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2013
Virginia On-Farm Corn Test Plots

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

2013 Virginia On-Farm Corn Test Plots

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The research and demonstration plots discussed in this publication are a cooperative effort by twelve Virginia Cooperative Extension employees, a faculty member at Virginia State University, numerous producers, local soil and water conservation districts, and many members of the agribusiness community. The field work and printing of this publication are 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 twenty-second year of this multi-county cooperative project. Further work is planned for 2014.

The authors wish to thank the many producers and agribusinesses that participated in these research and demonstration plots.

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

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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. Refer to individual results for more details.

Corn hybrid selection continues to be challenging. With more seed companies and more GMO options and seed treatment packages than ever before, hybrid selection can be a difficult decision. We evaluated mid maturity hybrids (108-112 day RM) and full season hybrids (113 day RM or more) at 5 locations each. One of the mid maturity locations was double cropped and irrigated and hybrids averaged over 200 bushels per acre. One of the full season locations was also irrigated. Yields in all plots were good to excellent. In plots with both the mid and full season hybrids, the full season hybrids averaged 2 bushels more at one location and 7 bushels more at the other location. Farmers should continue to plant hybrids of multiple maturities to help spread risk. In fields with very good soil types and/or irrigation, farmers should consider mid or full season hybrids.

We also conducted some other hybrid demonstration plots and some challenge plots comparing two different hybrids. In a plot comparing Roundup Ready® Corn 2 only to LLHX1RR2 in the same base hybrid, the LLHX1RR2 hybrid yielded 6 bushels more per acre. In a couple of population demonstration plots, higher populations tended to yield more.

Obtaining good plant stands can be a challenge in no-tillage corn due to crop residue and slugs. Some growers continue to use vertical tillage tools to help manage residue. In a plot evaluating a Great Plains Turbo-Chopper, plant stands were increased by an average of 1,500 plants with the use of the turbo-chopper, but there was no statistical difference in yields with plots averaging just over 200 bushels per acre.

Fertilizer plot work this year included evaluation of a "pop-up" fertilizer of 5-14-0-1.75 per acre made from 11-37-0 and ammonium thiosulfate plus zinc, evaluation of a hairy vetch cover crop to supply nitrogen to corn, and 3 plots evaluating variable rate nitrogen sidedressing rates to a fixed rate. In the "pop-up" fertilizer evaluation, there was no difference in yields with both treatments yielding almost 220 bushels per acre. In the hairy vetch cover crop work, it was estimated that the hairy vetch cover crop supplied just over 60 pounds of nitrogen per acre, and the addition of 40 pounds of nitrogen applied at sidedress increased yields 13 bushels per acre compared to the plots that received just 60 pounds per acre of pre-plant nitrogen plus the cover crop. In the variable rate nitrogen work, averaged over 3 plots, yields and nitrogen use efficiency were as follows:

Treatment	Yield (bu./acre @ 15.5%)	NUE (N/bu.)
Fixed	188	.848
Variable	188	.861
Greenseeker	189	.842

A summary of the results of 90 tissue samples is provided at the end of this publication. These samples were taken as part of fertility plots and troubleshooting production problems over the past three years

2013 Westmoreland County Mid-Maturity Corn Hybrid Plot

Cooperators: Producer: F.F. Chandler, Jr.
Extension: Stephanie Romelczyk, ANR – Westmoreland
Keith Balderson, ANR – Essex
Robbie Longest, VCE Intern
Agribusiness: Participating Seed Company Representatives

Soil Type: Kempsville loam; Suffolk sandy loam
Tillage: No-till
Previous Crop: Soybeans
Planting Date: April 24, 2013
Fertilizer: Broadcast: 40-0-60
Starter: 30-30-0 + B + Zn
Sidedress: 24-0-0-3
Crop Protection: Preplant: Lumax 3 pt/A
Princep 1.5 pt/A
Gramoxone 3 pt/A
2,4-D 1 pt/A
Tombstone 2 oz/A
Postemergence: Halex 3.6 pt/A and Atrazine 1 pt/A
Harvest Date: October 2, 2013

Hybrid	Maturity	Pop.	% Moisture	Yield (bu./A @15.5%)
Mycogen 2V709	M	30000	16.3	200
Dekalb DKC62-97	M	23333	15.7	203
Southern States SS 62-33	M	22667	16.1	184
Dyna-Gro D52VC91RIB	M	24000	16.5	204
Channel 210-95STXRIB	M	28667	16.0	187
Pioneer 0912HR	M	27000	15.9	210
Hubner H5420RC3P	M	28667	16.8	216
Seed Consultants SC 11AQ03	M	28667	16.9	212
Supreme Ex SCS 10HR94	M	24333	16.5	203
Phoenix 5552A4	M	25333	16.4	196
Augusta 5262	M	29000	16.5	199
Great Heart HT-7240	M	27333	15.8	204
Doeblers 633HXR	M	27333	16.0	189
AVERAGE				200

Discussion: Very good yields from a mid-maturity demonstration plot in Westmoreland County. Be sure to consult replicated yield data from the Virginia Corn Performance Trials prior to selecting hybrids for 2014.

2013 Gloucester Mid-Maturity Corn Hybrid Demonstration Plot

Cooperators:
Producer: Charles Rich, Allen Hunt
Extension: David Moore, VCE-Middlesex
Agribusiness: Participating Companies

Soil Type: Suffolk Fine Sandy and Emporia Sandy Loams
Tillage: No-Till into 30 inch rows
Previous Crop: Soybeans
Planting Date: April 17, 2013
Fertilizer: Broadcast 0-0-120
Starter: 20 gallons 20-10-0 with micros
Sidedress: 110 # N
Crop Protection: Burndown: Glyphosate + 2,4-D + Warrior
Pre-emergence: Atrazine + Simazine
Post: Halex GT
Harvest Date: September 6, 2013

Hybrid	TW	% Check	Pop.	% Moisture	Yield (bu./A @15.5%)
Hubner H5420	54	86%	27,000	18.0	136.4
Check (P1184AM)	57		27,000	18.5	163.1
Mycogen 2V709	54	96%	26,500	20.0	151.6
Check	57			18.5	151.7
Dekalb DKC62-97	54	100%	24,500	21.0	153.0
Check	57			18.3	155.4
Channel-Bio 210-95	55	99%	27,500	20.4	154.0
Check	57			19.8	155.7
Pioneer 0912HR	55	102%	25,500	19.1	158.5
Check				19.6	156.1
Phoenix 5552A4	52	101%	26,500	19.8	153.3
Check				19.9	148.8
Seed Consultants SCS10HR94	54	103%	26,000	19.3	154.3
Check	57		26,000	18.0	150.0
SC Extreme SC11AQ03	53	98%	27,000	21.9	143.9
Check	56			18.5	143.1
Doebler's 633HXR	57	96%	27,500	19.2	142.4
Check				17.7	155.1
CPS-DG D52VC91	55	105%	27,500	23.8	166.0
Check				19.5	161.4
Augusta 5262	52	110%	28,500	24.2	164.1
Check	56			19.2	136.4
Great Heart HT-7240	56	108%	25,500	19.0	156.2
Check	57		25,000	18.5	153.1
Southern States SS62-33	57	100%	27,500	19.0	152.9

Discussion: Very good yields from a mid maturity demonstration plot in Gloucester County. Be sure to consult replicated yield data from the Virginia Corn Performance Trials prior to selecting hybrids for 2014.

Hanover Mid-Season Double Crop Irrigated Corn Hybrid Demonstration Plot
Chuck McGhee – Grainfield Farm
Jim Schroering, Hanover VCE and Robbie Longest, VCE Summer Intern
Sown at 30,000 seeds/acre
Planted: June 24, 2013 (double-cropped behind wheat)
Overall plot seedling on July 17, 2013: 29,300
Harvested: November 9, 2013

	Pop. Counts (7/17)	Bu/acre @15.5%	Moist. (%)
Phoenix 5552A4	30,300	237.1	23.9
Seed Consultants SC11AQ03	29,270	216.5	22.9
Check	27,270	216.6	23.8
Southern States SS 62-33 GENVT3P	29,290	210.6	22.9
CPS/Dyna-Gro D52VC91RIB	31,300	218.0	23.4
Mycogen 2V709	32,310	196.3	23.8
Check	30,290	206.2	24.3
Pioneer 0912HR	30,320	209.4	20.9
Doeblers RPM 633HXR	30,300	224.9	21.9
Great Heart Seed HT-7240	30,280	218.5	22.7
Check	28,290	194.5	24.5
Hubner H5420RC3P	30,300	217.8	22.9
Augusta 5262 GTC BLL	28,280	216.1	23.1
Channel 210-95STXRIB	30,290	232.4	23.3
Check	29,280	186.4	24.5
DeKalb DKC62-97 VT3PRIB	29,300	221.7	23.1

Check: Croplan 6724 SS/RIB (112 day; Poncho/Votivo)

Herbicides: 1 qt. Gramoxone + 1.9 qts. Bicep
Broadcast Fertilizer Preplant: 100-0-150-25(sulfur)
Sidedress: 100 N + 1 lb. Zinc + 1 lb. Boron (dribble)
Fungicide and insecticide applied aerially at full tassel: 9 oz. Quilt XL (fungicide) + 2 oz. Baythroid (for stink bugs)

Discussion:
Excellent yields on this mid maturity irrigated double crop corn test. Under irrigation, with Bt hybrids, producers now have the option of planting double crop corn if market conditions warrant. Be sure to consult replicated yield data from the Virginia Corn Performance Trials prior to selecting hybrids for 2014.

2013 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 & Dunbar Fine Sandy Loam & Faceville Fine Sandy Loam
Planting Date: April 25 & 26, 2013
Fertilizer: Broadcast: 20-40-60, Preemergence Herbicides + 48-0-0, Sidedress: 130-0-0
Crop Protection: 2qt Bicep II Mag. + 1qt Simazine + 1pt Gramoxone SL 2.0 - May 2, 2013, 1.5qt Roundup – May 31, 13
Check Hybrid: Hubner 68-44
Harvest Date: October 4, 2013
Harvest Equipment: John Deere 9560 STS

Hybrid	Maturity	Traits	% Moisture	Yield	% of Check*
Hubner 68-44 (check)	F	Genuity SmartStax	15.7	206.1	------
Mycogen Seeds 2V709	M	Refuge Adv. SmartStax	13.8	224.3	106.4
Dekalb DKC62-97 VT3PRIB	M	VT3 PRO RIB	16.0	211.9	100.5
Southern States SS 62-33	M	VT3 PRO	13.8	203.3	96.4
CPS/Dyna-Gro D52VC91RIB	M	VT2 PRO	14.1	232.3	110.2
Channel 210-95STXRIB	M	Smart Stax	13.9	213.4	101.2
DuPont Pioneer 0912HR	M	HX1 LL RR2	13.8	213.6	101.3
Hubner Seed H5420RC3P	M	Genuity VT3P RIB	14.5	213.8	101.4
Seed Consultants SC 11AQ03	M	CB/RW/LL/GT	14.3	214.3	101.6
Augusta 5658	M	GTCBLLC	13.7	212.4	100.7
Great Heart Seed HT-7240	M	VT3 PRO	15.0	214.4	101.7
Doeblers RPM 633HXR	M	HX1/LL/RR2	13.8	203.3	96.4
Hubner 68-44 (check)	F	Genuity SmartStax	15.8	215.6	------
Mycogen Seeds 2V779	F	Refuge Adv. SmartStax	15.4	214.5	105.7
Dekalb DKC67-57 VT3P	F	VT3 PRO	16.7	215.7	106.2
Southern States SS 65-22	F	VT2 PRO	15.6	237.2	116.8
CPS/Dyna-Gro D57VP51	F	VT3 PRO	15.2	237.6	117.0
Channel 217-08VT3PRIB	F	VT3 PRO	16.4	239.0	117.7
DuPont Pioneer P1498AM	F	Optimum AcreMax	15.9	226.7	111.6
Hubner Seed H4744RC2P	F	Genuity VT2P RIB	13.6	198.8	97.9
Seed Consultants SC 11AQ72	F	CB/RW/LL/GT	17.0	220.4	108.5
SUPREME EX SCS 11HR63	F	HX1/LL/RR2	17.8	234.3	115.4
Augusta 5565	F	Genuity SmartStax	18.1	210.6	103.7
Great Heart Seed HT-7261	F	VT2 PRO	17.5	194.2	95.7
Doeblers RPM 765YHR	F	HX1/YGCB/LL/RR2	16.7	221.9	109.3
Hubner 68-44 (check)	F	Genuity SmartStax	17.3	190.5	------

PLOT AVERAGE:	217.6
Mid Hybrids	214.3
Late Hybrids	220.5

Discussion:
Rainfall: May – 4.25", June – 6.65"' July – 8.9", August – 2.15", No Irrigation this season.
* % of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100. Excellent yields. Please be sure to consult replicated yield data from the Virginia Corn Performance Trials prior to selecting hybrids for 2014.

2013 Sussex County Corn Hybrid Demonstration Plot

Cooperators:	**Producer:**	Robert Seward
	Extension:	Kelvin Wells-Sussex ANR Agent
	Agribusiness:	Participating Seed Companies
Tillage:		No-Till
Previous Crop:		Small Grain/Soybean Double Crop
Planting Date:		April 26, 2013
Planting Population:		25,000 plants per acre
Fertilizer:		Broadcast: 260 lbs. per acre 9-23-30
		Sidedress: 103 lbs. per acre nitrogen plus sulfur and zinc
Harvest Date:		September 30, 2013

Hybrid	% Moisture	Yield (bu./A @15.5%)
SS 65-22	16.3	128.8
DKC 62-97	13.5	126.1
DKC 67-57	14.9	129.9
Hubner 5420	15.6	132.1
Hubner 4744	17.2	126.8
G H HT7240	16.9	128.7
G H HT7261	17.4	130.9
D Gro52VC91	15.5	119.2
D Gro57VP51	16.3	133.7
Pioneer 1498	16.1	120.5
SCS 10HR94	16.4	127.2
Pioneer31G65	15.6	128.9
Pioneer31G65	15.6	118.7

Discussion: Heavy rains following sidedressing hurt yields. Be sure to consult replicated yield data from the Virginia Corn Performance Trials when selecting hybrids for 2014.

2013 Caroline Full Season Corn Hybrid Demonstration Plot

Cooperators: **Producer:** Terrell Farms, Inc.
Extension: M. Broaddus, ANR Caroline
Agribusiness: Participating Seed Companies
Soil Type: 11B; Kempsville-Emporia Complex, 2-6% slopes
Tillage: Turbo-till
Previous Crop: soybeans
Planting Date: 9-Apr-13
Fertilizer: Broadcast: 1.5 tons Biolsolids (5-3-0), 50% of N Available
50 lbs. per acre potash
Starter: 16 gals./A 22-10-0 (40#N), 20 gal/A 24-0-0-3 (51#N)w/herbicide
Crop Protection: 5.5 pt/A Lumaz, 3 pt/A Princep, 1 pt/A Aatrex
Harvest Date: September 9, 2013

Hybrid	% of Check	Pop.	% Moisture	Yield (bu./A @15.5%)
Phoenix 7914A3	102.4%	27500	18.3	248
Check Dekalb 68-05		27500	18.7	254
Pioneer P1498AM	106.1%	27500	16.5	270
Check		27500	19.2	255
SC 11HR36	101.2%	27500	16.7	260
Check		27500	18.8	259
Augusta 5565GEN	94.9%	27500	20	251
Check		27500	17.5	270
Channel 217-08VT3PRIB	100.5%	27500	19.6	265
Check		27500	18.4	257
SS 65-22GENVT2P	98.6%	27500	18.7	251
Check		27500	18.9	252
SC SC11AQ72	98.8%	27500	20.2	243
Check		27500	18.3	247
Dekalb DK67-57	97.3%	27500	16.4	238
Check		27500	19.4	240
DynaGro 57VP51	112.1%	27500	18.7	265
Check		27500	20.3	238
Great Heart HT-7261VT3PRTB	98.1%	27500	19.6	234
Check		27500	19.6	239
Doeblers RPM 765 YHR	101.9%	27500	19.4	244
Check		27500	20.5	240
Mycogen 2V779	100.2%	27500	19.4	246
Check		27500	19.4	251
Hubner H4744RC2P	102.1%	27500	19.3	247
Check		27500	20.9	233
Hubner H5420VT3P – Grower's Choice	115.4%	27500	18.6	273
Check		27500	21	240

Discussion: Outstanding yields! Be sure to consult replicated yield data from the Virginia Corn Performance Trials prior to selecting hybrids for 2014.

2013 King & Queen Full-Season Corn Hybrid Demonstration Plot

Cooperators:
Producer: Bruce Taylor
Extension: Laura Maxey, VCE-King & Queen/ King William Counties
Keith Balderson, VCE-Essex County
Robbie Longest, VCE Summer Intern
Industry: Participating Seed Suppliers

Previous Crop: Soybeans
Soil Type: 2B Bojac Loamy sand 60.5%; 3B Craven fine sandy loam 19.2%; 16B State fine sandy loam 10.3; 2A Bojac Loamy Sand 10.1%
Plant Date: April 11, 2011
Seed Rate: 25,300/A
Plant Equipment: John Deere, 1760 12 row planter
Land Preparation: No-Till
Fertilization: Pre-plant fert. N 60#, P 30#, K 100#, S 6#
Sidedress - N 90#, S 11.3#, B .5# 5/20/13
Crop Protection: Herb. - 3pt. Atrazine, 3pt Bicep, 3pt Princep, 2oz. Tombstone, 3pt. Gramoxone
Roundup over-top , 1Qt. 5/27/13
Harvest Date: 9/25/2013
Harvest Equipment: John Deere 9660 6 row header

Hybrid	%Moisture	Yield (bu./ A@ 15.5%)	% of Check
Augusta 5565	17.7	184.9	111.5%
Check: Dyna-Gro 57V59	16.7	165.9	
Channel 217-08VT3PRIB	17.4	184.1	106%
Check	17.0	181.5	
Dekalb DKC67-57 VT3P	16.9	178.0	104.3%
Check	16.4	159.8	
Doeblers RPM 765YHR	17.0	174.2	108.6%
Check	16.5	160.9	
Dyna-Gro D57VP51	16.9	211.5	135.8%
Check	16.7	150.7	
Great Heart Seed HT-7261	16.1	173.1	114.9%
Check	16.0	150.6	
Hubner 4744RC2P	16.7	173.8	107%
Check	16.7	174.4	
Mycogen 2V779	17.5	173.6	102.8%
Check	16.6	163.4	
Pioneer P1498AM	16.6	159.7	97.1%
Check	16.2	165.5	
Phoenix 7914A3	17.2	177.5	104.8%
Check	16.9	173.1	
Seed Consultants SC11AQ72	17.3	170.7	99.2%
Check	16.5	171.0	
Southern States SS 65-22	16.3	187.7	110.5%

Check	16.2	168.6	
Supreme EX SCS 11HR63	17.0	192.5	114.2%
Average of All Checks	16.5	165.5	
Average of All Other Hybrids	17.0	180.1	

Discussion:
Very good yields on a sandy soil in King and Queen County. There was some variability in the yields of the check plots so be sure to review the % of Check. Be sure to review the full-season maturity hybrid summary in this publication and replicated yield data from the Virginia Corn Performance Trials prior to selecting hybrids for 2014.

2013 Hanover Full Season Irrigated Corn Hybrid Demonstration Plot

Cooperators: **Producer:** George Rice, Hanovertown Farm
Extension: Jim Schroering, VCE-Hanover County and Keith Balderson, VCE-Essex County
Agribusiness: Participating Seed Company Representives

Soil Type: Pamunkey fine sandy loam, Bolling gravelly sandy loam
Tillage: no till
Previous Crop: full season soybeans
Planting Date: April 10, 2013
Fertilizer:

Broadcast: N: 50 lbs; K: 120 lbs.; sulfur: 9 lbs.
Starter: 200 lbs. of 20-10-0; sulfur: 2 lbs; zinc: ¼ lb; small amount of boron
Sidedress: N: 120 lbs; sulfur: 15 lbs; boron: ½ lb.
Totals: N: 210 lbs; P: 20 lbs; K: 120 lbs; sulfur: 26 lbs; boron: ½ lb; zinc; ¼ lb.

Herbicides:

Burndown: Gramoxone: 2.5 pts/ac
Preemergence at planting: Bicep II Magnum: 2.5 pts/ac; Princep 1 qu/ac;
Mid-late May: Rescue treatment
Totals: N: 210 lbs; P: 20 lbs; K: 120 lbs; sulfur: 26 lbs; boron ½ lb; zinc: ¼ lb.

Other Crop Protection: Quilt fungicide and Tombstone insecticide
Harvest Date: October 4, 2013

Hybrid	%Moisture	Yield (bu./acre @ 15.5%	% of Check
Augusta 5565	16.6	210	99.5%
Check-Pioneer 1319HR	15.7	211	
Channel 217-08VT3PRIB**	17	198	99.5%
Check**	15.9	187	
Dekalb-DKC67-57 VT3P**	15.6	186	90.7%
Check	16.6	223	
Doeblers RPM 765HR	17.6	210	92.9%
Check	17.1	229	
Great Heart Seed HT-7261	17.6	204	88.5%
Check	17.1	232	
Hubner 4744RC2P	17	227	98.1%
Check	16.8	231	
Dyna-Gro-57VP51	16.9	228	101.3%
Check	16.8	219	
Mycogen 2V770	16.7	213	96.3%
Check	19.8	223	
Pioneer 1498AM	16.2	206	92.8%
Check	16.4	221	
Phoenix 7914A3	17.3	214	95.3%
Check	15.9	228	
Seed Consultants SC11AQ72**	17.3	206	98.8%
Check**	15.7	189	
Southern States SS 65-22**	14.8	163	90.1%
Check**	14.7	173	
Supreme EX SCS 11HR63**	16.1	161	85.2%

Check	15.5	205	
Dyna-Gro 57V59-Grower's Choice	15.6	181	88.3%

Discussion:
There was quite a bit of variability in the yields of the check plots, and we noticed some stunting in some hybrids at harvest. Soil samples taken for nematode assay from 2 areas of the plot showed both the presence of root knot and stubby root nematodes. Hybrids marked with ** are believed to have been affected. Using the % of check can help with interpreting the results and take out some of the variability. Please consult replicated yield data from the Virginia Corn Performance Trials when selecting hybrids for 2014.

2013 Virginia Cooperative Extension On-Farm Corn Test Plots Hybrid Entries			
Company	Mid Hybrid Entry	Mid Hybrid Traits	Mid Hybrid Seed Trt.
Mycogen Seeds	2V709	Refuge Advance	Cruiser Maxx
Dekalb	DKC62-97 VT3PRIB	VT3P RIB	Acceleron 500 Votivo
Southern States	SS 62-33	VT3 Pro	Acceleron
CPS/Dyna-Gro	D52VC91RIB	VT2 PRO	Acceleron500/Votivo
Channel	210-95STXRIB	Smart Stax	Acceleron w/ P250
DuPont Pioneer	0912HR	HX1, LL, RR2	Poncho 1250/Votivo
Hubner Seed	H5420RC3P	Genuity VT3P RIB	P250
Seed Consultants	SC 11AQ03™	CB/RW/LL/GT	Apron,MaximXL,Dyansty,CR250
SUPREME EX	SCS 10HR94™	HX1/LL/RR2	Apron,MaximXL,Dyansty,CR250
Coastal--Phoenix	5552A4	3111 Viptera	Avicta 500
Augusta	5262	GT3000	C1250
Great Heart Seed	HT-7240	VT3PRO	ACCELERON 500
Doeblers PA Hybrids Inc.	RPM® 633HXR™	HX1/LL/RR2	Poncho 1250

2013 Virginia Cooperative Extension On-Farm Corn Test Plots Hybrid Entries			
Company	Full Hybrid Entry	Full Hyrbrid Traits	Full Hybrid Seed Trt.
Mycogen Seeds	2V779	Refuge Advance	Cruiser Maxx
Dekalb	DKC67-57 VT3P	VT3P	Acceleron 500 Votivo
Southern States	SS 65-22	VT2 Pro	Acceleron
CPS/Dyna-Gro	D57VP51	VT3 PRO	Acceleron500/Votivo
Channel	217-08VT3PRIB	VT3Pro	Acceleron w/ P250
DuPont Pioneer	P1498AM	Optimum AcreMax	Poncho1250/Votivo
Hubner Seed	H4744RC2P	Genuity VT2P RIB	P250
Seed Consultants	SC 11AQ72™	CB/RW/LL/GT	Apron,MaximXL,Dynasty,CR250
SUPREME EX	SCS 11HR63™	HX1/LL/RR2	Apron,MaximXL,Dynasty,CR250
Coastal--Phoenix	7914A3	3000 GT	Avicta-500
Augusta	5565	Genuity SmartStax	P500
Great Heart Seed	HT-7261	VT2PRO	ACCELERON 500
Doeblers PA Hybrids Inc.	RPM® 765YHR™	HX1/YGCB/LL/RR2	Poncho 1250

2013 Virginia Cooperative Extension On-Farm Corn Hybrid Plot Yield Summary (bushels per acre at 15.5%)								
Eastern Virginia								
				Medium Hybrids (108-112 Day RM)				
Hybrid	**Hanover***	**Sussex**	**Va. State**	**Westmoreland**	**Gloucester**			**Average****
Augusta 5262 GT3000	216			199	164			
Augusta 5658 GTCBLL			212					
Channel 210-95STXRIB	232		213	187	154			185
Dekalb DKC62-97 VT3PRIB	222	126	212	203	153			189
Doeblers RPM 633HXR	225		203	189	142			178
Dyna-Gro D52VC91RIB	218	119	232	204	166			201
Great Heart Seed HT-7240 VT3PRO	219	129	214	204	156			191
Hubner 5420 Genuity VT3PRIB	218	132	214	216	136			189
Mycogen 2V709 Refuge Adv. Smartstax	196		224	200	152			192
Pioneer 0912HR RR2HX1LL	209		214	210	159			194
Phoenix 5552A4 Viptera 3111	237			196	153			
Seed Consultants 11AQ03 CBRWLLGT	217		214	212	143			190
Southern States 62-33 VT2PRO	211		203	184	153			180
Supreme EX 10HR94 RR2HX1LL		127		203	154			
Average	218	127	214	201	153			189
***Irrigated and double crop location; **Average of Va. State, Westmoreland, and Gloucester locations**								
				Full Hybrids (113 Day RM or more)				
Hybrid	**Hanover***	**Sussex**	**Va. State**			**King & Queen**	**Caroline**	**Average****
Augusta 5565 Genuity SmartStax	210		211			185	251	216
Channel 217-08VT3PRIB	198		239			184	265	229
Dekalb DKC67-57 VT3P	186	130	216			178	238	211
Doeblers RPM 765YHR	210		222			174	244	213
Dyna-Gro D57VP51	228	134	238			212	265	238
Great Heart Seed HT-7261 VT2PRO	204	131	194			173	234	200
Hubner 4744RC2P	227	127	199			174	247	207
Mycogen 2V779	213		215			174	246	212
Pioneer P1498AM	206	121	227			160	270	219
Phoenix 7914A3	214					178	248	
Seed Consultants SC11AQ72	206		220			171	243	211
Southern States SS 65-22	163	129	237			188	251	225
Supreme EX SCS 11HR63	161		234			193	260	229
Average	202	129	221			180	251	218
***Irrigated location; **Average of Va. State, King and Queen, and Caroline locations; Hanover not included because of nematodes**								

2013 Southampton County Corn Hybrid Plot

Producer: Foxhill Farms
Extension: Chris Drake, Southampton County Extension Agent, ANR
Agribusiness: Augusta, Coastal Agrobusiness, Dekalb, Dyna-Gro, Hubner, Pioneer, Syngenta, Dow
Soil Type: Emporia Fine Sandy Loam (13A)
Plot Size: 8 rows 36" spacing 760 feet long (0.4187 acres)
Previous Crop: Cotton
Planting Date: April 12, 2013 planted at 25,000 seed/acre with CASE IH 12 row vacuum planters
Fertilizer: 23 gallons 28-0-0-3 with burndown, 400 lbs. 6-12-40 broadcast, 7 gallons 10-28-0 starter, 20 gallons 30 % UAN sidedress, 2 gallons CORON
Crop Protection: 3 pints Gramoxone/ 1pt. Atrazine burndown, 3.6 Pints Halex GT/ 1 pt. Atrazine POST, 10 oz. Quilt , 2 oz. Karate
Harvest Date: 9/14/2013 with Case 5088 AFS with 8 row corn head

Hybrid	Maturity	% Moisture	Yield @15.5%)
DK 64-69 Check	114	16.7	145.64
Hubner 6844	115	17.2	153.21
Augusta 7767	117	17.8	165.54
DK 64-69	114	16.7	152.28
Mycogen 2V709	110	15.4	153.46
Mycogen 2P659	108	16.0	148.39
DK 64-69 Check	114	16.7	151.44
DK 69-29	119	17.0	152.91
DG 53VC13	113	15.9	154.34
DK 60-67	110	14.8	158.42
Pioneer 1690	116	16.0	170.43
Pioneer 1498	114	15.8	151.38
DK 64-69 Check	114	16.7	170.11
Hubner 4744	114	16.3	174.99
Augusta 5565	115	16.8	142.19
Phoenix 5552	111	15.8	152.74
Hubner 5420	111	14.7	156.20
Pioneer 1319	113	15.5	155.24
DK 64-69 Check	114	16.7	154.38
N/K 78S 3111	116	17.9	145.03
DK 68-03	118	17.4	146.92
DK 61-78	111	14.9	151.36
N/K 70J 4011	112	15.1	139.35
DG 56VC46	116	16.6	148.59
Phoenix 6706	116	16.9	149.31
N/K 68B 3111	111	15.4	147.48
DK 64-69 Check	114	16.7	145.97
Plot Average			**152.89**

COMMENTS: Use these data as an aid when making seed selections for 2014.

2013 Virginia Agriculture Exposition Corn Plot

Cooperators:	**Producer:**	**Land Of Promise Farms Partnership**
	Extension:	**Wade Thomason, Virginia Tech**
		Watson Lawrence, VCE-Chesapeake
		Roy D. Flanagan III, VCE-Virginia Beach
	Agribusiness:	**Participating Seed Companies**
Soil Type:	**Predominately Nimmo Loam**	
Tillage:	**Disked 2x, field cultivated 1x**	
Previous Crop:	**Soybeans**	
Planting Date:	**April 15, 2013**	
Fertilizer:	**Preplant fertilizer 230lbs 13-26-17**	
	Starter fertilizer 1.5 gallons of Riser	
	Fertilizer at planting 160lbs of N	
Check Variety:	**Pioneer 1319**	
Crop Protection:	**Leadoff 1.5oz/a at planting**	
	Mustang Max 2.5oz/a early July	
	Headline amp: 14oz/a early July	
Harvest Date:	**September 9, 2013**	

Hybrid	**Mat.**	**Traits**	**Yield as percent of check**	**% Moisture**	**Yield (bu./A @15.5%)**
Axis 57H25	E	VT2PRIB	87%	18.2	235.02
Seed Consultants SCS 1062 AHQ	E	HX1,Agrisure RW,LL,RR2	93%	21.2	228.99
Great Heart HT 7001	E	VT3Pro	84%	22.9	223.42
Pioneer P 0912HR	E	HX1, LL, RR2	86%	20.4	213.78
Dyna Gro D47 SS23	E	SmartStax	83%	21	210.63
Southern States 54-32	E	VT2 Pro	86%	21.8	209.01
Mycogen 2P659	E	SmartStax	77%	22.6	204.02
Augusta 2954	E	3000 GT	80%	21.7	202.08
Northrup King N61P	E	Agrisure 3000 GT	82%	20.7	199.17
Dekalb DKC5261	E	Genuity VT2P RIB	76%	19.9	188.05
Doeblers 587 AM	E	CB,LL,RR Optimum Acre MAX	64%	18.6	163.04
Average Early Maturity			82%		207.02
Dyna Gro D55 VP77	M	VT2 Pro	104%	23.5	263.75
Augusta 5262	M	3000 GT	98%	26.9	246.03
Pioneer P1319 HR	M	HX1, LL, RR2	95%	20.5	237.9
Doeblers 633 HXR	M	CB,LL,RR	94%	20.4	237.85
Dekalb DKC 6208	M	Genuity SS RIB	95%	21.6	235.55

Channel 210-95	M	Smart Stax	97%	22	231.21
Great Heart HT 7240	M	VT2Pro	86%	25.5	228.11
Axis 62N35	M	VT2PRIB	84%	25	227.18
Southern States 62-33	M	VT3 Pro	93%	24.4	226.52
Hubner H5420	M	Genutity VT3P RIB	93%	22.8	219.49
Seed Consultants SCS 10 HR94	M	HX1, LL, RR2	89%	21	218.55
Northrup King N68B 3111	M	Agrisure Viptera 3111	87%	22.5	211.22
Mycogen 2V709	M	SmartStax	78%	20.6	206.93
Average Mid Maturity			91%		230.02
Axis 64R50	L	VT2PRIB	95%	20.8	256.68
Southern States 65-22	L	VT2 Pro	105%	21.2	255.64
Doeblers 765 YHR	L	CB,LL,RR Optimum Intrasect	99%	23.2	250.41
Pioneer P1739 HR	L	HX1, LL, RR2	100%	24.7	249.05
Seed Consultants SCS 1131 AMR	L	HXT, LL, RR2	101%	24.9	248.32
Northrup King N79Z	L	Agrisure 3000 GT	99%	25.9	240.16
Channel 217-08	L	VT3 Pro	100%	23	237.44
Dyna Gro D56 VP46	L	VT3 Pro	91%	24.7	231.18
Hubner H6844	L	Genuity Smart Stax	96%	23.7	226.93
Dekalb DKC 64-69	L	Genuity VT3P	90%	22.1	222.02
Augusta 5565	L	GENSS	88%	25.8	220.98
Mycogen 2V779	L	SmartStax	80%	23.6	210.25
Great Heart HT 532	L	3000 GT	75%	26.2	198.10
Average Late Maturity			93%		234.40

Discussion: Excellent yields from the 2013 Virginia Ag-Expo site in Virginia Beach. The hybrids were grouped together by company when planted with a check hybrid on each side of the company's entries. % of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100. Please be sure to consult replicated yield data from the Virginia Corn Performance Trials prior to selecting hybrids for 2014.

2013 Corn Challenge Plot

Cooperators: **Producer:** Robert T. Bland, IV
Extension: David Moore, VCE-Middlesex

Soil Type: Suffolk/Kempsville fine **s**andy loam
Tillage: No Till into Soybean Stubble in 30" rows
Previous Crop: Soybeans
Planting Date: April 27, 2013
Fertilizer: Broadcast: 10.5-50-100-12s
Burndown: 50-0-0
Sidedress: 75-0-0-9s
Crop Protection: Burndown: Glyphosate + Atrazine + Simazine + 2,4-D
Post: Glyphosate + Resolve Q
Corn Hybrids: Pioneer P1162HR vs. Mid-Atlantic MA5121GT3
Harvest Date: October 2, 2013

Hybrid	Rep.	TW	Moisture%	Yield (bu./A @15.5%)
Pioneer 1162HR	1	59	14.8	161.1
Mid-Atlantic 5121GT3	1	58	15.3	174.9
Pioneer 1162HR	2	59	14.6	172.8
Mid-Atlantic 5121GT3	2	58	14.9	183.4
Pioneer 1162HR	3	59	14.8	166.6
Mid-Atlantic 5121GT3	3	58	14.8	174.5
Avg. Pioneer 1162HR				166.8
Avg. Mid-Atlantic 5121GT3				177.8
(LSD 0.10)		.8	ns	5.0

Discussion:
Always fun to do these type plots initiated by the producer. P1162 is a 111 day hybrid and MA5121 is 112 day. Both are considered good yielders and have good drought tolerance.

If a producer has questions about a hybrid or about a certain production practice, you are encouraged to do some plots on your farm and Extension is willing to be of assistance with the plot work. In this plot, yield of MA5121 was significantly higher.

Use this and other Virginia Tech on-farm corn plot results when making planting decisions for 2014.

2013 Middlesex Corn Hybrid Challenge Plot

Cooperators: **Producer:** William H. Wright, Barry Powell
Extension: David Moore, VCE-Middlesex
Agribusiness: Ginny Barnes-Pioneer
Robert Hammock-Dekalb/Asgrow
Soil Type: Suffolk Fine Sandy Loam
Tillage: No-Till into Turbo-Tilled Soybean Stubble
Previous Crop: Soybeans
Planting Date: April 24, 2013
Fertilizer: Broadcast: Chicken Litter-3 T/A
Sidedress: 70#N
Crop Protection: Burndown: Gramoxone; Pre-emergence: Bicep + Atrazine
Post:
Harvest Date: September 5, 2013

Treatment	Replication	% Moisture	Yield (bu./A @15.5%)
Pioneer P1498AM	1	20.4	178.2
Dekalb DKC64-69	1	21.5	182.8
Pioneer P1498AM	2	22.8	160.4
Dekalb DKC64-69	2	21.9	172.1
Pioneer P1498AM	3	21.9	162.2
Dekalb DKC64-69	3	23.9	167.7
Pioneer P1498AM	4	22.0	174.7
Dekalb DKC64-69	4	23.5	178.2
Average Pioneer		21.8	168.9
Average Dekalb		22.7	175.2
LSD (0.10)		ns	4.3

Discussion: The purpose of this plot was to compare yields of Pioneer's P1498AM (AquaMax) hybrid with Dekalb's drought tolerant hybrid, DKC64-69 (GenVT3). There was ample rain for the season and really not best conditions to show drought tolerance. Both hybrids stood well and had similar drydown capabilities. The Dekalb hybrid was treated with Accerleron, which included several fungicides and the low rate of Clothianidin (Poncho). The Pioneer hybrid was treated with several fungicides, *Bacillus*, and high rate of Poncho + VOTiVO. VOTiVO is a seed treatment nematicide. Nematode assays taken twice during the growing season showed *Lesion* nematodes at a moderate risk (180) to the crop and *Lance* nematodes to be a high risk (300) to the crop.

As costs of seed increases, producers might want to do some comparisons on their own farms to see exactly what is going on. In this plot, the yield of the DKC 64-69 was significantly higher. Use this and other Virginia Tech on-farm plot information when making planting decisions for 2014.

2013 Middlesex Drought Tolerant Corn Challenge Plot

Cooperators: **Producer:** Jason Benton
Extension: David Moore, VCE-Middlesex
Agribusiness: Ginny Barnes, Pioneer
Robert Hammock, Dekalb & Asgrow

Soil Type: Suffolk Fine Sandy Loam/Remlik Loamy Sand
Tillage: No-Till in 30-inch rows
Previous Crop: Soybeans
Planting Date: April 19, 2013
Fertilizer: Broadcast: 25-50-100
At Plant: 50-0-0-6s Side: 100-0-0-12s
Crop Protection: Pre: Atrazine, Simazine, 2, 4-D
Plant: 7 lbs. Counter Insecticide
Post: Halex GT
Harvest Date: October 3, 2013

Treatment	Replication	Pop. (6/14)	% Moisture	TW	Yield
Dekalb 64-69	1	24,500	15.0	60	229.6
Pioneer 1498AM	1	26,500	14.8	60	219.6
DKC 64-69	2	26,000	14.8	61	228.8
P1498AM	2	24,000	14.8	61	222.5
DKC 64-69	3	24,500	14.8	61	230.2
P1498AM	3	23,000	14.7	61	222.4
Channel 217-08	Check		14.8	61	232.1
Average DKC					229.5
Average Pioneer					221.5
LSD (0.10)			ns	ns	3.1

Discussion:
Two 114 day RM hybrids compared on some pretty sandy soils. Field got plenty of rain, so comparing the ability to survive and thrive in sandy, droughty conditions did not come into play. Both hybrids have similar costs. The Pioneer hybrid had Poncho/VOTiVO seed treatment with the high rate of Poncho. Nematodes were not a problem and notice that Jason uses Counter insecticide-nematicide. Pioneer hybrid had *AquaMax* genetics and the Dekalb hybrid is considered drought tolerant also. In this plot, the DKC 64-69 yielded significantly higher.

The Channel hybrid was planted in rest of field. Use this and other Virginia Tech on-farm corn plot results when making planting decisions for 2014.

2013 Corn Hybrid Trait Comparison Plot

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, VCE—Essex County and Stephanie Romelczyk**,** VCE—Westmoreland County
Robbie Longest—VCE Summer Intern

Soil Type: Suffolk sandy loam
Tillage: Continuous No-Tillage for over 10 years
Previous Crop: Double Crop Soybeans
Planting Date: April 8, 2013
Fertilizer: At Planting: 60-60-60-07 per acre broadcast with herbicides
Sidedress: 90-0-0-11 per acre
Wolf Trax Zinc seed treatment
Crop Protection: Burndown Herbicides: Gramoxone and 2, 4-D
Pre-emergence: Bicep, atrazine, and princep
Post-emergence: Halex GT

Harvest Date: September 6, 2013

Hybrid	Rep.	% Moisture	Yield (bu./A @15.5%)
Pioneer 0210R RR2	1	16.5	172
Pioneer 0210HR LLHX1RR2	1	17.1	176
Pioneer 0210R RR2	2	16.3	169
Pioneer 0210HR LLHX1RR2	2	17.0	174
Pioneer 0210R RR2	3	16.6	164
Pioneer 0210R LLHX1RR2	3	16.8	172
Ave. Pioneer 0210R RR2		16.5	168
Ave. Pioneer 0210HR LLHX1RR2		17.0	174
LSD (0.10)		.4	3.5

Discussion:
The purpose of this plot was evaluate the value of the Herculex 1 gene in a corn hybrid under the standard eastern Virginia small grain, double crop soybean, and corn rotation. Herculex 1 generally controls above ground insects. No scouting was done for insects and no visual effects of European Corn Borer (ECB) were visible during harvest, but the hybrid with the Herculex 1 gene yielded significantly higher.

2013 Corn Population Plot

Cooperators: **Producer:** Greg Jenkins
Extension: David Moore, VCE-Middlesex
Soil Type: Meggett Sandy Loam
Tillage: Field Cultivator (2X)
Previous Crop: Soybeans
Planting Date: April 27, 2013
Fertilizer: Broadcast: 28-40-150-15s
At Plant: 70-0-0
Sidedress: 300-0-0
Crop Protection: At Planting: Atrazine + Corvus + Metolachor
Post: Halex GT
At Sidedress: ½ Rate Stratego Yield + Bio-Forge + Foliar Micronutrient Package
Harvest Date: September 21, 2013

Population	% Moisture	Yield (bu./A @15.5%)
30,000	19.6	239.3
36,000	21.0	237.6
41,000	21.5	257.6

Discussion:
Powerful corn! This plot was done to see just how far you can push some of this bottomland soil in a pretty good corn year. Population of over 40,000 seemed to make a difference and actually paid for the increase in population. (If a unit of corn costs $240.00 per unit, then an extra 1000 bump in population costs $3.00.)

Producers unsure if their soil types can handle various populations should do some of their own checking. Hybrids have changed and precision farming by soil type is here.

Use this and other on-farm plot results when making planting decisions for 2014.

2013 Corn Population Plot

Cooperators: **Producer:** Robert T. Bland, IV
Extension: David Moore, VCE-Middlesex

Soil Type: Suffolk Fine Sandy Loam
Tillage: No Till into Soybean Stubble in 30" rows
Previous Crop: Soybeans
Planting Date: April 18, 2013
Fertilizer: Broadcast: 10.5-0-100-12s
Burndown: 50-0-0
Sidedress: 75-0-0-9s
Crop Protection: Burndown: Glyphosate + Atrazine + Simazine + 2,4-D
Post: Glyphosate + Resolve Q
Corn Hybrid: Pioneer 35F33
Harvest Date: September 17, 2013

Population (5-11-13)	% Moisture	Yield (bu./A @15.5%)
19,500	15.1	121.1
22,500	15.1	130.1
28,500	15.1	132.3
34,500	15.5	139.6
22,000	15.1	128.2
20,000	15.3	125.4

Discussion:
Producers, consultants, company folks are always trying to find the perfect population for soil types and hybrids. In a year like 2013, higher populations would be expected to do better than lower populations. In a dry year, that may be different. I think it would benefit producers to do some checking on their own farm and with some of their soil types.

It seems as though, in a normal year, dryland/upland populations can do OK in the mid to upper 20's range. Irrigated and bottomland fields can do well in low to mid 30's, and in some cases maybe into the upper 30's/low 40's. This is something for producers to research in their own operations. If a 80,000 kernel unit of corn costs $240.00, then the cost of an extra 1000 kernels is $3.00.

Use this and other on-farm corn plot results when making planting decisions for 2014.

2013 Evaluation of Turbo Chopper in No-till Corn Production

Cooperators: **Producer:** Midway Farms
Extension: Keith Balderson, VCE—Essex County
Robbie Longest, VCE Summer Intern

Soil Type: Suffolk sandy loam
Hybrid: Channel 208-71VT2PRIB
Tillage: No-till compared to No-till with Turbo Chopper
Previous Crop: Double Crop Soybeans
Planting Date: April 22, 2013
Fertilizer: Starter: 30-30-0 per acre
Broadcast: 50-0-50-9 per acre
Sidedress: 80-0-0-15
Crop Protection: Burndown: 1 qt. per acre paraquat
Pre-emergence: 2.5 qts. per acre Lexar and 1 pt. per acre simazine
Insecticide: 1 qt. per acre Lorsban
Harvest Date: September 18, 2013

Treatment	Population	Rep.	% Moisture	Yield (bu./A @15.5%)
Turbo Chopper	26,500	1	17.7	186
Turbo Chopper	26,000	2	18.3	216
Check	24,500	1	17.9	221
Check	24,000	2	17.6	207
Check	24,000	3	17.1	190
Turbo Chopper	27,000	3	18.5	212
Turbo Chopper	25,500	4	18.6	214
Check	26,500	4	18.1	200
Ave. Turbo Chopper	26,250		18.3	207
Ave. Check	24,750		17.7	204.5
LSD (0.10)			ns	ns

Discussion:
Many producers in eastern Virginia are utilizing vertical tillage to help with residue management, to increase soil warming in the spring, and to possibly assist in slug management all in an effort to obtain better and more uniform stands of corn. In this plot, the vertical tillage tool was run just prior to corn planting. Corn stands were taken about six weeks after planting and yields were taken at harvest. The turbo chopper tended to increase plant stands. There was some variability in yields, and the turbo chopper plots yielded 2.5 bushels per acre higher than the check plots. The difference was not statistically different and would not be enough to pay for the operation.

2013 Evaluation of "Pop-Up" Fertilizer on Corn

Cooperators: **Producer:** Tyler Franklin
Extension: Keith Balderson, VCE—Essex County

Hybrid: Channel 214-13VT2 at 27,500
Soil Type: Munden fine sandy loam
Tillage: No-till
Previous Crop: Double Crop Soybeans
Planting Date: April 21, 2013
Fertilizer: Pop-Up: 5-14-0-1.75 as 11-37-0 and am-thio and 1 pt. Zn per acre
Broadcast: 88-46-60-12 and 1 lb./acre Boron
Sidedress: 80-0-0-14 per acre
Crop Protection: Burndown Herbicides: 47 oz. per acre Roundup and ½ pt 2,4-D per acre
Pre-emergence: 4 oz. per acre Corvus, 1 qt. per acre atrazine and 1 qt. per acre simazine
Insecticide: 4 oz. per acre Capture LFR
Harvest Date: September 18, 2013

Treatment	Replication	% Moisture	Yield (bu./A @15.5%)
Pop-Up (5-14-0-1.75 + Zn)	1	17.5	219
Check	1	16.6	218
Check	2	16.0	217
Pop-Up	2	16.4	214
Pop-Up	3	18.9	226
Check	3	18.1	225
Check	4	16.6	215
Pop-Up	4	15.6	218
Average Pop-Up		16.8	219
Average Check		16.8	219
LSD (0.10)		ns	ns

Discussion:
Interest in Pop-Up fertilizers applied in-furrow with corn seeds has been high the past couple of years as producers look for ways to improve early season corn vigor and increase yields.. There are many specialty clear pop-ups on the market and some growers are using traditional fertilizer products, such as 11-37-0 or 10-34-0. In this case a combination of 11-37-0 and am-thio was mixed to make a pop-up fertilizer supplying 5-14-0-1.75 per acre. The producer did notice that the pop-up plots grew off better and were greener early in the season, but the pop-up did not increase yields. It should also be noted that the check plots also did not receive the Capture LFR.

2013 Evaluation of Sidedress Nitrogen on Corn Following Hairy Vetch Cover Crop

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, VCE—Essex County and Stephanie Romelczyk, VCE—Westmoreland County
Robbie Longest, VCE Summer Intern

Hybrid: Augusta 06-06 GTLLCB
Soil Type: Suffolk sandy loam
Tillage: Continuous No-Tillage for over 10 years
Previous Crop: Double Crop Soybeans
Planting Date: April 27, 2013
Fertilizer: At Planting: 60-60-60-07 per acre broadcast with herbicides
Sidedress: 0 vs. 40 lbs. of N per acre applied as urea on June 6th
N estimate from Hairy Vetch Cover Crop: approximately 62 lbs. per acre (see discussion below)
Wolf Trax Zinc seed treatment
Crop Protection: Burndown Herbicides: Gramoxone and 2, 4-D
Pre-emergence: Lumax, Princep, and atrazine
Post-emergence: Touchdown
Harvest Date: September 18, 2013

Treatment	Replication	% Moisture	Yield (bu./A @15.5%)
Urea	1	19.0	150
Check	1	18.8	141
Urea	2	19.3	168
Check	2	19.3	150
Urea	3	18.9	169
Check	3	18.1	158
Ave. Urea		19.1	163
Ave. Check		18.7	150
LSD (0.10)		ns	8.0

Discussion:
The purpose of this plot was to evaluate how much plant available nitrogen (PAN) a hairy vetch cover crop could provide for a corn crop and also determine if supplemental sidedress nitrogen should have been applied. The hairy vetch cover crop was planted on October 5, 2012 and terminated on April 22, 2013. Growth was good for the most part, but there were some weak spots in the stand. A tissue sample of the hairy vetch was taken just prior to corn planting and analyzed for nitrogen and found to be 3.90%. Top growth of the vetch was also harvested from 3 random samples in the field, weighed, and dried. This sample showed that 3,176 lbs. of hairy vetch were produced per acre on a dry matter basis. Most current literature on estimating PAN suggests using the following formula: % nitrogen in tissue x dry matter per acre/2. Using this formula, it is estimated that 62 pounds of nitrogen per acre would be supplied by the hairy vetch cover crop. The hairy vetch cover crop also followed a soybean crop that yielded 50 bushels per acre so another 20 lbs. of plant available nitrogen would be credited to the soybean crop. With the pre-plant nitrogen application of 60 lbs. per acre and the PAN from the hairy vetch cover crop and previous soybean crop, it is estimated that the check plots received 142 lbs. of nitrogen per acre. The treated plots received an additional 40 lbs. of nitrogen per acre supplied as broadcast urea on June 6th just

prior to a tropical system that went through the area. The check plots and the treated plots showed nitrogen deficiency symptoms around growth stage VT in some areas. The additional nitrogen increased yield by 13 bushels per acre for a return on investment of approximately $25 per acre. Legume cover crops can provide significant amounts of PAN to corn crops but farmers must be willing to allow the cover crops to get significant spring growth to take advantage of it.

2013 Variable Rate Nitrogen Corn Plot

Cooperators: **Producer:** Cloverfield Enterprises
Extension: Keith Balderson, VCE—Essex County and Robbie Longest, VCE Summer Intern
SWCD: Colonial and Three Rivers SWCD

Soil Type: Tetotum loam and Munden fine sandy loam
Tillage: No-till
Previous Crop: Double Crop Soybeans
Planting Date: April 16, 2013
Fertilizer: Broadcast: 12-58-58 per acre
Starter: 50-0-0-6 per acre plus boron
In-furrow: 2 gallons per acre 11-37-0 plus zinc
Sidedress: See below
Foliar: 1 gallon per acre N-Pact 26-0-0 SRN

Crop Protection: Burndown Herbicide: Gramoxone and 2,4-D
Pre-emergence: Lumax, Atrazine, and Princep
Fungicide: Quilt Xcel
In-furrow: Capture LFR Insecticide

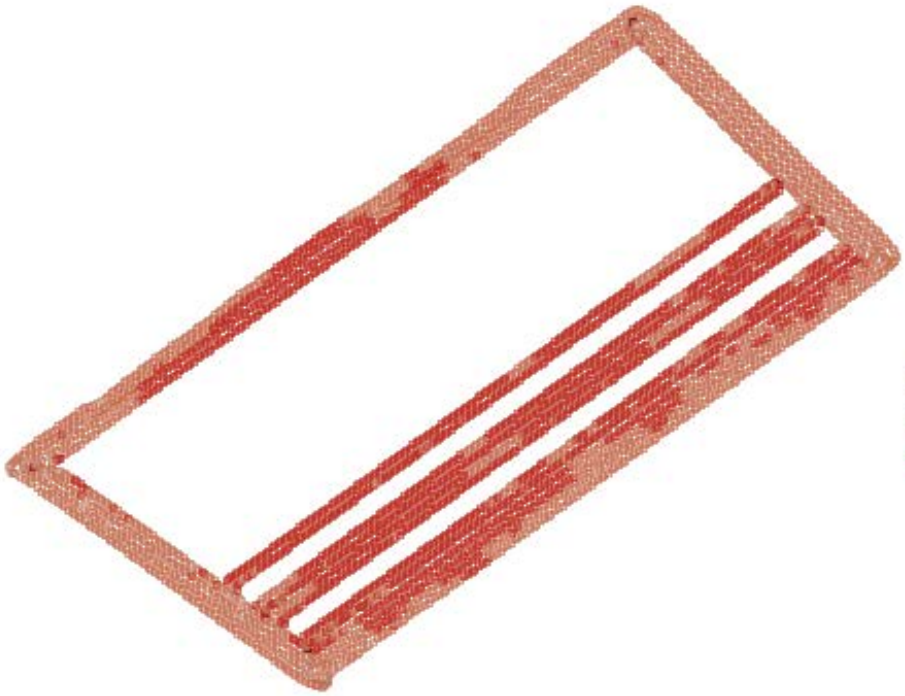
Harvest Date: September 10, 2013

Treatment	N Sidedress Rate (lbs./acre)	Rep.	% Moisture	Yield (bu./A @15.5%)	NUE, lbs. N/ bu.**
Fixed Rate	122	1	21.1	227	.751
Variable Rate	123	1	20.9	229	.755
Greenseeker*	107	1	21.0	228	.688
Greenseeker	107	2	20.6	224	.700
Fixed Rate	123	2	20.8	218	.794
Variable Rate	123	2	20.7	224	.772
Fixed Rate	124	3	20.9	226	.769
Variable Rate	124	3	20.7	225	.773
Greenseeker	107	3	20.6	222	.707
Greenseeker	107	4	20.8	223	.704
Fixed Rate	124	4	20.9	225	.773
Variable Rate	128	4	21.0	225	.791
Ave. Fixed Rate	123		20.9	224	.772
Ave. Variable Rate	125		20.8	225.75	.775
Ave. Greenseeker	107		20.75	224.25	.700
LSD (0.10)	1.8		.12	ns	0.14

*Greenseeker replications 1 and 2 were installed in the same pass with the applicator; Greenseeker replications 3 and 4 were installed in the same pass of the applicator.
**NUE is Nitrogen Use Efficiency and was calculated as the total amount of nitrogen applied divided by corn yield in bushels. 1 pound of N per bushel of corn is considered very efficient. Lower values indicated greater efficiency.

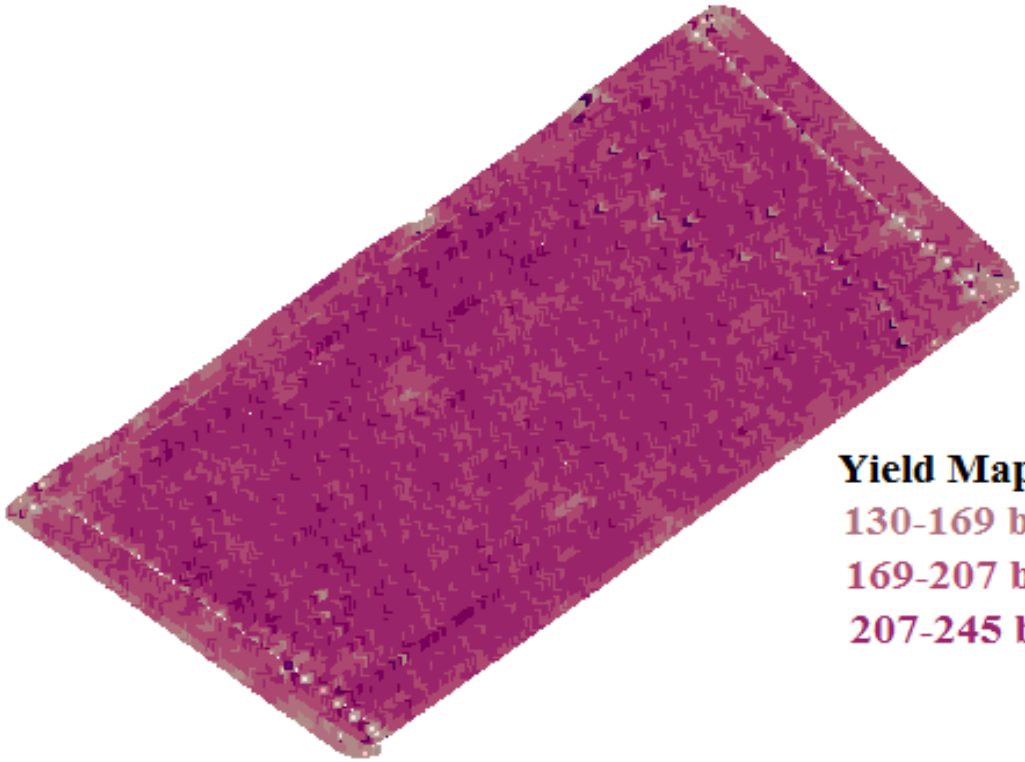
Discussion: This work is being done as part of a Virginia NRCS CIG project. The plot evaluated a fixed sidedressing nitrogen rate on corn to variable rates based on historic yield maps (zone-based) and Greenseeker (sensor-based.) All treatments received approximately 64 lbs. of nitrogen per acre prior to sidedressing. Both the fixed rate and zone-based variable rates were injected on May 20th and the Greenseeker treatments were dribbled on June 4th. There was no statistical difference in the yields of any of the treatments. However, there were statistical differences in the amount of sidedress nitrogen applied and nitrogen use efficiency as the Greenseeker treatments used less nitrogen, resulting in lower NUE, which is better for the bottom line. Random tissue samples were taken from all 3 treatments twice. The results are as follows:

Treatment	Growth Stage	% Nitrogen in Tissue	Growth Stage	% Nitrogen in Tissue
Fixed Rate	V-9	3.87	R-2	3.53
Variable Rate	V-9	3.78	R-2	3.20
Greenseeker	V-9	3.34	R-2	3.22



24-0-0-3 Rate Map
29-48 gallons per acre
48-69 gallons per acre

24-0-0-3 Sidedress Rate Map



Yield Map (Bu./A @ 15.5%)
130-169 bushels per acre
169-207 bushels per acre
207-245 bushels per acre

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Soil Type: Tetotum loam, Newflat silt loam, and Augusta fine sandy loam
Corn Hybrid: Hubner 5709 VT3P
Tillage: No-till
Previous Crop: Soybeans
Planting Date: April 16, 2013
Fertilizer: Broadcast: 16-76-61 per acre
Starter: 50-0-0-6 per acre plus boron
In-furrow: 2 gallons per acre 11-37-0 plus zine
Sidedress: See below
Crop Protection: Burndown Herbicide: Gramoxone and 2,4-D
Pre-emergence: Lumax, Atrazine, and Princep
In-furrow Insecticide: Capture LFR
Harvest Date: September 24, 2013

Treatment	N Sidedress Rate (lbs./acre)	Rep.	% Moisture	Yield (bu./A @15.5%)	NUE (lbs. N/ bu.)
Fixed Rate	104	1	17.2	185	.832
Variable Rate	92	1	17.3	174	.816
Greenseeker	104	1	17.7	185	.832
Greenseeker	104	2	17.7	192	.802
Fixed Rate	104	2	17.3	190	.811
Variable Rate	92	2	17.3	186	.763
Fixed Rate	100	3	17.3	196	.765
Variable Rate	88	3	17.4	196	.704
Greenseeker	105	3	17.6	198	.783
Greenseeker	105	4	17.6	193	.803
Fixed Rate	99	4	17.5	187	.797
Variable Rate	90	4	17.4	187	.749
Ave. Fixed Rate	102		17.3	190	.801
Ave. Variable Rate	90		17.4	186	.758
Ave. Greenseeker	105		17.6	192	.805
LSD (0.10)	2.41		.13	3.84	0.19

*Greenseeker replications 1 and 2 were installed in the same pass with the applicator; Greenseeker replications 3 and 4 were installed in the same pass of the applicator.
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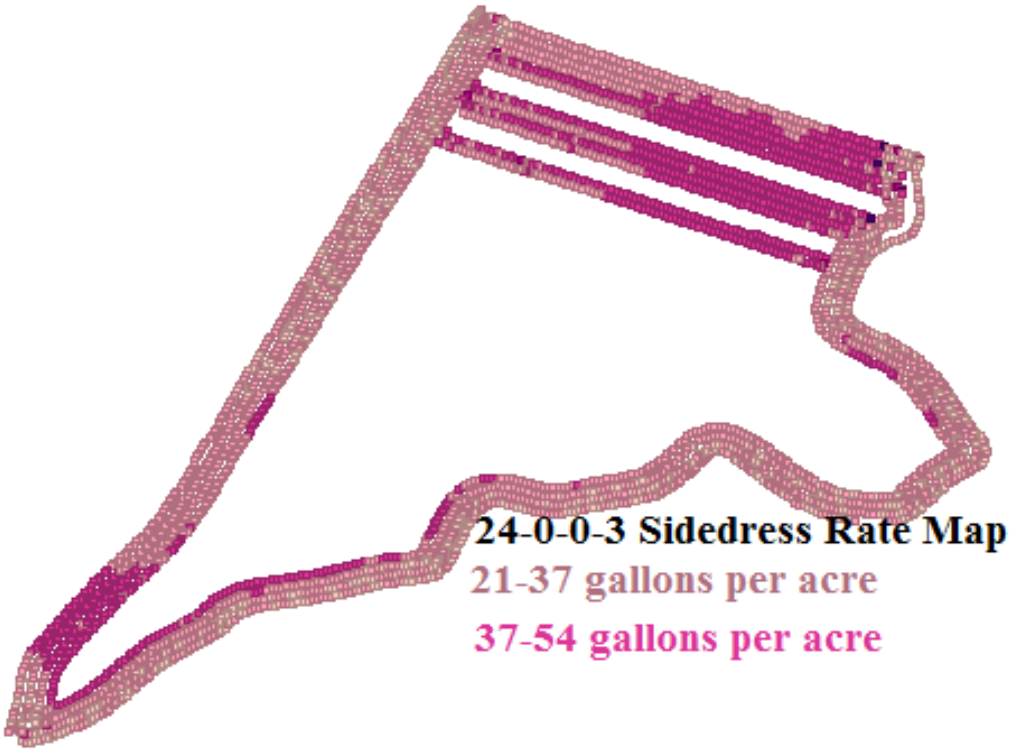
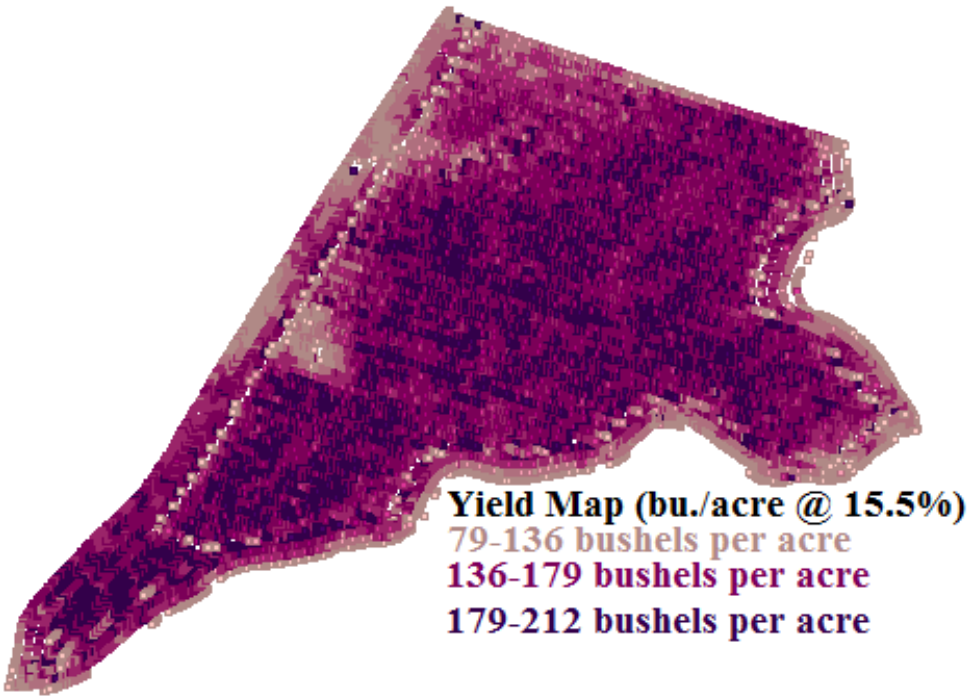
Discussion: This work is being done as part of a Virginia NRCS CIG project. The plot evaluated a fixed sidedressing nitrogen rate on corn to variable rates based on historic yield maps (zone-based) and Greenseeker (sensor-based.) All treatments received approximately 64 lbs. of nitrogen per acre prior to sidedressing. Both the fixed rate and zone-based variable rates were injected on May 20th and the Greenseeker treatments were dribbled on June 4th. The GreenSeeker-prescribed rate was slightly (but significantly) higher than the fixed rate and both were higher than the Variable Rate. Yields using the GreenSeeker were higher than those employing the Variable Rate treatment, but not different from the Fixed rate. Similarly, the Variable Rate treatment had the most efficient NUE.

Random tissue samples were taken from all 3 treatments twice. The results are as follows:

Treatment	Growth Stage	% Nitrogen in Tissue	Growth Stage	% Nitrogen in Tissue
Fixed Rate	V-9	2.94	R-2	3.39
Variable Rate	V-9	2.95	R-2	3.12
Greenseeker	V-9	3.01	R-2	3.47


24-0-0-3 Sidedress Rate Map
21-37 gallons per acre
37-54 gallons per acre


Yield Map (bu./acre @ 15.5%)
79-136 bushels per acre
136-179 bushels per acre
179-212 bushels per acre

2013 Variable Rate Nitrogen Corn Plot

Cooperators: **Producer:** Cloverfield Enterprises
Extension: Keith Balderson, VCE—Essex County and Robbie Longest, VCE Summer Intern
SWCD: Colonial and Three Rivers SWCD

Soil Type: Chickahominy silt loam drained
Corn Hybrid: Hubner 4600 RC2P
Tillage: No-till
Previous Crop: Soybeans
Planting Date: April 17, 2013
Fertilizer: Broadcast: 0-0-61 per acre
Starter: 50-0-0-6 plus boron per acre
In-furrow: 2 gallons 11-37-0 plus zinc per acre
Sidedress: See Below
Crop Protection: Burndown Herbicide: Gramoxone and 2,4-D
Pre-emergence: Lumax, Atrazine, and Princep
In-furrow Insecticide: Capture LFR
Harvest Date: September 18, 2013

Treatment	N Sidedress Rate (lbs./acre)	Rep.	% Moisture	Yield (bu./A @15.5%)	NUE, lbs. N/ bu.
Fixed Rate	98	1	15.8	148	.932
Variable Rate	104	1	15.7	147	1.048
Greenseeker	103	1	15.7	151	1.013
Greenseeker	103	2	15.6	149	1.027
Fixed Rate	95	2	15.5	150	.967
Variable Rate	108	2	15.7	155	1.019
Fixed Rate	99	3	15.8	146	1.021
Variable Rate	116	3	15.9	154	1.078
Greenseeker	103	3	15.7	151	1.013
Greenseeker	103	4	16.3	149	1.027
Fixed Rate	98	4	16.1	159	.912
Variable Rate	113	4	16.2	154	1.058
Ave. Fixed Rate	98		15.8	150.75	.972
Ave. Variable Rate	110		15.9	152.5	1.050
Ave. Greenseeker	103		15.8	150.75	1.020
LSD (0.10)	5.4		ns	ns	0.040

*Greenseeker replications 1 and 2 were installed in the same pass with the applicator; Greenseeker replications 3 and 4 were installed in the same pass of the applicator.
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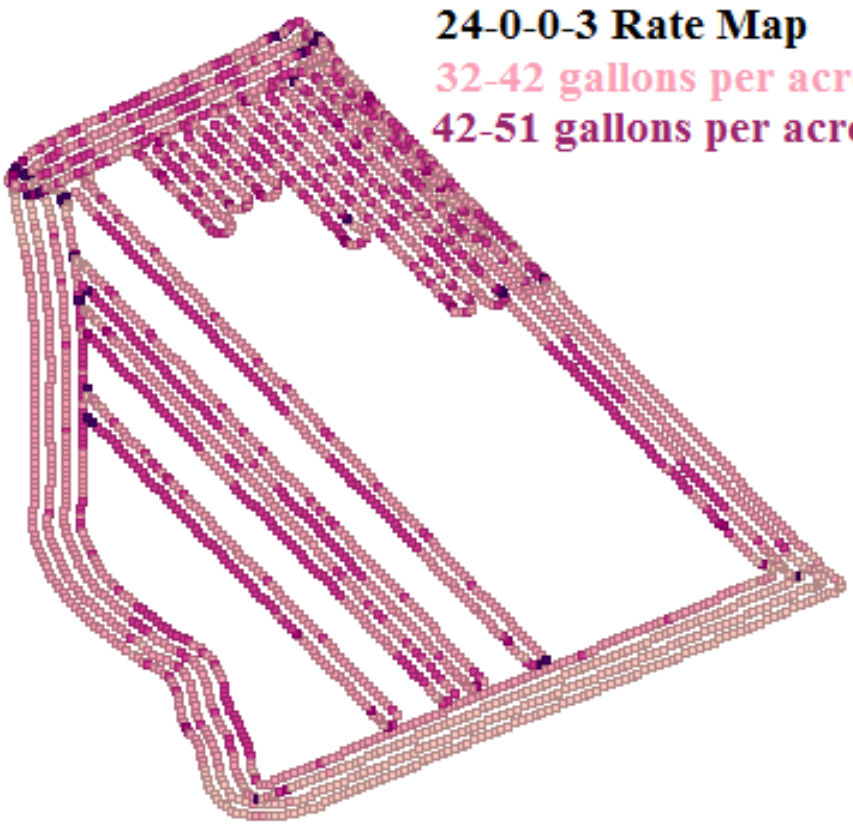
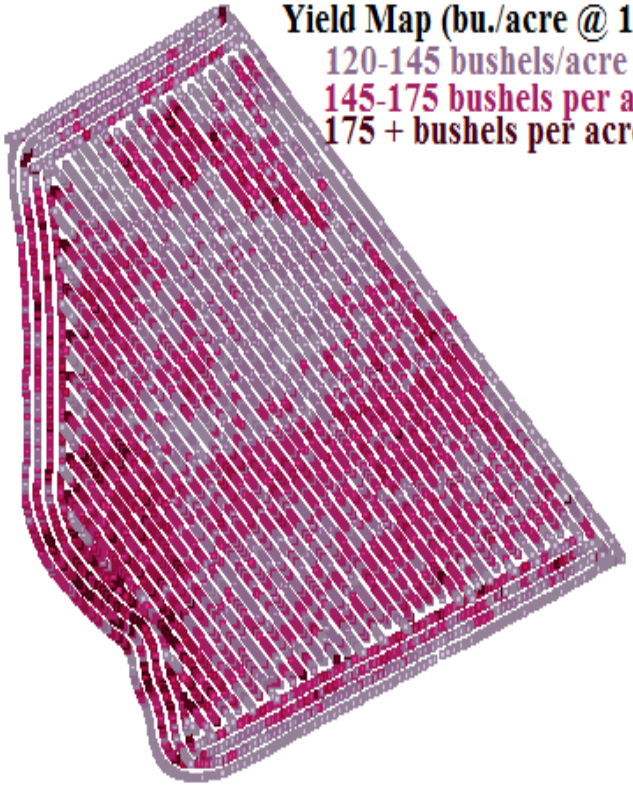
Treatment	**Growth Stage**	**% Nitrogen in Tissue**	**Growth Stage**	**% Nitrogen in Tissue**
Fixed Rate	V-9	3.34	R-2	3.1
Variable Rate	V-9	3.29	R-2	3.27
Greenseeker	V-9	3.33	R-2	2.86


24-0-0-3 Rate Map
32-42 gallons per acre
42-51 gallons per acre


Yield Map (bu./acre @ 15.5%
120-145 bushels/acre
145-175 bushels per acre
175 + bushels per acre

Tissue Sample Results

Over the past three years, 90 tissue samples have been submitted for nutrient analysis. The table below summarizes the results.

Total Samples 2011-2013													
	N	S	P	K	Mg	Ca	Na	B	Zn	Mn	Fe	Cu	Al
Very High	6	0	2	0	0	2	0	0	0	3	3	1	2
High	45	2	29	30	4	28	1	10	8	14	25	34	1
Sufficient	21	74	44	43	40	50	67	55	57	66	62	55	71
Low	2	4	5	2	7	6	22	8	7	3	0	0	8
Deficient	16	10	10	15	39	4	0	17	18	4	0	0	8
Total Number of Samples	90	90	90	90	90	90	90	90	90	90	90	90	90