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2015
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

2015 Virginia On-Farm Corn Test Plots

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The research and demonstration plots discussed in this publication are a cooperative effort by eight Virginia Cooperative Extension employees, a faculty member at Virginia State University, numerous producers, 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-fourth year of this multi-county cooperative project. Further work is planned for 2016.

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.

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. 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 early maturity hybrids (107 day RM or less) at 2 locations, medium maturity hybrids (108-112 day RM) at 6 locations and full season hybrids (113 day RM or more) at 2 locations. The Ag-Expo in Orange County had hybrids in all three maturity groups, and as a group the early, medium, and full season hybrids yielded 187, 208, and 213 bushels per acre, respectively. The Essex location had early and medium hybrids and the early hybrids averaged 228 bushels per acre and the medium hybrids averaged 234 bushels per acre. At the Virginia State University site, the medium hybrids averaged 199 bushels per acre, and the full hybrids averaged 213 bushels per acre. Farmers should continue to plant hybrids of multiple maturities to help spread production risk. In fields with very good soil types and/or irrigation, farmers should consider medium or full season hybrids.

There is much emphasis placed on the importance of stand uniformity and emergence in producing high yielding corn. Stand uniformity refers to spacing while uniformity of emergence refers to how even emergence is in the field. During the 2015 corn season, we flagged off 2 forty foot sections of row in 2 corn fields that were planted on April 11th. Emergence was checked and flagged for 3 straight days at the same time each day for three days as soon as corn began spiking the ground. Ears were pulled and weighed at maturity. Below are the results of one of the observations. This demonstration suggests that uniform emergence is critical in obtaining high corn yields

Day of Emergence	Number of Plants Emerged	Average Wt. of Ears at Maturity (Oz.)
Day 1	59	10.79
Day 2	6	7.65
Day 3	3	8.20
After Day 3	2	3.05

Hopper box micronutrient plot results are reported on pages 20 and 21. We also put in 4 “pop-up” fertilizer plots. Results were inconclusive and are reported on pages 22-25.

Other fertilizer plot work this year included evaluation of a hairy vetch cover crop to supply nitrogen to corn. In the hairy vetch cover crop work, it was estimated that the hairy vetch cover crop supplied about 45 pounds of nitrogen per acre, and the addition of 35 pounds of nitrogen applied at side-dress increased yields almost 16 bushels per acre compared to the plots that received 120 pounds per acre of nitrogen (100 pounds per acre broadcast pre-plant and 20 pounds per acre side-dressed) plus the cover crop.

A summary of the results of 173 tissue samples is provided. These samples were taken as part of fertility plots and troubleshooting production problems over the past four years.

EARLY MATURITY CORN COMPARISON

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

Previous Crop: Soybeans
Soil Type: Suffolk and Emporia Sandy Loam
Plant Date: April 22, 2015
Population: 27,500
Crop Protection: Burndown: Glyphosate, Atrazine, Simazine
Post: Halex GT
Fertilization: 50-0-0 with burndown
20-46-90-12s pre-plant
90-0-0 side-dress
Harvest Date: September 21, 2015
Harvest Equipment: AGCO R52

Hybrid	Rep	Moisture	TW	Yield at 15.5%
Pioneer P0339	1	16.0	58	197.1
Pioneer P0365	1	16.2	59	174.1
Pioneer P0339	2	16.2	58	182.8
Pioneer P0365	2	16.3	59	175.0
Pioneer P0339	3	16.3	58	189.2
Pioneer P0365	3	16.3	58	156.5
Average P0339		16.2	58	189.7
Average P0365		16.3	58.7	168.5

Discussion: When you want to know something, put in a plot. This is a nice little plot to compare two Pioneer early hybrids. Use this and other replicated Virginia Tech corn hybrid plot results when making planting decisions for 2016.

2015 VCE On-Farm Corn Hybrid Entries

Company	Early Hybrid Entry	Early Hybrid Traits	Early Hybrid Seed Trt.
Augusta	2956	GT3111	C250
Axis	56Z50	SmartStax	Acceleron500/Votivo
Channel	206-55STXRIB	SmartStax	PV500
Dekalb	DKC57-75RIB	GENSSRIB	A500Votivo
Doebler's	587AM	AM/LL/RR2	Poncho/Votivo 1250
Dyna-Gro	D46SS46	SS	Accelron 500
Hubner	H5368RC3P	VT3P RIB	Poncho 500/ Votivo
Pioneer	P0339AM	AcreMax	Lumivia
Supreme EX	SCS1085AM	RR/CB	Votivo 500

Company	Mid Hybrid Entry	Mid Hybrid Traits	Mid Hybrid Seed Trt.
Augusta	5262	GT3000	C250
Axis	57H25	VT2PRO	Acceleron500/Votivo
Channel	211-33VT2PRIB	VT2P	PV500
Dekalb	DKC62-08RIB	GENSSRIB	A500Votivo
Doebler's	5015YHR	YGCB/HX1/LL/RR2	Poncho/Votivo 1250
Dyna-Gro	D52VC91	VT2 PRO	Acceleron 500
Hubner	H12G703	VT2PDG RIB	Poncho 500/ Votivo
Pioneer	P1197AM	AcreMax	P1250/Votivo
Supreme EX	SCS1131AM	RR/CB	C250
Seed Consultants	SC11AQ15	RR/CB/RW/LL	Votivo 500

Company	Full Hybrid Entry	Full Hybrid Traits	Full Hybrid Seed Trt.
Augusta	6664	VT2Pro	P500/Acceleron
Axis	64R50	VT2PRO	Acceleron500/Votivo
Channel	217-08VT3PRIB	VT3P	P250
Dekalb	DKC67-72RIB	GNEVT2PRO	A500Votivo
Doebler's	766AM	AM/LL/RR2	Poncho/Votivo 1250
Dyna-Gro	D57VP51	DG/VT3 PRO	Accelron 500
Hubner	H4663RC2P	VT2P RIB	Poncho 500/ Votivo
Pioneer	P2160	Intrasect	P1250/Votivo
Supreme EX	SCS11HR63	RR/CB	P1250
Seed Consultants	SC11AQ72	RR/CB/RW/LL	C250

KING & QUEEN EARLY MATURITY CORN PLOT

Cooperators: Producer: Robert T. Bland IV
Extension: David Moore, VCE-Middlesex
Industry: Participating Companies

Previous Crop: Soybeans (followed by wheat cover crop)
Soil Type: Kempsville & Suffolk Fine Sandy Loams
Plant Date: May 4, 2015
Check Hybrid: Pioneer P0604AM
Tillage/Population: No-Till/27,500
Fertilization: 50-0-0 at burndown
20-46-90-12s pre-plant
90-0-0 side-dress
Crop Protection: Burndown: Glyphosate + Atrazine + Simazine
Post: Halex GT
Harvest Date: September 24, 2015
Harvest Equipment: AGCO R52

Hybrid	M%	TW	Yield @ 15.5%	% of Check*
Augusta 2956GT3111	16.2	57	212.0	107.6
Check (P0604)	16.2	59	199.3	
Supreme EX SCS 1085AM	15.9	58	184.9	93.9
Check	16.0	59	194.7	
Doebler's RPM587AM	16.4	57	174.7	92.6
Check	16.4	58	182.6	
Channel-Bio 197-33 (97 day)	16.0	58	159.0	86.6
Check	16.1	59	184.7	
Axis 56Z50	16.2	57	192.9	99.3
Check	16.1	60	203.6	
Pioneer P0339AM	16.1	59	197.0	95.9
Check	16.2	59	207.4	
Dekalb DKC 57-75RIB	16.1	58	191.5	91.7
Check	15.9	59	210.2	
Channel-Bio 206-55 STXRIB	15.8	58	196.0	93.0
Check	15.9	60	211.3	
Dyna-Gro 46SS46	16.0	59	190.4	90.4
Check	15.9	59	210.0	
Hubner H5368RC3P	16.1	59	182.3	86.8

*% of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100.

Discussion: Many thanks to all the cooperators that allowed corn plots on their farms in 2015. Corn yielded well throughout the area and State. Use this and other Virginia Tech replicated hybrid plot results when making planting decisions for 2016.

ESSEX EARLY AND MID MATURITY CORN PLOT

Cooperators: Producer: Robert and Tyler Franklin
Extension: Keith Balderson, VCE-Essex
Taylor Sabo, VCE Summer Intern
Industry: Participating Companies

Previous Crop: Soybeans (followed by annual ryegrass cover crop)
Soil Type: Tetotum Loam
Plant Date: April 12, 2015
Check Hybrid: Axis 57H25
Tillage: No-Till
Fertilization: Pop Up: 5 gallons per acre Season Pass 6-18-6
175-60-90-20; nitrogen and sulfur split applied
Crop Protection: Burndown: Roundup and 2,4-D
Pre-emergence: 5.6 oz. per acre Corvus plus atrazine
Harvest Date: September 4, 2015
Harvest Equipment: John Deere 9770

Hybrid	Maturity	M%	Population	Yield @ 15.5%	% of Check*
Augusta 2956GT3111	E	Not reported	operator error		
Check-Axis 57H25		18.1	24,500	205	
Augusta 5262GT3000	M	20.9	28,000	240	112.4
Axis 56Z50SmartStax	E	17.8	28,500	239	111.9
Check		17.8	25,500	222	
Axis 57H25VT2Pro	M	17.4	28,000	227	102.5
Channel 206-55STXRIB	E	17.0	29,500	218	98.4
Check		18.1	26,500	221	
Channel 211-33VT2Pro	M	18.1	29,500	240	110.1
Dekalb DKC57-75GENSS	E	17.7	27,000	224	102.5
Check		17.9	27,000	216	
Dekalb DKC62-08GENSS	M	18.8	29,000	245	114.2
Pioneer 0339AM Acre Max	E	18.0	27,000	231	107.7
Check		18.0	24,500	213	
Pioneer 1197AM Acre Max	M	18.8	27,500	228	104.8
Supreme EX SCS 1085AM RR	E	18.0	27,000	230	107.2
Check		18.1	25,500	222	
Supreme EX SCS 1131AM	M	19.5	27,500	234	105.6
Seed Consultants SC 11AQ15	M	21.0	27,000	228	102.9
Check		18.4	26,500	221	
Hubner 12G703 VT2Pro	M	19.4	26,500	229	103.6

*% of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100.

Discussion: Many thanks to all the cooperators that allowed corn plots on their farms in 2015. Corn yielded well throughout the area and State. Use this and other Virginia Tech replicated hybrid plot results when making planting decisions for 2016.

VIRGINIA AG-EXPO CORN HYBRID DEMONSTRATION PLOT

Cooperators: Producer: Brooke Farms, the Chambers Family
Extension: Steve Hopkins, VCE-Orange County
Industry: Participating Companies

Plant Date: April 30, 2015
Check Hybrid: Dekalb 63-25
Tillage and Population: No-till planted at 33,000
Fertilization: 28 gallons 28-0-01.5 in 4X4
3 gallons Black Label Agroculture
Side-dress: 28 gallons per acre 28% UAN
Crop Protection: Burndown: 1.5 qts. per acre Roundup
Pre-emergence: 1.5 qts. per acre atrazine
5 oz. per acre
Harvest Date: October 6, 2015

Hybrid	M%	Yield @ 15.5%	% of Check*
Check DK 63-25	18.2	154	
Dekalb DKC57-75RIB	17.8	171	101.2
Axis 56Z50	17.9	179	105.9
Dyna-Gro 43VC50	18.3	176	104.1
Check DK 63-25	18.5	184	
Augusta 2956	18.2	206	110.2
Pioneer P0339AM	17.9	194	103.7
Supreme EX SCS1085AM	17.9	226	120.9
Check DK63-25	18.9	190	
Channel 206-55STXRIB	18.1	202	108.6
Hubner H5368RC3P	17.5	109++	58.6
Doebler's 587AM	18.4	204	109.6
Check DK63-25	19.6	181	
Dekalb DKC62-08RIB	18.1	163++	87.6
Axis 57H25	17.9	198	106.5
Dyna-Gro D52VC91	19.2	222	119.4
Check DK63-25	18.9	190	
Augusta 5262	18.2	222	117.2
Pioneer P1197AM	18.2	215	113.5
Seed Consultants SC11AQ15	19.4	217	114.5
Check DK63-25	19	189	
Supreme EX SCS1131AM	18.9	228	121.1
Channel 211-33VT2PRIB	19.1	198	105.9
Hubner H12G703	18.7	200	107.0
Check DK63-25	19.2	185	
Doebler's 5015YHR	18.6	221	118.2
Dekalb DKC67-72RIB	19.1	219	117.1

Axis 64R50	19.6	214	114.4
Check DK63-25	19.2	189	
Dyna-Gro D57VP51	19	223	118.3
Augusta 7068VT2	19.8	203	107.7
Pioneer P2160	20	231	123.6
Check DK63-25	19.5	188	
Seed ConsultantsSCS11AQ72	19.8	215	110.5
Supreme EX SCS11HR63	19.2	215	116.5
Channel 217-08VT3PRIB	19.7	205	111.1
Check DK63-25	19.3	181	
Hubner H4663RC2P	18.7	199	107.9
Doebler's 766AM	19.5	210	113.8

++Green Snap—Down Corn

*% of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100.

Discussion: Many thanks to all the cooperators that allowed corn plots on their farms in 2015. Corn yielded well throughout the area and State. Use this and other Virginia Tech replicated hybrid plot results when making planting decisions for 2016.

GLOUCESTER MID-MATURITY CORN COMPARISON PLOT

Cooperators: Producer: Clem & Keith Horsley, Holly Springs Farm
Extension: David Moore, VCE-Middlesex
Industry: Participating Companies
Previous Crop: Soybeans
Soil Type: Kempsville Fine Sandy Loam
Plant Date: April 24, 2015
Tillage/Row Space: No-Till in 30" rows
Population: 30,000
Fertilization: 180 N, Variable Rated P & K
Crop Protection: Burndown: 1.5 qt. Glyphosate + ½ qt. Aatrex + ½ qt. Simazine
Post-Treat: 4 oz. Corvus
Harvest Date: September 24, 2015
Harvest Equipment: John Deere 9650

Hybrid	M%	TW	Yield @15.5%	% of Check*
Check (Pioneer P1197)	16.4	57	234.7	
Doebler's RPM564HRQ	16.2	58	176.0	73.8
Check	16.2	58	242.1	
Seed Consultants SC11AQ15	18.2	58	236.6	96.8
Augusta 5262	18.3	56	248.9	102.0
Check	16.9	58	246.6	
Doebler's RPM5015YHR	16.8	59	247.8	101.1
Dekalb DKC 62-08	16.8	58	261.5	106.7
Check	16.9	58	243.6	
Channel-Bio 211-33	16.5	59	230.3	92.7
Axis 57H25	16.2	59	235.0	94.6
Check	16.6	59	253.2	
Dyna-Gro 52VC91	16.4	60	220.0	86.1
Hubner H12G703	16.6	59	226.5	88.6
Check	16.8	60	257.7	
Supreme EX SCS 1131AM	17.8	60	267.3	103.2
Check	17.1	59	260.5	
Average Plot			**240.5**	
Average Check			**248.3**	

*% of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100.

Discussion:

Wow! Some great corn plots around eastern Virginia this year. This plot did quite well with average plot yield of 240.5 bushels/A (dryland). Many thanks to the cooperators!

Use this and other Virginia Tech corn hybrid plot results when making planting decisions for 2016.

WESTMORELAND COUNTY MID-MATURITY CORN HYBRID PLOT

Cooperators: Producer: F.F. Chandler, Jr.
Extension: Stephanie Romelczyk, ANR – Westmoreland
Keith Balderson, ANR – Essex
Trent Jones, ANR – Northumberland/Lancaster
Christine O'Keefe, ANR - Richmond
Taylor Sabo, VCE Intern
Agribusiness: Participating Seed Company Representatives

Soil Type: Kempsville loam; Suffolk sandy loam

Tillage: No-till

Previous Crop: Soybeans

Planting Date: April 28, 2015

Fertilizer: Broadcast: 40 lbs. N/A + 40 lbs. K/A
Starter: 30 lbs. N/A + 30 lbs. P/A +B (1/4 lb./A) + Zn (1/2 lb./A)
Side-dress: 80 lbs. N/A + 10 lbs. S/A + Agrotain

Crop Protection: Pre-plant: Lumax 3 pts./A
Princep 1.5 pts./A
Tombstone 1.5 oz./A
Post-emergence: Halex 3.6 pts./A
Atrazine 1 qt./A
At tassel: Quilt Xcel 10.5 oz./A

Harvest Date: September 23, 2015

Hybrid	Maturity	Pop.	% Moisture	Yield (bu./A @15.5%)
Supreme Ex SCS1131AM	M	30000	17.6	236
Augusta 5262	M	28500	16.4	235
Doeblers 5015YHR	M	29500	16.9	235
Dekalb DKC62-08RIB	M	30000	16.9	234
Channel 211-33VT2PRIB	M	29500	17.0	229
Seed Consultants SCS11AQ15	M	30500	16.8	229
Axis 57H25	M	29000	15.9	227
Hubner H12G703	M	30000	16.7	225
Pioneer P1197AM	M	27000	16.5	224
DynaGro D52VC91	M	28000	16.6	215
AVERAGE				**229**

Discussion:
Excellent yields! Use this and other Virginia Tech corn hybrid plot results when making planting decisions for 2016.

KING & QUEEN MID MATURITY CORN PLOT

Cooperators:
Producer: Bruce Taylor
Extension: Keith Balderson, VCE-Essex
Christine O'Keefe, VCE-Richmond County
Taylor Sabo, VCE Summer Intern
Industry: Participating Companies

Previous Crop: Soybeans
Soil Type: Bojac sandy loam
Plant Date: April 22, 2015
Check Hybrid: Dyna-Gro 57VP51
Tillage/Population: No-Till/See Below
Fertilization: Pop Up: 1.5 Gallons per acre Black Label Zn (6-20-0 +Zn)
Broadcast: 60-30-100-5S per acre
Side-dress: 100-0-0-10S .5B per acre
Crop Protection: Burndown: Gramoxone and 2,4-D
Pre-emergence: Atrazine and Princep
Post-emergence: Touchdown + Radiate Plant Growth Reg.
Insecticide: Tombstone applied in burndown
Fungicide and Insecticide: Quilt and Tombstone-Aerial
Harvest Date: September 28, 2015

Hybrid	M%	Population	Yield @ 15.5%	% of Check*
Augusta 5262GT3000	18.0	26,000	201	98.5
Check	17.3	26,000	204	
Axis 57H25VT2Pro	16.5	27,000	181	88.1
Check	17.0	27,000	207	
Channel 211-33VT2PRIB	17.2	26,500	199	95.4
Check	16.8	28,000	210	
Dekalb 62-08GENSSRIB	17.2	27,500	214	101.2
Check	16.7	27,500	213	
Doeblers 5015YHR	17.2	26,500	190	92.5
Check	16.8	27,000	198	
Dyna-Gro 52VC91VT2Pro	16.9	26,500	191	95.7
Check	16.6	26,500	201	
Hubner 12G703VT2PDGRIB	16.9	28,000	190	94.8
Check	16.5	27,000	200	
Pioneer 1197AM	17.2	27,000	208	106.7
Check	16.8	27,500	190	
Supreme EX SCS 1131AM	17.4	27,500	195	99.0
Check	16.5	26,000	204	
Seed Consultants SC 11AQ15	17.9	25,500	191	92.9
Check	17.2	28.500	207	

*% of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100.

Discussion: Many thanks to all the cooperators that allowed corn plots on their farms in 2015. Corn yielded well throughout the area and State. Use this and other Virginia Tech replicated hybrid plot results when making planting decisions for 2016.

2015 VIRGINIA STATE MID AND FULL SEASON CORN HYBRID PLOT

Cooperators: Ruddy Grammar and Mack West, VSU-Randolph Farm
Glenn F. Chappell, II, Virginia State University
Previous Crop: Full Season Soybeans
Soil Type: Tetotum loam
Planting Date: April 29, 2015
Plant Population: 28,700
Fertilizer: Broadcast: 20-60-90 Granular - April 3, 2015, Broadcast: 30-0-0 – May 5, 2015, Side-dress: 145-0-0 - June 2, 2015
Crop Protection: 2qt Bicep II Mag. + 1qt Simazine + 1qt Gramoxone SL 2.0 – May 5, 2015
Harvest Date: October 12, 2015
Harvest Equipment: John Deere 9560 STS

Hybrid	Maturity	Traits	% Moisture	Yield	% of Check*
Dekalb DKC62-08RIB (check)	M	GRNSSRIB	17.5	179.8	-------
Augusta 5262	M	GT3000	18.8	205.3	105.3
Augusta 7068	F	VT2PRO	19.8	209.1	107.2
Axis 57H24	M	VT2PRO	16.9	196.0	100.6
Axis 64R50	F	VT2PRO	18.9	195.7	100.4
Channel 211-33VT2PRIB	M	VT2PRO	17.9	183.6	94.2
Channel 217-08VT3PRIB	F	VT3PRO	16.8	186.1	95.4
Ddkalb DKC67-72RIB	F	GENVT2PRO	17.7	209.5	107.5
Dekalb DKC62-08RIB (check)	M	GENSSRIMB	17.7	210.1	-------
Hubner H12G703	M	VT2PDG RIB	17.2	176.4	78.9
Hubner H4663RC2P	F	VT2P RIB	18.7	211.0	94.4
Pioneer P1197AM	M	ACREMAX	17.4	207.0	92.6
Pioneer P2160	F	INTRASECT	18.6	205.3	91.9
Supreme EX SCS1131AM	M	RR/CB	16.7	200.1	89.5
Supreme EX SCS11HR63	F	RR/CB	17.4	223.1	99.8
Seed Consultants SCS11AQ15	M	RR/CB/RW/LL	18.3	198.0	88.6
Seed Consultants SCS11AQ72	F	RR/CB/RW/LL	18.3	237.5	106.3
Dyna-Gro D52VC91	M	VT2PRO	16.7	215.2	96.3
Dyna-Gro D57VP51	F	DG/VT3PRO	17.2	237.8	106.4
Dekalb DKC62-08RIB (check)	M	GRNSSRIB	16.1	236.8	-------
PLOT AVERAGE:					
Mid Hybrids			17.5	197.7	
Late Hybrids			18.2	212.8	

Discussion: No irrigation was applied.* % of Check is calculated by dividing an individual hybrid's yield by the average of the two closest check hybrids and multiplying by 100.

2015 Virginia Cooperative Extension On-Farm Corn Hybrid Plot Yield Summary (bu./Acre @ 15.5%)

Early Hybrids (107 Day RM or Less)

Hybrid	Ag-Expo-Orange	Essex	K & Q1	Ave.**
Augusta 2956GT3111	206	op. error	212	209
Axis 56Z50 Smart Stax	179	239	193	186
Channel 206-55STXRIB	202	218	196	199
Dekalb DKC 57-75RIB	operator error	224	192	
Dyna-Gro D46SS46			190	
Doeblers 587AM/LL/RR2	204		175	190
Hubner H5368RC3P	109*		182	146
Pioneer 0339AM	194	231	197	196
Supreme EX SCS 1085 RR/CB	226	230	185	206
Dyna-Gro 43VC50	176			
*Green Snap--Down Corn				
**Average excluding Essex				
Average	187	228	191	190

Medium Hybrids (108-112 Day RM)

Hybrid	Ag-Expo-Orange	Essex	K & Q 2	Westmoreland	Gloucester	VSU	Ave.
Augusta 5262GT3000	222	240	201	235	249	205	225
Axis 57H25VT2Pro	198	227	181	227	235	196	211
Channel 211-33VT2PRIB	198	240	199	229	230	184	213
Dekalb DKC62-08RIB	162*	245	214	234	262	209**	221
Doeblers 5015YHR	221		190	235	248		
Dyna-Gro 52VC91VT2Pro	222		191	215	220	215	
Hubner 12G703VT2PDGRIB	200	229	190	225	227	176	208
Pioneer 1197AM	215	228	208	224	248***	207	222
Supreme EX SCS1131AM/RR/CB	228	234	195	236	267	200	227
Seed Consultants SC11AQ15	217	228	191	229	237	198	217
*Green Snap--Down Corn							
**Used as Check--Ave. of 3 plots							
***Used as Check--Ave. of 7 plots							
Average	208	234	196	229	241	199	218

2015 Virginia Cooperative Extension On-Farm Corn Hybrid Plot Yield Summary (bu./Acre @ 15.5%)
Full Hybrids (113 Day RM or more)

Hybrid	Ag Expo-Orange	VSU	Ave.
Augusta 7068VT2Pro	203	209	206
Axis 64R50VT2Pro	214	196	205
Channel 217-08VT3Pro	205	186	196
Dekalb DKC67-72	219	210	215
Doeblers 766AM210	210		
Dyna-Gro 57VP51	223	238	231
Hubner 4663RC2P	199	211	205
Pioneer 2160 Intrasect	231	205	218
Supreme EX SCS11HR63	215	223	219
Seed Consultants SC11AQ72	215	238	227
Average	213	213	214

CORN EMERGENCE EVALUATION

There is much emphasis placed on the importance of stand uniformity and emergence in producing high yielding corn. Stand uniformity refers to spacing while uniformity of emergence refers to how even emergence is in the field. During the 2015 corn season, we flagged off 2 forty foot sections of row in 2 corn fields that were planted on April 11th. Emergence was checked and flagged for 3 straight days at the same time each day for three days as soon as corn began spiking the ground. Ears were pulled and harvest and weighed at one of the locations. Below are the results.

Day of Emergence	Number of Plants Emerged	Average Wt. of Ears at Maturity (Oz.)
Day 1	59	10.79
Day 2	6	7.65
Day 3	3	8.20
After Day 3	2	3.05

In this example, the late emergence resulted in total ear weights that were over 5.5% less compared to the average weight of the ears that emerged on day 1. Uniform emergence is critical for obtaining maximum yields and farmers should pay close attention to planter speed, strive for uniform planting depth, make sure the planting slot is closed, replace worn planter parts, and be sure to plant hybrids with good stress emergence, especially when planting early into cold and wet soils.

Figure 1. Ears from plants that emerged on day 1. Average weight of the ears was 10.79 ounces.

Figure 2. From left to right, ears from plants that emerged on day 2 (six ears), ears from plants that emerged on day 3 (3 ears), and ears from plants that emerged after 3 days (2 ears.) Average weights of the ears were 7.65 ounces 8.2 ounces, and 3.05 ounces, respectively.

CORN SEED HOPPER BOX TREATMENT

Cooperators: Producer: Robert T. Bland, IV
Extension: David Moore, VCE-Middlesex
Taylor Sabo, VCE Summer Intern

Previous Crop: Soybeans
Soil Type: Emporia and Suffolk Sandy Loams
Plant Date: May 5, 2015
Population: 27,000 seeds planted no-till
Hybrid: Pioneer P0912HR
Treatment: 6 ounces/Unit Delta AG vs 3 ounces/Unit Wolf Trax Zinc
Fertilization: 2 Tons Litter + 90-0-0 side-dress
Crop Protection: Burn: Touchdown + Atrazine + Simazine + 2, 4-D
Post: Halex GT
Harvest Date: October 15, 2015
Harvest Equipment: Gleaner R-52

Treatment	Replication	TW	M%	Yield 15.5%
Wolf Trax Zinc	1	57	15.7	234.9
Delta Ag	1	57	16.0	221.7
Wolf Trax Zinc	2	58	15.9	223.6
Delta Ag	2	58	16.2	229.8
Wolf Trax Zinc	3	58	16.0	229.8
Delta Ag	3	58	16.3	227.9
Wolf Trax Zinc	4	58	16.1	238.6
Delta Ag	4	58	16.0	237.7
Wolf Trax Zinc	5	58	16.3	235.7
Delta Ag	5	58	16.6	237.4
Wolf Trax Zinc	6	57	16.6	246.6
Delta Ag	6	58	16.5	242.2
Average Wolf Trax				**234.9**
Average Delta Ag				**232.8**
LSD (0.10)		**ns**	**ns**	**ns**

Discussion: The difference between the two treatments is insignificant and inconsistent. Unfortunately, we did not have an untreated check in the plot so that we could see if either treatment made any improvement in yield. Wolftrax is a hopper box treatment for additional Zinc. Delta Ag provides an assortment of micronutrient and "bio-stimulant" products that use vitamins, amino acids, enzymes and plant extracts for additional root growth and plant health. It also claims to promote early and even stand emergence. Use this and other replicated plot work when making planting decisions for 2016.

WOLF TRAX SEED TREATMENT PLOT

Cooperators:	Producer: Keith Balderson Extension: Keith Balderson, VCE-Essex Taylor Sabo, VCE Summer Inter
Previous Crop:	Double Crop Soybeans
Soil Type:	Kempsville Sandy Loam
Hybrid:	Dekalb DKC 52-61
Plant Date:	April 12, 2015
Population:	25,700
Crop Protection:	Burndown: Gramoxone and 2,4-D Pre: Bicep II plus simazine Post: Halex GT plus atrazine
Fertilization:	Broadcast: 60-60-60 per acre Side-dress: 90-0-0-12 per acre
Harvest Date:	September 7, 2015
Harvest Equipment:	John Deere 7720

Treatment	Rep	% Moisture	Yield at 15.5%
Wolf Trax Seed Trt.**	1	15.7	184.1
Check	1	15.8	182.5
Wolf Trax Seed Trt.	2	15.9	188.5
Check	2	15.6	179.2
Wolft Trax Seed Trt.	3	15.7	186.2
Check	3	15.6	186.8
Wolf Trax Seed Trt.—Ave.		15.8	186.3
Check—Ave.		15.7	182.8
LSD (0.10)		**ns**	**ns**

**Applied as hopper box seed treatment at 8 oz. per 100 pounds of seed

Discussion: A soil sample from this seven acre field in January 2015 analyzed by the Virginia Tech Soil Testing Lab showed a zinc soil test of 0.4 ppm, P at 25 lbs./acre, and soil pH of 6.7. The need for a zinc application is determined by the zinc soil test level, soil pH, and soil phosphate levels. Zinc was considered deficient. The most efficient way to apply zinc is in starter or pop up fertilizer. In this case, starter fertilizer was not an option so Wolf Trax seed treatment was used. The seed treatment tended to increase yields, but the difference was not statistically significant.

KING AND QUEEN CORN POP UP FERTILIZER PLOT

Cooperators:
Producer: Bruce Taylor
Extension: Keith Balderson, VCE-Essex
Christine O'Keefe, VCE-Richmond County
Taylor Sabo, VCE Summer Intern
Industry: Participating Companies

Previous Crop: Soybeans
Soil Type:
Plant Date:
Check Hybrid: Dyna-Gro 57VP51
Tillage/Population: No-Till/See Below
Fertilization: Pop Up: 1.5 gallons per acre 6-20-0 +Zn
Broadcast: 60-30-100-5S per acre
Side-dress: 100-0-0-10S .5B per acre
Crop Protection: Burndown: Gramoxone and 2,4-D
Pre-emergence: Atrazine and Princep
Post-emergence: Touchdown + Radiate Plant Growth Reg.
Insecticide: Tombstone applied in burndown
Fungicide and Insecticide: Quilt and Tombstone-Aerial
Harvest Date: September 28, 205

Treatment	Rep	% Moisture	Yield at 15.5%
Pop Up	1	16.8	200
Check	1	16.7	211
Pop Up	2	17.2	209
Check	2	17.1	207
Average Pop Up		17.0	205
Average Check		16.9	209
LSD (0.10)		**0.1**	**ns**

Discussion: Pop-up fertilizers have become very popular as a means of getting relatively small amounts of nutrients close to the seed in an effort to help emergence and early season growth in corn. This plot evaluated one of the commercially available pop-ups that is available in the area. In this plot the rate was relatively low, and there was no statistical difference in yields between the two treatments.

ESSEX POP UP FERTILIZER CORN PLOT

Cooperators:
Producer: Robert and Tyler Franklin
Extension: Keith Balderson, VCE-Essex
Taylor Sabo, VCE Summer Intern
Industry: Participating Companies

Previous Crop: Soybeans (followed by annual ryegrass cover crop)
Soil Type: Tetotum Loam
Plant Date: April 12, 2015
Check Hybrid: Axis 57H25
Tillage: No-Till
Fertilization: Pop Up: 5 gallons per acre 6-18-6
175-60-90-20; nitrogen and sulfur split applied
Crop Protection: Burndown: Roundup and 2,4-D
Pre-emergence: 5.6 oz. per acre Corvus plus atrazine
Harvest Date: September 4, 2015
Harvest Equipment: John Deere 9770

Treatment	Rep	% Moisture	Yield at 15.5%
Check	1	19.8	245
Pop Up	1	18.4	243
Check	2	19.3	227
Pop Up	2	18.8	220
Average Check		19.6	236
Average Pop Up		18.6	232
LSD (0.10)		**ns**	**ns**

Discussion: Pop-up fertilizers have become very popular as a means of getting relatively small amounts of nutrients close to the seed in an effort to help emergence and early season growth in corn. This plot evaluated one of the commercially available pop-ups that is available in the area. In this plot, there was a visible difference in the 2 treatments early in the season, but there was no statistical difference in yield between the 2 treatments. The pop-up fertilizer treatment was drier, but the difference was not statistically significant.

POP-UP FERTILIZER PLOT

Cooperators:	Producer:	William H. Wright, Barry Powell
	Extension:	David Moore, VCE-Middlesex
		Taylor Sabo, VCE Summer Intern
Previous Crop:	Soybeans	
Plant Date:	May 16, 2015	
Hybrid:	Phoenix 7914A4	
Population:	27,300 seeds	
Tillage:	No-Till Following "Turbo-Till"	
Soil Type:	Slagle Silt Loam/Emporia Loam	
Treatment:	Various with "Pop-Up" and Insecticide	
Fertilization:	Pre-Plant:	3 Tons Chicken Litter
		11-0-100-12s
	Side-dress:	100-0-0
Crop Protection:	Burndown:	Gramoxone + 2,4-D
	4 ounces Brigade in "Pop-Up"	
	Post Emerge: 3 oz. Capreno	
Harvest Date:	September 29, 2015	
Harvest Equipment:	AGCO-Allis Gleaner R50	

Treatment	Rep	TW	M%	Yield @ 15.5%
Pop-Up /No Insecticide	1	54	23.0	168.4
No Pop/No Insecticide	1	54	23.4	184.8
Pop-Up/No Insecticide	2	54	23.5	178.5
No Pop/No Insecticide	2	54	24.0	181.3
Pop-Up + Insecticide	1	54	24.0	211.8
No Pop/No Insecticide	3	54	24.0	211.7
Pop-Up + Insecticide	2	54	24.0	202.4
Avg. Pop-Up/No Ins.	2 reps			173.5
Avg. No Pop/No Ins.	3 reps			192.6
Avg. Pop-Up + Ins.	2 reps			207.1
LSD (0.10)				22.1

Discussion:
There has always been variability in these plots looking at "pop-ups". We seem to never get consistency. Statistically, the Pop-Up/Insecticide treatment yielded higher than the Pop-Up/No Insecticide treatment. The lay out of the plot makes drawing conclusions difficult.

Use this and other Virginia Tech on-farm plot results when making planting decisions for 2016.

POP-UP FERTILIZER PLOT

Cooperators: Producer: William H. Wright, Barry Powell
Extension: David Moore, VCE-Middlesex
Previous Crop: Soybeans
Plant Date: April 29, 2015
Hybrid: Pioneer 0365AM
Population: 26,700 seeds
Tillage: No-Till Following "Turbo-Till"
Soil Type: Suffolk Fine Sandy Loam
Treatment: "Pop-Up Fertilizer (3-9-18 @ 3 gal./A) vs. None)
Fertilization: Pre-Plant: 3 Tons Chicken Litter
11-0-100-12s
Side-dress: 100-0-0
Crop Protection: Burndown: Gramoxone + 2,4-D
4 ounces Brigade in "Pop-Up"
Post Emerge: 3 oz. Capreno
Harvest Date: September 17, 2015
Harvest Equipment: AGCO-Allis Gleaner R50

Treatment	Rep	TW	M%	Yield @ 15.5%
Without	1	55.1	15.5	175.9
With	1	57.4	16.0	179.7
Without	2	58.8	15.2	188.6
With	2	57.3	14.8	185.0
Without	3	58.6	14.8	194.3
With	3	60.1	14.3	210.4
Without	4	59	14.6	213.2
Average Without	3 reps			186.3
Average With	3 reps			191.7
Average Without	4 reps			193.0
LSD (0.10)		**ns**	**ns**	**ns**

Discussion:
The field was getting better as the plot went across the field. We mistakenly harvested the first "With" rep so there were not 4 complete reps. There has always been variability in these plots looking at "pop-ups". We seem to never get consistency. Statistically, there is no difference here because of that variability and inconsistency. Without plots also did not receive the Brigade insecticide.

Use this and other Virginia Tech on-farm plot results when making planting decisions for 2016.

EVALUATION OF SIDEDRESS NITROGEN FOLLOWING A HAIRY VETCH COVER CROP

Cooperators: Producer: Keith Balderson
Extension: Keith Balderson, VCE-Essex
Taylor Sabo, VCE Summer Inter
Previous Crop: Double Crop Soybeans
Soil Type: Suffolk sandy loam
Hybrid: Pioneer 0604
Plant Date: April 29, 2015
Population: 25,700
Crop Protection: Burndown: Gramoxone and 2,4-D
Pre: Lumax plus atrazine and simazine
Insecticide: Tombstone in Broadcast Fertilizer
Fertilization: Broadcast: 100-60-40 per acre
Side-dress: 18-0-0-20 per acre
Harvest Date: September 7, 2015
Harvest Equipment: John Deere 7720

Hybrid	Rep	% Moisture	Yield at 15.5%
Check	1		181.2
Urea	1		185.5
Check	2		160.0
Urea	2		179.4
Check	3		183.0
Urea	3		207.0
Check—Ave.		16.3**	174.7
Urea—Ave.		16.5**	190.6
LSD (0.10)			**ns**

**One composite moisture reading was taken for each treatment and that moisture was used to calculate dry yield

Discussion: In this plot, it was estimated that the hairy vetch cover crop supplied about 45 pounds of nitrogen per acre, and the addition of 35 pounds of nitrogen applied at side-dress increased yields almost 16 bushels per acre compared to the plots that received 120 pounds per acre of nitrogen (100 pounds per acre broadcast pre-plant and 20 pounds per acre side-dressed) plus the cover crop.

Note: F value was 0.116, just beyond the value for statistical significance. All three reps were consistent in terms of ranking of the treatment means. I suspect that adding another treatment would have resulted in finding a significant difference.

Figure 3. Corn emerging in a hairy vetch cover crop 12 days after planting.

Figure 4. Close up of corn emerging in a hairy vetch cover crop.

Plant Tissue Test Results
Total Samples 2011-2015

	N	S	P	K	Mg	Ca	Na	B	Zn	Mn	Fe	Cu	Al
Very High	7	0	2	3	0	9	0	2	0	5	3	3	2
High	63	6	39	47	7	32	12	15	24	17	43	43	1
Sufficient	66	149	109	92	91	119	123	121	110	141	127	127	147
Low	8	7	7	7	13	6	38	18	21	5	0	0	9
Deficient	29	11	16	24	62	7	0	17	18	5	0	0	14
Total	135	135	173	173	173	173	173	173	173	173	173	173	173