



Virginia Cooperative Extension

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2017

Virginia On-Farm Corn Test Plots



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

2017 Virginia On-Farm Corn Test Plots

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The research and demonstration plots discussed in this publication are a cooperative effort by twelve Virginia Cooperative Extension employees, two employees of the Northern Neck Soil and Water Conservation District, one employee of the Natural Resources Conservation District, numerous producers, and many members of the agribusiness community. The fieldwork and printing of this publication are mainly supported by the Virginia Corn Check-Off Fund through the Virginia Corn Board. This is the twenty-sixth year of this multi-county cooperative project. Further work is planned for 2018. Anyone who would like a copy of this publication should contact his or her local extension agent, who can request a copy from the Northumberland County Extension Office.



Producers interested in becoming involved with on farm research, and those with research topics that they would like to have investigated in future on farm publications should contact their local extension office for further information.

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

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

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General Summary

These demonstration and replicated studies provide information that can be used by Virginia corn growers to make better management decisions on their farm. Refer to individual results for more details.

Hybrid Comparisons

Corn hybrid selection continues to be challenging. With more seed companies and more GMO options and seed treatment packages than ever before, hybrid selection can be a difficult decision. We evaluated early maturity hybrids (107 day RM or less) at five locations, medium maturity hybrids (108-112 day RM) at four locations, and full season hybrids (113 day RM or more) at three locations. Additionally, the Virginia Ag- Expo location in Charles City had hybrids in all three maturity groups. Farmers should use the results compiled from these studies to assist with future hybrid selection, however should continue to plant hybrids of multiple maturities to help spread production risk.

Emergence Evaluation

In follow up work from previous years, we evaluated uniform stand emergence in two locations. Emergence was checked and flagged for three straight days or more at the same time each day as soon as the corn began spiking the ground. Ears from the forty foot section were hand harvested and weighed at the end of the season and yields were calculated. Uniform emergence is critical for obtaining maximum yields and farmers should pay close attention to planter speed, strive for uniform planting depth, make sure the planting slot is closed, replace worn planter parts and be sure to plant hybrids with good stress emergence, especially when planting early into cold and wet soils.

Cover Crop Evaluation

We continued to evaluate legume and mixed species cover crop options in corn production. Our work continues to show that these options can provide significant nitrogen to the subsequent corn crop. Hairy vetch, in particular shows great promise in helping to increase corn yields.

Planting Population Comparisons

The number of corn hybrids currently available to farmers provide numerous options when making planting decisions. We compared four planting populations in fixed ear and flex ear hybrids to determine the effect that plant population had on fixed versus flex ear varieties. Both fixed and flex ear varieties were planted at 18,000, 22,000, 26,000, and 30,000 seeds per acre populations. Plots were harvested and results were graphed to determine how the two hybrids compared when planted at different populations. Future work is planned for the 2018 season to further evaluate this topic.

In Furrow Insecticide and Fungicide Evaluation

We examined the Ethos XB when applied in furrow. Ethos XB insecticide/fungicide offers corn seedling defense against soil pests and diseases. It protects seedlings from corn rootworm, wireworms, grubs, seed corn maggots, cutworms, and common stalk borers. The biological fungicide in Ethos XB insecticide/fungicide aids in control of Fusarium, Pythium, Phytophthora, and Rhizoctonia. Yields of treated and non-treated con were compared to evaluate the products effect.

Caroline Early Maturity Corn Hybrid Demonstration Plot

Cooperators:

Producer- Airy Hill Farm
Extension- M. Broaddus, T. Jones
Industry- None

Previous Crop: Soybean
Soil Type: 24B Suffolk Fine Sandy Loam
Tillage: No-Till
Planting Date: May 6, 2017
Planting Equipment: IH Cyclo Air 800 (12 row)
Plant Population: 29,500 plants/ac.
Row Spacing: 30 in rows
Fertilizer: 3/14/17 60#K; 5/20/17 78# N and 10#S via 24-0-0-3
 6/10/17 65# N and 8# S via 24-0-0-3
Crop Protection: 1 qt/Ac Harness Extra; 1 qt. Aatrexx, 1 qt. Glyphosate at burndown and at V3 for grass control
Harvest Date: October 18, 2017
Harvest Equipment: Case/IH 1660 w/ 630 corn header

Caroline Early Maturity Corn Hybrid Demonstration Plot

Hybrid	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Doebblers 563	105	17.1	115.7
SCS 1067	105	16.8	107.0
Axis 57A25	107	16.5	106.5
HubnerH6257	104	16.5	106.2
Pioneer P0339	103	16.4	97.7
Dyna Gro D44VC	104	16.2	94.1
Dekalb DKC60-69RIB	104	17.6	92.7
Channel 201-28	101	16.2	75.1

Discussion: One would be careful not to draw many conclusions based on this plot. The plot on this farm received a total of less than three tenths of an inch of rainfall in July, while at the same time experienced much hotter than normal temperatures. These hot temperatures and lack of rainfall not only prevented the grass herbicides to control Large Crabgrass and Fall Panicum, but also hindered pollination. For the most part, it also appears the longer maturing corn seemed to yield a little better than the shorter maturing varieties. This appears to be due to the record heat and lack of rainfall during the shorter season's time of pollination.

King and Queen Early Maturity Corn Hybrid Demonstration Plot

Cooperators:	Producer: Bruce Taylor Extension: Keith Balderson, VCE-Essex, retired Tracy Porter, VCE-King and Queen/King William Industry: Participating Companies
Previous Crop:	Soybeans
Soil Type:	State fine sandy loam, Craven fine sandy loam, and Bojac loamy sand
Plant Date:	April 10, 2017 at 26,500 plants per acre
Check Hybrid:	Dyna-Gro 44VC36
Tillage:	No-Till
Fertilization:	Broadcast: 50-30-80-5S per acre Sidedress: 100-0-0-12S per acre
Crop Protection:	Burndown: Gramoxone and 2,4-D Pre-emergence: Atrazine and Princep Post-emergence: Roundup and Atrazine Insecticide: Tombstone in Burndown In-furrow Insecticide and Fungicide: Ethos XB
Harvest Date:	September 1, 2017

King and Queen Early Maturity Corn Hybrid Demonstration Plot

Hybrid	M% (L)	Yield (Bu./Acre @ 15.5%)	% of Check (L)	M% (U)	Yield (Bu./Acre @ 15.5%)	% of Check (U)
Check-Dyna-Gro 44VC36	16.0	159		16.0	111	
Augusta 4657	17.7	172	110.6	16.3	124	112.2
Check	16.4	152		16.0	110	
Axis 57A25	17.7	162	108.4	16.5	130	111.6
Check	16.8	147		16.1	123	
Channel 201-28	15.2	152	95.9	15.0	133	99.3
Check	16.1	170		15.9	145	
Doebler's 563HXR	16.9	176	104.8	16.7	154	108.1
Check	15.9	166		15.8	140	
Dyna-Gro 44VC36	16.3	166	107.8	16.2	140	96.8
Check	16.0	142		15.8	149	
Hubner 6257	15.2	168	118.3	15.5	162	104.5
Check	15.5	142		15.7	161	
Pioneer 0339	16.5	157	120.8	16.6	180	113.6
Check	16.2	118		15.8	156	
Seed Consultants 1067	16.9	152	122.4	16.5	173	110.9
Ave. Hybrids excl. checks	16.55	163		16.16	150	
Ave. All Checks	16.11	132		15.89	137	

Discussion: Many thanks to all the cooperators that allowed corn plots on their farms in 2017. Corn yields in eastern Virginia were quite variable from farm to farm and even within fields during 2017 due to rainfall variability and/or soil type differences. This plot was about 3000 feet long and the field has multiple soil types and yields were highly variable across the plot. Nematode assays following plot harvest revealed the presence of stubby root, root knot, lance, and lesion nematodes in high enough populations to cause yield loss, especially under drought stress. Seed for some of the hybrids was treated with a nematicide seed treatment, and in reviewing the yield data there was some indication that the nematicide seed treatments helped. We harvested the plot in two different sections in an effort to provide better data. The plot experienced drought and heat stress during grain fill. Use this and other Virginia Tech replicated hybrid plot results when making planting decisions for 2018.

Chesapeake/Virginia Beach Early & Mid Maturity Corn Hybrid Demonstration Plot

Cooperators:

Producer-	Frank Brickhouse
Extension-	Watson Lawrence and Roy Flanagan
Previous Crop:	Soybeans
Soil Type:	Acredale Silt Loam
Tillage:	Ridge type Conventional Tillage
Planting Date:	April 21, 2017
Planting Equipment:	7300 JD Maxi Merge Vacuum Planter 12 rows
Plant Population / Row Spacing:	32,000/ 30 inch rows
Fertilizer:	500lbs. 15-15-15 pre plant 40 gallons 30% N sidedress
Crop Protection:	No Preemergence Postemergence: 1 quart of Atrazine, 1 quart of Round-Up Ultra, 1 pint Kinpin, and Harmony SG .125 ounces per acre
Harvest Date:	September 1, 2017
Harvest Equipment:	JD 9860

Discussion: Farmers continually look for early-corn varieties that will allow them to begin harvest in August without sacrificing yield. For this area of Virginia, mid to full season corn varieties generally yield more as this and other variety trials prove. So farmers are looking for a limited number of acres to plant to early corn and therefore are very selective in choosing early corn varieties that yield well and dry down quickly in the season. At the same time, the attributes of lodging resistance are not as critical as a mid or full season variety, due to timely harvest early in the season.

**Chesapeake/Virginia Beach Early & Mid Maturity Corn Hybrid Demonstration
Plot**

Early-Hybrid Varieties	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Check-Dekalb 64-69	114	17.6	194.1
Great Heart 7238	112	19.7	157.1
Doebler's 563	105	17.3	188.2
Check-Dekalb 64-69	114	17.1	167.8
Channel 201-28	101	15.9	200.3
Axis 57A25	107	17.1	187.6
Check-Dekalb 64-69	114	18.1	183.3
Pioneer P0039	103	16.6	179.2
Augusta 4657	107	17.8	164.3
Check-Dekalb 64-69	114	17.3	162.5
Hubner H6257RC2P	104	16.1	174.1
Dyna Gro D44VC36	104	16.4	192.7
Check-Dekalb 64-69	114	17.2	176.6
Early Corn Variety Average		17.1	180.4
Check Dekalb 64-69 Average		17.5	176.9
Mid-Hybrid Varieties	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Check-Dekalb 64-69	114	17.9	178.6
Doebler's 5125 AM	111	17.2	182.9
Great Heart 7240	112	17.6	190.7
Check-Dekalb 62-40	114	17.8	201.0
Augusta 5062	112	19.0	161.5
Hubner H08G394	108	17.0	209.2
Check-Dekalb 64-69	114	18.7	179.2
Progeny PGY6110	115	18.6	196.9
Axis 60K23	110	17.4	186.6
Check-Dekalb 64-69	114	17.4	193.9
Channel 210-26	110	18.4	233.5
Seed Consultants SCS1125	112	20.6	167.0
Check-Dekalb 64-69	114	17.4	214.4
Dyna Gro D52VC91	112	18.6	209.2
Pioneer P1197 AM	111	18.1	190.9
Mid Corn Variety Average		18.3	192.8
Check Dekalb 64-69 Average		17.8	193.4

Westmoreland County Mid Maturity Corn Hybrid Demonstration Plot

Cooperators: **Producer:** F.F. Chandler, Jr. and Louis Chandler
Extension: Stephanie Romelczyk, ANR – Westmoreland
 Trent Jones, ANR – Northumberland/Lancaster
 Makenzie Hall, VCE Intern
 Industry: Participating Seed Company Representatives

Previous Crop: Soybeans
Soil Type: Kempsville loam
Tillage: No-till
Planting Date: April 18, 2017
Planting Equip.: Case IH 950 Cyclo Planter
Plant Population: 29,200 seeds / Acre
Fertilizer: Broadcast: 40 lbs N/A + 20 lbs P/A + 60 lbs K/A + 5 lbs S/A
 Starter: 30 lbs N/A + 30 lbs P/A + 4 lbs S/A + 0.2 lb B/A + 0.6 lb Zn/A
 Sidedress: 100 lbs N/A + 12.5 lbs S/A

Crop Protection: Preplant: Acuron 1.5 qt/A
 Princep 1.5 pt/A
 Postemergence: Halex 3.6 pt/A
 Atrazine 1 qt/A
 Radiate 2 oz/A

Harvest Date: September 26, 2017
Harvest Equipment: John Deere 9400

Westmoreland County Mid Maturity Corn Hybrid Demonstration Plot

Hybrid	Pop.	% Moisture	Yield (bu./A @15.5%)
Doeblers 5125AM	32000	14.3	228
Axis 60K23RIB	25666	14.8	219
Dynagro 52vc91RIB	22333	14.3	215
Seed Consultants SCS1125YHI	34333	14.9	215
Pioneer P1197AM	27333	14.3	212
Augusta 5062	27000	14.5	205
Progeny PGY6110VT2P	29666	14.0	198
Channel 210-26STX	25333	14.8	177
Hubner H6257RCSS	31666	14.0	164
AVERAGE			204

Discussion: Planter problems in the Channel, Dynagro, and Axis varieties resulted in lower stand counts. The Hubner variety is an early season variety with a relative maturity of 104 days and was accidentally included in this mid-maturity trial.

Rainfall:

- April 18 – April 30: 1.13 inches
- May: 5.99 inches
- June: 1.46 inches
- July: 6.02 inches
- August: 2.44 inches
- September 1 – 26: 1.17 inches

Northumberland County Mid Maturity Corn Hybrid Demonstration Plot

Cooperators:	
Producer-	Mike Bryant, Seth Bryant
Extension-	Trent Jones, ANR, Northumberland/Lancaster, Ellie Daney, VCE Intern
Previous Crop:	Soybeans
Soil Type:	Sassafras fine sandy loam
Tillage:	No-Till
Planting Date:	April 20, 2017
Planting Equipment:	John Deere 1770
Plant Population:	30,000 Seeds / Acre
Row Spacing:	30 in.
Fertilizer:	Pre Planting- 50 lbs. N / Acre & 120 lbs. Potash / Acre At Planting- 20 gal. 15-15-0 / Acre Side Dress- 100 lbs. N / Acre
Crop Protection:	Burn Down- Glyphosate Pre- Emerge- 4 oz. Corbis & 1 ½ qt. Bicep / Acre Insecticide- Sniper LFR in Furrow & Dead line M-Ps Broadcast
Harvest Date:	September 12, 2017
Harvest Equipment:	John Deere 9500

Northumberland County Mid Maturity Corn Hybrid Demonstration Plot

Hybrid	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Dynagro 52vc91RIB	112	17.2	225.7124
Channel 210-26STX	110	15.5	208.1137
Doebler's 5125AM	111	16.5	203.5727
DuPont Pioneer P1197AM	111	16.9	208.8439
Axis 60K23RIB	110	17.7	209.6128
Augusta 5062	112	19.6	213.0545
Seed Consultants Inc. SCS1125YHR	112	16.6	211.5474
Hubner H08G394	108	15.8	216.7318

Discussion: Plot suffered from heavy slug damage after emergence and was treated with bait after the discovery of the damage. Hybrids that emerged quickly with better vigor visually appeared to suffer less slug damage than those that did not. This plot received stable rainfall throughout the season and was not negatively impacted by water stress.

Lancaster County Mid Maturity Corn Hybrid Demonstration Plot

Cooperators:

Producer- Jock Chilton, R.J. Reynolds, Mitchell Simpson

Extension- Trent Jones, ANR, Northumberland/ Lancaster, Ellie Daney, VCE Intern

Previous Crop: Soybeans

Soil Type: Sassafras fine sandy loam, Kempsville fine sandy loam, Caroline very fine sandy loam

Tillage: No-Till

Planting Date: April 13, 2017

Planting Equipment: Kinze 3660

Plant Population: 30,000 Seeds / Acre

Row Spacing: 30 inches

Fertilizer: Starter- 33 lb. N / Acre & 40 lb. P / Acre

Side Dress- May 26, 2017

- 28.5 Gallons / Acre 28-0-0-5

- 3 Pints / Ton UAN

- 1 Quart / Acre Manganese

- 1 Gallon /Acre Coron

Crop Protection:

Burn Down- 2.5 Quarts /Acre Resicore, 1 Quart /Acre Atrazine, 1 Quart /Acre Simazine, 3 Pints /Acre Gramoxone sl 2.0, 12 Ounces /Acre Barrage

Post- Emerge- 12 Ounces / Acre Avaris 2XS, 3 Ounces /Acre Mustang Maxx

Harvest Date: September 15, 2017

Harvest Equipment: John Deere 660

Lancaster County Mid Maturity Corn Hybrid Demonstration Plot

Hybrid	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Dynagro 52vc91RIB	112	16.4	226.0267
Axis 60K23RIB	110	16.1	215.0634
Augusta 5062	112	17.1	221.0207
Hubner H08G394	108	16.2	227.1381
Seed Consultants Inc. SCS1125YHR	112	16.1	220.1732
DuPont Pioneer P1197AM	111	15.3	222.3394
Channel 210- 26STX	110	15.3	200.6476
Doebler 5125AM	111	16.2	216.8910

Rainfall :

- April – 1.35 in
- May – 6.58 in
- June – 3.38 in
- July – 6.5 in
- August – 6.62 in
- September – 2.42 in

Caroline County Mid Maturity Corn Hybrid Demonstration Plot

Cooperators:

Producer- Donny Terrell
Extension- Mike Broaddus, ANR, Caroline/ King George
Industry- Crop Production Services

Previous Crop: Soybean
Soil Type: Suffolk Fine Sandy Loam
Tillage: Turbo-Till prior to planting
Planting Date: April 10, 2017
Planting Equipment: Kinze model 3800
Plant Population: 30,000 seeds / Acre
Row Spacing: 30 in. rows
Fertilizer: 1.5 ton/ac biosolids in fall (60-80 lbs N); 20 gal. 24-0-0-3 dribbled in spring (52 lbs N, 6.5 lbs S)
Crop Protection: 3 pts Accuron/ac; 2 pts Princep/ac; 1 pt. Aatrexx/ac
Harvest Date: August 25, 2017
Harvest Equipment: John Deere S680 w/ 12 X 30 corn head

Caroline County Mid Maturity Corn Hybrid Demonstration Plot

Hybrid	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Dekalb DKC62	112	21.3	193.9546
Hubner O8G394	108	21.2	185.7206
Dyna Gro D52V C91	112	22.6	186.1790
Axis 60K23	110	19.5	184.2923
Channel 210-265TX	110	20.7	174.2452
Doblers RPM5125AM	111	19.9	166.8128
Augusta 46576T3110*	107*	19.1	162.9142
Pioneer P1197M	111	18.2	161.1862
Seed Consultants SCS1125YHR	112	20.0	159.7739
ProgenyPGY6110VT2P	110	19.5	158.9645
Augusta 5062GT3110	112	21.2	154.6440

*this Augusta variety was intended to be in the early variety plots, but due to misread printing, was accidentally placed in the full season plot.

Discussion: This was a very good plot and all varieties did very well, considering the abnormally high heat in July and scarcity of rainfall in July. The top four varieties of this test were alongside each other in the plot and at the end of the field. With the >10 bu/ac of difference in the top four and the rest, it appears the area with the top four varieties may have inadvertently gotten a larger rate of biosolids than the rest of the area, probably due to spreader/operator overlapping in making sure there were no left out areas.

Loudoun Mid Maturity Corn Hybrid Demonstration Plot

Cooperators:

Producer- Temple Hall Regional Farm Park

Extension- Loudoun Office

Industry- Parks and Recreation

Previous Crop: Fallow

Soil Type:

- 8A Lindside Silt Loam 63.9%
- 78A Dulles Silt Loam 36.1%

Tillage: No Till

Planting Date: May 18, 2017

Planting Equipment: JD MaxEmerge 6 Row

Plant Population: 32,000 Plants / Acre

Row Spacing: 30"

Crop Protection:

- Date- 4/11/17
 - RoundUp PowerMax Blk. 3pt
 - Comp-Aide Bulk .3pt
- Date- 5/2/17
 - Acuron Flexi 4pts
 - Aatrex 3pts
 - Gramoxone 1.5pts
 - Comp-Aide Bulk 1pt
- Date- 6/15/17
 - Roundup 2pts
 - Status 3oz

Fertilizer

- Date-5/2/17
 - Fert 145N-40P-60K
 - Eco N-Total 3.6 Lbs
- Date-6/15/17
 - Foliomate 2pts

Harvest Date: October 27, 2017

Harvest Equipment: JD 9500 w/ 643

Loudoun Mid Maturity Corn Hybrid Demonstration Plot

Hybrid	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Channel 210-26STX	110	16.6	151
Progeny PGY6110VT2P	110	17.5	168
Doblers 5125AM	111	16.9	146
Pioneer P1197AM	111	17.7	188
Axis 60K23RIB	110	17.4	205
Dyna-Gro 52vc91RIB	112	16.9	178
Seed Consultants SCS 1125YHR	112	18.0	164
Augusta 5062	112	18.4	184
Hubner H08G394	108	16.9	157

Appomattox Late Maturity Corn Hybrid Demonstration Plot

Cooperators:

Producer- Ben Cole

Extension- Bruce Jones

Previous Crop: Soybeans

Soil Type: Mattaponi-Cecil Complex

Tillage: No-Till

Planting Date: April 29

Planting Equipment: John Deere 7200 6 Row Vacuum

Plant Population / Row Spacing: 29,200 (30 inch rows)

Fertilizer: Broadcast: 8-40-40 + 1 lb. Zn + 1 lb. B

Starter: 30-0-0-5

Sidedress: 120-0-0-21

Crop Protection: Burndown: Gramoxone (3 pints/acre)

Preemergence: BalanceFlexx (5 oz./acre)

Parallel Plus (2 quarts/acre)

Postemergence: none

Harvest Date: September 27, 2017

Harvest Equipment: Gleaner R52

Appomattox Late Maturity Corn Hybrid Demonstration Plot

Hybrid	Maturity (Days)	% Moisture	Yield (bu. / A at 15.5%)
Dekalb 67-44	117	13.50	150.12
Axis 64D25VT2P	114	14.30	140.53
Hubner H4755RC2P	114	14.00	147.57
Progeny PGY5115VT2P	110	13.00	143.94
Channel 218-44VT2P	118	13.90	142.67
Seed Consultants 1158 YHR	113	14.50	150.07
Augusta 6664VT2	114	13.50	145.03
Dyna-gro D57VP51RIB	117	15.30	147.42
Doebblers 747 AM	116	13.60	136.38
Pioneer P1637A	116	12.00	142.79
Dekalb 66-42	116	13.30	146.64

Rainfall:

- May – 6.8 in
- June – 1.4 in
- July – 5.2 in
- August – 2.3 in
- September – 2.2 in

Nottoway Late Maturity Corn Hybrid Demonstration Plot

Cooperators:

Producer- John Shepherd
Extension- Taylor Clarke, Lindy Tucker
Industry- Tyler Franklin, Betsy Jenkins

Previous Crop: Soybean

Tillage: No-till

Planting Equipment: 12 row Kinze

Fertilizer: 50-50-100-20 at planting
 1 00 lbs. / Acre & 20 lbs. / Acre Sulfur side dressed

Crop Protection:

Burn Down: 2 qt. Bicep
 12 oz. Salvo
 1qt. Power Max

Post Emergence: 1 qt. Power Max
 ¾ oz. impact

Harvest Date: September 18, 2017

Harvest Equipment: Case 7230 12 row

Nottoway Late Maturity Corn Hybrid Demonstration Plot

Brand	Hybrid	Maturity (Days)	% Moisture	Yield (bu./A at 15.5%)
Channel	218-44 VT2P	118	16.5	102.9
Progeny	PGY 5115 VT2P	115	17.4	109.7
Seed Consultants	1158 YHR	113	17.3	111.4
Pioneer	P 1637 AM	116	17.7	108.5
Hubner	H4755 RC2P	114	17.1	128.7
Axis	64D25 VT2P	114	18.7	112.2
Dyna-Gro	D57VP51 RIB	117	18.2	105.2
Doelbers	747 AM	116	19.1	102.9
Augusta	6664 VT2 Pro	114	19.1	120.6
Dekalb	67-44	117	18.5	130.4
Channel	218-44 VT2P	118	16.8	80.2
Dekalb	67-44	117	17.1	86.6
Hubner	H4755 RC2P	114	16.7	92.5
Pioneer	P 1637 AM	116	17.9	94.9
Dyna-Gro	D57VP51 RIB	117	17.6	92.3
Axis	64D25 VT2P	114	17.9	97.8
Augusta	6664 VT2 Pro	114	18.4	83.7
Doelbers	747 AM	116	18.1	116.7
Seed Consultants	1158 YHR	113	17.7	100.0
Progeny	PGY 5115 VT2P	115	18.4	109.8
Dekalb	67-44	117	17.5	79.1
Augusta	6664 VT2 Pro	114	18.2	70.8
Doelbers	747 AM	116	17.9	94.8
Hubner	H4755 RC2P	114	17.3	88.6
Pioneer	P 1637 AM	116	16.8	93.1
Seed Consultants	1158 YHR	113	18.8	63.2
Progeny	PGY 5115 VT2P	115	17.8	99.9

Nottoway Late Maturity Corn Hybrid Demonstration Plot

Channel	218-44 VT2P	118	18.2	93.1
Dyna-Gro	D57VP51 RIB	117	17.9	84.9
Axis	64D25 VT2P	114	18	83.7

Hybrid	Rep 1	Rep 2	Rep 3	Average*
Progeny PGY 5115 VT2P	109.7	109.8	99.9	106.5 a
Doebblers 747 AM	102.9	116.7	94.8	104.8 a
Hubner H4755 RC2P	128.7	92.5	88.6	103.3 a
Pioneer P 1637 AM	108.5	94.9	93.1	98.8 a
DK 67-44	130.4	86.6	79.1	98.7 a
Axis 64D25 VT2P	112.2	97.8	83.7	97.9 a
Dyna-gro D57VP51 RIB	105.2	92.3	84.9	94.2 a
Channel 218-44 VT2P	102.9	80.2	93.1	92.1 a
Augusta 6664 VT2 Pro	120.6	83.7	70.8	91.7 a
Seed Consultants 1158 YHR	111.4	100.0	63.2	91.5 a

Yields followed by the same letter are not significantly different LSD (0.05)

Charles City Ag Expo Corn Hybrid Demonstration Plot

Cooperators:	Renwood Farms
Producer-	David Hula
Extension-	Scott Reiter, Wade Thomason
Previous Crop:	Corn
Soil Type:	Pamunkey loam
Tillage:	No-tillage
Planting Date:	May 3, 2017
Plant Population:	34,000
Row Spacing:	30 inch
Harvest Date:	September 30, 2017

Discussion: This irrigated plot at the 2017 VA Ag Expo site included all three maturity groups and produced good yields. Hot temperatures, including nights after silking limited top-end yield in this test.

Charles City Ag Expo Corn Hybrid Demonstration Plot

Hybrid	Maturity (Days)	% Moisture	Yield (bu/A @ 15.5%)
Check/Pioneer P1197AM	111	16.4	240.2
Seed Consultants SCS1158YHR	113	17.5	239.3
Check		17.1	242.8
Seed Consultants SCS1125YHR	112	17.2	246.6
Progeny 5112VT2P	115	16.9	250.1
Progeny 6110VT2P	110	17.1	176.2
Check		17.1	244.4
Doebler's RPM747HXR	116	17.8	209.5
Doebler's RPM5125AM	111	16.7	235.2
Doebler's RPM563HXR	105	16.1	221.9
Check		17.2	266.8
Hubner H4755C2P	114	17.0	242.1
Hubner H08G394	108	16.2	207.1
Hubner H6257RCSS	104	15.3	202.1
Check		17.0	271.0
Dynagro 57VP51RIB	117	18.1	256.9
Dynagro 52VC91RIB	112	17.4	227.3
Dynagro 44VC36RIB	104	16.1	206.6
Check		17.4	257.6
NK N83D-3111	118	18.7	219.6
NK N66V-3120	110	17.4	219.8
NK N5913-3111	109	16.8	223.8
Check		17.4	260.4
Channel 218-44VT2P	118	18.6	263.5
Channel 210-26STX	110	17.3	231.5
Channel 201-28VT2P	101	15.6	185.3
Check		17.2	269.8
Pioneer Brand P1637AM	116	18.8	264.4
Pioneer Brand P1197AM	111	17.5	270.4
Pioneer Brand P0339AM	103	16.5	227.0
Check		17.1	270.4

Charles City Ag Expo Corn Hybrid Demonstration Plot

Augusta 6664	114	17.7	240.0
Augusta 5062	112	18.0	265.3
Augusta 4657	107	16.6	222.9
Check		17.0	268.7
Axis 64D25RIB	114	16.9	237.2
Axis 60K23RIB	110	16.2	246.0
Axis 57A25RIB	107	15.7	216.1
Check		16.7	248.9
DEKALB DKC 67-44RIB	117	18.2	255.7
DEKALB DKC 62-20RIB	112	17.0	218.2
DEKALB DKC 57-99RIB	107	15.8	178.4
Check		17.5	233.4
Average		17.1	236.8

CORN EMERGENCE EVALUATION

Watson Lawrence, Senior Extension Agent, ANR, Chesapeake
Roy Flanagan, Extension Agent, ANR, Virginia Beach

This evaluation looked at how corn emergence in a conventional planted corn field affected yield. Seedling vigor and days to maturity start when seeds are placed in soil capable of inducing germination. From there it is a foot race for plants to utilize available nutrients, sunlight, and moisture in a field that will be harvested collectively. This evaluation asked the question, will seeds that germinate sooner yield more?

In 2017, in work supported by check-off funds provided by the Virginia Corn Board, two separate test plots were set up at two separate farms. At each site, a forty foot section of row was flagged off immediately after planting. Those forty foot sections were checked each day between 11 AM and 1 PM for the next ten days. Beginning on the first day of emergence (defined as coleoptile visible above the soil line) and each day thereafter, a colored flag was placed beside each seedling. A red flag for 1st day, a blue flag for 2nd day, and a yellow flag for seedlings on or after the 3rd day. Planting conditions at these two sites were excellent in 2017. Warm temperatures and a gentle rain the day after planting provided excellent soil moisture and quick germination of seeds in the plots.

On September 22nd, ears were hand-harvested, segregated by color and shelled with an old-time crank style single ear sheller. Corn from all red flags, blue flags and yellow flags were counted and weighed. Average weights per ear were calculated for each grouping.

At these two separate farms using different production practices, varieties, equipment, soils and dates of planting, results were the same. Corn seedlings emerging on day 1 had more weight per ear than corn emerging on day 2. Corn emerging on day 2 had more weight per ear than corn emerging after day 3. Visual observance also showed more ear uniformity and ear size for day 1 seedlings vs. subsequent seedlings. Observations in 2017 were identical to same test in 2016.

Frank Williams Farm Chesapeake, Virginia
Row Spacing: 20 Inches
Plant Population: 30,000 Plants Per Acre
Variety: Pioneer P0604

Day/Date of Emergence	# of Plants	% of Plants	Lbs. Shelled Corn Total	Average Wt. lbs. /Harvestable Ear
Day 1 April 18 rd	35	72.9	9.77	.2791
Day 2 April 19 th	10	20.8	2.75	.2750
Day 3 And After April 20 th	3	6.3	.69	.2300
Barren Plants (no ears produced)	28	0	0	
TOTALS	76	100%	19.22	

CORN EMERGENCE EVALUATION

Heath Cutrell Farm **Chesapeake, Virginia**
Row Spacing: **30 Inches**
Plant Population: **38,000 Plants Per Acre**
Variety: **Dekalb 62-08**

Day/Date of Emergence	# of Plants	% of Plants	Lbs. Shelled Corn Total	Average Wt. lbs. /Harvestable Ear
Day 1 April 20 rd	19	21.6	7.58	.3989
Day 2 April 21 th	44	50.0	16.8	.3818
Day 3 And After April 22 th	23	26.1	8.34	.3626
Barren Plants (no ears produced)	2	2.3	0	
TOTALS	88	100	32.72	

Figure 1: Picture taken on day 2 at Heath Cutrell site had 19 plants emerge day 1 (red flags) and 44 plants emerge day 2 (blue flags). The following day 3, 23 plants emerged and were marked with yellow flags



Figure 2: Picture taken of typical ears harvested day 1 (red flags), day 2 (blue flags), day 3 and after (yellow flags).

2017 Demonstration of Legume Cover Crops in Irrigated Corn Grain Production

Cooperators:	Producer:	Harris Farms
	Extension:	Trent Jones, VCE-ANR Agent, Lancaster and Northumberland Counties
	Northern Neck SWCD:	Danny Withers: Conservation Specialist Keith Balderson: Conservation Spec. II
	NRCS:	Emily Brown, Agronomist
Soil Type:	Sassafras fine sandy loam	
Tillage:	Continuous No-till	
Hybrid:	Axis 64K77	
Previous Crop:	Corn	
Planting Date:	May 1, 2017 at 38,000 plants per acre in 20 inch rows	
Nitrogen Fertilizer:	Pre-plant: 60 pounds per acre Nitrogen Sidedress: 100 pounds per acre Nitrogen per acre twice	
Crop Protection:	Burndown Herbicides: 2,4-D, Gramoxone, Acuron Atrazine Pre-emergence: Capture LFR Post-emergence: Headline AMP, Stratego Yeild	
Harvest Date:	September 25, 2017	

Treatment	% Moisture	Bio-Mass (lbs./acre)	% Nitrogen	Plant Available Nitrogen (lbs./A)*	Yield (bu./A @15.5%)
Hairy Vetch Cover Crop	18.9	4,945	3.32	82	295
Austrian Winter Pea Cover Crop	19.3	3,169	2.95	47	292
Mixed Legume Cover Crop	20.0	4,561	2.90	66	283
Crimson Clover Cover Crop	20.0	9,267	2.31	107	288
Fallow—Corn Following Corn	18.4				281

*Assuming 50% availability for the first crop

Discussion: This field is irrigated and has been in continuous corn grain production for six years. This was a demonstration plot with legume cover crops and included hairy vetch, Austrian winter pea, crimson clover, a mix of all three legumes and fallow (corn following corn with no cover crop) to determine how corn for grain would perform following legume cover crops with a standard nitrogen fertilizer program. Bio-mass samples were taken from each plot on April 13th, air-dried for almost 3 weeks, weighed, and tissue was analyzed for nitrogen content to estimate plant available nitrogen for each cover crop. Since the plot was only a demonstration, no hard conclusions should be made from the results, but the corn following all of the legume cover crops yielded more than corn following fallow ground. This is not a surprise since the legume covers provide nitrogen for the corn and the benefits of crop rotation in the cropping system. As we have seen in some previous plots, the highest corn yields were obtained following the hairy vetch cover crop. The legume covers probably would have shown larger yield increases compared to the fallow ground if the overall nitrogen fertilizer rates had been lower.

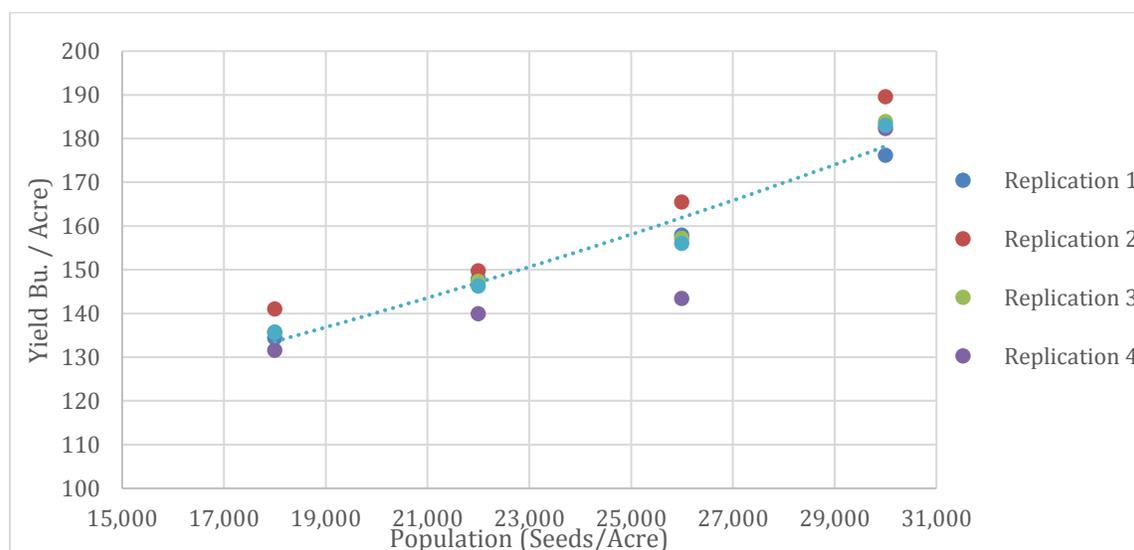
Plant Population Demonstration Plot

Cooperators: **Producer:** Harris Farms
Extension: Trent Jones, VCE- Northumberland/ Lancaster
 Ellie Daney, VCE Intern, Northumberland/ Lancaster

In this demonstration plot fixed ear and flex ear corn hybrids were planted at varying populations and then compared to determine the effect that plant population had on the two hybrids. Both hybrids were planted at 18,000 22,000 26,000 and 30,000 plants per acre and each plant population was replicated four times with each hybrid.

Fixed Ear

Population	Yield (Rep1)	Yield (Rep2)	Yield (Rep3)	Yield (Rep4)	Average Yield Bu/A
18,000	134.4622	141.0894	135.7411	131.6137	135.7266
22,000	148.0072	149.8094	147.3678	139.9848	146.2923
26,000	157.948	165.5053	157.2504	143.4728	156.0441
30,000	176.256	189.6306	183.9336	182.364	183.0461

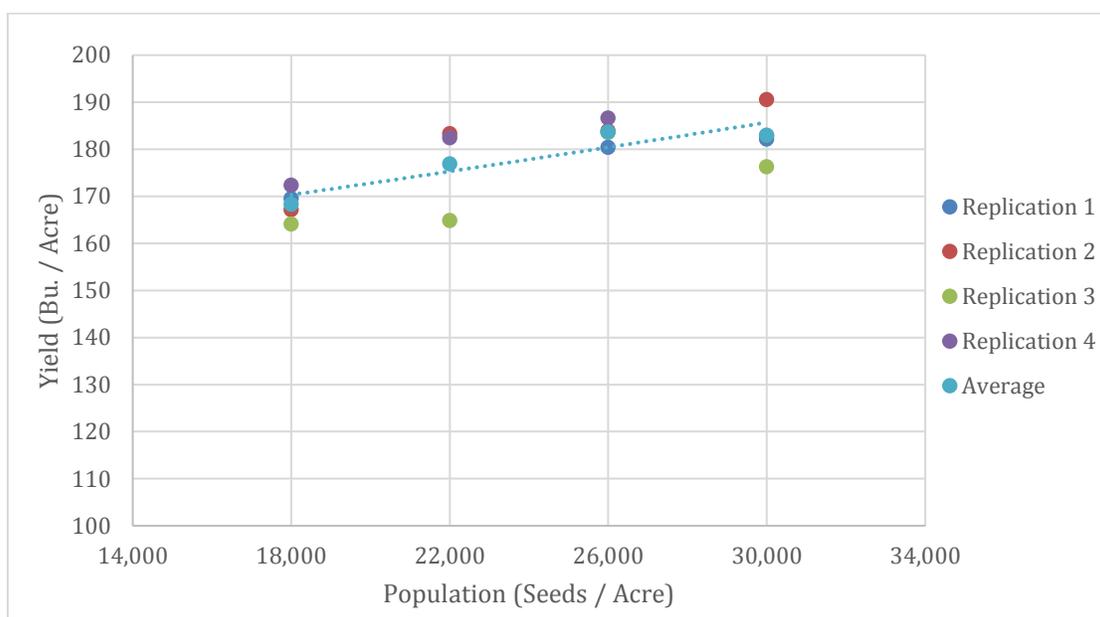


Plant Population Demonstration Plot

Flex Ear

Population	Yield (Rep1)	Yield (Rep2)	Yield (Rep3)	Yield (Rep4)	Average Yield Bu/A
18,000	169.5294	167.1389	164.1429	172.3824	168.2984
22,000	***	183.3429	164.8889	182.4571	176.8963
26,000	180.4286	183.9429	183.5625	186.6	183.6335
30,000	182.1429	190.5714	176.2571	182.8857	182.9643

*** Data excluded due to mechanical error



Discussion: As expected with the fixed ear variety, yield increased linearly with population. On average fixed ear hybrids planted at 18,000 plants per acre, yielded 136 bushels per acre while hybrids planted at 30,000 plants per acre averaged 183 bushels per acre. Flex ear hybrids produced a much smaller yield gap with hybrids planted at 18,000 plants per acre yielding on average 168 bushels per acre and hybrids planted at 30,000 plants producing an average yield of 183. More work is planned for 2018 to determine how yield responds to higher planting populations.

2017 IN-FURROW CORN INSECTICIDE/FUNGICIDE PLOT

Cooperators:

Producer: Bruce Taylor
Extension: Keith Balderson, VCE-Essex, retired
 Tracy Porter, VCE-King and Queen/King William

Previous Crop: Soybeans
Soil Type: State fine sandy loam, Craven fine sandy loam, and Bojac loamy sand
Plant Date: April 10, 2017 at 26,500 plants per acre
Hybrid: Dyna-Gro 44VC36
Tillage/Population: No-Till planted at 26,500 plants per acre

Fertilization: Broadcast: 50-30-80-5S per acre
 Sidedress: 100-0-0-12S per acre

Crop Protection: Burndown: Gramoxone and 2,4-D
 Pre-emergence: Atrazine and Princep
 Post-emergence: Roundup, Atrazine and Radiate Plant Growth Regulator
 Insecticide: Tombstone in Burndown
 In-Furrow Insecticide and Fungicide: Ethos XB @ 5 oz./acre

Harvest Date: September 4, 2017

2017 IN-FURROW CORN INSECTICIDE/FUNGICIDE PLOT

Treatment	Replication	%Moisture	Yield (Bu./Acre @ 15.5%
Insecticide/Fungicide	1	15.9	162
Check	1	16.1	162
Insecticide/Fungicide	2	15.6	163
Check	2	16.6	180
Insecticide/Fungicide	3	15.5	181
Check	3	15.7	173
Check	4	15.6	173
Insecticide/Fungicide	4	15.1	175
Ave. Insecticide/Fungicide		15.5	170
Ave. Check		16.0	172

Discussion: The purpose of this plot was to evaluate Ethos XB, an in-furrow insecticide and fungicide from FMC Corporation containing 15.67 % bifenthrin and 5.00% *Bacillus amyloliquefaciens* strain D747. Ethos XB insecticide/fungicide offers corn seedling defense against soil pests and diseases. It protects seedlings from corn rootworm, wireworms, grubs, seed corn maggots, cutworms, and common stalk borers. The biological fungicide in Ethos XB insecticide/fungicide aids in control of *Fusarium*, *Pythium*, *Phytophthora*, and *Rhizoctonia*. No pre-plant scouting for insects was done in this plot, and there was no difference in yield between the two treatments.