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Virginia On-Farm Corn Test Plots

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

Virginia Cooperative Extension

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2007 Virginia On-Farm Corn Test Plots

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Sponsored by:
Virginia Corn Board

The research and demonstration plots discussed in this publication are a cooperative effort of eight Virginia Cooperative Extension agents, numerous producers, several Extension specialists, local soil and water conservation districts, Extension summer interns, and many members of the agribusiness community.

The fieldwork and printing of this publication is mainly supported by the Virginia Corn Check-Off Fund through the Virginia Corn Board. Anyone who would like a copy should contact the local Extension agent, who can request a copy from the Northumberland County Extension office.

This is the sixteenth year of this multi-county cooperative project. Further work is planned for 2008.

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 County Extension office for her efforts in putting this book together.

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I. 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 second year of replicated tests for optimum plant populations. We saw positive or neutral results to increasing corn populations in the field, depending on site. From this and last year's data, it seems that final stands around 26,000 are able to make excellent yields where soil type, water, and fertility allow for it. Where poor soils (or in the case of 2007, extreme drought) limit yield potential, populations around 20,000 should be sufficient to optimize yield.

This is also the second year looking at aerial applications of fungicides to corn at the silking/tasseling growth stage. While a couple of sites showed statistically-significant yield increases to fungicides, overall the data was neutral. Bear in mind that disease pressure was low across eastern Virginia the past two years, so we plan to repeat this experiment next year in case disease pressure is higher.

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, extremely dry weather gave us a good look at drought tolerance of specific hybrids.

A seeming result of high corn prices, many new and different products are positioned on the market to increase yields through increased fertilizer availability, seed-applied micronutrients, and the like. This year gave us an opportunity to test a couple of those – WolfTrax and Avail® – with mixed results. Look for more of these product evaluations in coming years.

II. Corn Hybrid Comparisons and Challenges

2007 Corn Hybrid Comparison by Maturity – All Sites

Yield averages are given only for hybrids where yield data was available at all locations.

Early-Maturing Hybrids

Company	Hybrid	Maturity	Genetic Traits	Northumberland	Essex	Middlesex Early	Middlesex Early/Mid	AgExpo-Irrigated	AgExpo-Dryland	Goochland	Average All Sites
Mid-Atlantic	MA7096	106	BT	65	99	186	161	206	170	78	138
Doebler's	648ARB	106	RR, CB	58	101	174	164	208	179	70	136
Mycogen	2G628	107	HXI - RR	58	93	161	168	193	178	101	136
Garst	8562	106	CB LL	64	101	172	157	185	181	91	136
Hubner	H5242	105	RR,YG plus	70	103	170	156	182	168	93	135
Augusta	5160CB	106	CB	70	111	182	128	197	183	65	134
Dyna-Gro	55B49	105	RR/YGPL	74	101	177	138	189	180	75	133
Vigoro	V45RP63	106	YG, RR, RT	58	94	155	169	187	168	99	133
Pioneer	35A29	105	RR	64	94	151	148	175	149	80	123
Chemgro	6570	105		63	99	152	129	190	167	47	121
Dekalb	DKC 57-79	107	RR2/YGPL	58	100	167	171	188		67	*
TA Seeds	607-11	106	CB	65	98	152	148			73	*
South. States	SS574	106	RR2 YGCB	75	95	174	163	192	165		*
NK Seed	N48-R3	106	LL, CB	64		154	129	202	142	113	*

Mid-Maturing Hybrids

Company	Hybrid	Maturity	Genetic Traits	Northumberland	Middlesex Early/Mid	AgExpo-Irrigated	AgExpo-Dryland	Westmoreland	Dinwiddie	Average All Sites
South. States	SS604	110	RR2 YGCB	75	183	213	199	106	75	142
Garst	8456 CB/LL	110	CB LL	77	168	222	187	121	71	141
Dekalb	DKC 61-69	111	RR2/YGPL	75	187	209	189	122	47	138
Mid-Atlantic	MA7150	112	BT	50	182	227	180	94	80	135
Hubner	H4473RR	110	YB,CB,RR	70	151	209	191	105	76	134
Mycogen	2K718	112	HX1	66	171	202	178	116	64	133
NK Seed	N68-B-8	111	LL, CB	78	151	213	204	118	30	132
Pioneer	34F96	110	HX, LL, RR	71	181	190	165	111	67	131
Vigoro	V51RP73	111	YG, RR, RT	64	172	195	177	97	68	129
Chemgro	7339 R+	113	RR,BTYG,YGRW	70	162	208	190	103	36	128
Doebler's	657XB	111	CB	58	147	204	172	84	84	125
Augusta	A-06-06	110		85	148	218	184	93	16	124
Dyna-Gro	56B15	109	RR/YGPL	80	151	189	170	98	53	123
TA Seeds	TA 678-13	112	YG+/RR	58	137	191	160	126	65	123
Asgrow	RX 754	109	RR2/YGPL	65	160	207		118		*

Full-Maturing Hybrids

Company	Hybrid	Maturity	Genetic Traits	Middlesex Full	AgExpo-Irrigated	AgExpo-Dryland	Dinwiddie	Goochland	Chesapeake	Average All Sites
Garst	8353	113	CB LL RW	134	230	198	88	109	115	146
Mycogen	2T783	115	HX Extra	112	209	187	82	78	155	137
Pioneer	33M57	114	HX,RR,LL	131	215	173	64	118	122	137
TA Seeds	TA 780-01	117	YGCB	125	205	188	67	63	144	132
South. States	SS777	116	RR2 YGPL	135	192	158	56	73	156	128
NK	N75-A4 C4	114	LL, CB	117	209	189	25	84	141	127
Hubner	H5810RR	115	RR,YG plus	115	206	185	55	77	122	127
Dekalb	DKC 64-23	114	RR2/YGRW	121	185	173	45	112	121	126
Vigoro	V54RP73	113	YG, RR, RT	112	199	175	76	80	105	124
Augusta	A-06-10HX	114	HXLL	130	220	179	24	70	119	124
Chemgro	7740BT	117	YGBT	107	210	182	26	60	120	118
Dyna-Gro	57V05	114	RR/YGPL	127	202	191	47		110	*
Asgrow	RX 785			128	214		20	68	111	*
Adler	8215	115	YGCB RR				63	84	126	*
Doebler's	785RB	113	RR, CB		198	167	72	93	119	*

2007 Essex Early Corn Hybrid Plot

Cooperators: **Producer:** Robert P. Longest
Extension: Keith Balderson, Essex
David Moore, Middlesex
Agribusiness: Various Seed Company Reps.
Planting Date: April 11, 2007
Seedbed Preparation: No-till
Hybrid: Various
Soil Type: Kempsville sandy loam
Fertilization: Broadcast: 65.0 lb/acre potash
Crop Protection: Starter: 20.0 gal/acre of 15-15-0 plus micronutrients
Sidedress: 85-0-0-10 per acre
Harvest Date: September 28, 2007

Hybrid	% Moisture	Plant Population	Yield(bu/a @ 15.5%)	% of Check
Dekalb 57-79	14.0	26,000	100	104.2%
Vigoro 45RP63	14.2	26,500	94	97.9%
Mycogen 2G628	14.1	23,000	93	96.9%
Doebler's 648ARB	15.9	27,000	101	105.2%
Check-Pioneer 35P10	14.7	22,000	96	
Pioneer 35A29	14.6	22,000	94	95.4%
T.A. Seeds 607-11	15.1	22,500	98	99.5%
Mid Atlantic Seeds 7096	14.8	24,000	99	100.5%
Garst 8562 CB/LL	13.8	25,000	101	102.5%
Check	14.5	25,500	101	
Southern States 574RRYGCB	14.4	22,500	95	96.9%
Hubner 5242	13.9	25,000	103	105.1%
Augusta 5160CB	14.9	23,000	111	113.3%
Chemgro 6570	14.2	22,000	99	101.0%
Check	14.4	24,000	95	
Dyna-Gro 55B49	14.1	23,500	101	106.3%
Check Average	**14.5**		**97.3**	

Discussion: As did most of the corn in Essex County in 2007, this plot suffered drought stress. Timely rains during pollination resulted in better yields than most of the fields in the county. Please consult replicated yield data prior to making hybrid selections for 2008.

Conventional Hybrid vs. RR/YGCB Hybrid Plot

Cooperators: **Producers:** Keith and C.O. Balderson
Extension: Keith Balderson, Essex
Sam Johnson, Westmoreland
Agribusiness: Ginny Barnes, Pioneer Seed
Planting Date: April 5, 2007
Seedbed Preparation: Continuous No-till
Hybrid: Pioneer 35P12 (Conventional) vs. Pioneer 35P10 (RR/YGCB)
Soil Type: Suffolk sandy loam
Fertilization: Broadcast: 50-60-60 per acre
Sidedress: 90-0-0-11 per acre
Crop Protection: Burndown: Gramoxone Inteon®
Pre-emergence: Lumax®, simazine, atrazine
Harvest Date: September 10, 2007

Hybrid	Rep.	Plant Population	% Moisture	Yield (bu/a @ 15.5%)
Pioneer 35P10	1	20,500	17.6	103
Pioneer 35P12	1	24,500	17.2	93
Pioneer 35P10	2	21,500	16.8	99
Pioneer 35P12	2	21,500	17.3	91
Pioneer 35P10	3	21,000	17.4	87
Pioneer 35P12	3	22,000	17.3	90
Averages:				
Pioneer 35P10		21,000	17.3	96
Pioneer 35P12		22,667	17.3	91
LSD (0.05)		ns	ns	ns

Discussion: Pioneer 35P10 tended to yield more than Pioneer 35P12, though the difference was not statistically significant due to the yields in replication 3. It is believed that any yield differences in this plot are probably due more to corn earworm suppression than European corn borer control. Corn borer pressure appeared to be minimal in this plot. Pioneer 35P12 was heavily infested (over 75%) with corn earworm with significant damage to some ears, while 35P10 provided good corn earworm suppression (15% infested). Yields are relatively low due to drought conditions. This corn was planted at 26,000 plants per acre. One day after planting, the plot received five inches of snow and temperatures were very cold for four days following planting. It took about 21 days for this corn to emerge, but emergence was still good considering conditions just after planting.

Corn Hybrid Challenge Plot

Cooperators: **Producers:** Keith and C.O. Balderson
Extension: Keith Balderson, Essex
Sam Johnson, Westmoreland
Agribusiness: Ginny Barnes, Pioneer Hi-Bred
Dennis Rawley, Augusta Seed Co.
Planting Date: April 28, 2007
Seedbed Preparation: Continuous No-till
Hybrid: Pioneer 33M54 vs. Augusta 06-06
Soil Type: Kempsville sandy loam
Fertilization: Broadcast: 50-60-60 per acre
Sidedress: 90-0-0-11 per acre
Crop Protection: Burndown: Gramoxone Inteon
Pre-emergence: Lumax®, simazine, atrazine
Harvest Date: September 25, 2007

Hybrid	Rep.	Plant Population	% Moisture	Yield(bu/a @ 15.5%)
Augusta 06-06	1	24,500	17.0	76
Pioneer 33M54	1	23,000	19.0	75
Augusta 06-06	2	26,000	17.7	81
Pioneer 33M54	2	24,500	19.2	79
Augusta 06-06	3	26,500	18.2	83
Pioneer 33M54	3	24,500	19.1	77
Averages:				
Augusta 06-06		25,667	17.6	80
Pioneer 33M54		24,000	19.1	77
LSD (0.05)		**717**	**1.4**	**ns**

Discussion: This plot suffered severe drought stress during pollination. Yields are not statistically different, but the Augusta 06-06 was 1.5% drier at harvest.

2007 Ag Expo Corn Performance Test – Dryland

Cooperators: **Producer:** David, John and Stanley Hula, Renwood Farm
Extension: Paul Davis, New Kent/Charles City
Virginia Tech: Wade Thomason
John Townsend, Summer Intern
Agribusiness: Participating Seed Suppliers
FFR: Phil Egolf and Phil Troutman**
Plant Population: 28,000
Previous Crop: Soybeans
Soil Type: Pamunkey fine sandy loam
Planting Date: May 2, 2007
Fertilizer: Broadcast: 45-60-90 + Avail
Starter: 70.0 lb N
Sidedress: 120.0 lb N + NutriSphere-N™
Herbicides: Preplant: 26.0 oz Roundup Original
Pre-emergence: 1.8 qt Bicep II Magnum® + 1.0 pt Aatrex®
Harvest Date: September 29, 2007

Company Name	Hybrid	Relative Maturity*	% Moisture	Adjusted yield/acre
Asgrow	RX 754 RR/YG	E	0.0	Harvest Error
Asgrow	RX 785 RR/YG	M	0.0	Harvest Error
Dekalb	DKC 57-79 RR/YG	E	0.0	Harvest Error
Dekalb	DKC 61-69 RR/YG	M	15.2	188.6
Dekalb	DKC 64-23 RR/YG	L	15.2	172.8
Vigoro	V45RP63 RR/YG	E	15.2	167.8
Vigoro	V45RP73 RR/YG	M	15.3	175.0
Vigoro	V51RP73 RR/YG	L	18.1	177.3
Mycogen	2G628 HX1-RR	E	15.5	178.4
Mycogen	2K718 HX1	M	14.9	177.9
Mycogen	2T783 HX Extra	L	17.0	187.1
Doebler	648ARB RR/CB	E	14.6	179.3
Doebler	657XB CB	M	16.0	171.9
Doebler	785RB RR/CB	L	19.3	167.3
Pioneer	35A29 RR	E	13.8	149.4
Pioneer	34F96 HX/LL/RR	M	17.6	165.0
Pioneer	33M57 HX/LL/RR	L	22.9	172.5
TA Seeds	X12764 CB	M	16.2	171.5
TA Seeds	TA678-13 RR/YG	E	16.1	159.6
TA Seeds	TA780-01 YGCB	L	18.4	188.1
Mid-Atlantic	MA7096 Bt	E	15.6	169.5
Mid-Atlantic	MA7150 Bt	M	18.5	180.0
Mid-Atlantic	MA7160 RR/Bt	L	20.6	179.7
Garst	8562 CB/LL	E	12.5	180.8
Garst	8456 CB/LL	M	15.2	186.9
Garst	8353 CB/LL	L	17.4	197.5
USG	Adler 3250 RR/Bt	M	16.4	170.2
USG	Adler 3500 Bt	E	14.9	150.9
USG	Adler 8140 Bt	L	17.5	181.2

2007 Ag Expo Corn Performance Test – Dryland (cont.)

Company Name	Hybrid	Relative Maturity*	% Moisture	Adjusted yield/acre
Southern States	SS574 RR/YG	E	14.0	164.8
Southern States	SS604 RR/YG	M	15.1	199.2
Southern States	SS777 RR/YG	L	17.8	158.3
Hubner	H5242 RR/YG	E	13.6	167.7
Hubner	H4473 RR/YG	M	14.9	190.6
Hubner	H5810 RR/YG	L	18.0	185.4
Augusta	5160CB	E	14.6	183.3
Augusta	A-06-06 None	M	16.2	183.6
Augusta	A-06-10 HX/LL	L	18.4	179.4
NK Seed	N48-R3 LL/CB	E	12.1	141.9
NK Seed	N68-B8 LL/CB	M	15.4	203.9
NK Seed	N75-A4 LL/CB	L	16.2	189.0
Chemgro	6570 None	E	13.1	167.4
Chemgro	7339R YGRW	M	14.3	190.0
Chemgro	7740BT	L	17.6	181.9
DynaGro	55B49 RR/YGPL	E	13.1	179.6
DynaGro	56B15 CB	M	13.0	170.0
DynaGro	57V05 RR/YGPL	L	17.3	191.4
Plot Average				**176.7**

Discussion: As you can see from the excellent dryland corn yields, this plot received several timely rainfalls. Compare this plot with other Virginia Tech trials before ordering all your 2008 corn hybrids.

*E = Early < 107 day
M = Mid 107 - 112 day
L = Late > 112 day

**Special thanks to the FFR staff who planted, fertilized, and harvested all the corn hybrid plots.

2007 Ag Expo Corn Performance Test – Irrigated

Cooperators:	**Producer:**	David, John and Stanley Hula, Renwood Farm
	Extension:	Paul Davis, New Kent/Charles City
	Virginia Tech:	Wade Thomason
		John Townsend, Summer Intern
	Agribusiness:	Participating Seed Suppliers
	FFR:	Phil Egolf and Phil Troutman**
Plant Population:	32,000	
Previous Crop:	Soybeans	
Soil Type:	Pamunkey fine sandy loam	
Planting Date:	May 2, 2007	
Fertilizer:	Broadcast:	45-60-90 + Avail®
	Starter:	70.0 lb N
	Sidedress:	120.0 lb N + NutriSphere-N™
Herbicides:	Preplant:	26.0 oz Roundup Original®
	Pre-emergence:	1.8 qt Bicep II Magnum® + 1.0 pt Aatrex®
Harvest Date:	September 29, 2007	

Company Name	Hybrid	Relative Maturity*	% Moisture	Adjusted yield/acre
Asgrow	RX 754 RR/YG	E	12.9	206.6
Asgrow	RX 785 RR/YG	M	14.8	214.0
Dekalb	DKC 57-79 RR/YG	E	13.6	188.4
Dekalb	DKC 61-69 RR/YG	M	14.2	209.4
Dekalb	DKC 64-23 RR/YG	L	14.7	185.2
Vigoro	V45RP63 RR/YG	E	11.8	186.5
Vigoro	V45RP73 RR/YG	M	15.3	198.9
Vigoro	V51RP73 RR/YG	L	17.2	195.2
Mycogen	2G628 HX1-RR	E	14.7	192.7
Mycogen	2K718 HX1	M	13.5	201.6
Mycogen	2T783 HX Extra	L	15.6	209.3
Doebler	648ARB RR/CB	E	15.1	207.7
Doebler	657XB CB	M	14.6	204.4
Doebler	785RB RR/CB	L	16.6	197.5
Pioneer	35A29 RR	E	12.7	174.6
Pioneer	34F96 HX/LL/RR	M	16.9	189.7
Pioneer	33M57 HX/LL/RR	L	22.0	214.8
TA Seeds	X12764 CB	M	14.7	188.2
TA Seeds	TA678-13 RR/YG	E	13.6	190.5
TA Seeds	TA780-01 YGCB	L	16.1	204.6
Mid-Atlantic	MA7096 Bt	E	15.3	206.0
Mid-Atlantic	MA7150 Bt	M	16.2	226.5
Mid-Atlantic	MA7160 RR/Bt	L	17.9	216.8
Garst	8562 CB/LL	E	12.0	185.1
Garst	8456 CB/LL	M	14.1	222.4
Garst	8353 CB/LL	L	15.7	230.0
USG	Adler 3250 RR/Bt	M	14.7	211.6
USG	Adler 3500 Bt	E	13.5	181.5
USG	Adler 8140 Bt	L	14.2	207.4

2007 Ag Expo Corn Performance Test – Irrigated (cont.)

Company Name	Hybrid	Relative Maturity*	% Moisture	Adjusted yield/acre
Southern States	SS574 RR/YG	E	13.1	191.8
Southern States	SS604 RR/YG	M	14.5	213.2
Southern States	SS777 RR/YG	L	14.9	192.0
Hubner	H5242 RR/YG	E	12.8	182.3
Hubner	H4473 RR/YG	M	13.8	208.6
Hubner	H5810 RR/YG	L	15.2	205.6
Augusta	5160 CB	E	13.5	197.4
Augusta	A-06-06 None	M	14.7	218.2
Augusta	A-06-10 HX/LL	L	16.1	219.5
NK Seed	N48-R3 LL,CB	E	12.6	201.8
NK Seed	N68-B8 LL,CB	M	13.2	213.3
NK Seed	N75-A4 LL,CB	L	15.5	208.8
Chemgro	6570	E	12.9	189.7
Chemgro	7339R RR YGRW	M	12.7	208.4
Chemgro	7740 Bt	L	15.0	210.0
DynaGro	55B49 RR/YGPL	E	13.0	189.3
DynaGro	56B15 CB	M	12.7	188.8
DynaGro	57V05 RR/YGPL	L	14.9	201.6

Discussion: As you can see from the excellent irrigated corn yields, this plot received several timely rainfalls. Compare this plot with other Virginia Tech trials before ordering all your 2008 corn hybrids.

*E = Early < 107 day
M = Mid 107 - 112 day
L = Late > 112 day

**Special thanks to the FFR staff who planted, fertilized, and harvested all the corn hybrid plots.

Corn Hybrid Challenge Plot

DeKalb 61-43 vs. Augusta 06-06

Cooperators: **Producer:** Davis Produce, New Kent County
Extension: Paul Davis, New Kent/Charles City
Virginia Tech: Wade Thomason
John Townsend, Summer Intern
Agribusiness: Monsanto and Augusta
FFR: Phil Egolf and Phil Troutman**
Hybrids: DeKalb 61-43 & Augusta 06-06
Plant Population: 26,000
Previous Crop: Soybeans
Soil Type: Pamunkey fine sandy loam
Planting Date: April 24, 2007
Fertilizer: Broadcast: 30-40-60
Starter: 40.0 lb N
Sidedress: 100.0 lb N
Herbicides: Preplant:
Pre-emergence: 1.8 qt Bicep® + 1.0 pt Aatrex® +1.5 pt Roundup Original®
Harvest Date: September 20, 2007

Reps	Hybrids	% Moisture	bu/ac
Rep 1	DK 61-43	17.0	154
Rep 1	Augusta 06-06	17.6	169
Rep 2	DK 61-43	16.8	150
Rep 2	Augusta 06-06	17.6	167
Rep 3	DK 61-43	16.9	158
Rep 3	Augusta 06-06	19.2	158
Average	**DK 61-43**	**16.9**	**154.0**
Average	**Augusta 06-06**	**18.1**	**164.7**

Discussion: Both hybrids yielded good under the hot and dry growing conditions. The Augusta 06-06, while yielding 10 bushels per acre more than the DK 61-43, was more difficult to harvest because some of the stalks would break off above the ear and these broken stalks would pile up on the snapper/rollers. Augusta 06-06 is a good non-Bt hybrid, but as with all non-Bt hybrids, European corn borers can be a problem some years.

**Special thanks to the FFR staff who planted, fertilized, and harvested all the corn hybrid plots.

2007 Corn Variety Trial – Westmoreland County

Mid-Season Varieties

Cooperators: **Producer:** F.F. Chandler Jr. , Windsor Farm
Extension: Sam Johnson, Westmoreland
Caroline Salisbury, Summer Intern
Industry: Virginia Barnes, Andy Kume, Pioneer Seed
Rusty Green, Curtis Packett, Crop Production Services
Planting Date: April 19, 2007, no-till, 30-inch rows
Population: 26,600
Soil Type: Kempsville
Fertilizer: 150-50-60
Herbicides: 2.8 qt Lumax® + 1.0 pt Atrazine
Harvest Date: September 27, 2007, John Deere 9400

In Order Of Planting			
Variety	**% Moisture**	**Test Weight**	**Yield/Acre**
Chemgro 7339	19.7	55	103
Mid-Atlantic 7150	19.0	57	94
Hubner 4473	23.4	53	105
Augusta 5160	19.3	55	100
Dynagro 56B15	19.4	56	98
*Check**	16.1	58	108
TA678-13	18.4	55.5	126
Garst 8456	20.0	56	121
Mycogen 2K718	19.8	56	116
SS604	20.7	56	106
NK N68-B8	19.5	56.5	118
Check	19.4	55	111
Doeblers 657	20.4	55	84
Vigoro 51RP73	20.1	56	97
Pioneer 35A29	18.1	55	99
Asgrow RX754	19.0	57.5	118
DKC 61-69	21.0	54.5	122
Check	20.8	55	106
Augusta A06-06P	18.3	55	93
Campbell 631-76	17.0	58	111
Pioneer 33M57	21.9	57	104
Campbell 66-90	17.8	54.5	88
Check	18.7	55.5	118
AVG			**106**
*CHECK variety was Pioneer P34F96.			
Check yielded:			108
			112
			106
			118
AVG			**111**

Discussion: As with most of these variety trials, these were strip tests and prone to error across the field. Please look at the regional summary which provides replication of the test across many fields and conditions. Considering the drought stress under which these varieties grew, these were very good yields and grain quality was better than most fields in the area.

2007 Chesapeake Corn Variety Test

Cooperators: **Producer:** Russell Temple
Extension: Watson Lawrence, Chesapeake
Planting Date: April 26, 2007
Population: 26,000, 36-inch rows
Soil Type: Dragston fine sandy loam
Fertilizer: 674.0 lb/acre 24-12-12 preplant
Lime: 1.0 ton/acre
Herbicides: 1.5 pt Dual® (pre) + 0.5 pt Banvel® (post)
Tillage: Chisel + disk + field cultivator and cultipacker
Harvest Date: September 26, 2007
Check Variety: Pioneer 33M57, relative maturity 116 days
Average yield = 121.8 bu/acre
Average test weight = 61 lb/bushel

Mid-Maturity Corn Varieties (>112 DAYS)

Company Name	Variety	% Moisture	Test Wt.	Yield @ 15.5%	% of Check
Check	33M57	16.8	61	140.0	
Southern States	777RR	17.4	56	155.9	112.4
Mycogen	2T783	18.8	56	154.5	111.3
NK	75-C4	16.9	58	141.4	101.9
TA Seeds	780-01	18.9	56	144.2	103.9
Check	33M57	16.8	60	137.5	
Dekalb	64-23	16.2	60	120.9	94.5
Adler	8215 YGCB	18.0	57	126.0	98.5
Augusta	A-06-10	17.0	57	118.8	92.8
Doeblers	785 RB	17.9	56	119.1	93.1
Check	33M57	17.1	61	118.4	
Hubner	H5811 PR	18.8	56	121.5	111.0
Chemgro	7740 B+	18.9	56	119.5	109.2
Dyna Gro	57 VO5 RR	19.1	57	110.0	100.5
Garst	8353	16.6	59	114.8	104.9
Check	33M57	19.1	61	100.5	
Agventure	L 8923 HB	15.0	59	102.5	109.3
Asgrow	RX 785 YG	15.1	59	110.8	103.9
Vigero	V54 PR 73	15.1	59	105.2	98.6
Check	33M57	16.6	62	112.8	105.8

Discussion: A check variety (Pioneer 33M57) was planted to observe yield differences across the field. There was some yield decline as we moved across the field from the beginning, probably due to soil differences. Yields are expressed as percent of check in that part of the field.

Northumberland/Lancaster Early and Mid Corn Hybrid Comparison

Cooperators: **Producer:** Monte Swann, Bearcroft Farms
Extension: Matt Lewis, Northumberland/Lancaster
SWCD: Dwight Forrester, Brandon Dilliston, Craig Brann
Agribusiness: Participating Seed Suppliers
Previous Crop: Soybeans
Soil Type: Kempsville fine sandy loam
Planting Date: April 24, 2007
Fertilizer: Broadcast: 50-0-100
Starter: 18.0 gal 15-15-0
Sidedress: 80-0-0
Crop Protection: 1.5 qt Roundup Original® + 2.0 oz Warrior® + 5.5 pt Lumax® + 1.0 qt Princep®
Harvest Date: September 12, 2007

Hybrid	Early	Mid	Population	% Moisture	Yield
Check- Pioneer 35P10	X		22,500	18.0	58
Asgrow RX754RR2YGPL		X	23,000	21.9	65
Dekalb 57-79	X		24,000	21.3	58
Dekalb 61-69		X	24,000	20.7	75
Mycogen 2K718		X	24,000	20.3	66
Mycogen 2G628	X		25,000	17.4	58
TA 607-11	X		25,500	20.5	65
TA 678-13		X	22,500	20.3	58
Vigoro V51RP73		X	25,000	20.6	64
Vigoro V45RP63	X		23,500	17.1	58
Doebler's 657XB		X	24,500	19.1	58
Doebler's 648ARB	X		25,500	19.1	58
Check- Pioneer 35P10	X		24,500	17.3	69
Pioneer 35A29	X		25,000	17.9	64
Pioneer 34F96		X	24,500	19.2	71
Garst 8562CB/CL	X		24,500	17.1	64
Garst 8456		X	25,500	19.1	77
Hubner H5242	X		25,500	18.0	70
Hubner H4473		X	24,500	19.5	70
NK N68-B8		X	24,500	19.5	78
NK N48-R3	X		24,000	15.1	64
Mid-Atlantic Seeds 7096Bt	X		24,000	19.8	65
Mid-Atlantic Seeds 7150Bt		X	25,500	24.0	50
Check- Pioneer 35P10	X		25,000	17.9	82
Augusta 5160CB	X		25,000	19.6	70
Augusta A06-06		X	24,000	21.0	85
Chemgro 7339		X	24,500	19.2	70
Chemgro 6570	X		25,000	18.4	63
Southern States 574	X		26,500	19.4	75
Southern States 604		X	26,000	19.7	75
Dynagro 55B49	X		25,500	17.7	74
Dynagro 56B15		X	26,000	17.8	80
Adler 4715		X	20,000	19.2	67
Adler 3145	X		22,500	20.5	66
Check - Pioneer 35P10	X		23,500	16.9	75

Discussion: 2007 was an extremely dry year, resulting in very low yields. All hybrids fared well given the severity of drought conditions. Compare this with other trials and other years when making selections for 2008.

Early Maturity Hybrids 2007

Cooperators: **Producer:** David and William Davis Carlton
Extension: David Moore, Middlesex County
Industry: Participating Seed Dealers
Previous Crop: Corn
Soil Type: Emporia Loam
Planting Date: April 4, 2007
Fertilization: Starter: 12-40-0; 200 lb K, 50 lb N with pesticides; dribble 100 lb N
Crop Protection: 1.0 qt Roundup® + 1.6 qt Bicep® + 1.0 pt atrazine + 1.0 qt simazine + 1.0 pt 2,4-D
Check Hybrid: Pioneer 35P10
Harvest Date: September 20, 2007

Hybrid	% Moisture	Yield @ 15.5%	% of Check
Dekalb DK57-79	15.0	167	106.2%
Check	15.7	157	
Vigoro V45RP63	15.2	155	97.8%
Mycogen 2C597	15.3	161	101.6%
Check	15.8	160	
Doebler's 648XYG	17.4	174	108.8%
Pioneer 35A29	16.2	151	94.4%
Check	15.9	160	
TA Seeds 607-11	17.1	152	94.4%
Garst 8562	16.4	172	106.8%
Check	15.7	162	
Mid-Atlantic MA7096	17.1	186	112.7%
Dynagro 55B45	16.2	177	107.2%
Check	15.8	168	
SS 574	15.9	174	103.9%
Hubner 5242	16.2	170	101.5%
Check	15.7	167	
August 5160	16.9	182	113.0%
Syngenta NK48-R3	14.5	154	95.6%
Check	15.7	155	
Chemgro 6570	16.6	152	97.7%
SC 11B40	18.5	152	97.7%
Check	15.7	156	
Check average:		**160.6 bushels**	

Discussion: Rain was spotty this year! This is dryland corn planted after corn. These are excellent yields considering the stress of the 2007 growing season. Use this and other Virginia Tech hybrid information when making planting decisions for 2008.

Full Season Corn Hybrids

Cooperators: **Producer:** Bill Gresham
Extension: David Moore, Middlesex
Keith Balderson, Essex
Industry: Participating Companies
Previous Crop: Corn (Barley cover crop)
Date Planted: April 25, 2007
Soil Type: Emporia Loam
Fertilization: 28-40-60-15S at planting
50.0 lb with herbicides, 80.0 lb N sidedress
Crop Protection: Bicep® + atrazine + simazine
Check Hybrid: Pioneer 33M57 (round seed)
Date Harvested: September 18, 2007

Hybrid	% Moisture	TW	Yield @ 15.5%	% of Check
Check (3 rows)	19.0		138.9	
TA Seeds 780-01	20.5	57	124.5	90%
Check	19.9	59	138.0	
Asgrow RX785	16.1	57	127.5	91.5%
Check	18.3		140.7	
Augusta 06-10	18.0	58	130.3	91.6%
Check	18.6		143.6	
Dyna-Gro 57V05	19.1	55	127.3	88.3%
Check	18.6		144.8	
SS 777	18.4	55	134.8	95.1%
Check	17.8		138.7	
Garst 8353	16.1	55	133.9	99.8%
Check	19.7		129.5	
Chemgro 7740	19.8	55	107.3	84.2%
Check	19.7		125.3	
Pioneer 33M57 (flat seed)	19.5	59	130.9	101.1%
Check	19.5		133.7	
Check	18.0		140.8	
Hubner 5811	20.3	55	115.3	83.5%
Check	18.8		135.4	
Dekalb 64-23	18.4	56	120.7	95.5%
Check	18.9		117.3	
Mycogen 2T783	17.1	57	112.4	95.3%
Check	17.8		118.5	
NK N75-C4	17.1	57	116.7	97%
Check	17.4		122.0	
Vigoro 54RP73	16.4	57	111.9	83.3%
Check (3 rows)	17.2	59	146.8	

Discussion: These are not bad yields considering the year.

Just for kicks, I took test weights of the hybrids. Hybrids range from 55 to 59. I have heard some very good test weights for corn this year in spite of the fact that it has been a hot and stressful growing season.
Use this and other Virginia Tech corn hybrid information when making planting decisions for 2008.

Middlesex Early and Mid Season Corn Hybrids-Irrigated

Cooperators: **Producer:** Ronnie Russell
Barry Wade
Extension: David Moore, Middlesex
Keith Balderson, Essex
Industry: Ginny Barnes, Andy Kume - Pioneer, a duPont Company
Previous Crop: Corn
Soil Type: Eunola Loam/Myatt Loam
Plant Date: April 9, 2007
Fertilization: Bio-solids in 2006
32-64-96 preplant
150.0 lb N as sidedress
Crop Protection: gramoxone burndown, 2.0 qt Bicep Magnum®
Check Hybrid: Pioneer 35P10 (RR/YG)
Harvest Date: September 4, 2007

Hybrid	Pop (5-24)	% Moisture	Yield @ 15.5%	% Check
Asgrow RX754 (RR/YG+)	21,000	23.0	159.9	107.9%
Check (RR/YG)	21,500	17.2	148.8	
DKC 57-79 (RR/YG+)	22,000	17.2	170.6	111%
DKC 61-69 (RR/YG+)	20,000	18.8	186.7	121.9%
Check	22,000	16.7	158.2	
Vigoro 45RP63(RR/YG+)	21,000	15.6	168.7	107.8%
Vigoro 51RP73(RR/YG+)	21,000	24.0	171.6	109.7%
Check	20,500	20.4	154.1	
Mycogen 2G628 (RR/Hx)	20,500	17.1	168.2	110.6%
Mycogen2K718 (Hx)	21,500	20.3	171.1	112.5%
Check		17.1	149.5	
Doebler's 648ARB (RR/CB)	22,000	20.2	164.0	104.4%
Doebler's 657XB (CB)	21,500	21.9	146.9	93.5%
Check		17.0	164.7	
Pioneer 35A29 (RR)	17,500	17.9	147.5	93.7%
Pioneer 34F96 (none)	20,500	23.0	180.9	114.9%
Check		22.0	150.1	
TA Seeds TS607-11	20,000	20.2	148.0	94.3%
TA Seeds TS678-13	18,500	22.2	136.5	86.9%
Check	20,000	17.0	163.9	
Mid-Atlantic MA7096 (Bt)	18,500	20.2	160.9	107.3%
Mid-Atlantic MA 7150 (Bt)	24,000	25.0	181.6	121.1%
Check		20.6	136.0	
Garst 8562 (LL/CB)	24,000	19.2	157.2	106.5%
Garst 8456 (LL/CB	22,500	20.2	167.5	113.6%
Check		17.0	158.9	
SS 574(RR/YG)	22,000	19.7	162.7	109.3%
SS 604 (RR/YG)	24,000	19.3	182.6	122.7%
Check		17.1	138.6	
Hubner 5242 (RR/YG+)	22,500	17.0	156.2	115.7%
Hubner 4473 (RR/YG)	21,500	19.2	151.0	111.7%

Middlesex Early and Mid Season Corn Hybrids-Irrigated (cont.)

Hybrid	Pop (5-24)	% Moisture	Yield @ 15.5%	% Check
Check		17.0	131.7	
Augusta 5160 (CB)	20,500	19.2	128.3	96.0%
Augusta 06-06 (none)	23,500	24.0	147.8	110.6%
Check		17.4	135.4	
NK N48-R3 (LL/CB)	22,500	15.1	128.8	91.4%
NK N68-B8 (LL/CB)	20,500	17.9	150.9	107.1%
Check	22,500	17.0	146.6	
Chemgro 6570 (none)	23,500	18.5	128.5	87.4%
Chemgro 7339 (RR/YG+)	22,500	18.9	161.7	109.9%
Dynagro 55B49 (RR/YG+)	23,000	16.4	137.7	93.6%
Dynagro 56B15 (RR/YG+)	21,000	17.5	151.4	103.0%

Trait Key:
RR Roundup Ready
YG Yield Guard (Corn Borer)
CB Corn Borer
Bt Corn Borer
Hx Herculex Corn Borer
YG+ Yield Guard Plus (Corn borer and rootworm)
LL Liberty Link Technology (Can use "Liberty" Herbicide as Postemergent)
None No genetics

Discussion: The only water this plot received in June and July was in the form of irrigation. Ronnie made two to three timely applications of about 1 inch of irrigation. Unfortunately, the rest of the farm will not average 75 bushels. Thanks to Ronnie for all his hard work and cooperation.

This was a corn-after-corn plot. There was a fair amount of Grey Leaf Spot found in the plot due to this. Planting corn after corn also affected the stands as seen in the final population counts taken on May 24. (Trash movers were needed.)

Overall, very good yields, especially this year. Use this and other Virginia Tech hybrid information when making planting decisions for 2008.

Dinwiddie and Prince George Hybrid Corn Variety Comparison

Cooperators: **Producer:** Glenn Chappell Sr.
Extension: Mike Parrish, Dinwiddie
Glenn Chappell, Prince George
Agribusiness: Participating Seed Suppliers
Previous Crop: Soybeans
Soil Type: Emporia sandy loam
Planting Date: April 18, 2007 – No-till
Fertilizer: Planting: 600.0 lb 10-10-10; Sidedress: 100.0 lb N
Crop Protection: 1.0 qt Roundup Original®, at planting
2.0 qt Bicep II® + 1.0 qt simazine – April 20, 2007
Harvest Date: September 12, 2007

Hybrid	% Moisture	Yield (bu/a)
Check - SS-849CL	10.5%	52
Dekalb - 61-69	10.1%	47
Dekalb- 64-23	9.5%	45
CPS – Vigoro 51RP73	10.6%	68
CPS – Vigoro 54RP73	10.2%	76
Mycogen Seed – 2K-718	10.0%	64
Mycogen Seed – 2T 783	9.9%	82
Check – SS-849CL	10.1%	62
Doebler's Inc. – 657XB	10.5%	84
Doebler's Inc. – 785RB	9.8%	72
Pioneer – 34F96	9.8%	67
Pioneer – 33M57	10.1%	64
TA Seeds – 678-13	10.2%	65
TA Seeds – 780-01	10.1%	67
Check – SS-849CL	9.5%	70
Mid-Atlantic Seeds – 7150	10.1%	80
Mid-Atlantic Seeds – 8610	10.2%	80
Garst Seed Co. – 8456CB/LL	9.9%	71
Garst Seed Co. – 8353	11.1%	88
USG – Adler 4715YGCBRR	10.0%	64
USG – Adler 8215YGCBRR	9.4%	63
Check – SS-849CL	9.5%	64
Southern States – 604RR2YGCB	10.1%	75
Southern States – 777RR2YGPL	9.5%	56
Hubner Seed Co. Inc. – 4473BR	10.4%	76
Hubner Seed Co. Inc. – 5810PR	9.5%	55
UAP Distribution, Inc. – 56B15	10.0%	53
UAP Distribution, Inc. – 57V05	9.0%	47
Check – SS-849CL	9.6%	30
Augusta Seed – 06-06	9.5%	16
Augusta Seed – 06-10HX	9.5%	24
Asgrow – RX 785RRYGPL	10.0%	20
Trisler – 5160CPB	11.1%	56
Next Field		
Check – SS-849CL	12.7%	29
Chemgro – 7339RT	14.1%	36
Chemgro – 7740BT	13.5%	26
NK – 68B8	13.3%	30
NK – 75C4 CRMLLCB	13.1%	25
DKC – 6142	12.3%	15
Check – SS-849CL	12.1%	21

Discussion: 2007 was an extremely dry year, resulting in very low yields. All hybrids fared well given the severity of drought conditions. Compare this with other trials and other years when making selections for 2008.

III. Aerially Applied Fungicides

Aerial Application of Headline Fungicide at Tassel (Fishers)

Cooperators: **Producer:** Keith Harris
Extension: Matt Lewis, Northumberland/Lancaster
Spencer Moody, Summer Intern
Agribusiness: Matt Crabbe, Crabbe Aviation
Previous Crop: Soybeans
Soil Type: Sassafras fine sandy loam
Planting Date: April 1, 2007
Hybrid: Dekalb 61-45 RRYGCB
Fertilizer: Broadcast: 3.0 ton poultry litter
Sidedress: 50-0-0
Crop Protection: Roundup® burndown, Aatrex® + Lumax® pre-emergent
Harvest Date: September 6, 2007

Treatment	Rep	Yield	% Moisture
Headline®	1	24	17.7
Check	1	28	17.3
Headline®	2	56	17.5
Check	2	53	17.0
Headline®	3	48	18.5
Check	3	63	17.4
Headline®	4	32	18.2
Check	4	43	17.9
Avg Headline®:		40	18.0
Avg Check:		47	17.4
LSD		12.6	0.57

Discussion: At current high corn prices, there is a great deal of interest in using crop protection to push yields as high as possible. Reports from other areas in the mid-Atlantic and Midwest indicate the use of strobilurin fungicides may help increase yields, especially in wet years when disease pressure is high. Headline® was applied by airplane at the rate of 9.0 ounces per acre on June 29, as corn was tasseling and beginning to silk.

This plot was especially stricken by the extreme drought, averaging under 50 bushels per acre. Severe drought is not a condition under which a fungicide would be expected to significantly increase yields, and there was no difference in this plot. We plan to repeat this experiment until we have significant information on fungicide performance under high-yield, high-disease pressure conditions.

Aerial Application of Headline Fungicide at Tassel (Walnut Point)

Cooperators: **Producer:** Keith Harris
Extension: Matt Lewis, Northumberland/Lancaster
Spencer Moody, Summer Intern
Agribusiness: Matt Crabbe, Crabbe Aviation
Previous Crop: Soybeans
Soil Type: Sassafras fine sandy loam
Planting Date: April 2, 2007
Hybrid: **nd**Dekalb DKC 61-66
Fertilizer: Broadcast: 70-80-80
Sidedress: 70-0-0
Crop Protection: gramoxone burndown, Aatrex® + Princep®, Roundup® postemergence
Harvest Date: September 6, 2007

Treatment	Rep	Yield	% Moisture
Headline®	1	60	19.4
Check	1	60	20.0
Headline®	2	46	20.2
Check	2	60	19.2
Headline®	3	63	19.5
Check	3	49	20.6
Headline®	4	47	19.5
Check	4	40	19.4
Avg Headline®:		54	19.7
Avg Check:		52	19.8
LSD		19.2	1.5

Discussion: At current high corn prices, there is a great deal of interest in using crop protection to push yields as high as possible. Reports from other areas in the mid-Atlantic and Midwest indicate the use of strobilurin fungicides may help to increase yields, especially in wet years when disease pressure is high. Headline® was applied by airplane at the rate of 9.0 ounces per acre on June 29 as corn was tasseling and beginning to silk.

This plot was especially stricken by the extreme drought, averaging just over 50 bushels per acre. Severe drought is not a condition under which a fungicide would be expected to significantly increase yields, and there was no difference in this plot. We plan to repeat this experiment until we have significant information on fungicide performance under high-yield, high-disease pressure conditions.

Aerial Application of Quadris Fungicide at Tassel (Gascony Farm)

Cooperators: **Producer:** Alan Welch
Extension: Matt Lewis, Northumberland/Lancaster
Spencer Moody, Summer Intern
Agribusiness: Matt Crabbe, Crabbe Aviation
Previous Crop: Soybeans
Soil Type: Woodstown fine sandy loam
Planting Date: April 25
Hybrid: Dekalb 61-45 RRYGCB
Fertilizer: Broadcast: Poultry litter – 3.0 ton/acre
Sidedress: 50-0-0
Crop Protection: atrazine + simazine preplant; Roundup® postemergence
Harvest Date: September 25, 2007

Treatment	Rep	% Moisture	Yield
Check	1	15.5	73
Quadris®	1	15.4	107
Check	2	15.9	73
Quadris®	2	15.6	80
Check	3	15.3	89
Quadris®	3	16.3	69
Check	4	15.9	76
Quadris®	4	15.6	95

	Yield	%Moisture
Avg Check:	78	15.7
Avg Quadris®:	88	15.7
LSD 0.10	26.4	0.73

Discussion: At current high corn prices, there is a great deal of interest in using crop protection to push yields as high as possible. Reports from other areas in the mid-Atlantic and Midwest indicate the use of strobilurin fungicides may help to increase yields, especially in wet years when disease pressure is high. Quadris® was applied by airplane at the rate of 9.0 ounces per acre on June 29, as corn was tasseling and beginning to silk.

There was a great deal of variability in yields in this plot and, though the treated strips averaged 10 bushels per acre higher than the untreated strips, the difference was not statistically significant. Of course, it was also a very dry year and no disease pressure was evident in the plot. We plan to continue this series of fungicide trials until we have more information gathered from wet, high-yield, high-disease pressure conditions.

Aerial Application of Quadris Fungicide at Tassel (Shiloh School)

Cooperators: **Producer:** Alan Welch
Extension: Matt Lewis, Northumberland/Lancaster
Spencer Moody, Summer Intern
Agribusiness: Matt Crabbe, Crabbe Aviation
Previous Crop: Soybeans
Soil Type: Sassafras and Woodstown (fine sandy loams)
Planting Date: April 27
Hybrid: Dekalb 61-45 RRYGCB
Fertilizer: Broadcast: Poultry litter – 3.0 ton/acre
Sidedress: 50-0-0
Crop Protection: atrazine + simazine preplant; Roundup® + 2,4-D postemergence
Harvest Date: September 18, 2007

Treatment	Rep	% Moisture	Yield
Quadris®	1	18.8	26
Check	1	15.5	34
Quadris®	2	18.1	45
Check	2	16.8	57
Quadris®	3	18.1	63
Check	3	17.3	52
Quadris®	4	17.5	47
Check	4	17.4	51

	Yield	% Moisture
Avg Quadris®:	46	18.1
Avg Check:	48	16.8
LSD 0.10	11.8	1.6

Discussion: At current high corn prices, there is a great deal of interest in using crop protection to push yields as high as possible. Reports from other areas in the mid-Atlantic and Midwest indicate the use of strobilurin fungicides may help to increase yields, especially in wet years when disease pressure is high. Quadris® was applied by airplane at the rate of 9.0 ounce per acre on June 29 as corn was tasseling and beginning to silk.

This plot was especially stricken by the extreme drought, averaging less than 50 bushels per acre. Severe drought is not a condition under which a fungicide would be expected to significantly increase yields, and there was no difference in this plot. Interestingly, moisture was significantly higher in the treated strips. We plan to repeat this experiment until we have significant information on fungicide performance under high-yield, high-disease pressure conditions.

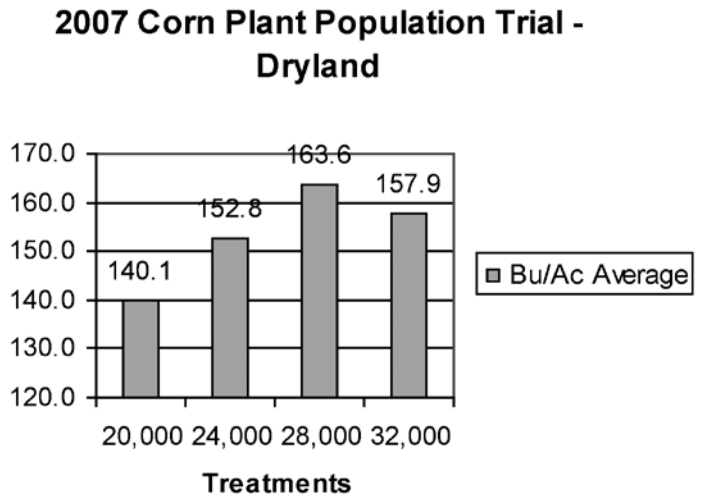
IV. Corn Population Studies

2007 Corn Plant Population Trial – Dryland

Cooperators:	**Producer:**	David, John and Stanley Hula, Renwood Farm
	Extension:	Paul Davis, New Kent/Charles City
	Virginia Tech:	Wade Thomason
		John Townsend, Summer Intern
	Agribusiness:	Southern States
	FFR:	Phil Egolf and Phil Troutman*
Hybrid:	SS574 RR/YG	
Plant Population:	See below treatments	
Previous Crop:	Soybeans	
Soil Type:	Pamunkey fine sandy loam	
Planting Date:	May 2, 2007	
Fertilizer:	Broadcast:	45-60-90 + Avail®
	Starter:	70.0 lb N
	Sidedress:	120.0 lb N + NutriSphere-N™
Herbicides:	Preplant:	26.0 oz Roundup Original®
	Pre-emergence:	1.8 qt Bicep II Magnum® + 1.0 pt Aatrex®
Harvest Date:	September 29, 2007	

Treatments	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Avg. % Moisture	Avg. bu/a
20,000	138.0	141.0	135.8	139.2	147.6	20.0	140.1
24,000	145.6	142.6	163.4	154.8	157.4	20.4	152.8
28,000	159.4	154.9	171.6	160.7	171.6	20.5	163.6
32,000	178.5	175.4	148.6	131.8	155.2	20.7	157.9

Discussion: This study showed that corn yields topped out at 28,000 plants per acre. Even on highly productive soils and average rainfall 20,000 plants is not enough and 32,000 is too many without supplemental water. Compare this dryland population study to the irrigated population in the same field and you will see a 60 bushels per acre increase at 20,000 and a 100 bushels per acre yield increase at 32,000 with the addition of irrigation.



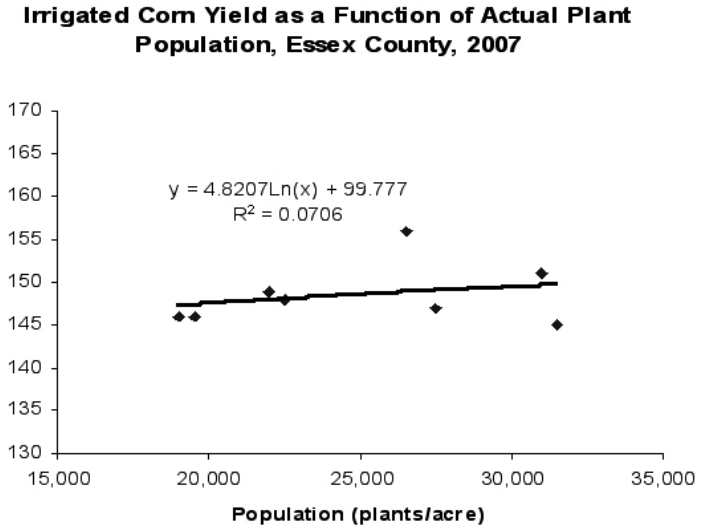
*Special thanks to the FFR staff who planted, fertilized and harvested all the corn hybrid plots.

2007 Irrigated Corn Population Study

Cooperators: **Producer:** Cloverfield Farms, Inc.
Extension: Keith Balderson, Essex
Hybrid: Garst 8534
Seedbed Preparation: No-till
Soil Type: Molena Loamy Sand

Population Planting Rate	Rep	Actual Plant Population	% Moisture	Yield (bu/a @ 15.5%)
20,000	1	19,000	15.2	146
24,000	1	22,000	15.0	149
28,000	1	26,500	15.2	156
32,000	1	31,000	15.3	151
20,000	2	19,500	15.0	146
24,000	2	22,500	15.6	148
28,000	2	27,500	15.3	147
32,000	2	31,500	15.4	145
Averages:				
20,000		19,250	15.1	146
24,000		22,250	15.3	149
28,000		27,000	15.3	152
32,000		31,250	15.35	148

Discussion: Trouble with the irrigation system resulted in less water being applied to this plot than planned. As a result, yields were reduced. In any case, this plot illustrates that with corn yields in the 150 bushels per acre level, 20,000 plants per acre was adequate for this hybrid.

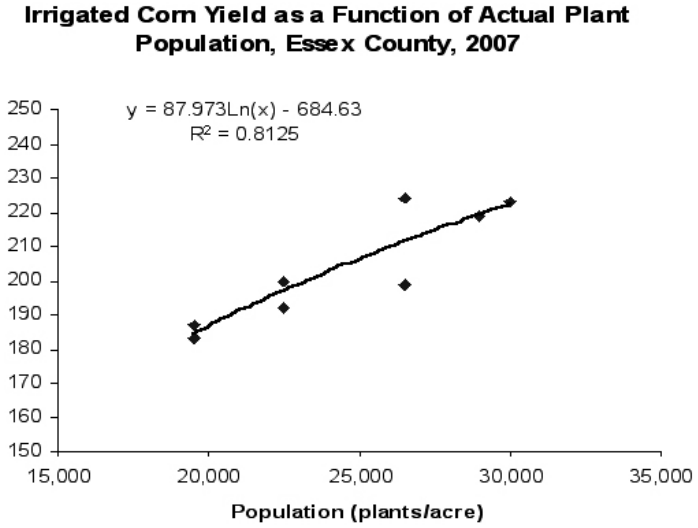


2007 Irrigated Corn Population Study

Cooperators: **Producer:** Cloverfield Farms, Inc.
Extension: Keith Balderson, Essex
Hybrid: Dekalb 61-42
Seedbed Preparation: No-till
Soil Type: Tetotum loam

Population Planting Rate	Rep 1	Actual Plant Population	% Moisture	Yield (bu/a @ 15.5%)
20,000	1	19,500	15.0	183
24,000	1	22,500	14.9	192
28,000	1	26,500	15.0	199
32,000	1	29,000	14.9	219
20,000	2	19,500	14.9	187
24,000	2	22,500	14.9	200
28,000	2	26,500	14.8	224
32,000	2	30,000	15.0	223
Averages:				
20,000		19,500	14.95	185
24,000		22,500	14.9	196
28,000		26,500	14.9	212
32,000		29,500	14.95	221

Discussion: In this irrigated corn plot on a very good soil, there was a very good yield increase as populations increased from 20,000 to 24,000 to 28,000 plants per acre. There was no yield increase when populations were increased from 28,000 to 32,000 plants per acre in one replication and a good increase in one replication.

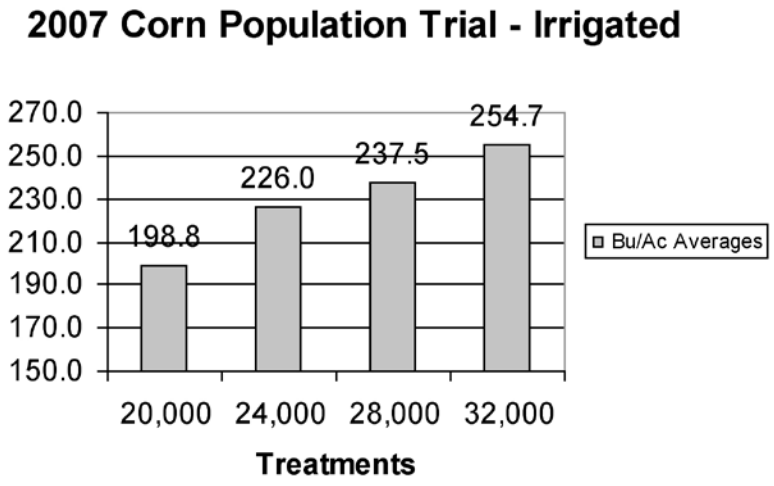


2007 Corn Plant Population Trial – Irrigated

Cooperators: **Producer:** Renwood Farm - David, John and Stanley Hula
Extension: Paul Davis, New Kent/Charles City
Virginia Tech: Wade Thomason
John Townsend (summer intern)
Agribusiness: Southern States
FFR: Phil Egolf and Phil Troutman*
Plant Population: See below treatments
Previous Crop: Soybeans
Soil Type: Pamunkey fine sandy loam
Planting Date: May 2, 2007
Fertilizer: Broadcast: 45-60-90 + Avail®
Starter: 70.0 lb N
Sidedress: 120.0 lb N + NutriSphere-N™
Herbicides: Preplant: 26 oz. Roundup Original®
Pre-emergence: 1.8 qt Bicep II Magnum + 1.0 pt Aatrex®
Harvest Date: September 29, 2007

Treatments	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% H_2O Avg.	Bu/Ac Avg.
20,000	224.5	173.0	200.1	186.7	209.5	13.1	198.8
24,000	222.7	236.2	231.7	226.4	213.1	14.4	226.0
28,000	230.4	214.9	235.3	278.8	228.2	14.2	237.5
32,000	250.0	270.3	276.4	231.1	245.6	13.5	254.7

Discussion: Under irrigation 32,000 plants per acre may not have been enough because yields were steadily increasing with each 4,000 additional seeds per acre. Conditions at this location were ideal with good rainfall on highly productive soils and, with supplemental irrigation, show that some of today's corn hybrids can be pushed for higher yields. There was a 55 bushel yield increase between 20,000 and 32,000 population.



*Special thanks to the FFR staff who planted, fertilized and harvested all the corn hybrid plots.

Corn Population Study

Cooperators: **Producer:** Jason Benton
Extension: David Moore, Middlesex
Previous Crop: Soybeans
Plant Date: April 19, 2007
Soil Type: Suffolk Fine Sandy Loam
Fertilization: 27-50-100 preplant, 50.0 lb N with burndown
100.0 lb N as sidedress
Crop Protection: glyphosate, atrazine + simazine
Corn Hybrid: Southern States 604 planted at 23,800
Harvest Date: September 6, 2007

Population	Stand (5-24)	% Moisture	Yield @ 15.5%
23,800	23,000	15.1	92.5
23,800		15.0	93.2
21,900	19,500	16.7	95.5
21,900		16.1	87.7
25,700	25,500	15.6	83.3
25,700		15.5	78.4
27,800	27,000	15.7	71.2
27,800		16.2	76.4
30,100	30,500	15.9	72.4
30,100		15.8	72.5
19,700	19,000	15.5	87.6
19,700		15.4	90.5
Averages			
	19,700		89.1
	21,900		91.6
	23,800		92.9
	25,700		80.9
	27,800		73.8
	30,100		72.5

Discussion: No surprises here. In dry weather, higher populations don't always come through. It does show that the population Jason uses is not too far off. He did move up to 25,200 after doing this plot. As you can see by the final population (5-24-07), he had a uniform stand. Use this and other Virginia Tech replicated corn hybrid information when making planting decisions for 2008.

V. Weed Removal and Nitrogen Rate in Organic Corn

Yield Response to Weed Removal and Sidedress Nitrogen in Organic Corn

Cooperators: **Producer:** Todd Henley
Extension: Keith Balderson, Essex
NRCS: Chris Lawrence, State Agronomist
John Dille, District Conservationist
Hugh Markham, Tappahannock Field Office
Three Rivers SWCD: Wayne Pierson, District Conservationist
Meaghann Terrien, Conservation Technician

Plot Plan:

	Block A Weeded	Block B Control	Block C Weeded	Block D Control	Block E Weeded	Block F Control
Plot 1	0 N	100 N	50 N	0 N	0 N	150 N
Plot 2	50 N	150 N	150 N	100 N	50 N	0 N
Plot 3	150 N	0 N	100 N	150 N	100 N	100 N
Plot 4	100 N	50 N	0 N	50 N	150 N	50 N
Plots are 4 rows wide, 20 feet long						

Background: Mr. Henley has over 400 acres in a cash grain/soybean organic production system. Nitrogen deficiency and crop competition from weeds have been identified as two factors that are limiting corn yields. This plot evaluated the effects of eliminating weeds and increasing nitrogen rates on corn yields. Poultry litter was applied preplant at a rate of 2 tons per acre.

Treatments: Weeds: Blocks A, C, E were weeded by hand by the farmer at sidedress time. The farmer's "normal" tillage-based weed control had been applied to all plots previously (rotary harrow and row cultivation). All pulled weeds, which represented a notable amount of biomass, were removed from the experimental area. Note that a dramatic defoliation of jimsonweed, the dominant weed in the plots, by huge numbers of three-striped potato beetle significantly reduced weed pressure in these plots and the entire field in the month following sidedress.

Sidedress N Rates: Four rates (0, 50, 100, 150 pounds per acre of nitrogen) were randomly assigned within blocks. See the plot plan above. Nitrogen was applied and incorporated simultaneously using a garden hand seeder by walking back and forth along both sides of each row until the measured material was spread. Soil was loose due to recent row cultivation and incorporation was easy. Renaissance feather meal 11-0-0 at 8.5 ounces per 20 feet of row provides just over 50 pounds per acre of nitrogen. Release characteristics of nitrogen were sought from manufacturer, but no information was available.

Data Collected:

1. Stand counts were taken the day of sidedressing. Plants were counted for the entire 20-foot length of the center two rows in each plot.

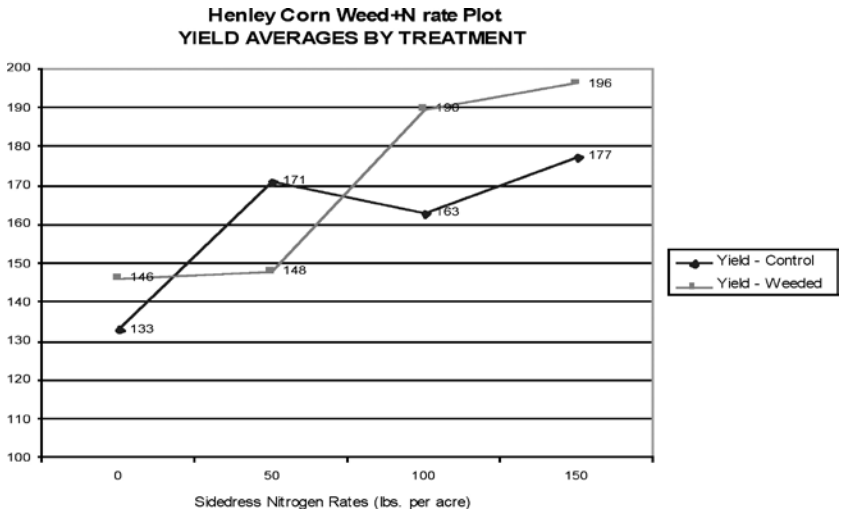
2. PSNT sample taken from the test and the reading was 15.7 ppm.

3. Ear leaf samples for nitrogen analysis (A&L labs) at silking – composite for each of 8 treatments were taken.

4. Hand harvest of ears from middle two rows of each plot. Only the middle 10 feet of each of the two rows was harvested – marked with a 10-foot stick. The number of ears from each plot was noted, but the number of plants in the harvested area was not. All harvested ears were shelled by hand. A sub-sample was tested for moisture with a field tester, and the entire sample was weighed with a kitchen scale.

Discussion: The graph below summarizes yields. Both weed competition and nitrogen deficiency affected yields, but nitrogen deficiency seemed to have a more dramatic impact on yields in this plot. Irrigation might help overcome somewhat the effects of the weeds. In addition, biological control of jimsonweed and pigweed by leaf-feeding insects also helped reduce

the effects of the weeds. We obtained a very good yield response to the sidedress nitrogen in both the weeded and unweeded plots. In an organic system, increasing nitrogen rates can probably be done economically by one of two ways: increasing the use of legumes, such as crimson clover or hairy vetch, or increasing poultry litter rates. Weed control presents more of a challenge.



VI. Sidedress Nitrogen Injection

Comparison of Injected vs. Dribbled Nitrogen at Sidedress

Cooperators: **Producer:** Alan Welch
Extension: Matt Lewis, Northumberland/Lancaster
Spencer Moody, Summer Intern
Previous Crop: Soybeans
Soil Type: Kempsville fine sandy loam
Planting Date: April 22, 2007
Hybrid: Hubner 4230CB
Fertilizer: Broadcast: Poultry Litter – 3.0 ton/acre
Sidedress: 50-0-0
Crop Protection: atrazine, simazine preplant; 0.75 oz Stout®, 3.0 oz Clarity® postemergence
Harvest Date: September 5, 2007

Treatment	Rep	Moisture	Yield
Injected	1	15.4	123
Dribbled	1	15.6	125
Injected	2	15.1	123
Dribbled	2	15.6	122
Injected	3	15.1	121
Dribbled	3	15.4	129
Injected	4	15.5	133
Dribbled	4	15.5	133
		Yield	**Moisture**
Avg Injected:		125	15.3
Avg Dribbled:		127	15.5
LSD		6.2	0.33

Discussion: This plot was put in to see if nitrogen injection at sidedress is more efficient in providing more plant-available nitrogen than dribbling on top the soil surface. The plot was put in using a Red Ball 12-row fertilizer applicator fitted with Yetter injection coulters. In this case, due to drought, total nitrogen rates were more than adequate to produce grain yields in the 120 to 130 bushels per acre category. There was no difference in grain yields between the two methods. Other research indicates injection may be a practical way to increase nitrogen-use efficiency, especially in years of good moisture, so look for similar plots in 2008. Please stay tuned …

VII. Avail Phosphorus Fertilizer Additive

2007 Corn Starter Fertilizer Trial with Avail

Cooperators:	**Producer:**	David, John and Stanley Hula, Renwood Farm
	Extension:	Paul Davis, New Kent/Charles City
	Virginia Tech:	John Townsend, Summer Intern
	Agribusiness:	Southern States Coop, King William Store
	FFR:	Phil Egolf and Phil Troutman*
Hybrid:	SS574 RR/YG	
Plant Population:	32,000	
Previous Crop:	Soybeans	
Soil Type:	Pamunkey fine sandy loam	
Planting Date:	May 2, 2007	
Fertilizer:	Broadcast:	70.0 lb N
	Starter:	See below treatments
	Sidedress:	120.0 lb N + NutriSphere-N™
Herbicides:	Preplant:	26 oz. Roundup Original®
	Pre-emergence:	1.8 qt Bicep II Magnum® + 1.0 pt Aatrex®
Harvest Date:	September 29, 2007	

**Treatments	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Avg. bu/a
Control	188.9	199.0	188.9	232.9	221.7	207.7	220.8	208.6
Starter: 14-46-0	206.7	187.8	211.4	221.7	230.7	224.1	227.9	215.8
Starter: 14-46-0 + 0.5 gal Avail®	212.1	193.1	231.6	222.3	210.4	215.2	227.3	216.0

Discussion: Avail® is a polymer that protects liquid phosphorus fertilizers from fixation in the soil, thus making the applied phosphorus more available for plant uptake. The starter and starter + Avail® treatments were significantly better than no starter by nearly 9 bushels per acre, but there was no yield boost by adding Avail® to the starter in this study. Please compare other Avail® fertilizer plots before making your 2008 fertilizer decision.

*Special thanks to the FFR staff who planted, fertilized and harvested the corn plots.

** 6-inch band over the row at planting.

VIII. WolfTrax Micronutrients

2007 Corn Seed Treatment Trial With WolfTrax Zn

Cooperators:	**Producer:**	David, John & Stanley Hula, Renwood Farm -
	Extension:	Paul Davis, New Kent/Charles City
	Virginia Tech:	Wade Thomason
		John Townsend, Summer Intern
	Agribusiness:	Southern States Coop., King William Store
	FFR:	Phil Egolf and Phil Troutman*
Hybrid:	SS574 RR/YG	
Plant Population:	32,000	
Previous Crop:	Soybeans	
Soil Type:	Pamunkey fine sandy loam	
Planting Date:	May 2, 2007	
Fertilizer:	Broadcast:	45-60-90 + Avail®
	Starter:	70.0 lb N
	Sidedress:	120.0 lb N + NutriSphere-N™
Herbicides:	Preplant:	26.0 oz Roundup Original
	Pre-emergence:	1.8 qt Bicep II Magnum® + 1.0 pt Aatrex®
Harvest Date:	September 29, 2007	

Treatments	Rep 1	Rep 2	Rep 3	Rep 4	Avg. % Moisture	Avg. bu/a
1- No Zn	182.3	213.0	219.5	200.3	14.2	203.8
2- WolfTrax Zn	205.3	208.6	207.7	213.1	14.2	208.7

Discussion: The addition of WolfTrax Zn seed treatment increased yields by 5 bushels but this was not significantly different. Please compare to other Zn seed treatment studies before making your planting decisions.

*Special thanks to the FFR staff who planted, fertilized and harvested all the corn hybrid plots.

"WolfTrax" Seed-Applied Micronutrients

Cooperators: **Producer:** Robert Bland IV
Extension: David Moore, Middlesex
Keith Balderson, Essex
Previous Crop: Soybeans
Plant Date: April 24, 2007
Soil Type: Suffolk Fine Sandy Loam
Fertilization: 40-50-120; 50.0 lb N with pesticides; 75.0 lb N dribbled
Crop Protection: Roundup® + atrazine + simazine + Lumax®
Hybrid: TA Seeds 678-00
Treatment: Zinc WolfTrax treatment at 2.5 oz/bag
Harvest Date: September 20, 2007

Treatment	Moisture%	Yield @ 15.5%
Untreated (3 rows)	16.3	121.7
Treated	16.1	128.3
Untreated	16.1	120.5
Treated	15.9	123.5
Untreated	16.0	116.9
Treated	16.0	127.1
Untreated (3 rows)	15.9	112.5
Average Treated:	126.3 bushels	
Average Untreated:	117.9 bushels	
LSD: 8.3 bushels		

Discussion: The actual amount of Zn applied was less than an ounce per acre. It is difficult to believe that this treatment made any difference in yields, but this test does show a statistical increase in yield in the "WolfTrax" plots. Cost of treatment was approximately $1.00 per acre. Phosphorous levels in the soil, according to soil test, were very high which does make Zn less available to the plant. Maybe this Zn on the seed treatment provided the zinc the plant needed in this case.

With grain prices higher than normal, look for many new products on the market claiming to improve yields. Do some trials of your own, or call your Extension agent to assist with some replicated trials to help you make informed production decisions. Use this and other Virginia Tech replicated corn plot information when making planting decisions for 2008.

IX. Counter Insecticide Trials

Counter Insecticide Plot-Irrigated

Cooperators: **Producer:** John F. Davis and Tommy Hicks
Extension: Keith Balderson, Essex
Planting Date: April 2, 2007
Hybrid: Trisler 2744 Bt (P250)
Soil Type: Bojac
Fertilization: Starter: 40-40-0 plus 0.5 lb/acre Zn, 0.25 lb/acre B, and 1.0 lb/acre S
Broadcast: 90.0 lb/acre potash
Sidedress: 180-0-0-12 per acre
Herbicides Burndown: gramoxone
Pre-emergence: Lumax®, simazine, and atrazine
Harvest Date: August 29, 2007

Treatment	Rep.	%Moisture	Yield(bu/a @15.5%)
Counter® (8.7 lbs./acre)	1	21.7	201
Check	1	21.5	193
Counter®	2	20.8	187
Check	2	20.1	136
Counter®	3	19.9	153
Check	3	20.2	192
Averages:			
Counter®		20.8	180
Check		20.6	174
LSD (0.05)		ns	ns

Discussion: Mr. Davis has had some concerns about nematodes causing yield reductions in corn and soybeans, and past nematode assays have indicated potential problems. In this plot, the Counter® did not give a statistically significant yield increase. The check plot in replication 2 and the Counter® plot in replication 3 yielded significantly lower than the other treatments. Prior to harvest, we noticed areas in this field exhibiting nitrogen deficiency, and tissue sample results confirmed the deficiency. We are not sure what caused the deficiency, but we believe it is at least partially responsible for these yield reductions.

Counter Insecticide Plot – Irrigated

Cooperators: **Producer:** John F. Davis and Tommy Hicks
Extension: Keith Balderson, Essex
Planting Date: April 3, 2007
Hybrid: Trisler 2744 Bt (Poncho 250 ®)
Soil Type: Wickham
Fertilization: Starter: 40-40-0 plus 0.5 lb/acre Zn, 0.25 lb/acre B, and 1.0 lb/acre S
Broadcast: 90.0 lb/acre potash
Sidedress: 180-0-0-12/acre
Herbicides: Burndown: gramoxone
Pre-emergence: Lumax®, simazine, and atrazine
Harvest Date: August 29, 2007

Treatment	Rep.	%Moisture	Yield (Bu/A @ 15.5%)
Counter (8.7 lbs./acre)	1	23.6	206
Check	1	23.3	213
Counter	2	22.2	217
Check	2	22.6	212
Counter	3	22.4	211
Check	3	22.5	211
Average:			
Counter		22.7	211
Check		22.8	212
LSD (0.05)		ns	ns

Discussion: Mr. Davis has had some concerns about nematodes causing yield reductions in corn and soybeans, and past nematode assays have indicated potential problems. Counter did not increase yields in this plot.

X. 2007 Virginia Corn Board Nematode Survey Results

Submitted by: Keith Balderson, Extension Agent, ANR, Essex County

During the 2007 growing season, the Virginia Corn Board provided funding for a corn nematode survey in an effort to better understand the extent of the threat nematodes are to corn yields in eastern Virginia, make revisions in nematode-control recommendations, and evaluate current varieties and hybrids. The survey was conducted on fields that were suspected of having nematodes. Forty-seven samples were submitted to the lab for analysis. Given current recommendations, populations high enough to lower yield and warrant control measures were found in 47% of the corn fields, and 29% of corn fields were classified as having borderline populations in which crop damage may occur if other factors stress the crop. The most common nematodes found were stubby root, lance, and sting. These potentially damaging populations of nematodes warrant further study and research. Shifts in nematode populations are expected with farming practices that include: conversion to continuous no-till; the movement away from wheat in the crop rotation; changes in corn genetics; and the conversion from in-furrow insecticide/nematicide treatments to seed-applied treatments in corn.

The following table provides a summary of the results. The key for the recommend column is as follows: A – Nematode problem not detected; B – Possible nematode problem; C – Nematodes are a problem, control options are advisable. Numbers are reported as the number of nematodes per 500 cc's of soil (approximately one pint.)

County	Lesion	Root-knot	Cysts	Stubby root	Dagger	Stunt	Sprial	Lance	Ring	Sting	Pin	Recommend
Chesapeake	0	0	220	150	0	100	790	240	0	0	0	C
Chesapeake	210	0	140	60	30	110	690	160	0	0	0	C
Chesapeake	210	0	10	60	30	50	360	140	0	0	0	C
Dinwiddie	30	0	10	440	330	0	0	0	0	0	0	C
Essex	50	0	0	40	40	20	0	430	0	0	0	C
Essex	40	90	0	40	30	90	150	410	0	0	0	C
Essex	280	0	0	0	10	40	390	400	0	0	0	C
Greensville	0	0	0	520	0	990	30	120	0	0	0	C
Northumberland	10	0	0	300	20	290	0	110	0	0	0	C
Prince George	40	1720	0	360	30	290	610	130	10	0	0	C
Prince George	560	0	0	0	0	40	400	30	0	0	0	C
Southampton	0	0	0	20	0	0	0	0	0	480	0	C
Southampton	0	10	0	30	0	20	10	0	0	190	0	C
Southampton	0	0	0	360	0	0	0	310	0	80	0	C
Southampton	0	0	0	20	0	160	10	30	0	40	0	C
Southampton	0	0	0	10	0	100	0	60	0	20	0	C
Southampton	0	0	0	110	10	0	0	0	0	10	0	C
Southampton	0	10	0	840	20	380	0	0	60	0	0	C
Southampton	0	10	0	960	0	440	10	0	10	0	0	C
Surry	0	0	0	0	0	410	0	1360	0	0	0	C
Surry	70	530	0	180	0	170	130	150	0	0	0	C
Chesapeake	180	0	80	40	70	150	1170	100	0	0	0	B
Dinwiddie	20	0	40	110	0	0	130	10	0	0	0	B
Essex	70	10	0	10	10	0	600	200	0	0	0	B
Essex	0	0	0	0	0	250	160	150	0	0	0	B
Essex	100	0	0	0	0	180	160	100	0	0	0	B
Essex	320	0	50	0	0	0	180	80	0	0	0	B
Greensville	20	0	0	40	0	50	0	40	20	0	0	B
Greensville	0	130	0	180	0	30	3030	50	0	0	0	B
King & Queen	0	140	0	0	0	70	40	110	0	0	0	B
Northumberland	330	0	0	0	10	0	300	240	0	0	0	B
Prince George	0	210	0	20	10	80	10	20	0	0	0	B
Surry	0	0	0	110	0	320	0	0	0	0	0	B
Surry	10	60	0	80	10	0	0	0	0	0	0	B
Amelia	0	0	0	10	0	610	0	10	0	0	0	A
Dinwiddie	0	0	0	10	0	200	0	0	0	0	0	A
Essex	0	0	0	0	0	110	130	70	0	0	0	A
Essex	50	0	0	0	0	90	180	40	0	0	0	A
Essex	40	0	30	0	0	20	130	10	0	0	0	A
Greensville	0	0	0	0	0	0	0	10	70	0	0	A
Greensville	0	0	0	0	0	30	0	40	0	0	0	A
Mathews	130	90	0	10	0	20	190	0	0	0	10	A
Prince George	0	0	0	0	10	0	0	0	0	0	0	A
Prince George	0	0	0	0	0	140	440	0	0	0	0	A
Surry	10	0	0	0	0	30	20	0	10	0	0	A

We will be studying the survey results further this winter in an effort to determine the next steps in getting a better handle on nematode management in corn in eastern Virginia.

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