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2011
Virginia On-Farm Corn Test Plots

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

2011 Virginia On-Farm Corn Test Plots

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The research and demonstration plots discussed in this publication are a cooperative effort by seven Virginia Cooperative Extension Agents, an Extension specialist, numerous producers, local soil and water conservation districts, and many members of the agribusiness community. The fieldwork and printing of this publication is mainly supported by the Virginia Corn Check-Off Fund through the Virginia Corn Board. Anyone who would like a copy should contact their local extension agent, who can request a copy from the Essex County Extension office.

This is the twentieth year of this multi-county cooperative project. Further work is planned for 2012.

The authors wish to thank the many producers and agribusinesses that participated in these research and demonstration plots. Special thanks are due to Kathy Wilbur in the Essex extension office for her efforts in compiling the plot results into this publication.

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Table of Contents

General Summary

These demonstration and replicated studies provide information that can be used by Virginia corn growers to make better management decisions on their farms.

Corn hybrid selection is becoming increasingly challenging. With more seed companies and more GMO options and seed treatment packages than ever before, it can be very difficult to decide which hybrids to plant. We evaluated early season hybrids (107 day RM or less) and mid season hybrids (108-112 day RM) at 5 locations and full season hybrids (113 day RM or more) at 3 locations. In a year where rainfall patterns in general favored later hybrids, across all locations the mid season and full season hybrids averaged 20 bushels per acre or more than the early season hybrids. Corn producers should continue to plant hybrids across all maturity ranges as a method for spreading out risk to adverse weather.

In other hybrid work, we evaluated a Pioneer Hi-Bred® Aquamax hybrid to a "standard" hybrid of similar maturity and the Aquamax Hi-Bred gave an 11 bushel yield increase with yields over 160 bushels per acre. We also compared an NK® Viptera Hybrid to a Roundup Ready only hybrid with the same genetic base. The Viptera hybrid showed less damage from both corn earworm and European corn borer, but there was no statistical difference in yields. In a plot evaluating corn planted in 15 inch rows vs. corn planted in 30 inch rows, the narrow row corn yielded 3 bushels per acre higher, but the difference was not statistically significant.

We evaluated Avicta® and Votivo® in a field with a past history of nematode problems in one field and got an 11 bushel increase to both products. We also evaluated Votivo® only in one location where root-knot nematodes were identified last year in soybeans. Soil testing for nematode assay this year indicated lower root-knot nematode numbers, and we did not get a yield response to the Votivo® in that plot.

Higher commodity and input prices have resulted in increased interest in precision agriculture, including variable rate fertilizer applications. We evaluated zone based nitrogen management to standard management (single rate) in one location this year. The zone based strategy reduced nitrogen rates by about 10 pounds per acre, but the standard rate strategy produced the higher yield (201.25 bushels per acre vs. 195.5 bushels per acre.) Nitrogen Use Efficiency (NUE) was better for the variable rate treatment. We are planning for significantly more work in this area in 2012 and 2013. Other fertilizer studies conducted included pop-fertilizer and nitrogen injection.

2011 Surry County Early Corn Hybrid Plot

Cooperators: **Producer:** Timberneck Farms: Anthony and Darren Howell
Extension: Glenn Slade, Surry Agriculture and Natural Resources Agent
Agribusiness: Various Seed companies

Previous Crop: Soybeans
Planting Date: April 20, 2011 no till, rip under row
Fertilizer: 450# 7-18-36 Broadcast, 30 gal 30% N Side Dressed
Crop Protection: 1 qt. Roundup, 2.5 qt. Bicep at planting
Harvest Date: October 17, 2011

Hybrid	Maturity	Traits	Population	% Moisture	Yield
Doebler's RPM 633XHR	E	HX1/LL/RR2	24,000	15.5	145.48
Hubner Seed 6110	E	Smartstax	24,000	15.3	131.19
Southern States 538	E	VT3	24,000	14.9	130
TA Seeds 565-20	E	CB,HX,GT,LL	24,000	15.2	153.73
Dyna-Gro D45VC90	E	ECB,EW,RR	24,000	15.6	177.93
Dekalb 57-50	E	VT3	24,000	14.9	160.95
Augusta A2954-GT3000A	E	GT,CB,LL RW	24,000	16.6	125.40
NK N52A-3000GT	E	GT,CB,LL,RW	24,000	15.3	140.79
Garst 85V24-3000GT	E	GT,CB,LL,RW	24,000	15.3	123.33
Mid Atlantic MA 8096 VT3	E	VT3,RR	24,000	15.4	137.86.
Pioneer P0210	E	LL,HX1,RR2	24,000	14.1	95.32
Seed Consultants 10HQ70	E		24,000	16.9	135
Check N 68 B 3000GT	E		24,000	15.1	147.14

Discussion: Some hybrids were leaning or down from Hurricane Irene, with Pioneer P0210 down the worst. Plant populations are planter setting populations.

2011 Essex County Early Maturity Corn Hybrid Demonstration Plot

Cooperators: **Producer:** Robert P. Longest
Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern
Agribusiness: Participating Seed Company Representative
Previous Crop: Soybeans
Planting Date: April 20, 2011
Soil Type: Kempsville sandy loam
Harvest Date: October 11, 2011

Hybrid	Population	% Moisture*	Yield (Bushels/Acre @15.5%)
Augusta 2954GT3000A	26,000	16.0	170
Check—Dekalb 52-57 VT3	27,000	15.5	147
Dekalb 57-50 VT3	26,500	15.4	168
Check	24,000	15.5	163
Doeblers RPM 633HXR	25,500	15.8	177
Check	26,000	15.4	158
Dyna-Gro D45VC90	28,000	15.6	163
Garst 85V24-3000GT	24,000	15.1	137
Hubner 6110 Smartstax	22,500	15.8	144
Mid Atlantic 8096 VT3	22,500	15.9	180
NK N52A-3000GT	23,000	15.8	159
Seed Consultants 10HQ70	26,500	16.1	165
Southern States 538 VT3	24,500	16.0	142
T.A. Seeds TA 587-22DP	25,000	16.0	147
Pioneer 0210	25,000	15.3	158
Check	24,000	15.4	165
Average of Check			158
Average of all other Hybrids			159

Discussion:

Yields were very good in this early hybrid trial. Field space limited the number of checks planted. Please use this and replicated tests from the Virginia Corn Performance Trials when selecting hybrids for 2012.

2011 King & Queen Early and Mid Corn Hybrid Plot

Cooperators:	**Producer:**	David and William Davis Carlton
	Extension:	David Moore, VCE Middle Peninsula
	Agribusiness:	Participating Companies
Previous Crop:		Corn followed by rye cover
Planting Date:		April 14, 2011
Soil Type:		State Fine Sandy Loam; Tetotem Fine Sandy Loam
Fertilizer:		Biosolids 2010
		70-50-120 at planting (starter included)
		90-0-0 injected
Crop Protection:		Burndown: Gramoxone
		Atrazine/Simazine @ 3 pts.
		Resolve Q + 28 oz Glyphosate
Harvest Date:		October 6, 2011

Hybrid	Maturity	Population	% Moisture	Yield
Check (Pioneer 35F40)	E	26,500	15.5	170.7
Seed Consultants 10HQ70	E	26,000	16.8	183.3
Check	E		15.5	166.7
Seed Consultants 11AGT30	M	23,500	16.0	184.4
Check	E		15.4	164.5
Hubner 6110 Smartstax	E	21,500	14.7	160.3
Check	E		15.2	163.4
Hubner 4600	M	25,500	15.8	168.2
Check	E		15.4	157.6
Mycogen 2D744	M	21,000	15.2	142.8
Check	E		15.2	162.6
Channel 211-99 VT3P	M	24,000	15.0	179.2
Check	E	21,500	15.1	163.8
Mid-Atlantic MA8096 VT3	E	24,500	15.3	163.8
Check	E		15.2	158.9
Mid-Atlantic MA8129 VT3P	M	21,500	15.5	153.7
Check	E		15.3	158.3
Augusta 2954 GT3000A	E	25,000	15.0	171.9
Check	E		15.1	160.1
Augusta 5461 GTCBLLA	M	21,000	15.6	164.0
Check	E		15.1	151.6
Doebler's 633HXR	E	24,500	15.1	159.4
Check	E		15.1	148.9
Doebler's 694HRQ	M	24,000	16.0	149.3
Check	E		15.1	149.3
Pioneer P0210HR	E	21,000	14.5	148.4
Check	E	23,000	15.0	157.3
Pioneer P1184HR	M	25,500	15.1	166.7
Check	E		15.2	157.1

Hybrid	Maturity	Population	% Moisture	Yield

Dekalb 57-50 VT3	E	24,000	15.2	144.5
Check	E		15.1	152.7
Dekalb 62-97 VT3 Pro	M	23.000	14.9	166.5
Check	E		15.1	152.1
Southern States 538 VT3	E	24,500	14.7	135.5
Check	E		15.0	148.9
Southern States 684 Smartstax	M	26,000	14.8	148.8
Check	E		15.0	153.0
Garst 85V24 3000GT	E	22,000	14.6	148.7
Check	E	23,000	14.9	161.4
Garst 85E98 3000GT	M	26,000	14.8	166.7
Check	E		14.9	162.3
T. A. Seeds 587-22DP	E	27,000	14.4	160.0
Check	E		15.0	157.9
T. A. Seeds 720-20	M	24,500	15.5	157.3
Check	E		15.1	153.7
NK Seeds N52A 3000GT	E	21,000	14.8	138.6
Check	E		15.0	153.7
NK Seeds N68B 31111	M	21,000	15.2	153.2
Check	E		15.1	152.2
Dyna-Gro DG45VC90	E	23,000	14.7	153.2
Check	E	23,000	14.9	151.2
Dyna-Gro DG57V40	M	25,000	14.9	155.1

AVERAGE:				
Early Hybrids			15.0	154.7
Medium Hybrids			15.3	162.5

Discussion: Real good plot, suffered a little from early season drought and also some dry times in late July, but yields were good to very good. Notice that the medium hybrids yielded a little better due to timing of the rain. This plot was corn following corn. There were noticeable differences across the field due to soil type variation. Use of the check hybrid can show you this.

Use this and other Virginia Tech corn hybrid information when making planting decisions for 2012.

2011 Chesapeake Corn Variety Test

Cooperators: **Producer:** Russell Temple
Extension: Watson Lawrence
Agribusiness: Participating Seed Companies
Previous Crop: Soybeans
Planting Date: April 30, 2011
Population: Approximately 27,000 plants/acre
Row Width: 24 inches
Tillage: Conventional with rows planted flat
Fertilizer: Broadcast: 666 lbs./acre 24-12-12
Soil Type: Dragston Fine Sandy Loam
Crop Protection: Micro-Tech @ 2 qts/acre pre-emergence + Clarity @ 1/2 pt/acre + Crop Oil post-emergence
Check Hybrid: Pioneer 35H42 for Early and Pioneer 1184 for Mid-Season
Harvest Date: October 5, 2011

Hybrid	Maturity	Traits	TW	% Moisture	Yield	% of Check
Augusta 2954	E	GT, CB, LL, RW	56	17.0	153	105
Augusta 5461	M	GT, CB, LL	56	18.1	163	103
Channel 211-99	M	RR2, YG, VTPro	59	17.1	182	108
Dekalb 57-50	E	VT3	56	17.3	error	error
Dekalb 62-97	M	VT3Pro	55	15.4	161	96
Doebler's 633HRX	E	HX1, LL, RR2	60	19.1	150	101
Doebler's 694HRQ	M	HXX, LL, RR2	59	19.8	169	107
Dyna-Gro 45VC90	E	ECB, EW, RR	57	16.7	122	82
Dyna-Gro 57V40	M	ECB, CRW, RR	57	16.6	156	108
Garst 85V24	E	GT, CB, LL, RW	58	16.5	135	88
Garst 85E98	M	GT, CB, LL, RW	55	18.8	153	112
Hubner 6110	E	Smartstax	57	16.5	114	75
Mid-Atlantic 8096	E	VT3, RR	56	17.6	175	119
Mid-Atlantic 8129	M	Yieldgard, VT Triple PRO	58	17.2	184	121
Mycogen 2D744	M	SmartStax, RR, LL	57	16.4	165	106
Northrup King 68B	M	GT, CB, LL, RW, VIPTERA	56	17.0	173	114
Pioneer 0210	E	LL, HX1, RR2	57	14.8	144	95
Seed Consultants 10HQ70	E		58	16.2	148	91
Seed Consultants 11AGT30	M		55	17.0	149	105
Southern States 538	E	VT3	58	16.4	139	83
TA Seeds 587-22DP	E	CB, HX, GT, LL	56	15.8	169	114
TA Seeds 789-20**	F	CB, RW, GT, LL	58	16.2	159	100
AVERAGE:						
Pioneer 35H42 – CHECK	E		60	16.8	152	100
Pioneer 1184 – CHECK	M	LL, HX1, RR2	58	17.9	154	100
Early Hybrids	E		57	16.7	145	
Mid-Hybrids	M		57	17.2	165	

**** TA Seeds 789-20 was a full season entry that was inadvertently planted in this plot.**

Discussion: Early maturity varieties and mid-maturity varieties were planted in separate adjacent fields with a check variety between each variety plot. Variety yields were calculated as a % of the check variety to account for variation across the field. Wind damage from Hurricane Irene caused some lodging. Yields were affected by dry weather this season, however most varieties performed well under drought stress. Use this and other yield data when selecting varieties for planting.

2011 Dinwiddie Corn Hybrid Yield Comparison Trial

Cooperators: **Producer:** Billy Bain
Extension: Mike Parrish - Dinwiddie
Agribusiness: Participating Seed Companies
Previous Crop: Soybeans
Soil Type: Mattaponi, Sandy Loam
Planting Date: April 14, 2011
Fertilizer: Broadcast: 500 lbs.5-10-30
Pre-Plant: Elemax Nutrient Concentrate 11-8-5, 1qt/acre
Sidedress: 40 gallons 24-0-0 with sulfur – 3%
Crop Protection: Burndown: 1qt. Roundup & 1pt. 24D
Pre-emergence: 2qt. Atrazine +1pt. Dual Mag+ 1pt. Simizine
Harvest Date: August 30, 2011

Hybrid	Maturity	% Moisture	Yield (Bu./Acre @ 15.5%
T.A. Seeds TA565-20	E	17.5	110
Pioneer P0210HR	E	16.0	125
DeKalb 57-50	E	17.6	126
Southern States 538 VT3	E	17.2	123
MA Seed MA 8096 VT3	E	18.0	120
Seed Cons SCS 10HQ70	E	17.4	116
Hubner 6110G	E	15.2	111
Garst 85V24	E	16.3	114
Augusta A2954GT	E	17.5	127
NK N52A-3000	E	16.1	123
Dyna-Gro D45VC90	E	17.4	108
Doebler's D633HXR	E	16.5	121
Average Early Maturity			119
T.A. Seeds TA720-20	M	16.3	130
Pioneer P1184HR	M	16.9	125
DeKalb 62-97	M	16.9	128
Garst 85E-98 3000	M	16.7	118
Doebler's 694HQR	M	17.8	99
Southern States 684	M	16.8	117
Seed Cons 11AGT30	M	18.5	133
Hubner H4600VT2P30	M	17.8	129
NK N68B-3111	M	17.8	128
Augusta A5461	M	17.5	114
Channel 211-99VT	M	15.9	121
Dyna-Gro 57V40	M	17.1	132
Mid-Atlantic MA8129	M	19.0	123
Mycogen 2D744	M	17.5	112
Average Mid Maturity			122
T.A. Seeds TA789-20	FS	18.3	95
Pioneer 33F87	FS	18.4	122
Sd Cons 11HR31	FS	17.9	126

Hubner 5709	FS	18.0	135
DeKalb 64-69	FS	19.4	130
Garst 83R38	FS	21.4	125
Dyna-Gro 57V21	FS	20.4	119
MA Seed MA8167	FS	19.9	131
Doebler's 723HXR	FS	18.4	134
Southern States 787	FS	18.0	135
Augusta A6867	FS	18.3	127
Channel 214-14VT	FS	16.4	120
Mycogen 2V738	FS	17.5	122
NK 71B-GTCBLLA	FS	15.4	111
Average Full Maturity			124

Discussion: This field experienced no visual pest problems or adverse weather conditions. This plot was irrigated by center pivot and received close to 16 inches of water from May to August. Use this and replicated data from the Corn Performance Trials when selecting hybrids for 2012.

2011 Westmoreland Mid Maturity Corn Hybrid Demonstration Plot

Cooperators: **Producer:** F. F. Chandler, Jr.
Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern
Agribusiness: Participating Seed Company Representative
Previous Crop: Soybeans
Planting Date: April 20, 2011
Soil Type: Kempsville sandy loam
Fertilizer: Starter: 200 lbs. per acre 15-15-0 plus Sulfur, Zinc, and Boron
Broadcast: 40-0-60-12S lbs. per acre
Sidedress: 90-0-0-11S per acre
Crop Protection: Burndown Herbicides: Gramoxone Inteon and 2,4-D
Pre-emergence: Lumax, atrazine, and princep
Harvest Date: October 6, 2011

Hybrid	Population	% Moisture*	Yield (Bushels/Acre @15.5%)
Hybrid with no starter fertilizer—forgot to turn the starter on when we started planting the plot	27,000	17.6	123
Channel 211-99VT3P	27,500	17.6	176
Dekalb 62-97 VT3 Pro	28,000	16	193
Doebler's RPM 694HRQ	27,000	18.1	156
Dyna-Gro D57V40	29,000	17.6	170
Garst 85E-98 3000GT	28,000	16.5	172
Hubner 4600	27,500	17.1	178
Mid Atlantic 8129VT3P	28,000	18.2	195
Mycogen 2D744	27,500	16.9	185
NK N68B-3111	27,000	16.6	185
Pioneer 1184HR	29,000	17	177
Seed Consultants SCS 11AGT30	27,500	17.5	174
Southern States 684 Smartstax	27,500	16.9	183
T.A. Seeds TA720-20	28,500	17.7	150
Augusta 5461GTCBLLA	27,500	17.2	157
Average of all hybrids			175

Discussion:
Yields were very good in this plot. Plot withstood rain and winds from Hurricane Irene and rains from Lee. Mr. Chandler noted that Hubner 4600 stood the best in the plot, while T. A. Seeds 720-20 and Augusta 5461GTCBLLA exhibited the most lodging. Use this and replicated data from the Virginia Corn Performance Trials when selecting hybrids for 2012. When we started planting the plot, we forgot to turn on the starter fertilizer. Note that starter increased yields over 30 bushels per acre.

2011 Virginia State University Mid & Late Corn Hybrid Comparison

Cooperators: Ruddy Grammar and Mack West, VSU-Randolph Farm
Glenn F. Chappell, II, Virginia State University
Previous Crop: Soybeans
Soil Type: Tetotum loam & Bourne Fine Sandy Loam
Planting Date: April 13, 2011
Fertilizer: Broadcast: 30-60-90, Sidedress: 145-0-0
Crop Protection: 1qt Gramoxone Plus - April 7, 2011; 2 qt Bicep II Mag. + 1qt Simizine – April 14, 2011
Check Hybrid: Hubner 5707
Harvest Date: September 21, 2011
Harvest Equipment: John Deere 9560 STS

Hybrid	Maturity	Traits	% Moisture	Yield	% of Check*
Hubner 5707 (check)	F	VT3	17.0	156.6	---
Doebler's RPM 694HRQ	M	HXX/LL/RR2	15.9	168.2	99
Doebler's Hybrid 723HXR	F	HX1/LL/RR2	15.0	186.0	110
Channel 211-99VT3P	M	RR2/YG/VTPro	15.3	176.5	104
Channel 214-14VT3P	F	RR2/YG/VTPro	14.7	197.8	116
Hubner Seed 4600	M	VT3Pro	14.7	178.8	105
Hubner Seed 5709	F	VT3Pro	16.5	177.1	104
SS 684VT3	M	Genuity Smartstax	15.0	185.3	109
SS 787VT3	F	VT3Pro	15.8	179.3	106
Hubner 5707 (check)	F	VT3	15.1	182.2	---
T. A. Seeds TA720-20	M	CB, RW, GT, LL	15.3	196.8	103
T. A. Seeds TA789-20	F	CB, RW, GT, LL	15.3	182.5	95
Dyna-Grow 57V40	M	ECB,CRW,RR	14.3	189.0	99
Dyna-Grow 57V21	F	ECB,CRW,RR	17.3	196.6	103
Mycogen 2D744	M	SmartStax/RR/LL	16.7	188.3	95
Mycogen 2V738	F	SmartStax/RR/LL	14.6	181.2	94
DeKalb 64-69	F	VT3Pro	16.9	207.7	108
DeKalb 62-97	M	VT3Pro	15.2	215.5	112
Augusta A5461	M	GTCBLLA	14.3	197.6	103
Augusta A6867	F	GTCBLL	17.2	197.6	103
NK N52A-3000GT	E	GT/CB/LL/RW	16.2	192.6	100
NK N68B-3111	M	GT/CB/LL/RW/VIPTERA	16.8	196.4	102
NK N71B-GT/CB/LL	F	GT/CB/LL	13.8	197.0	103
Garst 85E-98 3000GT	M	GT/CB/LL/RW	14.3	193.3	101
Garst 83R38-3000GT	F	GT/CB/LL/RW	16.2	208.4	109
Mid-Atlantic MA8129VT3P	M	Yieldgard VT Triple PRO	17.5	196.9	103
Mid-Atlantic MA8167VT3P	F	Yieldgard VT Triple PRO	16.9	211.9	111
Pioneer 1184HR	M	LL HX1 RR2	15.9	203.1	106
Hubner 5707 (check)	F	VT3	15.5	200.9	---
Pioneer 33F87	F	LL HX1 RR	15.0	198.2	99
Seed Consultants 11AGT30	M		16.5	187.3	93
Seed Consultants 11HR31	F		16.3	194.8	97
Hubner 5707 (check)	F	VT3	15.4	200.9	---
AVERAGE:					
Medium Hybrids				191.0	
Late Hybrids				192.0	

Discussion:

Rainfall totals: April – 2.50, May - 3.80”, June – 5.55”, July – 5.90”, Aug. – 7.50”
Irrigation totals: April – 0.00”, May - 0.00”, June – 2.00”, July – 0.75”, Aug. – 0.00
Totals by month: April – 2.50”, May – 3.80”, June – 7.55”, July – 6.65”, Aug. – 7.50
* % of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100. Yields were very good.

2011 Gloucester Full Season Corn Plot

Cooperators:	**Producer:**	Clas Corporation: Chuck Hunt
	Extension:	David Moore, VCE-Middle Peninsula
	Agribusiness:	Participating Companies
Previous Crop:		Soybeans followed by rye cover crop
Planting Date:		May 3, 2011
Soil Type:		Emporia Sandy Loam
Fertilizer:		0-0-90 Broadcast
		200#/A 20-10-0 Blended Starter
		120-0-0 sidedress
Crop Protection:		Burndown: 1 Qt. Glyphosate + 1 pt. 2,4-D
		1.5 Qt. Atrazine + 1 Qt. Simazine
		1 oz. Warrior
		Halex GT
Harvest Date:		October 5, 2011

Hybrid	Traits	Population	% Moisture	Yield
Seed Consultants 11HR31		26,000	16.7	181.5
Check (Doebler's 723HXR)		25,000	16.3	191.4
NK Seeds N71B-GTCBLLA		26,000	16.6	177.5
Check			16.5	180.2
TA Seeds TA789-20		26,500	16.8	168.1
Check			16.9	190.6
Doebler's RPM 723HXR		27,500	16.6	189.2
Check			16.3	182.6
Pioneer 33F87		24,500	15.9	179.9
Check			15.7	185.8
Dyna-Gro 57V21		27,000	16.6	188.7
Hubner 5709 VT3Pro		26,500	15.9	193.5
Check		23,500	16.0	189.1
Mycogen 2V738		25,500	16.1	184.7
Mid-Atlantic MA8167		26,000	15.9	166.4
Check			16.1	187.5
Augusta A6867GTCBLLA		26,500	17.5	166.7
Check		24,000	16.3	154.5
Channel 214-14		26,000	15.6	183.7
Check			15.9	168.5
Dekalb DKC64-69 VT3Pro		25,000	16.2	203.5
Check			16.7	184.0
Southern States 787 VT3Pro		27,000	16.9	183.2
Check		25,000	16.9	181.0
Garst 83R38		24,500	17.0	190.4

Discussion: Very good plot! Use this and other Virginia Tech corn hybrid information when making planting decisions for 2012

2011 Virginia Cooperative Extension On-Farm Corn Hybrid Plot Yield Summary

(bushels per acre at 15.5%)

Early 107 Day RM or Less

Hybrid	Essex	King & Queen	Surry	Dinwiddie	Chesapeake	Average
Augusta 2954GT3000A	170	172	125	127	153	149.4
Dekalb 57-50 VT3	168	145	161	126	error	150
Doeblers RPM 633HXR	177	159	145	121	150	150.4
Dyna-Gro D45VC90	163	153	178	108	122	144.8
Garst 85V24-3000GT	137	149	123	114	135	131.6
Hubner 6110 SmartStax	144	160	131	111	114	132
Mid Atlantic 8096 VT3	180	164	138	120	175	155.4
NK N52A-3000GT	159	139	141	123		140.5
Seed Consultants 10HQ70	165	183	135	116	148	149.4
Southern States 538 VT3	142	136	130	123	139	134
T. A. Seeds 587-22DP	147	160			169	158.7
T. A. Seeds 565-20			154	110		132
Pioneer 0210	158	148	95	125	144	134
Average	159	156	138	119	145	143.4

Medium 108-112 Day RM

Hybrid	Westmoreland	King & Queen	Va. State	Dinwiddie	Chesapeake	Average
Channel 211-99 VT3P	176	179	177	121	182	167
Dekalb 62-97 VT3 Pro	193	167	216	128	161	173
Doebler's RPM 694HRQ	156	149	168	99	169	148.2
Dyna-Gro D57V40	170	155	189	132	156	160.4
Garst 85E-98 3000GT	172	167	193	118	153	160.6
Hubner 4600	178	168	179	129		163.5
Mid Atlantic 8129 VT3P	195	154	197	123	184	170.6
Mycogen 2D744	185	143	188	112	165	158.6
NK N68B-3111	185	153	196	128	173	167
Pioneer 1184HR	177	167	203	125	***	165.2
Seed Consultants 11AGT30	174	184	187	133	149	165.4
Southern States 684 SmartStax	183	149	185	117		158.5
T.A. Seeds TA720-20	150	157	197	130		158.5
Augusta 5461GTCBLLA	157	164	198	114	163	159.2
Average	175	161	191	122	166	163

*** Pioneer 1184 used as a check averaged 154 bushels per acre in the Chesapeake Plot

Full 113 Day RM or More

Hybrid	Va. State	Gloucester	Dinwiddie	Chesapeake	Average
Seed Consultants 11HR31	195	182	126		167.7
NK Seeds N71B-GTCBLLA	197	178	111		162
TA Seeds TA789-20	183	168	95	159	148.7***
Doeblers's RPM 723HXR	186	189	134		169.7

Pioneer 33F87	198	180	122	166.7
Dyna-Gro 57V21	197	189	119	168.3
Hubner Seed 5709 VT3Pro	177	194	135	168.7
Mycogen 2V738	181	185	122	162.7
Mid-Atlantic MA8167 VT3P	212	166	131	169.7
Augusta A6867GTCBLLA	198	167	127	164
Channel 214-14 VT3P	198	184	120	167.3
Dekalb DKC64-69 VT3Pro	208	204	130	180.7
Southern States 787 VT3Pro	179	183	135	165.7
Garst 83R38-3000GT	208	190	125	174.3
Average	194	183	124	166.9

***Chesapeake location not used in calculating average

2011 Tri- County Replicated Corn Hybrid Evaluation

Cooperators: **Producer:** Tri-County Grain (Jordan Brandon and John Shepherd)
Extension: Taylor Clarke and Scott Reiter
Agri-Business: Crop Production Services, Helena Chemical, and Participating Seed Cos.
Previous Crop: Bermudagrass Sod
Planting Date: 4/19/2011 in 6 row (30in) by 500 ft plots
Soil Type: Appling-Mattaponi Complex
Fertilizer: Loveland Blackjack Zinc (6-26-0-.77Zn) 3 gallons per acre as starter, irrigated 3 times with Hog effluent and once with water at tassel
Crop Protection: Glyphosate, Simazine, Atrazine, and Sniper at burn-down; Glyphosate plus insecticide (sugarcane beetles) post
Harvest Date: **10/10/2011**

Treatment	Rep.	%Moisture	Test Weight		Yield (Bushels/Acre @15.5%)	
Augusta A008VT3	1	14.8	54.0		130.3	
	2	14.8	53.5		144.9	
	3	15.4	54.0		169.5	
	4	15.0	55.5	**54.3 d**	187.4	**158 c**
Augusta A68676T	1	14.8	57.0		141.8	
	2	15.8	57.0		136.8	
	3	15.2	56.0		157.4	
	4	15.2	58.0	**57.0 c**	176.3	**153.1 cd**
DeKalb DK 64-69 GENVT3P	1	15.3	59.0		159.1	
	2	16.4	58.5		172.4	
	3	16.3	58.0		180.0	
	4	16.4	60.0	**58.9ab**	196.8	**177.1 a**
Dekalb DK 66-96 GENVT3P	1	15.3	58.0		161.6	
	2	15.9	59.5		175.3	
	3	14.3	60.0		153.8	
	4	15.5	59.5	**59.3ab**	184.8	**168.9 ab**
Dynagro 52VP20	1	16.0	58.5		146.4	
	2	15.8	58.0		161.8	
	3	15.4	59.0		175.7	
	4	15.5	59.0	**58.6b**	191.0	**168.7 ab**
Dynagro 56VP79	1	14.6	59.5		132.5	
	2	14.4	59.5		147.3	
	3	15.3	60.0		149.9	
	4	15.3	60.0	**59.8a**	161.1	**147.7 d**
Hubner H5909 VT3P	1	14.6	60.0		145.7	
	2	15.6	58.5		133.2	
	3	15.8	59.0		163.5	
	4	15.1	59.5	**59.3ab**	179.4	**155.5 cd**
Hubner H6652 GENSS	1	15.0	60.0		154.0	
	2	15.1	59.0		155.9	
	3	13.6	60.0		167.8	
	4	14.2	59.5	**59.6a**	191.6	**167.3 b**
Pioneer 1615HR	1	16.2	58.5		153.5	
	2	16.2	60.0		156.8	
	3	16.1	59.0		184.9	
	4	16.4	60.0	**59.4ab**	194.3	**172.4 ab**
Pioneer 33M57	1	16.0	60.0		144.8	
	2	15.8	58.0		144.7	
	3	16.2	60.0		154.3	

	4	16.2	60.0	**59.5ab**	174.0	**154.4 cd**
	Test Average	**15.4**	**58.6**		**162.3**	
			LSD (0.05)		**LSD (0.05)**	
			= 0.9 lbs/bu		**= 8.9 bu/a**	

Discussion: Treatments were replicated 4 times in plots of 6 (30") rows by 500 feet long. All varieties except Augusta A008VT3 stood well during Hurricane Irene. Augusta A008VT3 produced the lowest test weight grain followed by Augusta A68676T. The lowest yielding variety, Dynagro 56VP79, had the highest test weight and grain quality was visibly higher quality than other hybrids. DeKalb DK 64-69 GENVT3P was the highest yielding hybrid with Pioneer 1615HR, Dekalb DK 66-96 GENVT3P, and Dynagro 52VP20 not being significantly different in grain yield. The field containing the plot did experience some scattered damage from Sugarcane beetle; however, the area containing the plot seemed to be spared.

2011 Comparison of an Aquamax Hybrid to a Standard Hybrid

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern
Agribusiness: Ginny Barnes, Glenn Rountree, and Brian Jones, Pioneer Hi-Bred
Previous Crop: Soybeans
Planting Date: April 12, 2011
Soil Type: Kempsville sandy loam
Fertilizer: 150 pounds potash per acre for 3 crops—December 2010
Broadcast: 60-60-0-22S per acre
Sidedress: 90-0-0-11S per acre
Crop Protection: Burndown Herbicides: Gramoxone Inteon and 2,4-D
Pre-emergence: Lumax, atrazine, and princep
Harvest Date: September 12, 2011

Hybrid/Traits/Seed Treatment	Rep.	Population	% Moisture*	Yield (Bushels/Acre @15.5%)
Pioneer 0210 RR2,LL,HX1,P1250	1	22,500	16.5	175
Pioneer 35F40 RR2,LL,HX1,Cruiser Extreme	1	23,000	17.2	167
Pioneer 0210	2	22,500	16.5	169
Pioneer 35F40	2	21,000	17.2	161
Pioneer 0210	3	22,500	16.5	175
Pioneer 35F40	3	22,000	17.2	160
Pioneer 0210	4	22,000	16.5	170
Pioneer 35F40	4	22,500	17.2	165
Pioneer 0210 Average		22,375	16.5	172.3
Pioneer 35F40 Average		22,175	17.2	163.3
LSD (0.05)		ns	0.5	6.8

* A sub-sample was collected for moisture determination from each plot and one sample was run at a local grain elevator for each hybrid.

Discussion:

The purpose of this plot was to evaluate a Pioneer Aquamax hybrid to a "standard" Pioneer hybrid of similar maturity. Pioneer 0210 is 102 day RM and Pioneer 35F40 is 105 day RM. The plot endured moisture stress from late May until mid June. Rains started falling on June 16th and rainfall was adequate the rest of the season. The hybrids were planted at a planter setting of approximately 26,000 seeds per acre. Final stands were lower in both hybrids, and since similar stands were obtained in both hybrids, the planter probably was not dropping the rate indicated in the owner's manual. Yields were very consistent and the new Pioneer Aquamax hybrid gave a statistically significant yield response over the "standard" hybrid.

2011 Comparison of a Viptera Hybrid to a Roundup Ready Hybrid

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern
Agribusiness: Brick Goldman, Syngenta**,** retired
Previous Crop: Hairy Vetch Cover Crop
Planting Date: April 25, 2011
Soil Type: Rumford and Tetotum Soils
Fertilizer: 150 pounds potash per acre for 3 crops—December 2010
Broadcast: 60-60-0-22S per acre
Sidedress: 60-0-0-8S per acre
Crop Protection: Burndown Herbicides: Gramoxone Inteon and 2,4-D
Pre-emergence: Lumax, atrazine, and princep
Harvest Date: September 15, 2011

Hybrid/Traits/Seed Treatment	Rep.	Population	% Moisture*	Yield (Bushels/Acre @15.5%)
NK 68B-GT Glyphosate Tolerant & Cruiser Extreme 250	1	23,000	19.3	158
NK 68B-3111 Agrisure Viptera Glyphosate & Ignite Tolerant & Cruiser Extreme 250	1	24,000	20.2	161
NK 68B-GT	2	25,500	19.3	181
NK 68B-3111	2	25,500	20.2	161
NK 68B-GT	3	24,500	19.3	170
NK 68B-3111	3	25,500	20.2	169
NK 68B-GT Average		24,333	19.3	169.7
NK 68B-3111 Average		25,000	20.2	163.7

* A sub-sample was collected for moisture determination from each plot and one sample was run at a local grain elevator for each hybrid.

Discussion: The purpose of this plot was to evaluate a NK brand Viptera hybrid to a "standard" NK brand glyphosate resistant only hybrid with the same genetic base. The plots were not surveyed for European corn borer (ECB), but during plot harvest it did appear that the NK 68B-GT plots suffered more damage from ECB as indicated by more broken stalks. The plots were surveyed for corn earworm presence and/or damage. 80 ears were surveyed from each treatment and the NK 68B-GT was 26% infested, while the NK68B-3111 was 13% infested. Yield differences were not statistically significant in this plot.

2011 Corn Hybrid Row Spacing Plot

Cooperators: **Producer:** Richard Sanford, Sanford Farms

Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern

Previous Crop: Soybean
Planting Date: April 6, 2011
Soil Type: Suffolk sandy loam
Fertilizer: Pop Up Fertilizer: 1.25 gallons each 11-37-0 and 9-0-0-8S plus .5 lb zinc per acre
Total: 183-46-60-20S per acre, nitrogen split between broadcast and sidedress
Crop Protection: Burndown Herbicides: Roundup
Post-emergence: Roundup, 1 qt. atrazine per acre and .5 pt. 2,4-D
Harvest Date: September 19, 2011

Treatment	Rep.	Population	% Moisture*	Yield (Bushels/Acre @15.5%)
15 inch rows	1	27,000	19.9	217
30 inch rows	1	26,500	20.8	224
15 inch rows	2	28,000	20.3	237
30 inch rows	2	27,000	19.8	232
15 inch rows	3	29,000	20.7	236
30 inch rows	3	27,000	20.3	225
Ave. 15 inch rows		28,000	20.3	230.0
Ave. 30 inch rows			20.3	227.0

Discussion: Better corn prices have producers looking at ways to increase yields. Narrow row corn is one area that growers are interested in. According to the North Carolina Extension website, more than 40 percent of North Carolina's corn acres are planted in narrow rows, with more narrow-row acres added each year. This plot compared 30 inch row corn to 15 inch row corn. In this plot, the 15 inch row corn tended to yield higher than the 30 inch row corn, but the difference was not statistically significant. In North Carolina, producers have often coupled narrow rows with higher planting populations, and we did not do that this year so we hope to repeat this plot next year with populations over 30,000 plants per acre.

Corn Nematode Survey Results—2007-2011

For the past five years, VCE agents, with the support of the Virginia Corn Board and agribusinesses have been submitting soil samples for nematode assay to the Virginia Tech Nematode Lab. For the most part, only fields with production problems or fields were test plots were installed have been sampled. A summary of the results is provided in the table below.

Year	C	B	A	Total # of Samples Submitted
2007	23	25	19	67
2008	22	13	48	83
2009	11	49	92	152
2010	5	35	113	153
2011	1	7	60	68
Total	62	129	332	523
%	11.8%	24.7%	63.5%	

Recommendation Code:
A=Nematode problem not detected
B=Possible nematode problem
C=Nematodes are a problem; control options are advisable

2011 Votivo Corn Seed Treatment Plot—Irrigated King and Queen County

Cooperators: **Producer:** Todd Henley, Hillsborough Farm
Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern
Agribusiness: Brian Jones, Pioneer Hi-Bred
Hybrid: Pioneer 1184HR RR2, LL, HX1
Previous Crop: Full Season Soybeans
Planting Date: April 19, 2011
Soil Type: Tarboro sand
Fertilizer: Starter: 20 gallons per acre 20-10-0 plus zinc and boron
Broadcast: 90 pounds per acre potash
Sidedress: 150-0-0-19S per acre
Crop Protection: Burndown Herbicides: Gramoxone Inteon and 2,4-D
Pre-emergence: Lumax, atrazine, and princep
Harvest Date: September 15, 2011

Treatment	Replication	Population	% Moisture*	Yield (Bushels/Acre @15.5%)
Poncho 1250	1	29,000	17.4	224
Poncho 1250/Votivo	1	30,000	17.7	219
Poncho 1250/Votivo	2	30,500	17.6	201
Poncho 1250	2	29,500	17.6	208
Poncho 1250	3	30,500	17.9	202
Poncho 1250/Votivo	3	30,000	17.5	215
Poncho 1250 Average		29,667	17.6	211.3
Poncho 1250/Votivo Average		30,167	17.6	211.7

Discussion: Root knot nematodes were found in this field on soybeans in 2010. Yields in heavily infested areas were greatly reduced. There has been a growing concern that root knot may also be causing yield loss in corn. The purpose of the plot was to evaluate a nematode seed treatment (Votivo) in a field with a history of root knot nematodes. According to Bayer CropScience, Poncho/Votivo contains a unique bacteria strain that provides the most revolutionary, complete nematode protection on the seed. The bacteria create a living barrier that keeps important nematodes from reaching the root. Soil samples for nematode assay were taken on May 25th, and root knot was found in only one treatment. In this plot, with low levels of root knot nematodes, there was no difference in yields between the Poncho 1250 plots and the Poncho 1250/Votivo plots.

2011 Votivo and Avicta Corn Seed Treatment Plot—Irrigated Caroline County

Cooperators: **Producer:** Cloverfield Enterprises

Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern
Agribusiness: Brian Jones, Pioneer Hi-Bred
Dennis Rawley, Augusta Seed Company

Hybrid: Pioneer 1184HR and Augusta 5164
Previous Crop: Soybeans
Planting Date: April 25, 2011
Soil Type: Bojac sandy loam
Fertilizer: Broadcast: 1 ton pelleted bio-solids (5-3-0) and 90 pounds per acre potash
Starter: 40-0-0-5S per acre
Sidedress: 110-0-0-14S per acre
Crop Protection: Burndown: Gramoxone Inteon and 2,4-D Pre-emergence: Lumax and Princep
Insecticide: 4.5 oz. per acre Sniper in-furrow
Harvest Date: October 3, 2011

Treatment	Replication	Population	% Moisture*	Yield (Bushels/Acre @15.5%)
Votivo/Poncho 1250	1	26,500	18.8	184
Poncho 1250	1	24,500	16.8	154
Avicta 500	1	25,000	18.3	173
Cruiser Extreme 250	1	25,000	18.8	159
Cruiser Extreme 250	2	22,000	18.7	161
Avicta 500	2	23,000	19.0	175
Poncho 1250	2	24,500	18.5	192
Votivo/Poncho 1250	2	23,500	18.3	186
Votivo/Poncho 1250	3	25,500	18.3	181
Poncho 1250	3	24,000	16.8	163
Avicta 500	3	24,000	18.9	175
Cruiser Extreme 250	3	23,000	19.1	163
Cruiser Extreme 250	4	23,000	18.6	161
Avicta 500	4	23,500	18.6	166
Poncho 1250	4	23,500	17.8	168
Votivo/Poncho 1250	4	24,500	17.1	172
Votivo/Poncho 1250 Ave.		25,125	18.13	180.8
Poncho 1250 Ave.		24,125	17.47	169.3
LSD (0.05)		ns	ns	5
Cruiser Extreme		23,250	18.8	161.0
Avicta 500		23,875	18.7	172.3
LSD (0.05)		ns	ns	7

Discussion: Augusta 5164 was treated with Cruiser Extreme or Avicta 500. In this plot, the Avicta treated seed yielded 11.3 bushels/acre more than that treated with Cruiser Extreme alone. A similar advantage of 11.5 bushels/acre was seen when Pioneer 1184HR was treated with Votivo in addition to Poncho 1250. This field has had a history of lance and root knot nematodes, but nematode assays from the field in May this year did not indicate levels high enough to cause a problem.

2011 Essex County Corn Pop Up Fertilizer Plot

Cooperators: **Producer:** Tyler Franklin
Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern
Previous Crop: Soybeans
Planting Date: April 11, 2011
Hybrid: Pioneer 34F96 with Cruiser Extreme
Soil Type: Dogue loam
Fertilizer: Broadcast: 80-46-90 per acre
Sidedress: 80-0-0-14S per acre
Pop Up: 11-37-0 at 5 gallons per acre
Crop Protection: Burndown: 3 qts. per acre glyphosate, 4 oz. per acre Dicamba, .5 pt per acre 2,4-D in liquid nitrogen
Pre-emergence: 2 qts. per acre Cinch, 1 pt. per acre atrazine, 1 oz. per acre Resolve, 1 qt. per acre simazine
Post-emergence: 4 oz. per acre Status and 1.5 pts. per acre glyphosate
Harvest Date: September 19, 2011

Treatment	Rep.	% Moisture*	Yield (Bushels/Acre @15.5%)
11-37-0 Pop Up	1	17.6	198
Check	1	17.5	191
Check	2	17.5	179
11-37-0 Pop Up	2	17.8	186
Ave. 11-37-0 Pop up			192
Check			188.5
LSD (0.05)		Ns	4

Discussion: Interest in pop up fertilizers applied in-furrow has increased in the past couple of years as a method for increasing fertilizer efficiency and improving early season plant vigor. There are many products on the market, and some farmers are just using relatively low rates of products such as 11-37-0 or 10-34-0. This plot evaluated the use of 5 gallons of 11-37-0 as a pop up fertilizer. In this plot, replicated only twice, the pop up gave a 4.5 bushel per acre statistically significant yield increase. Farmers are encouraged to run similar trials on their own farms. Be careful with popup fertilizers as salt injury from nitrogen, potassium, sulfur, and boron can cause severe stand losses.

2011 Variable Rate Nitrogen Corn Test Plot

Cooperators: **Producer:** Cloverfield Enterprises
Extension: Keith Balderson, VCE, Middle Peninsula
Livvy Gill, VCE Summer Intern

Hybrid: Hubner 5753VT3
Previous Crop: Soybeans
Planting Date: April 20, 2011
Soil Type: See discussion
Fertilizer: Starter: 40-30-0-5S plus zinc and boron
Broadcast: 90 pounds per acre potash
Sidedress: See below
Crop Protection: Burndown: Gramoxone Inteon and 2,4-D
Pre-emergence: Lumax and Princep
Insecticide: 4.5 oz. per acre Sniper in-furrow
Harvest Date: October 17, 2011

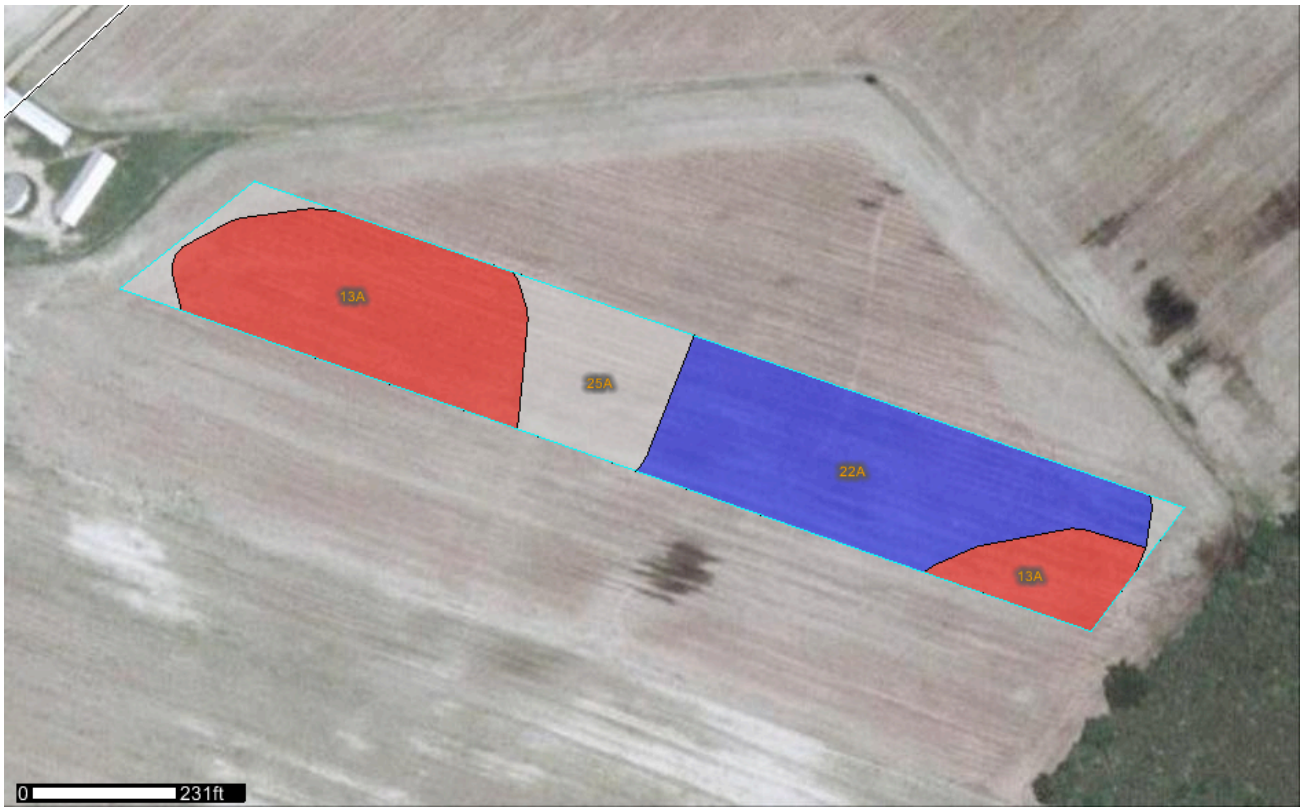
Treatment	Rep.	Nitrogen Sidedress Injection Rate (lbs./acre)	% Moisture	Yield (Bushels/Acre @15.5%)	NUE, lb N/bu **
Variable Rate	1	92	15.0	199	.66
Fixed Rate	1	102	15.2	205	.69
Variable Rate	2	94	14.9	200	.67
Fixed Rate	2	104	15.1	201	.72
Variable Rate	3	92	15.2	192	.69
Fixed Rate	3	101	15.0	199	.71
Variable Rate	4	93	15.0	191	.70
Fixed Rate	4	102	14.9	200	.71
Ave. Variable		92.75	15.0	195.5	.68
Ave. Fixed		102.25	15.0	201.25	.71
LSD (0.05)		**0.9**	**ns**	**5.4**	**.03**

**** NUE is Nitrogen Use Efficiency and was calculated as the total amount of nitrogen applied divided by corn yield in bushels. 1lb of N per bu is considered very efficient. Lower values indicate greater efficiency.**

Discussion: With better corn prices and higher nitrogen prices, there is renewed interest in precision farming, including variable nitrogen application rates on corn. There are at least 2 different methods of varying nitrogen rates—zone based management based on soil types or yield maps or sensor based rates. This plot evaluated a fixed nitrogen rate of approximately 140 pounds per acre recommended by the nutrient management plan to a variable rate based on soil types. The entire plot area received 40 pounds of nitrogen per acre in the starter fertilizer. The calculated sidedress injection rates are provided for each treatment. The plot area consisted of 3 different soil types, which can be seen in the accompanying soils map. Information for each soil type is also at the end of the discussion. The nitrogen reduction in the variable rate treatment was statistically significant, while the higher yield in the fixed rate treatment was also statistically significant. Both treatments were very efficient in utilizing applied nitrogen to produce a corn crop. More work is planned for the next two years.

Soil Type	Soil Survey Corn Yield Rating (bushels/acre)	% of Plot Area	Variable Sidedress N Rate (lbs./acre)

Munden fine sandy Loam (13A)	140	38.9%	100
State fine sandy Loam (22A)	160	41.8%	100
Tomotley fine sandy Loam (25A)	63	19.3%	60



2011 Sidedress Nitrogen injection Test Plot

Cooperators: **Producer:** James and Calvin Haile
Extension: Keith Balderson, VCE, Middle Peninsula
Other: Three Rivers SWCD

Hybrid: Augusta 6166 CBLL
Previous Crop: Soybeans
Planting Date: April 19, 2011
Soil Type: Tetotum loam
Fertilizer: Starter: 85-60-100 per acre at planting
Sidedress: See below

Treatment	Rep.	Yield (bu./acre)	NUE (lb. N/ bushel)
100 lbs. N per acre dribbled	1	203.6	.91
100 lbs. N per acre injected	1	206.4	.90
85 lbs. N per acre injected	1	200.5	.85
100 lbs. N per acre dribbled	2	202.9	.91
100 lbs. N per acre injected	2	193.5	.96
85 lbs. N per acre injected	2	195.2	.87
100 lbs. N per acre dribbled	3	204.1	.91
100 lbs. N per acre injected	3	218.0	.85
85 lbs. N per acre injected	3	199.2	.85
Average—100 lbs. N per acre dribbled		203.5 ns	.91 ns
Average—100 lbs. N per acre injected		206.0 ns	.90 ns
Average—85 lbs. N per acre injected		198.3 ns	.86 ns

**** NUE is Nitrogen Use Efficiency and was calculated as the total amount of nitrogen applied divided by corn yield in bushels. 1 lb. of N per bu is considered very efficient. Lower values indicate greater efficiency.**

Discussion:

Nitrogen injection at corn sidedressing time helps to avoid both ammonia volatilization and immobilization by microbes and can significantly increase nitrogen use efficiency by corn plants. During a year of excellent corn yields, all three treatments gave excellent yields and nitrogen use efficiencies. Yields in this plot were recorded with a yield monitor, and the difference in yields and NUE were not statistically significant for any treatments. Plans are now underway to do more nitrogen injection work in cooperation with 3 Rivers Soil and Water Conservation District and Northern Neck Soil and Water Conservation District. Both districts will have nitrogen injector rigs for farmers to use.