85	0.72	0.57	0.95	1
<b>Na</b>	-	-	0.01	0.01	0.05	0.03	0.02
<b>B ppm</b>	-	-	28	35	21	25	20
<b>Zn</b>	-	-	44	44	37	45	53
<b>Mn</b>	-	-	70	78	78	71	78
<b>Fe</b>	-	-	128	100	108	125	122
<b>Cu</b>	-	-	13	9	15	21	14
<b>Al</b>	-	-	50	15	13	29	17



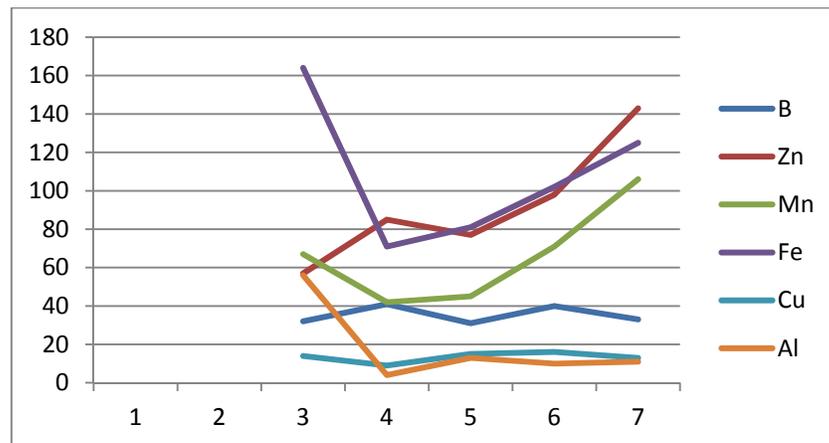
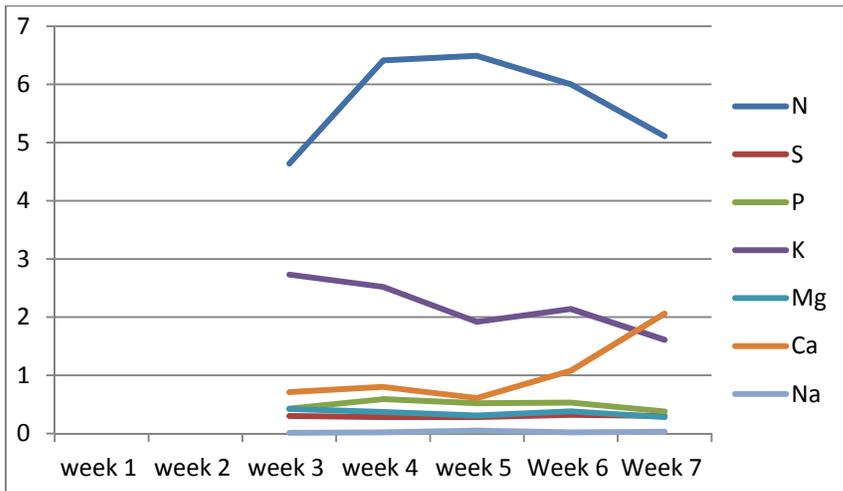
Plot 6	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	-	-	4.6	4.87	5.19	5.04	3.93
<b>S</b>	-	-	0.25	0.27	0.24	0.3	0.2
<b>P</b>	-	-	0.37	0.3	0.28	0.27	0.16
<b>K</b>	-	-	2.18	1.66	1.89	2.18	1.18
<b>Mg</b>	-	-	0.4	0.39	0.35	0.39	0.2
<b>Ca</b>	-	-	0.66	0.66	0.62	0.8	0.84
<b>Na</b>	-	-	0.01	0.01	0.05	0.02	0.02
<b>B ppm</b>	-	-	23	31	25	25	22
<b>Zn</b>	-	-	43	44	40	49	52
<b>Mn</b>	-	-	82	145	114	108	100
<b>Fe</b>	-	-	84	95	93	112	89
<b>Cu</b>	-	-	13	12	15	17	13
<b>Al</b>	-	-	28	20	9	16	15



Plot 7	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	-	-	4.83	4.77	5.57	4.74	4.5
<b>S</b>	-	-	0.21	0.22	0.21	0.28	0.23
<b>P</b>	-	-	0.4	0.48	0.4	0.37	0.29
<b>K</b>	-	-	1.82	1.5	1.61	2.59	2.09
<b>Mg</b>	-	-	0.38	0.35	0.28	0.36	0.25
<b>Ca</b>	-	-	0.65	0.67	0.51	0.91	1.2
<b>Na</b>	-	-	0.01	0.01	0.09	0.02	0.02
<b>B ppm</b>	-	-	25	29	22	32	28
<b>Zn</b>	-	-	42	47	49	52	58
<b>Mn</b>	-	-	41	76	88	103	82
<b>Fe</b>	-	-	100	85	116	93	99
<b>Cu</b>	-	-	12	11	18	16	14
<b>Al</b>	-	-	50	20	22	21	20



Plot 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	-	-	4.64	6.41	6.49	6	5.11
<b>S</b>	-	-	0.3	0.28	0.28	0.32	0.3
<b>P</b>	-	-	0.43	0.59	0.52	0.53	0.38
<b>K</b>	-	-	2.73	2.52	1.92	2.14	1.61
<b>Mg</b>	-	-	0.42	0.37	0.31	0.38	0.28
<b>Ca</b>	-	-	0.71	0.8	0.61	1.08	2.06
<b>Na</b>	-	-	0.01	0.02	0.05	0.02	0.03
<b>B ppm</b>	-	-	32	41	31	40	33
<b>Zn</b>	-	-	57	85	77	98	143
<b>Mn</b>	-	-	67	42	45	71	106
<b>Fe</b>	-	-	164	71	81	102	125
<b>Cu</b>	-	-	14	9	15	16	13
<b>Al</b>	-	-	56	4	13	10	11



Plot 9	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>N%</b>	-	-	4.77	5.18	5.12	4.57	5.39
<b>S</b>	-	-	0.29	0.29	0.22	0.22	0.2
<b>P</b>	-	-	0.45	0.49	0.37	0.39	0.29
<b>K</b>	-	-	2.16	2.1	2.14	2.06	1.73
<b>Mg</b>	-	-	0.38	0.42	0.33	0.44	0.46
<b>Ca</b>	-	-	0.86	0.64	0.47	0.69	0.93
<b>Na</b>	-	-	0.01	0.01	0.05	0.02	0.02
<b>B ppm</b>	-	-	35	34	15	15	19
<b>Zn</b>	-	-	76	50	43	49	56
<b>Mn</b>	-	-	75	52	33	65	88
<b>Fe</b>	-	-	157	81	58	72	93
<b>Cu</b>	-	-	12	7	15	15	12
<b>Al</b>	-	-	51	2	9	4	9

