

2009

Virginia On-Farm Corn Test Plots



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

2009 Virginia On-Farm Corn Test Plots

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This is the eighteenth year of this multi-county cooperative project. Further work is planned for 2010.

The authors wish to thank the many producers and agribusinesses that participated in these research and demonstration plots. Special thanks are due to Almeda McKenney in the Northumberland extension office for her efforts in putting this book together.

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General Summary

These replicated studies provide information that can be used by Virginia corn growers to make better management decisions on their farms. Refer to individual plots for discussion of results.

This is the fourth year of replicated tests for optimum plant populations. We saw positive results to increasing corn populations in the field. From this and previous years' data, it seems that final stands above 26,000 plants per acre are needed to make consistent 200+ bushel yields where soil type, water and fertility allow for it. Where poor soils (or in the case of 2007, extreme drought) limit yield potential, lower populations around 20,000 – 22,000 plants per acre should be sufficient to optimize yield.

Corn hybrid selection is as tough as it has ever been. 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. This year, droughty soils a couple locations gave us a good look at stress tolerance of specific hybrids, while most locations received timely moisture and gave us an excellent look at top-end performance

Fertilizer prices and BMP's have continued farmers' interest in maximizing fertilizer use efficiency. This was the third year evaluating dribbled vs. injected sidedress nitrogen. Where moisture was adequate for good yields, injecting the sidedress nitrogen led to optimum yields with less fertilizer. Whether this practice is economically feasible depends on the purchase price of the injector, maintenance costs, life of the equipment, and fertilizer prices. This was also the third year looking at Avail[®] phosphorus fertilizer additive in starter fertilizer. So far, results have been mixed.

Many growers have been seeing yield losses in recent years due to nematodes. Options to alleviate this problem are very limited. In a third year of looking for answers, Avicta[®] was evaluated as a possible solution. In two of three studies, the Avicta-treated corn yielded higher on average, but the results were not statistically significant.

Cover crops and their management has been a hot topic the past few years. Many growers have been using cover crops again, due to increased cost-share funding for this practice, as well as a way to build soil health. In the second year of a large study conducted in New Kent County, the use of vetch as a cover crop reduced the need for over 100lbs N fertilizer/acre for the corn.

Slugs again became a serious pest of seedling corn – both in Eastern VA and the Valley. Two studies conducted on the Northern Neck verified the efficacy of Deadline MP's in stopping defoliation and stand loss, and preserving yields – when slug pressure is high. Adoption of this technology by growers remains an issue, as does an accurate economic threshold for use of the pesticide, and further work is planned for 2010.

2009 Virginia On-Farm Corn Hybrid Plots: Yield Summary by Site & Maturity

Early Maturity: 107 days or less RMA

Hybrid	Ag Expo	King & Queen	Isle of Wight	Northumberland	Goochland	AVERAGE
Mid-Atlantic MA 9096VT 3	243	223	108	200	206	196
Syngenta NK 67W GT/CB/LL	256	220	98	191	215	196
Dekalb DKC 52-59	230	223	110	197	216	195
Trisler T-4S61VT 3	247	201	107	194	212	192
Augusta 28-52GT CBLL	218	206	105	187	218	187
Pioneer 35F 40	222	214	97	184	204	184
Doebler's 553GRB	218	195	101	182	197	179
Garst 85R 29	207	191	88	178	200	173
Hubner 5226 VT 3	199	186	96	190	192	173
Mycogen 2W 587	206	202	92	161	188	170
Dyna-Gro 55V 24	190	183	78	174	198	165
SS 538VT 3	219	204	110	176		†
T.A. Seeds TA 555-13V	227	197	99		203	†

Mid Maturity: 108 to 112 days RMA

Hybrid	Chesapeake	VSU*	Ag Expo	Isle of Wight	Northumberland	Mathews	Westmoreland	AVERAGE
Augusta 06-06CBLL	176		267	114	205	136	179	179
Garst 83X 61 3000GT	170	118	269	90	195	134	191	175
Pioneer P1184HR	196	125	255	93	170	149	185	175
Mid-Atlantic MA B150VT 3	182		255	106	192	129	179	174
Syngenta NK 688-CB/LL/RW	158	139	265	99	196	132	193	174
SS 647VT 3	163	146	254	95	187	126	182	168
Dekalb DKC 62-54	157		236	87	205	108	185	163
Mycogen 2P 686	147	116	250	83	166	113	171	155
RPM Brand 62BHRQ	166	121	208	95	174	114	171	155
Hubner 5555 VT 3	181	128	280	80	197	123		†
Dyna-Gro 57V 70		126	232	73	174	145	177	†
T.A. Seeds TA 688-11	186	126	237	108		164	181	†
Trisler T-6A-08VT 3		124	237	99	188	75	178	†

Full Maturity: 113 days or more RMA									
Hybrid	Prince George	VSU	Ag Expo	Dinwiddie	Isle of Wight	Mathews	Goochland 1*	Goochland 2	AVERAGE
Garst 82H82 3000GT	194	116	284	151	118	130		239	176
Pioneer P1615HR	199	110	292	167	111	145	211	199	175
Dyna-Gro 57V21	188	139	241	166	104	161	209	217	174
Hubner 5707 VT 3	199	138	242	160	94	126	199	227	169
Mycogen 2T 789	194	128	256	165	99	141		196	168
Dekalb DKC 65-44	191	125	248	156	107	106	184	211	164
Syngenta NK 73V-3000 GT	168	127	266	154	85	138		188	161
Trisler T-9J38VT 3	194	123	268	148	101	94	200	188	159
SS 783VT 3	171	107	257	156	107	121	177	179	157
Augusta 08-01GT CBLL	177		237	167	97			227	†
Doebler's Hybrid 728HXR	189	121	266	137	91	144	206		†
Mid-Atlantic MA 515B	175			168	78	139		175	†
T.A. Seeds TA 780-01		126	254	149	101	142		188	†
* The VSU mid-maturity plot and Goochland 1 late-maturity plot were not included in overall averages due to missing data.									
† Where yield data was not available for a hybrid across all sites testing, overall averages were not calculated.									

2009 Chesapeake Corn Variety Comparison

Cooperators:
Previous Crop: Soybeans
Soil Type: Dragston Fine Sandy Loam
Planting Date: May 11, 2009
Row Width: 24 inches
Population: Approximately (26,500 seeds/acre)
Fertilizer: Broadcast: 670 lbs./acre 24-12-12
Crop Protection: Atrazine 2 qt./acre + 1 qt. Crop Oil
Corn Maturity: Mid-season (108-112 Relative Maturity)
Check Hybrid: Pioneer 34B94 YGCB
Harvest Date: October 9, 2009

Hybrid	Traits	% Moisture	Test Wt.	Yield	% of Check	Rank
Dynagro 57V70		15.9	55	N/A	N/A	-
Check		15.7	57	137.2		
Pioneer 1184	HR	16.0	57	196.2	123.9%	1
Check		15.7	57	137.2		
Doebblers RPM628	HRQ	15.7	58	165.5	103.8%	7
Check		15.7	58	143.6		
Augusta A06-06	CBLL	15.9	55	175.7	110.9%	5
Check		16.4	58	155.9		
TA Seeds TA 688	CBLL	16.5	55	186.3	117.6%	2
Check		16.2	58	147.1		
Hubner H5555	VT3	16.4	55	181.2	114.4%	4
Check		16.7	58	176.9		
Southern States 647	VT3	16.2	54	162.7	102.7%	8
Check		16.0	57	172.1		
Mid-Atlantic 8150	VP	16.4	55	182.4	115.2%	3
Check		16.2	58	149.7		
Hubner H5462	VT3	15.7	56	127.8	80.2%	12
Check		16.3	59	164.5		
Mycogen 2P686	HXXTRA	16.6	57	147.2	92.9%	11
Check		16.3	58	173.8		
Garst 83X61	3000GT	16.5	55	170.3	107.5%	6
Check		16.6	58	166.4		
Northrup King N68B		16.1	56	157.5	99.4%	9
Check		15.9	58	163.8		
Dekalb DKC 62-54	YGCB	16.5	57	156.9	99.1%	10
Check		16.8	59	169.8		
CHECK AVERAGE:		16.2	58	158.3	100%	

2009 Corn Hybrid Demonstration Plot, Goochland, VA

Cooperators:
Producer: George Alvis & Sons, Goochland, VA
Extension: Eric Bowen, Goochland/Powhatan
Agencies: Keith Burgess, Monacan SWCD
 Betty McCracken, Monacan SWCD
 Christy McFadden, Monacan SWCD
Agribusiness: Participating Seed Companies
Previous Crop: Soybean
Planting Date: May 13, 2009
Fertilizer: 0-0-120 broadcast, 11-52-0 starter, 40-0-0 broadcast, 130-0-0 sidedress,
 Nutrisphere & Avail
Crop Protection: 2.1 qt Bicep + 1 qt Simazine
Harvest Date: October 13, 2009

Hybrid	Maturity	Traits	Population	% Moisture	Yield
Augusta 28-52GTCBLL	E	GT,CB,LL	28,000	15.1	218
Dekalb DKC 52-59	E	VT3	28,000	14.1	216
Doebler's Hybrid 553GRB	E	Agrisure GT/CB/LL	28,000	14.1	197
Dyna-Gro 55V24	E	VT3	28,000	14.0	198
Syngenta Garst 85R29	E	GT/CB/LL	28,000	14.2	200
Hubner 5226 VT3	E	VT3	28,000	14.6	192
Mid-Atlantic MA9096VT3	E	VT3	28,000	15.4	206
Mycogen 2W587	E	VT3	28,000	15.0	188
Syngenta NK67WGT/CB/LL	E	GT/CB/LL	28,000	15.2	215
Pioneer 35F40	E	HX1,LLRR2	28,000	15.2	204
T.A. Seeds TA555-13V	E	YGVT3	28,000	15.4	203
Trisler T-4S61VT3	E	YGVT3	28,000	15.5	212
			Average	14.9	203

2009 Corn Hybrid Demonstration Plot, Powhatan, VA

Cooperators:
Producer: Bill (B. J.) Sifers, Powhatan
Extension: Eric Bowen, Goochland/Powhatan
Agencies: Keith Burgess, Monacan SWCD
 Betty McCracken, Monacan SWCD
 Christy McFadden, Monacan SWCD
Agribusiness: Participating Seed Companies
Previous Crop: Soybean
Planting Date: April 27, 2009
Fertilizer:
Crop Protection:
Harvest Date: October 2, 2009

Hybrid	Maturity	Traits	Population	% Moisture	Yield
Check	L		22,500	16.2	179
Dekalb DKC 65-44	L	VT3	22,500	16.1	184
Dyna-Gro 57V21	L	VT3	22,500	16.7	209
Hubner 5707	L	VT3	22,500	16.1	199
Pioneer P1615HR	L	HX1,LL,RR2	22,500	15.9	211
SS 783	L		22,500	17.0	177
Trisler T-9J38VT3	L	YGVT3	22,500	16.1	200
Doebler's Hybrid 728HXR	L	HX/RR2	22,500	14.8	206
Check	L		22,500	15.6	185
AVERAGE:				16.1	196

Discussion: Yields in this plot were excellent. Use these results and replicated yield data from the Virginia Corn Performance Trials when selecting hybrids for 2010.

Prince George Late Season Corn Hybrid Comparison

Cooperators: **Producer:** Brandon Plantation, Todd Price, Manager
Extension: Scott Reiter, Prince George
SWCD:
Agribusiness: Participating Seed Suppliers
Previous Crop: Wheat – Double Crop Soybeans
Soil Type: Pamunkey loam
Planting Date: April 24, 2009 (26,500 seeds/acre)
Fertilizer: Broadcast: 40-50-80
 Starter: 33-33-0 (18gal 15-15-0 + micros)
 Sidedress: 120-0-0
 Total: 193-83-80
Crop Protection: 30 oz Roundup WeatherMax + 1 pt 2,4-D + 1.6 qt Bicep II Magnum + 1 qt atrazine
 26 oz Roundup WeatherMax
Check Hybrid: Dekalb DKC 63-42
Harvest Date: September 23, 2009 with John Deere 9560 STS

Hybrid	Traits	Test Weight	% Moisture	Yield
Check	VT3	59	15.0	180.0
Hubner H5707	VT3	59	16.1	199.0
Trisler T-9J38	VT3	60	15.5	193.7
Pioneer P1615HR	RR2, LL, CB	61	15.2	199.4
Southern States 783	VT3	59	15.7	171.4*
Doeblers RPM728HXR	RR, CB	60	15.7	188.9
Mycogen 2T789	RR, LL, CB, RW	57	16.6	194.2
Dekalb 65-44	VT3	59	15.0	191.3
Check	VT3	59	14.3	182.5
Dyna-Gro 57V21	VT3	57	14.8	187.6
Garst 82H82	GT, LL, CB, RW	55	16.7	193.8
NK N73V-3000GT	GT, LL, CB, RW	57	15.5	167.9*
Augusta A08-01	GT, LL, CB	56	16.6	177.3
Mid-Atlantic MA5158		58	14.3	175.2
TA Seeds 780-01	CB	Not Harvested		
AVERAGE:		58	15.5	185.9

Discussion: This was a good year for corn at this location despite some dry weather in July. Yields were determined with the combine yield monitor after calibrating two plots with the weigh wagon. The Southern States 783 and NK N73V-3000GT both had noticeable weak stands in the center of the plot. The TA Seeds 780-01 was heavily damaged by Roundup when treating adjoining plots. Use this and other variety test information when selecting hybrids for 2010.

RR = Roundup Ready

LL = Liberty Link (glufosinate tolerant – Ignite 280)

CB = Bt Corn Borer protection

VT3 = Roundup Ready, Bt Root Worm, and Bt Corn Borer

RR2 = Roundup Ready 2

GT = Glyphosate tolerant

RW = Bt Root Worm protection

2009 Ag Expo Irrigated Corn Hybrid Demonstration Plot

Cooperators: **Producer:** J.N. Mills & Sons
Extension: Keith Balderson, Essex
 Rose Bradshaw, Hanover
 David Moore, Middlesex
 Matt Lewis, Northumberland/Lancaster
 Paul Davis, New Kent/Charles City, retired
 Wade Thomason, Extension Grains Specialist
Agribusiness: Participating Seed Companies
Previous Crop: Soybean
Planting Date: April 9, 2009
Fertilizer: Broadcast: 12-30-100
 Starter: 50-30-0 + sulfur, zinc, and boron
 Sidedress: 160 lbs of nitrogen + 20 lbs. of sulfur per acre
Crop Protection: Burndown: 30 oz. per acre Touchdown + 4 oz. per acre metribuzin
 Pre-emergence: 5 pts. Lumax, 1 pt. atrazine, 1 pt. simazine per acre
Harvest Date: September 10, 2009

Hybrid	Maturity	Traits	Population	% Moisture	Yield
Dyna-Gro 55V24	E	VT3	31,000	20.8	190
Dyna-Gro 57V70	M	VT3	31,000	22.5	232
Dyna-Gro 57V21	L	VT3	30,500	26.9	241
Dekalb DKC 52-59	E	VT3	26,000	21.6	230
Dekalb DKC 62-54	M	VT3	25,500	22.6	236
Dekalb DKC 65-44	L	VT3	25,500	24.4	248
Pioneer 35F40	E	HX1,LLRR2	25,000	21.9	222
Pioneer P1184HR	M	HX1,LL,RR2	26,000	24.0	255
Pioneer P1615HR	L	HX1,LL,RR2	27,500	26.1	292
Augusta 28-52GTCBLL	E	GT,CB,LL	26,500	22.5	218
Augusta 06-06CBLL	M	CB,LL	27,000	25.3	267
Augusta 08-01GTCBLL	L	GT,CB,LL	24,500	27.2	237
Trisler T-4S61VT3	E	YGV3	25,500	22.2	247
Trisler T-6A-08VT3	M	YGV3	26,500	24.0	237
Trisler T-9J38VT3	L	YGV3	26,000	24.0	268
T.A. Seeds TA555-13V	E	YGV3	24,500	23.5	227
T.A. Seeds TA688-11	M	CB/LL	24,500	23.3	237
T.A. Seeds TA780-01	L	YGCB	25,500	26.8	254
SS 538VT3	E	VT3	26,500	23.6	219
SS 647VT3	M	VT3	24,000	23.2	254
SS 777VT3	L	VT3	26,500	25.8	257
Syngenta NK67WGT/CB/LL	E	GT/CB/LL	25,500	24.1	256
Syngenta NK68B-CB/LL/RW	M	CB/LL/RW	24,000	24.0	265
Syngenta NK73V-3000 GT	L	GT/CB/LL/RW	24,500	25.0	266
Garst 85R29	E	GT/CB/LL	21,500	22.9	207
Garst 83X61 3000GT	M	GT/CB/LL/RW	25,500	24.4	269
Garst 82H82 3000GT	L	GT/CB/LL/RW	24,000	27.9	284
Mid-Atlantic MA9096VT3	E	VT3	24,500	24.9	243
Mid-Atlantic MA8150VT3	M	VT3	24,000	26.6	255
Mid-Atlantic MA5158	L				Malfunction

Hybrid	Maturity	Traits	Population	% Moisture	Yield
Mycogen 2W587	E	VT3	24,500	22.4	206
Mycogen 2P686	M	HXX/LL/RR	25,000	23.4	250
Mycogen 2T789	L	HXX/LL/RR	23,500	24.4	256
Doebler's 553GRB	E	GT/CB/LL	22,500	21.9	218
RPM Brand 628HRQ	M	HXX/LL/RR	24,500	21.8	208
Doebler's Hybrid 728HXR	L	HX/RR2	26,000	23.6	266
Hubner 5226 VT3	E	VT3	21,500	22.2	199
Hubner 5555 VT3	M	VT3	25,000	24.6	280
Hubner 5707 VT3	L	VT3	24,500	25.4	242
AVERAGE:					
Early Hybrids				22.7	222
Medium Hybrids				23.8	250
Late Hybrids				25.5	259

Discussion: Yields in this plot were excellent. As a group the mid and late maturity hybrids yielded higher than the early hybrids. This is a good example why producers should spread their risk in corn production by planting hybrids with different maturity ranges. Use these results and replicated yield data from the Virginia Corn Performance Trials when selecting hybrids for 2010.

King & Queen Early Corn Hybrid Comparison

Cooperators: **Producer:** William Davis and David Carlton
Extension: David Moore, Middlesex
Agribusiness: Participating Seed Suppliers
Previous Crop: Soybeans
Soil Type: Tetotum and State Fine Sandy Loams
Planting Date: April 24, 2009 (27,000 seeds/acre) (Kinze 3500 30" rows)
Fertilizer: Biosolids
Crop Protection: Atrazine & Simazine at planting
 Glyphosate & Resolve postemergent
Check Hybrid: Pioneer 36V75
Harvest Date: September 3, 2009 (John Deere 9650STS)

Hybrid	Traits/Maturity	% Moisture	Yield	% of Check	Pop. June 3
Check (P36V75)	HX, RR, LL/102	19.7	220		
Augusta A28-52	GT, CB,LL/102	20.3	206	96%	26000
Check		19.3	209		25000
CPS/UAP DG55V24	RR,VT3/102	18.9	183	86%	22500
Check		19.2	218		
Doebler's 553GRB	RR/104	19.1	195	91%	22500
Check		19.1	210		
Hubner H5226VT3	RR,VT3/101	18.9	186	89%	23500
Check		18.9	210		
Mid-Atlantic MA8096VT3	RR, VT3/106	21.0	223	104%	23000
Check		19.1	217		
Monsanto DKC52-59	RR, VT3/102	18.6	223	101%	25000
Check		19.1	223		
Mycogen 2W587	RR, VT3/102	21.4	202	92%	24500
Check		19.1	215		24500
NK N67W	GT, CB, LL/106	20.5	220	101%	24000
Check		19.0	219		
Pioneer 35F40	RR, LL, HX/105	19.4	214	97%	24000
Check		18.7	215		
Pioneer 38A57	RR, LL, HX/98	18.6	172	80%	24000
Check		18.7	215		
Southern States 538VT3	RR, VT3/106	20.0	204	96%	25000
Check		18.7	209		
Garst 85R29	GT, CB, LL/106	20.3	191	92%	25000
Check		19.1	207		
TA Seeds TA555-13V	RR, YG, VT3/105	20.1	197	97%	25500
Check		18.6	201		24500
Trisler T-4S61VT3	RR, YG, VT3/106	19.7	201	99%	24000
AVERAGE: Hybrid			201.2		
AVERAGE: Check			213.4		

Discussion: A fine plot. Use this and other Virginia Tech hybrid information when making planting decisions for 2010.

Corn Hybrid Yield Challenge Plot

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, Essex
 Eric Jochum, Essex, summer intern
Agribusiness: Ginny Barnes, Pioneer Hi-Bred
 Dennis Rawley, Augusta Seed

Previous Crop: Soybeans
Soil Type: Kempsville sandy loam
Planting Date: April 18, 2009
Fertilizer: Broadcast: 55-60-60
 Sidedress: 90-0-0-11
Crop Protection: Burndown: Gramoxone Inteon
 Pre-emergence: Bicep @ 2 qts. per acre
Hybrid: Pioneer 33F88 vs. Augusta 06-06
Harvest Date: September 25, 2009

Hybrid	Population	% Moisture	Yield
Augusta 06-06	23,000	17.0	160
Pioneer 33F88	21,000	17.8	158
Augusta 06-06	23,000	17.0	168
Pioneer 33F88	20,000	17.8	162
Augusta 06-06	20,500	17.0	161
Pioneer 33F88	22,000	17.8	165
AVERAGE:			
Augusta 06-06	22,167	17.0*	163
Pioneer 33F88	21,000	17.8*	162
LSD (0.05)	NS		NS

*One composite moisture sample was taken for each hybrid.

Discussion: Both hybrids were planted at 26,000 plants per acre and emerged well. Slug damage reduced the plant populations. Augusta 06-06 is a 106 day RM hybrid, and Pioneer 33F88 is a 114 day RM hybrid. Yields were very good given the fact that the field received very little rainfall from June 22nd to July 23rd. There was no significant difference in yield, but the Augusta hybrid was drier, which would be expected given the maturity differences in the hybrids. Use these results with other replicated yield data from the Virginia Corn Performance Trials when selecting hybrids for 2010.

Corn Hybrid Challenge Plot

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, Essex
Eric Jochum, Summer Intern
Agribusiness: Ginny Barnes, Pioneer Hi-Bred
Dennis Rawley, Augusta Seed Company

Previous Crop: Soybeans
Soil Type: Suffolk sandy loam
Planting Date: April 17, 2009
Fertilizer: Broadcast: 55-60-60
Sidedress: 90-0-0-11
Crop Protection: Burndown: Gramoxone Inteon
Pre-emergence: 2 qts. Bicep per acre
Hybrid: Pioneer 34F96 vs. Augusta 08-01 GT/CB
Harvest Date: September 21, 2009

Hybrid	Population	% Moisture	Yield
Pioneer 34F96	24,500		184
Augusta 08-01 CBGT	24,000		174
Pioneer 34F96	25,000		168
Augusta 08-01 CBGT	23,500		172
Pioneer 34F96	24,000		175
Augusta 08-01 CBGT	23,500		170
AVERAGE:			
Pioneer 34F96	24,500	18.5*	176
Augusta 08-01 CBGT	23,667	19.5*	172
LSD (0.05)	NS		NS

*One composite moisture sample was taken for each hybrid.

Discussion: This field received almost no rainfall from June 22nd to July 23rd, but both hybrids yielded very well. Spring rains that replenished the soil profile with plant available water and cool July temperatures certainly helped. Pioneer 34F96 is rated as 112 day RM, while Augusta 08-01 is rated as 114 day RM. There was no statistical difference in yield. Pioneer 34F96 was drier. Use these yield results with other replicated data from the Virginia Corn Performance Trials when selecting hybrids for 2010.

2009 Dinwiddie Hybrid Corn Variety Comparison

Cooperators: **Producer:** Billy Bain
Extension: Mike Parrish-Dinwiddie
Agribusiness: Participating Seed Suppliers
Previous Crop: Soybeans
Soil Type: Mattaponi, Sandy Loam
Planting Date: April 24, 2009
Fertilizer: Broadcast: 25-50-150
 Starter: 15 gal. 15-0-0
 Sidedress: 40gal. 24-0-0-3S
Crop Protection: 2qt. Bicep + 1pt Simazine + 1pt 24D, 5 lbs. Counter 20G per acre
Harvest Date: September 15, 2009

Hybrid	Company	% Moisture	Bushels/Acre
T9J38VT3 – Check	Trisler	16.8	163
D57V21	Dyna-Gro	19.1	166
SS 783VT3	Southern States	49.2	156
MA 5158	Mid-Atlantic Seeds	17.6	168
DK C65-44	Dekalb	16.2	156
N 73V-3000GT	Syngenta NK	13.5	154
G 82H82-3000	Syngenta Garst	18.9	151
TA 780-01	T.A. Seeds	17.0	149
T 9J38VT3 - Check	Trisler	17.6	137
P 1615HR	Pioneer	15.5	167
RPM 728 HXR	RPM	16.3	137
M 2T789	Mycogen	18.0	165
A 08-01GT	Augusta	18.1	167
H 570VT 330	Hubner	18.3	160
T 9J38VT3 -Check	Trisler	18.1	143
P 33F94	Pioneer	14.0	165
AVERAGE:		19.0	157

Discussion: During the season the field was sampled for nematodes and high levels of Lesion Nematodes were found. The impact of the nematodes may have attributed to lower yields than expected with the use of irrigation. The plot received 6 inches of water during the growing season from a center pivot irrigation system. Use this data with other variety information when selecting high-yielding varieties in 2010.

Isle of Wight/Surry Corn Hybrid Comparison

Cooperators: **Producer:** Ronald O’Berry, Isle of Wight County
Extension: Glenn Slade, Surry and Scott Reiter, Prince George
Agribusiness: Participating Seed Suppliers
Previous Crop: Soybeans
Soil Type: Emporia fine sandy loam
Planting Date: April 28, 2009 (20,000-22,000 seeds/acre)
Fertilizer: Broadcast: 365# 12-12-24 per acre
 Side dress: 30 gal 30% Nitrogen
Crop Protection: 2 quarts Bicep Magnum/acre
Check Hybrid: Pioneer 34F96
Harvest Date: September 14, 2009

Company	Hybrid	Maturity	Seed treatment	Traits	% Moisture	Yield @ 15.5%
Check	34F96	111		HX1, RR2, LL	20.6	118.6
Hubner	H5226	101		VT3	19.0	95.8
Dyna-Gro	55V24	102	P250	VT3	17.8	77.8
Dekalb	DKC 52-59	102	P250	VT3	16.3	109.9
Augusta Seed	28-52	102	C250	GT,CB,LL	20.5	105.3
Doebler’s	553	104		HX1,RR2	19.1	100.5
Pioneer	35F40	105	P1250	HX1,LL,RR2	19.7	97.3
TA Seeds	555-13	105	P250	YGVT3	19.5	98.6
Mycogen Seed	2W587	105	CE 250	VT3	20.8	91.6
Trisler Seeds Inc.	T-4S61	106	P250	YGVT3	20.2	107.2
Southern States	538	106	P250	VT3	19.9	110.3
Mid-Atlantic Seeds	MA8096	106		VT3	20.2	108.4
Doebler’s	RPM628	107		HX,RR2	20.3	95.1
Trisler Seeds Inc.	T-6A08	108	P250	YGVT3	20.5	98.5
Syngenta Seeds	Garst 85R29	108	CE 250	GT,CB,LL	20.0	88.0
NK Seed	NK N67W	109	CE 250	GT,CB,LL	19.8	98.4
Mycogen Seed	2P686	110	CE 250	HXX,LL,RR	21.8	82.7
Hubner	H5555	111		VT3	22.8	80.3
Pioneer	P1184HR	111	P1250	HX1,LL,RR2	20.7	92.6
Southern States	647	111	P250	VT3	22.3	95.0
Dyna-Gro	57V70	112	P250	VT3	23.9	72.5
Dekalb	DKC 62-54	112	P250	VT3	17.9	86.8
NK Seed	NK N73V	113	CE 250	GT,CB,LL,RW	26.8	84.6
Syngenta Seeds	Garst 83X61	113	CE 250	GT,CB,LL,RW	23.3	90.2
Augusta Seed	A08-01	114	P250	GT,CB,LL	23.9	96.9
Hubner	H5707	114		VT3	22.8	93.8
Mycogen Seed	2T789	114	CE 250	HXX,LL,RR	22.8	98.7
Doebler’s	RPM728	114		GT,CB,LL	23.1	90.8
Dyan-Gro	57V21	115	P250	VT3	25.3	104.2
Dekalb	DKC 65-44	115	P250	VT3	19.3	106.9
Mid-Atlantic Seeds	MA8150	115		VT3	25.6	106.0
Pioneer	P1615HR	116	P1250	HX1,LL,RR2	22.9	111.1
Trisler Seeds Inc.	T-9J38	116	P250	YGVT3	21.8	100.9
Southern States	783	116	P250	VT3	24.2	106.6
Syngenta Seeds	Garst 82H82	118	CE 250	GT,CB,LL,RW	27.8	117.5

NK Seed	NK N68B	110	CE 250	CB,LL,RW	21.1	99.4
Augusta Seed	A06-06	111	P250	CB,LL	23.6	113.6
TA Seeds	TA688-11	111	P250	CB,LL	19.1	108.4
Mid-Atlantic Seeds	MA5158	115			21.5	77.7
TA Seeds	TA780-01	116	P250	YGCB	23.1	101.3
AVERAGE:					21.5	98.0

Discussion: Test plot was on sandy type soil with limited rain during the tasseling and silking stage which reduced yields. Mid-Atlantic MA5158 is a conventional variety that suffered from European corn borer damage. About 50% of the stalks were broke off above the ear and numerous ears were laying on the ground at harvest.

RR = Roundup Ready

RR2 = Roundup Ready 2

GT = Glyphosate tolerant

LL = Liberty Link (glufosinate tolerant – Ignite 280)

CB = Bt Corn Borer protection

RW = Bt Root Worm protection

VT3 = Roundup Ready, Bt Root Worm, and Bt Corn Borer

HXX = Herculex Xtra Bt Corn Borer and Bt Root Worm

HX and HX1 = Bt Corn Borer

P250 = Poncho 250 seed insecticide

P1250 = Poncho 1250 seed insecticide

C250 = Crusier 250 seed insecticide

CE 250 = Cruiser Extreme 250 seed insecticide and fungicide

2009 Northumberland/Lancaster Corn Hybrid Demonstration Plot

Cooperators: **Producer:** Monte Swann – Bearcroft Farm
Extension: Matt Lewis, Northumberland / Lancaster
SWCD: Craig Brann, Brandon Dillistin, & Sam Johnson - NNSWCD
DCR: Dwight Forrester
Previous Crop: Soybean
Planting Date: April 28, 2009
Fertilizer: Broadcast: 40-0-0 w/ pre-emerge; ½ ton lime
 Starter: 18gallons 20-10-0 + micros
 Sidedress: 80-0-0
Crop Protection: Pre-emergence: Lumax, Princep, Warrior
Harvest Date: October 5, 2009

Hybrid	Maturity	Traits	% Moisture	Yield	Rank
Dekalb DKC 61-69	M		15.4	181	14
SS 538VT3	E	VT3	15.8	176	16
SS 647VT3	M	VT3	15.5	187	11*
Dyna-Gro 57V70	M	VT3	15.9	174	17*
Dyna-Gro 55V24	E	VT3	14.7	174	17*
Pioneer P1184HR	M	HX1,LL,RR2	16.1	170	18
Pioneer 35F40	E	HX1,LLRR2	16.0	184	12
Dekalb DKC 62-54	M	VT3	15.7	205	1*
Dekalb DKC 52-59	E	VT3	14.3	197	3*
Hubner 5226 VT3	E	VT3	14.7	190	9
Hubner 5555 VT3	M	VT3	15.6	197	3*
Trisler T-6A-08VT3	M	YGVT3	16.1	188	10
Trisler T-4S61VT3	E	YGVT3	15.3	194	6
Mid-Atlantic MA9096VT3	E	VT3	15.3	200	2
Mid-Atlantic MA8150VT3	M	VT3	17.2	192	7
Syngenta Garst 83X61 3000GT	M	GT/CB/LL/RW	15.8	195	5
Syngenta Garst 85R29	E	GT/CB/LL	14.6	178	15
Syngenta NK68B-CB/LL/RW	M	CB/LL/RW	15.6	196	4
Syngenta NK67WGT/CB/LL	E	GT/CB/LL	15.1	191	8
Augusta 28-52GTCBLL	E	GT,CB,LL	15.0	187	11*
Augusta 06-06CBLL	M	CB,LL	15.6	205	1*
Mycogen 2W587	E	VT3	15.1	161	20
Mycogen 2P686	M	HXX/LL/RR	15.9	166	19
Doebler's Hybrid 553GRB	E	Agrisure GT/CB/LL	14.7	182	13
RPM Brand 628HRQ	M	HXX/LL/RR	16.6	174	17*
Dyna-Gro 57V70	M	VT3	15.8	174	17*
Early Maturity Hybrids (<107)	E		15.1	185	
Mid Maturity Hybrids (108-112)	M		15.9	186	
Overall Plot Average	E & M		15.5	185	

Discussion: Yields in this plot were excellent. In the “Rank” column, an asterisk (*) indicates a tie between two hybrids. Use this and other university plot data when making decisions for 2010.

Hubner H5555	111RM/VT3	26,500	16.2	122.5	121.3
Hubner H5707	114RM/VT3	25,000	16.3	126.3	125.1
Check		23,500	16.3	105.9	126.1
Chemgro 7684RVT	115RM/RR, VT3	25,000	15.9	113.2	123.2
Check Average:			16.3	126.1	
Hybrid Average:			16.2	129.5	

Discussion: This plot was planted a little late due to wet planting conditions for this part of the middle peninsula. Once the plot grew off, it then received about 12 inches of rain before it was 2 feet tall. The plot suffered from lack of nitrogen and sulfur early due to the same wet conditions. So all in all, not a bad yielding plot for the stress it was under. There was some deer damage that caused corn to lodge in some places. Soil differences and soil drainage characteristics also impacted yields. Look for hybrid comparisons across locations later in this publication. Use this and other Virginia Tech corn hybrid information when making planting decisions for 2010.

2009 Corn Hybrid Challenge Plot

Cooperators: **Producer:** Todd Henley
Previous Crop: **Extension:** Keith Balderson, Essex
Soybeans
Soil Type: Bojac loamy sand
Planting Date: April 1, 2009 (26,000)
Fertilizer: Broadcast: 60 lbs. per acre potash
Starter: 200 lbs. per acre 20-10-0 plus sulfur, zinc, and boron
Sidedress: 110 lbs. of nitrogen and 14 lbs. of sulfur per acre
Crop Protection: Pre-emergence: 5.5 pts. per acre Lumax and 1 pt. per acre atrazine
Harvest Date: August 25, 2009

Hybrid	% Moisture	Yield
Dekalb 52-59		219
Pioneer 36V75		194
Dekalb 52-59		195
Pioneer 36V75		184
Dekalb 52-59		176
Pioneer 36V75		174
AVERAGE:		
Dekalb 52-59	18.1*	197
Pioneer 36V75	18.5*	184
LSD (0.100)		NS

*One composite sample was taken for moisture for each hybrid.

Discussion: Mr. Henley set this plot up to compare two popular 102 day corn hybrids. Yields were very good on this Bojac sandy soil and somewhat variable probably due to soil type differences. Excellent rainfall and cooler than normal temperatures during pollination and grain fill combined to make excellent growing conditions. Dekalb 52-59 tended to yield better, but the difference was not statistically significant due to the variability in yields. Use these results with other replicated yield data from the Virginia Corn Performance Trials when selecting hybrids for 2010.

Westmoreland Mid-Maturity Corn Demonstration Plot

Cooperators:
Producer: F.F. Chandler, Jr.
Extension: Keith Balderson, Essex
 Sam Johnson, Westmoreland, retired
SWCD: Sam Johnson, NNSWCD
Agribusiness: participating seed companies
Previous Crop: Soybeans
Soil Type: Kempsville and Suffolk fine sandy loam
Planting Date: April 24, 2009
Fertilizer: Broadcast: 50-60-60 per acre
 Sidedress: 100-0-0-12 per acre
Crop Protection: Burndown: Gramoxone Inteon
 Pre-emergence: 5.5 pts. Lumax + 1pt. atrazine per acre
Harvest Date: October 5, 2009

Hybrid	Traits	Population	% Moisture	Yield
Dyna-Gro 57V70	VT3	28,500	16.9	177.3
Dekalb DKC62-54	VT3	26,500	16.0	184.5
Pioneer P1184HR	HX1,LL,RR2	27,000	16.3	184.5
Augusta Seed 06-06CBLL	CB,LL	26,000	16.8	178.5
Trisler Seeds T-6A-08VT3	VT3	25,500	16.2	178.4
T.A. Seeds TA688-11	CB,LL	28,500	16.0	180.5
SS 647VT3	VT3	26,000	16.2	181.6
Syngenta NK68B-CB/LL/RW	CB,LL	27,000	17.4	192.9
Syngenta Garst 83X61 3000 GT	GT,CB,LL,RW	25,500	16.5	191.4
Mid-Atlantic MA8150VT3	VT3	27,000	17.2	179.2
Mycogen Seed 2P686	VT3	26,500	16.2	171.1
RPM Brand 628HRQ	HXX,LL,RR	27,000	16.1	171.4

Discussion: Yields in this plot were excellent. The field received no rainfall from late June through mid July. Once again, we see the benefits of late spring rains replenishing the soil profile with plant available water and cool temperatures in July. Use this information with replicated yield data from the Virginia Corn Performance Trials when selecting hybrids for 2010.

2009 Ear Count vs. Yield Study

Cooperators: **Producer:** George Alvis & Sons, Goochland, VA
Previous Crop: **Agribusiness:** Keith Burgess, Burgess Ag Services
Planting Date: Soybean
Fertilizer: May 14, 2009
 0-0-120 broadcast, 11-52-0 starter, 40-0-0 broadcast, 130-0-0 sidedress,
 Nutrisphere & Avail
Crop Protection: 2.1 qt Bicep + 1 qt Simazine
Harvest Date: October 11, 2009

Row #	No. Plants (20 row feet)	Population	Average Plant Spacing	No. Ears	Average Ear Spacing	Avg ear wt	grams/inch	Total ear wt	% Yield
1	29	24669	8.4	25	8.6	256.6	31.75	6416	77%
2	30	26324	7.9	30	8.0	234.0	29.90	7021	84%
3	31	26998	7.7	30	7.6	252.9	33.73	7587	91%
4	32	28018	7.5	32	7.5	261.6	35.09	8370	100%
5	28	24509	8.6	27	8.7	293.1	35.54	7914	95%
6	29	24773	8.4	26	8.4	274.2	33.82	7128	85%
	29.8	25882	8.1	28.3	8.1	262.1	33.31	7406	

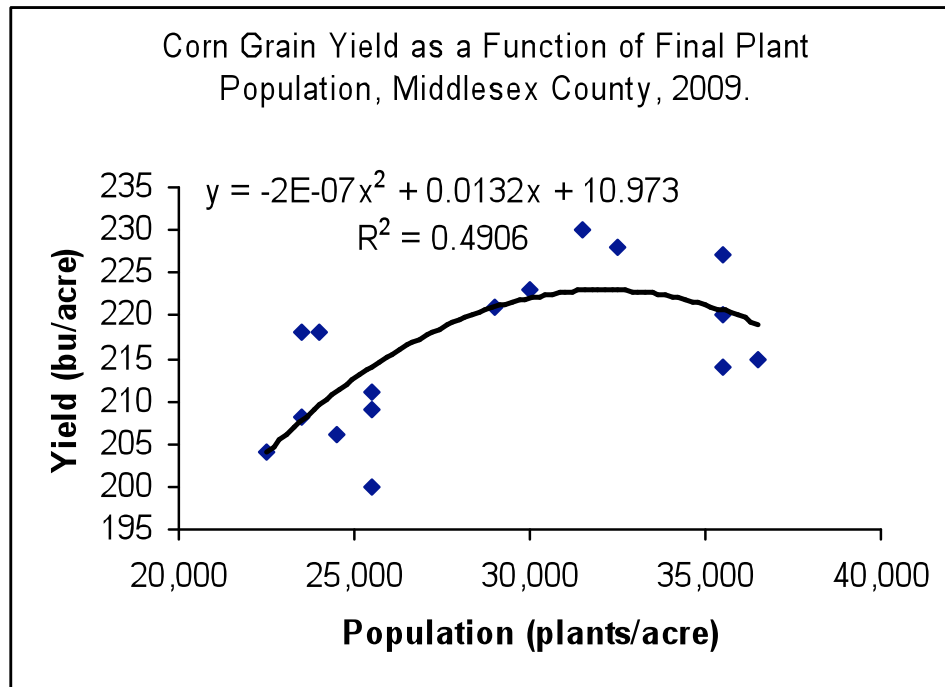
Discussion: The objective of this plot was to evaluate yield data based on actual stand and ear counts. Yield was maximized at the highest final population and ear count. The findings revealed that ear count is a major factor in determining final yield. 20 row feet were harvested of 6 neighboring rows from the middle of the field.



Middlesex County Corn Population Study

Cooperators: **Producer:** Piedmont Farms-Roger Calhoun, "Peachie" Brown
Extension: David Moore, Keith Balderson, VCE-Middle Peninsula
Agribusiness: Pioneer, A DuPont Company
Previous Crop: Soybeans
Soil Type: Emporia and Kempsville Sandy Loams
Planting Date: May 1 2009
Fertilizer: Starter: 45-45-0 with micros
 Sidedress: 125-0-0
Crop Protection: Gramoxone Inteon, 2, 4-D + Cinch ATZ
 Post: Halex GT
Check Hybrid: Pioneer 34F96 and 34F88
Harvest Date: October 9, 2009

Hybrid	Population	Pop. June 11	% Moisture	Yield
Pioneer 34F96	29,000	25,500	15.6	200.0
Pioneer 34F88	29,000	24,500	15.9	206.0
Pioneer 34F88	29,000	25,500	15.8	209.0
Pioneer 34F96	29,000	24,000	15.7	218.0
Pioneer 34F96	33,000	30,000	15.6	223.0
Pioneer 34F88	33,000	29,000	15.9	221.0
Pioneer 34F88	33,000	32,500	15.8	228.0
Pioneer 34F96	33,000	31,500	15.5	230.0
Pioneer 34F96	25,000	25,500	15.6	211.0
Pioneer 34F88	25,000	22,500	15.8	204.0
Pioneer 34F88	25,000	23,500	15.9	208.0
Pioneer 34F96	25,000	23,500	15.7	218.0
Pioneer 34F96	37,000	35,500	15.9	227.0
Pioneer 34F88	37,000	35,500	16.0	220.0
Pioneer 34F88	37,000	35,500	15.9	214.0
Pioneer 34F96	37,000	36,500	15.8	215.0
<hr/>				
Avg. Pioneer 34F96	29,000			209.0
Avg. Pioneer 34F88	29,000			207.5
<hr/>				
Avg. Pioneer 34F96	33,000			226.5
Avg. Pioneer 34F88	33,000			224.5
<hr/>				
Avg. Pioneer 34F96	25,000			214.0
Avg. Pioneer 34F88	25,000			206.0
<hr/>				
Avg. Pioneer 34F96	37,000			221.0
Avg. Pioneer 34F88	37,000			217.0



Discussion: What a year for corn yields here in the middle peninsula! In this plot, it seems that yields “peaked” at about 33,000 and fell off when population went up to 37,000. This may have been different on heavier or irrigated soil. Use this and other Virginia Tech corn research information for 2010.

Evaluation of Deadline M-P's for Slug Control in Corn

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, Essex
 Eric Jochum, Summer Intern

Previous Crop: Soybean
Soil Type: Kempsville sandy loam
Planting Date: April 18, 2009
Fertilizer: Broadcast: 55-60-60 pre-plant per acre
 Sidedress: 90-0-0-11 per acre
Crop Protection: Burndown: Gramoxone Inteon
 Pre-emergence: 2 qts. per acre Bicep
Hybrid: Augusta 06-06 CBL
Harvest Date: September 25, 2009

Treatment	Population	% Moisture	Yield
Deadline MP's	23,000		174
Check	20,500		156
Deadline MP's	24,000		170
Check	20,000		160
Deadline MP's	25,000		183
Check	18,000		150
AVERAGE:			
Deadline	24,000	17.2*	176
Check	19,500	17.3*	155
LSD (0.10)	3,863		20

*One composite moisture sample was taken from each treatment.

Discussion: Slugs have become a problem in some corn fields in eastern Virginia during the past few years, exacerbated by no-tillage and cool, wet springs. Deadline is a molluscicide that was applied with a broadcast spreader at a rate of approximately 10 pounds per acre on this plot on May 8th. Visual differences in the treated and untreated plots were very evident within a week of treatment. Deadline provided excellent slug control and improved the corn stand by over 4,000 plants per acre (statistically significant) compared to the untreated checks. Yields were improved by over 20 bushels per acre, which was statistically significant. Slugs often attack only certain areas of fields, making spot treatments with Deadline very feasible.



Untreated corn on the left experienced some stand loss and grew off slower due to early season slug damage.

Treated

5/20/2009

Untreated

Swann



1



Swann 2



Dawson



Chilton



2009 Ag-Expo Sidedress Nitrogen Injection Plot

Cooperators: **Producer:** J. N. Mills and Sons Farm
Extension: Paul Davis, New Kent and Charles City Counties
 Keith Balderson, Essex County
 Wade Thomason and Mark Alley, CSES Department, Virginia Tech

Previous Crop: Soybeans
Hybrid: Pioneer 33F88 HXXRLL
Soil Type: Altavista and State
Planting Date: April 9, 2009 (27,000 seeds/acre)
Fertilizer: Broadcast: 12-30-120
 Starter: 50-20-0-4 per acre plus micros
 Sidedress: see plot discussion, applied on May 20th
Crop Protection: Burndown: 24 oz. per acre Touchdown plus Hellfire surfactant
 Pre-emergence: 2 pts. per acre metribuzin
 1 pt. per acre atrazine
 Post-emergence: 3.6 pts. per acre Halex GT and 1 pt. per acre atrazine on May 12th
Harvest Date: August 28, 2009

Treatments:

- 1 **Dribbled nitrogen at 81 pounds per acre**
- 2 **Injected nitrogen at 81 pounds per acre**
- 3 **Injected nitrogen at 69 pounds per acre**
- 4 **Injected nitrogen at 57 pounds per acre**

Treatment	Rep.	Moisture	Yield	Lbs. N/bushel corn yield
1	1	22.8	152	.941
2	1	23.9	151	.947
3	1	23.2	149	.879
4	1	23.4	146	.815
3	2	22.9	148	.885
2	2	23.2	148	.966
4	2	22.9	150	.793
1	2	23.1	148	.966
2	3	22.6	149	.960
4	3	22.9	151	.788
3	3	22.3	155	.845
1	3	22.6	156	.917
3	4	22.0	155	.845
1	4	22.3	159	.899
2	4	21.8	156	.917
4	4	22.7	151	.788
Ave. Treatment 1		22.7	153.75	.930
Ave. Treatment 2		22.9	151.0	.947
Ave. Treatment 3		22.6	151.75	.863
Ave. Treatment 4		23.0	149.5	.796
LSD		NS	3.8	

Discussion: Improving nitrogen use efficiency is important to long-term sustainable corn production in eastern Virginia. Using nitrogen injection rather than “dribbling” at side-dress time is one practice that can help. Injecting nitrogen greatly reduces the possibility of volatility and runoff losses compared to dribbling. Nitrogen use efficiency was very good in all of these treatments as all treatments produced a bushel of corn with less than 1 pound of applied nitrogen. The only statistical significant difference in yield in the plots was between treatment 1 and treatment 4.

2009 Virginia State University – Evaluation of Sidedress N Rate & Application Method (Dribbled vs. Injected)

Cooperators: **Producer:** Ruddy Grammer & Mack West - VSU Randolph Farm
Extension: Paul Davis – New Kent County, Glenn F. Chappell, II – VSU & Harbans Bhardwaj – VSU

Previous Crop: Soybeans
Soil Type: Tetotum loam/Faceville loam
Tillage: Conventional tillage and ripped under the row
Test/Plot Size: 1000ft x 250ft (Treatments = 1000ft x 15ft) A randomized complete block design was utilized with 4 replications

Planting Equipment: John Deere MaxEmerge planter
Planting Date: April 24, 2009
Row Spacing: 30 inches
Variety: Southern States 686VT3
Seeding Rate: 30,000 seed/A
Fertilization: **Broadcast:** 25-50-150
Sidedress: see treatments below

Crop Protection: 2qt Bicep II Mag. + 1qt Simazine + 2pt Gramoxone
Treatment Info: Treatment 1 – 140lb N injected
Treatment 2 – 140lb N dribbled
Treatment 3 – 117lb N injected
Treatment 4 – 98lb N injected
(Treatments were applied with a Redball model 1410 applicator)

Harvest Date: September 18, 2009
Harvest Equipment: John Deere 9660

Treatment	Rep	Moisture (%)	Yield (bu/A)	% Tissue N*
140lb N injected	1	15.0	140.7	2.8
140lb N dribbled	1	15.4	137.1	3.2
117lb N injected	1	13.1	140.8	3.2
98lb N injected	1	14.4	146.7	3.2
140lb N injected	2	15.2	141.1	3.1
140lb N dribbled	2	13.6	140.7	3.2
117lb N injected	2	15.2	143.4	3.3
98lb N injected	2	14.8	139.9	3.2
140lb N injected	3	14.4	143.6	3.3
140lb N dribbled	3	13.0	140.3	3.2
117lb N injected	3	15.2	128.5	3.1
98lb N injected	3	15.2	130.2	3.2
140lb N injected	4	15.0	136.8	3.3
140lb N dribbled	4	14.2	130.6	3.2
117lb N injected	4	15.0	136.4	3.3
98lb N injected	4	15.0	126.0	3.1

Treatment	Rep	Moisture	Yield	% Tissue N*
		(%)	(bu/A)	
Averages				
140lb N injected	-	-	140.6	3.1
140lb N dribbled	-	-	137.2	3.1
117lb N injected	-	-	137.3	3.2
98lb N injected	-	-	135.7	3.2
LSD (0.05)	-	-	8.4	0.2

Discussion: No significant differences were observed in yield or % tissue N levels relative to the treatments.

*Tissue Samples - Twenty tissue samples (leaf opposite and below the dominant ear) were taken per plot at early silking and submitted to A&L Eastern Labs for processing to determine % N levels. Rainfall totals by month were: May - 3.65", June - 5.3", July - 2.45". The plot was irrigated (1") on July 7. Nitrogen applications were applied June 9, 2009. Table data were rounded to the tenths place.

Middlesex Corn Nitrogen Injection Plot

Cooperators:
Producers: Chuck Hunt & Charles Rich
Extension: David Moore, VCE-Middlesex
 Paul Davis, VCE-Retired

Previous Crop: Soybeans
Soil Type: Kempsville Sandy Loam
Planting Date: April 22, 2009 (25,500 seeds/acre)
Injection/Dribble Date: May 26, 2009 (N Source: 24-0-0-3s)
Fertilizer: Broadcast: 18-46-90
 Starter: 40-20-0
 Sidedress: 125-0-0-15s
Crop Protection: Burndown: Glyphosate/2,4-D
 Atrazine and Simazine
 Postemerge: Halex GT
Hybrid: Pioneer 34F96
Harvest Date: September 7, 2009
Harvest Equipment: John Deere 9610

Treatment	Replication	% Moisture	Yield
100# Dribbled	1	24.7	150
85# Injected	1	24.6	152
100# Injected	1	24.5	153
70# Injected	1	24.7	139
85# Injected	2	25.3	142
100# Dribbled	2	24.8	148
70# Injected	2	24.6	138
100# injected	2	24.8	153
70# Injected	3	24.8	147
100# Dribbled	3	24.4	145
85# Injected	3	24.8	151
100# Injected	3	24.7	155
70# Injected	4	24.9	140
85# Injected	4	24.7	147
100# Injected	4	24.8	146
100# Dribbled	4	24.6	151
Averages:			
100# Dribbled		24.6	149
100# Injected		24.7	152
85# Injected		24.9	148
70# Injected		24.8	141
LSD (0.10)		NS	8

Discussion: Injecting sidedress liquid UAN fertilizer can reduce volatilization losses by placing the fertilizer below residue and into mineral soil. This can improve efficiency of corn nitrogen use and may increase crop profitability by avoiding costly N losses. There were no differences in grain moisture among these treatments.

70# N/A injected did yield less than the other treatments. Statistically, yields were not significantly different when 100#N/A was dribbled on the surface or injected, or when N was injected at the 85#N/A rate. If the price of nitrogen was as high as it was earlier this year at .80/#, the savings would be \$12.00 per acre. That savings is reduced to about \$4.50-5.00 per acre with recent prices. Though prices have changed, this practice is still advantageous from an environmental aspect.

In a dryer year, the results may have been different, especially had it been warm and dry at the time of sidedress when volatilization losses would have been substantially reduced by injection of N.

Use this and other Virginia Tech corn production research information when making management decisions for 2010.

**2009 Virginia State University – Evaluation of Sidedress N
Application Method with Agrotain**

Cooperators: **Producer:** Ruddy Grammer & Mack West - VSU Randolph Farm
Extension: Paul Davis – New Kent County, Glenn F. Chappell, II – VSU
Previous Crop: Soybeans
Soil Type: Tetotum loam/Faceville loam
Tillage: Conventional tillage and ripped under the row
Test/Plot Size: 1000ft x 250ft (Treatments = 1000ft x 15ft)
Planting Equipment: John Deere MaxEmerge planter
Planting Date: April 24, 2009
Row Spacing: 30 inches
Variety: Southern States 686VT3
Seeding Rate: 30,000 seed/A
Fertilization: Broadcast: 25-50-150
Sidedress: see treatments below
Crop Protection: 2qt Bicep II Mag. + 1qt Simizine + 2pt Gramoxone
Treatment Info: Treatment 1 – 140lb N injected with Agrotain @ 2.0 qt/ton
Treatment 2 – 140lb N dribbled with Agrotain @ 2.0 qt/ton
(Treatments were applied with a Redball model 1410 applicator)
Harvest Date: September 18, 2009
Harvest Equipment: John Deere 9660

Treatment	Rep	Moisture (%)	Yield (bu/A)	% Tissue N*
140lb N injected	1	15.2	133.1	3.2
140lb N dribbled	1	14.8	135.7	3.2
140lb N injected	2	14.4	126.9	3.2
140lb N dribbled	2	15.4	134.0	3.5
Averages				
140lb N injected	-	-	130.0	3.2
140lb N dribbled	-	-	134.9	3.4

Discussion: *Tissue Samples - Twenty tissue samples (leaf opposite and below the dominant ear) were taken per plot at early silking and submitted to A&L Eastern Labs for processing to determine % N levels. Rainfall totals by month were: May - 3.65”, June – 5.3”, July – 2.45”. The plot was irrigated (1”) on July 7. Nitrogen applications were applied June 9, 2009. Table data were rounded to the tenths place.

Frederick County Corn Nitrogen Injection Plot

Cooperators:
Producers: Joe Snapp
Extension: Bobby Clark, VCE-Shenandoah
 Tim Woodward, Va Tech
Previous Crop: Corn
Soil Type: Timberville and Oaklet Silt Loam
Fertilizer: Litter: 2.5 tons/ac
Injection/Dribble Date: June 15, 2009 (N Source: 32% UAN), PSNT = 9 ppm
Sidedress Rate: 50 lb N/ac
Agrotain Rate: 2.5 qt/ton
Harvest Date: November 18, 2009

Treatment	Replication	% Moisture	Yield, bu/ac
Surface Band	1	14.6	121
Surface Band w/Agrotain	1	14.8	119
Injected	1	14.8	129
Surface Band	2	14.8	105
Surface Band w/Agrotain	2	14.9	116
Injected	2	14.5	120
Surface Band	3	15.1	114
Surface Band w/Agrotain	3	15.2	111
Injected	3	15.3	110
Surface Band	4	15.1	123
Surface Band w/Agrotain	4	15.2	123
Injected	4	15.1	123
Averages:			
Surface Band		14.9	116
Surface Band w/Agrotain		15.0	117
Injected		14.9	120
LSD (0.10)		ns	ns

Discussion: This plot features only a single sidedress rate either applied in a surface band, with or without Agrotain or injected below the residue. Injection of UAN fertilizer into the soil can reduce volatilization and immobilization losses. Agrotain contains a chemical called NBPT that inhibits the enzyme that breaks down urea. This can, in turn reduce ammonia losses from the application. Use this and other Virginia Tech corn production research information when making management decisions for 2010.

Sussex Corn Nitrogen Injection & Agrotain Plot (Dunn Farm)

Cooperators:
Producer: Keith & Mac Dunn
Extension: Kelvin Wells, VCE-Sussex

Previous Crop: Soybeans
Soil Type: Emporia - Slagle
Planting Date: April 12, 2009 (22,000 seeds/acre)
Injection N Source: N Source: 24-0-0-3s
Fertilizer: Swine Manure – 16T/acre
 Starter: none
 Sidedress: see rates below
Crop Protection: Burndown: Valor + Gramoxone
 Postemerge: Roundup
Hybrid: Hubner 5444VT3
Harvest Date: September 16, 2009
Harvest Equipment: JD 9760

Lbs Sidedress N / Acre	Method	Agrotain	% Moisture	Yield
40	Knife	0	17.3	112
40	Dribble	0	17.3	110
50	Knife	0	17.3	110
50	Dribble	0	17.3	112
50	Dribble	2qts	17.3	117
40	Knife	2qts	17.3	118
40	Knife	2qts	17.3	116
50	Knife	2qts	17.3	118
40	Dribble	2qts	17.3	117
0		0	17.3	113

Discussion: Injecting sidedress liquid UAN fertilizer can reduce volatilization losses by placing the fertilizer below residue and into mineral soil. This can improve efficiency of corn nitrogen use and may increase crop profitability by avoiding costly N losses. There were no differences in grain moisture among these treatments.

Partly because the plots were not replicated, there are no clear trends with respect to N rate, application method, or use of Agrotain product on grain yield. Where Agrotain was used, yields were higher on average but there was no statistically significant difference. However the fact that the untreated check yielded well within the range of N treatments suggests N was not a yield-limiting factor in this experiment.

Use this and other Virginia Tech corn production research information when making management decisions for 2010.

AVAIL in Starter Plot

Cooperators: **Producer:** Wayne & Jason Bray, Middlesex County
Extension: David Moore, VCE-Middlesex
Agribusiness: Michael Day, Southern States

Previous Crop: Soybeans
Soil Type: Emporia Loam and Slagle Silt Loam
Planting Date: April 28, 2009
Hybrid: Monsanto DKC 62-99
Fertilizer: Starter: 25-20-0 with *AVAIL*
 Broadcast: 23-30-80-12S w/*AVAIL*
 50-0-0 with pesticides
 Sidedress: 100-0-0 with *Nutrisphere*

Crop Protection: Burndown: 1.5 pt. Gramoxone + 1pt. 2, 4-D
 1.8 qt. Bicep + 1 pt. Atrazine
 Post: 1 qt. Gly-4 + .33 pt. Dicamba

Harvest Date: October 1, 2009

Treatment	Replication	Moisture%	Yield @ 15.5%
Starter with <i>AVAIL</i>	1	17.7	183.3
Without Starter <i>AVAIL</i>	1	17.6	173.3
Starter with <i>AVAIL</i>	2	17.2	169.0
Without Starter <i>AVAIL</i>	2	17.8	171.4
Starter with <i>AVAIL</i>	3	17.4	191.7
Without Starter <i>AVAIL</i>	3	17.4	178.6
Starter with <i>AVAIL</i>	4	17.6	185.7
Without Starter <i>AVAIL</i>	4	17.2	153.3
Starter with <i>AVAIL</i>	5	17.8	171.4
Without Starter <i>AVAIL</i>	5	17.4	184.6
Average with <i>AVAIL</i>			180.2
Average w/out <i>AVAIL</i>			172.2
LSD (0.10)		ns	ns

Discussion: *AVAIL* was developed by Specialty Fertilizer (SFP) group. It promotes efficient use of phosphorous by making soil P more available to the plant. It has been tested in numerous locations across the corn growing region of the US and results have been mixed for the most part. In this test, using *AVAIL* as an additive to starter fertilizer shows positive results in some reps, but not in others. After running stats on the plot, the differences in yields were found to be not significant due to variation. Pre-plant soil samples were not available. If producers are interested in using this product, they should consider doing some side by side comparisons of their own.

AVAIL in Starter Plot

Cooperators: **Producer:** Lewis Lee Norman, King & Queen County
Extension: David Moore, VCE-Middlesex
Agribusiness: Michael Day, Southern States

Previous Crop: Soybeans
Soil Type: Emporia Loam
Planting Date: April 24, 2009
Hybrid: Pioneer 33V16
Fertilizer: Starter: 10 gal. 11-37-0 with *AVAIL*
 Broadcast: 19-23-100 w/ B, Zn, S (*WolfTrax*)
 48-0-0 with pesticides
 Sidedress: 70-0-0 with *Nutrisphere*

Crop Protection: Burndown: Gly-4 at 1 qt./A.
 Atrazine & Simazine at 1.25 qt./A. each
 Post: Halex GT

Harvest Date: October 2, 2009

Treatment	Replication	Moisture%	Yield @ 15.5%
With Starter AVAIL	1	15.6	145.2
Without Starter AVAIL	1	15.7	120.0
With Starter AVAIL	2	15.4	138.6
Without Starter AVAIL	2	15.6	129.4
Average with AVAIL			141.9
Average w/out AVAIL			124.9

Discussion: *AVAIL* was developed by Specialty Fertilizer (SFP) group. It promotes efficient use of phosphorous by making soil P more available to the plant. It has been tested in numerous locations across the corn growing region of the US and results have been mixed for the most part. In this test with only two replications, using it as an additive to starter fertilizer shows some very positive results. Using *AVAIL* in this starter situation may make more sense than applying it to granular fertilizer. Pre-plant soil samples were not available so the real need for P is unknown. If producers are interested in using this product, they should do some side by side comparisons of their own.

Evaluation of Avicta Seed Treatment on Irrigated Corn

Cooperators: **Producer:** Cloverfield Enterprises
Extension: Keith Balderson, Essex
 Eric Jochum, Summer Intern
Agribusiness: Chris Ambrose, Northern Neck Seed Co.
Previous Crop: Soybean
Soil Type: Bojac loamy sand
Planting Date: April 25, 2009
Hybrid: NK N73V-3000GT
Fertilizer: Broadcast: 100 lbs. potash per acre
 Total nitrogen: Starter and Sidedress: 200 lbs. per acre
 High phosphate soil test: none applied
Crop Protection: Burndown: Gramoxone Inteon
 Pre-emergence: 5.5 pts. Lumax + 1 pt. simazine per acre
 Post-emergence: 1 qt. per acre glyphosate
Harvest Date: September 29, 2009

Treatment	Plant Population	Nematode Code	%Moisture	Yield
Treated	27,500	A	17.5	139
Check	26,000	B	17.9	130
Treated	29,000	B	17.7	148
Check	28,500	B	17.7	128
AVERAGE:				
Treated	28,250		17.6	143.5
Check	27,250		17.8	129.0
LSD (0.10)	NS		NS	13.5

Nematode Code: Root assays taken on July 28, 2009

A = Nematode problem not detected

B = Possible nematode problem

C = Nematodes are a problem; control options advisable

Discussion: Avicta is a nematicide seed treatment. Corn growth in this field was poor the entire season, and we never fully diagnosed the problem. Nematode assays indicated a possible nematode problem. There was a statistical difference in the yields between the treated and untreated plots. Visually the Avicta plots looked better than the check plots. We ran short on seed, and therefore, only 2 replications were planted. More work is needed.

Evaluation of Avicta Seed Treatment on Irrigated Corn

Cooperators: **Producer:** Cloverfield Enterprises
Extension: Keith Balderson, Essex
 Eric Jochum, Summer Intern
Agribusiness: Chris Ambrose, Northern Neck Seed Co.
Previous Crop: Soybean
Soil Type: Molena loamy sand
Planting Date: April 7, 2009
Hybrid: NK N73V-3000GT
Fertilizer: Broadcast: 100 lbs. per acre potash plus bio-solids
 Total Nitrogen: 200 lbs. per acre from bio-solids plus commercial nitrogen
 No commercial phosphate applied
Crop Protection: Burndown: Gramoxone Inteon
 Pre-emergence: 1.5 qts. per acre Lumax
 Post-emergence: 1.0 qt. per acre glyphosate
Harvest Date: September 16, 2009

Treatment	Plant Population	Nematode Code	% Moisture	Yield
Treated	30,500	C	18.1	216
Check	27,000	B	18.0	210
Treated	30,500	A	17.9	206
Check	26,500	C	17.9	221
Treated	27,500	A	17.4	226
Check	29,500	B	18.6	224
Treated	29,500	A	17.7	232
Check	29,500	A	18.0	222
AVERAGE:				
Treated	29,500		17.8	220
Check	28,125		18.1	219.25
LSD (0.10)	NS		NS	NS

Nematode Code: Samples taken on July 28, 2009. Both root and soil assays conducted.

A = Nematode problem not detected

B = Possible nematode problem

C = Nematodes are a problem; control options advisable.

Discussion:

Avicta is a new seed treatment nematocide. In this plot, corn damaging nematode numbers were variable. There was no difference in yields between the treated and untreated plots.

Evaluation of Counter and Avicta Seed Treatment on Corn

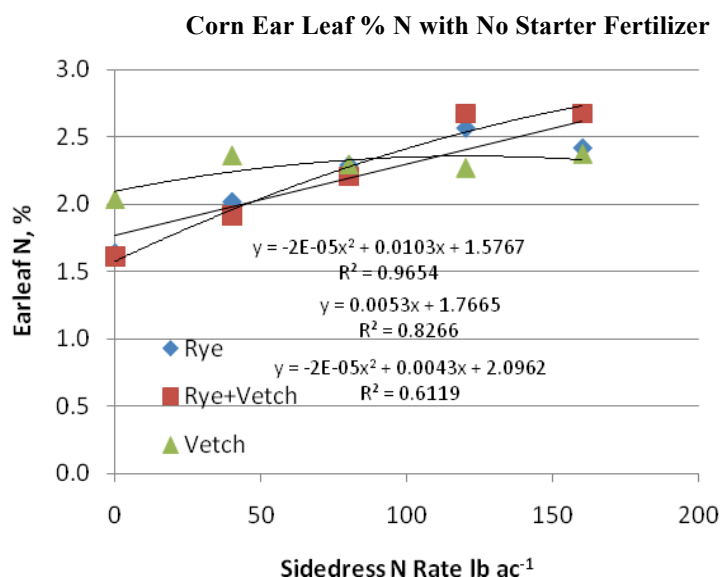
Cooperators: **Producer:** John F. Davis and Tommy Hicks, Camden Farms
 Extension: Keith Balderson, Essex
 Agribusiness: Chris Ambrose, Northern Neck Seed Company
Previous Crop: Soybeans
Soil Type: Bojac loamy sand
Planting Date: April 12, 2009
Hybrid: NK N73V-3000GT
Fertilizer: Broadcast: 27-69-100 per acre
 Starter: 40 lbs. nitrogen per acre
 Sidedress: 96-0-0-12 per acre
Crop Protection: Burndown: Gramoxone Inteon
 Pre-emergence: Lumax, atrazine, and simazine
Harvest Date: September 15, 2009

Treatment	Plant Population	% Moisture	Yield
Counter	21,000	17.0	122
Check	20,000	17.3	126
Avicta	21,000	16.9	131
Counter	20,000	16.7	116
Check	21,500	16.6	124
Avicta	21,000	16.7	137
Counter	22,000	16.4	141
Check	20,500	17.0	129
Avicta	22,000	16.3	134
Counter	22,000	16.1	141
Check	21,000	16.1	142
Avicta	22,500	16.0	143
AVERAGE:			
Counter	21,250	16.55	130
Check	20,750	16.75	130
Avicta	21,625	16.48	136
LSD (0.10)	NS	0.27	NS

Discussion: Avicta is a nematicide seed treatment. Nematode assays taken from the plot June 2nd did not indicate a nematode problem. Avicta treated plots tended to yield higher, but the difference was not statistically significant.

No-Till Corn Into Winter Annual Cover Crops With Different Rates Of Nitrogen In Starter & Sidedress

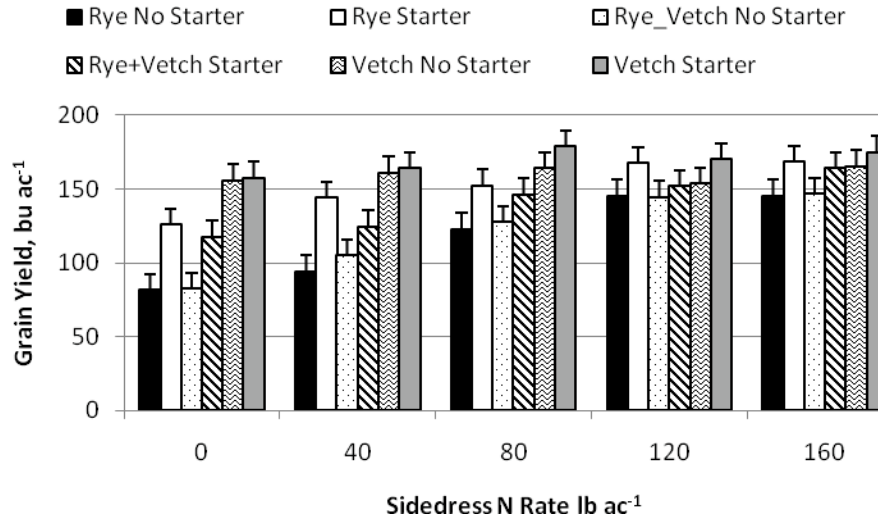
Cooperators:	Producers: Davis Produce, New Kent Extension: Paul Davis, New Kent/Charles City, retired Wade Thomason, VA Tech Grain Specialist Tim Woodward, VA Tech Graduate Student Agribusiness: Colonial SWCD, James Wallace & Brian Noyes
Previous Crop:	Rye vs. Rye + Vetch vs. Vetch
Soil Type:	Pamunkey fine sandy loam
Planting Date:	May 1, 2009
Fertilizer:	Broadcast: 15-40-60 Starter: 0# N vs. 40# N from 30% UAN Sidedress: Injected either 0, 40, 80, 120, 160 # N from 30% UAN on June 15
Crop Protection:	Preplant: Harness Extra (2qt); Roundup (1qt); 2,4-D (1pt); Karate (1.5oz) Post: Roundup (1.5pt)
Hybrid:	Dekalb 52-59
Harvest Date:	10/27/09



Discussion:

The Rye and Rye + Vetch treatments showed nitrogen deficiencies at ear leaf sampling on the 0 and 40# N sidedress treatments. The Vetch/Corn with no starter and no sidedress N was equal to 80# sidedress N on both the Rye and Rye + Vetch/Corn treatments.

Corn Grain Yield in Response to Previous Cover Crop and Sidedress Rate, With and Without Starter Nitrogen



Discussion:

Yields were significantly increased at the 0 and 40 lb/ac sidedress rates for the Rye and Rye + Vetch treatments over the no starter yields at the same sidedress rates. Addition of starter N did not generally increase yield of corn following vetch alone. Similar to what was observed with the ear leaf N concentration, once sidedress rates reached 120 lb/ac, differences due to cover crop disappeared.

Corn Tillage Comparison I

Cooperators: **Producer:** Greg Jenkins, Gloucester County
Extension: David Moore, VCE-Middlesex
NRCS: Charles Ivins

Previous Crop: Soybeans
Soil Type: Meggett Loam
Planting Date: May 14, 2009
Fertilizer: Broadcast: 28-40-150-15s
 60-0-0 with Pesticides
 Sidedress: 100-0-0-20s

Crop Protection: 1.8 qt. Bicep, 1 pt. Aatrex
 *All plots received Glyphosate + 2,4-D

Check Hybrid: Pioneer 35H42
Harvest Date: October 13, 2009
Harvest Equipment: John Deere 9600

Tillage	Replication	Final Population	M%	Yield
Mulch Till	1	33,250	16.5	195.7
No-Till	1	26,250	16.3	190.5
Deep Tillage	1	29,750	16.5	195.6
Mulch Till	2	28,000	16.5	194.4
No-Till	2	26,250	16.6	157.7
Deep Tillage	2	30,600	16.7	166.4
Average Mulch Till		30,625	16.5	195.1
Average No-Till		26,250	16.5	174.1
Average Deep Tillage		30,175	16.6	181.0
LSD (0.10)		ns	ns	ns

Discussion: Nice yields! For several years Greg has been seeing an apparent yield lag in his no-till corn. So he and Charlie put in this strip trial to see what the results would be. Greg farms in lower Gloucester on some Meggett soils. The Meggett series consists of poorly drained soils that formed in loamy and clayey sediments of marine origin. These soils have a high water table and lay very flat so water does not drain very well. These soils can go from too wet to get on to so hard and dry that it is impossible to plant into in a matter of 24-72 hours leaving the producer little time to prepare the fields. No-till works OK in this area, but working the soil makes better soil to seed contact and also works to aerate the soil and allows producers to get an earlier start. Greg also believes that heavy cover on this type soil slows the drying process. In this test three types of tillage were used: No-till, deep tillage (ripping prior to planting), and mulch tillage (Roterra-type implement that moves top 2-3 inches of soil). In this test, tillage yielded better than no-tillage with a slight advantage to the mulch tillage. This on farm testing should be done another year to determine any weather variations. Here, it can be seen that not all soils respond to no-till or cover cropping, but statistically, in this plot, there was no differences in yield between the treatments.

Look for another plot with additional replications later in this publication.

Corn Tillage Comparison II

Cooperators: **Producer:** Greg Jenkins, Gloucester County
Extension: David Moore, VCE-Middlesex
NRCS: Charles Ivins

Previous Crop: Soybeans
Soil Type: Meggett Loam
Planting Date: May 14, 2009
Fertilizer: Broadcast: 28-40-150-15s
 60-0-0 with Pesticides
 Sidedress: 100-0-0-20s

Crop Protection: 1.8 qt. Bicep, 1 pt. Aatrex
 *All plots received Glyphosate + 2,4-D

Check Hybrid: Pioneer 35H42
Harvest Date: October 13, 2009
Harvest Equipment: John Deere 9600

Tillage	Replication	Final Population	M%	Yield
Mulch Till	1	26,250	16.6	168.4
No-Till	1	27,125	16.2	148.5
Deep Tillage	1	27,125	16.0	193.7
Mulch Till	2	29,750	16.1	187.6
No-Till	2	25,375	16.2	153.1
Deep Tillage	2	29,750	16.3	189.2
Mulch Till	3	29,750	15.1	174.9
No-Till	3	26,250	15.5	142.9
Deep Tillage	3	27,125	15.8	204.7
Mulch Till	4	29,750	16.1	193.9
No-Till	4	30,600	16.0	152.4
Deep Tillage	4	29,750	15.9	174.3
Mulch Till	5	31,500	15.9	160.9
No-Till	5	26,250	16.0	152.1
Deep Tillage	5	30,600	16.2	167.0
Average Mulch Till		29,400	16.0	177.1
Average No-Till		27,120	16.0	149.8
Average Deep Tillage		28,870	16.0	185.8
LSD (0.10)		1,947	ns	14.5

Discussion: Nice yields! For several years Greg has been seeing an apparent yield lag in his no-till corn. So he and Charlie put in this strip trial to see what the results would be. Greg farms in lower Gloucester on some Meggett soils. The Meggett series consists of poorly drained soils that formed in loamy and clayey sediments of marine origin. These soils have a high water table and lay very flat so water does not drain very well. These soils can go from too wet to get on to so hard and dry that it is impossible to plant into in a matter of 24-72 hours

leaving the producer little time to prepare the fields. No-till works OK in this area, but working the soil makes better soil to seed contact and also works to aerate the soil and allows producers to get an earlier start. Greg also believes that heavy cover on this type soil slows the drying process. In this test three types of tillage were used: No-till, deep tillage (ripping prior to planting), and mulch tillage (Roterra-Type implement-moves top 2-3 inches of soil around). In this test, tillage yielded better than no-tillage with a slight advantage to the mulch tillage.

This on farm testing should be done another year to determine any weather variations. As seen in these plot results, not all soils respond to no-till or cover cropping. After running statistics, we can see that there is statistically no difference in the mulch and deep tillage yields, but considerable difference between those and the no-till yields.

Look for another plot with additional replications earlier in this publication.