

## SECTION I. VIRGINIA CORN HYBRID TRIALS IN 1997.

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### Companies Participating in the 1997 Corn Hybrid Trials

Company	Brand	Address
AG-CHEM INC. - UAP SEEDS	DYNA GRO	312 WEST MAIN SALISBURY MD 21801
AGRIPRO SEEDS, INC.	AGRIPRO, HYPERFORMER	6075 POPLAR, SUITE 416 MEMPHIS TN 38119
AUGUSTA SEED CORPORATION	AUGUSTA	RT 2 BOX 16B MT SOLON VA 22843
BECK'S SUPERIOR HYBRIDS	BECK'S	6767 E 276 ST ATLANTA IN 46031
CHEMGRO SEED CO.	CHEMGRO SEED	PO BOX 307 DELMAR DE 19940
DEKALB PLANT GENETICS	DEKALB	3100 SYCAMORE RD DEKALB IL 60115
DOEBLER'S PA. HYBRIDS INC.	DOEBLER'S	RD 1 BOX 424 JERSEY SHORE PA 17740
GARST SEED CO.	GARST	PO BOX 500 SLATER IA 50244
HYTEST SEEDS	HYTEST	454 RAILROAD AVE SHIREMANSTOWN PA 17011
MID-ATLANTIC SEEDS	MID-ATLANTIC	2083 SPRINGWOOD ROAD #163 YORK PA 17403
MYCOGEN PLANT SCIENCES	MYCOGEN	3600 N COLUMBIA PLAINVIEW TX 79072
NORTHROP KING CO.	NORTHROP KING	PO BOX 959 MINNEAPOLIS MN 55440
PIONEER HI-BRED INT., INC.	PIONEER BRAND	1000 W JEFFERSON ST TIPTON IN 46072
SOUTHERN STATES COOP., INC.	SS	PO BOX 26234 RICHMOND VA 23260
TERRA INDUSTRIES INC.	TERRA	PO BOX 6000 SIOUX CITY IA 51102-6000
WILSON SEEDS, INC.	WILSON	PO BOX 391 HARLAN IA 51537

### VIRGINIA CORN HYBRID TRIALS IN 1997

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Performance trials of commercial corn hybrids were conducted at eight locations in Virginia in 1997. At Mt. Holly, the hybrids were evaluated under irrigated and non-irrigated conditions. The dryland test at Mt. Holly was located on an area where available soil profile moisture varied widely during the critical period of silking and tasseling. The lower water-holding capacity soil made up only 20-30% of the area, but it drastically affected corn yield within replications. Therefore, the results from the dryland study this year at Mt. Holly are not reported in this publication, although last year's multi-year results may be found at the end of this section. At the Holland location, corn plots were located behind peanut plots that had large borders. Corn plot responses to variations in the peanut plot land were magnified by the severe drought. The variations were large enough that this data also will not be reported in this publication, although the multi-year results from last year may be found at the end of this section. The corn plots will not be conducted behind peanuts again. A list of the companies participating in the trials is shown in the table accompanying this information. All hybrids entered in the Virginia trials were those submitted by commercial companies. The locations at which particular hybrids were entered were specified by the company. Companies entering hybrids were charged a fee for each hybrid per location to support the Corn Performance Trials.

All locations except Orange were planted with an Almaco two row plot planter at a higher-than-desired population and then hand-thinned. Orange was planted by hand and thinned to the desired population. All locations except Orange were harvested with a Massey Ferguson 8-XP plot combine. Orange was hand harvested and shelled to obtain grain weights. Yields have been adjusted to 15% moisture.

#### Yield Differences

Experimental plots vary in yield and other measurements due to location in the field and other factors which cannot be controlled. Statistics given in the tables are intended to help the reader make valid comparisons between hybrids. The magnitude of differences which may have been due to uncontrollable variation has been computed for the data and listed at the bottom of columns as the LSD (.05) (least significant difference with 95% confidence). Differences less than the LSD are assumed not to be real differences with 95% confidence.

#### Choice of Hybrids

When making hybrid selections it is important to realize that hybrids differ in their performance under different environments. Some hybrids are more adapted to a wide range of environments. Hybrid performance may vary with year and location variations in rainfall, temperature, pests and other environmental variables. In these experiments, many hybrids have essentially the same yield, and great care should be taken in interpreting the results of a single year's tests, especially at only one location. For these reasons it is important, whenever possible, to also look at a hybrid's average across locations when making hybrid selections. Multi-year averages give even greater confidence to hybrid performance decisions. The relative yield tables compare the yield of a hybrid to the average yield of all hybrids in the test. These tables are an excellent summary of hybrid yield potential compared to other hybrids.

*Appreciation is expressed to the Virginia Corn Check-Off Board  
for financial support of this research and the Virginia Extension  
corn program.*

**1997 VIRGINIA CORN HYBRID PLOT INFORMATION**  
(Rates are on a per acre basis.)

<p><b>Blacksburg Whitethorne Farm</b>  <b>Planted:</b> May 8, 1997  <b>Harvested:</b> November 6, 1997  <b>Pesticide:</b> 4.5 lb Partner® + 1.5 lb atrazine + 1 lb simazine preplant incorporated  <b>Fertilizer:</b> 50-45-70 preplant incorporated  150 lb N sidedressed June 21, 1996  <b>Plot Size:</b> 2 rows 25' x 30" 4 replications  <b>Soil Series:</b> Hayter  <b>Cooperator:</b> J. Wooge</p>	<p>sidedressed + 60 lb N sidedressed  <b>Irrigation:</b> 0.6" June 10 with 55 lb N through system  0.6" June 23  0.5" July 4  0.3" July 7 with 60 lb N through system  1.0" July 14  0.7" July 18  1.0" July 31  0.5" August 5  1.0" August 9  1.0" August 16  <b>Plot Size:</b> 2 rows 25' x 30" 4 replications  <b>Soil Series:</b> State fine sandy loam  <b>Cooperator:</b> Bruce Beahm</p>
<p><b>Blackstone Southern Piedmont Agricultural Research &amp; Extension Center</b>  <b>Planted:</b> April 16, 1997  <b>Harvested:</b> September 18, 1997  <b>Pesticide:</b> 2 qt Bladex 4L + 1 qt Dual 8E/A April 16, 1997  <b>Fertilizer:</b> 1000 lb 10-10-10 preplant incorporated  April 2, 1997 + 235 lb ammonium nitrate  broadcasted June 10, 1997  <b>Irrigation:</b> 1.5" July 14 and July 18, 1997  <b>Plot Size:</b> 2 rows 25' x 30" 3 replications  <b>Soil Series:</b> Chesterfield-Mayodan-Bourne complex  <b>Cooperators:</b> W. B. Wilkinson and R. R. Wilmouth</p>	
<p><b>Holland Tidewater Agricultural Research &amp; Extension Center</b>  <b>Planted:</b> April 16, 1997  <b>Harvested:</b> September 19, 1997  <b>Pesticide:</b> 1.5 pt Dual II® + 1 qt atrazine April 21, 1997  <b>Fertilizer:</b> 500 lb 5-10-30 March 24, 1997 + 60 units N April 21,  1996 + 75 units N June 6, 1997  <b>Plot Size:</b> 2 rows 25' x 36" 4 replications  <b>Soil Series:</b> Dragston-Nansemond fine sandy loam  <b>Cooperator:</b> Bobby Ashburn and Gene Whitley</p>	
<p><b>Mt Holly (dry) Virginia Crop Improvement Association Farm</b>  <b>Planted:</b> April 17, 1997  <b>Harvested:</b> September 23, 1997  <b>Pesticide:</b> 1.8 qt Bicep 6L® + 1 pt Aatrex® preplant incorporated  <b>Fertilizer:</b> 60 lb N preplant incorporated +75 lb N sidedressed May 29, 1997  <b>Plot Size:</b> 2 rows 25' x 30" 4 replications  <b>Soil Series:</b> State fine sandy loam  <b>Cooperator:</b> Bruce Beahm</p>	
<p><b>Mt Holly (irr) Virginia Crop Improvement Association Farm</b>  <b>Planted:</b> April 24, 1997  <b>Harvested:</b> September 24, 1997  <b>Pesticide:</b> 1.8 qt Bicep 6L + 1 pt Aatrex® preplant incorporated  <b>Fertilizer:</b> 80 lb N preplant incorporated + 55 lb N</p>	

**Orange & Northern Piedmont Agricultural Research Extension Center**

**Planted:** May 5, 1997  
**Harvested:** October 20-22, 1997  
**Pesticide:** 3 qt Bicep® May 2, 1997  
**Fertilizer:** 1000 lb 10-10-10 May 2, 1997 + 125 lb N sidedressed June 17  
**Plot Size:** 1 row 30' x 30" 4 replications  
**Soil Series:** Davidson silty clay  
**Cooperator:** D. E. Starner

**Planted:** May 7, 1997

**Harvested:** November 18, 1997  
**Fertilizer:** 150-60-60 preplant incorporated  
**Plot Size:** 2 rows 25' x 30" 3 replications  
**Cooperator:** David Danner and Harold Buckley

**Tazewell County**

**Planted:** May 12, 1997  
**Harvested:** November 18, 1997  
**Pesticide:** 2.5 qt Princep®  
**Fertilizer:** 67 lb N + 67 lb P + 67 lb K preplant  
**Plot Size:** 2 rows 25' x 30" 4 replications  
**Cooperator:** The Cox family

**Augusta County**

**Planted:** May 5, 1997  
**Harvested:** November 5, 1997  
**Pesticide:** 1.8 qt Bicep® + 3.2 pt Prowl® applied preemergence  
**Fertilizer:** 3.5 ton poultry litter applied April 15, 1997 (test results showed the litter to contain the following on a per ton basis: 71 lb total N, 15.31 lb ammonia N, 55 lb P<sub>2</sub>O<sub>5</sub>, 35 lb K<sub>2</sub>O, 27.5 lb Ca, 15.3 lb Mg, and 6.73 lb of sulfur.) 75 lb N, 30 lb K, and 6 lb S were sidedressed in late June.  
**Plot Size:** 2 rows 25' x 30" 4 replications  
**Cooperator:** Tom Stanley and the Martin family

**Wythe County**

**Table 1. 1997 RELATIVE YIELD\* of hybrids entered in three or more locations.**

**VERY EARLY MATURITY**

BRAND	HYBRID	MT HOLLY		BLACK-STONE ORANGE		BLACKS-BURG		AUGUSTA	TAZEWELL	WYTHE	MEAN
		IRR									
AUGUSTA	A359	104	-	103	-	92	-	-	-	-	99
SOUTHERN STATES	576	96	-	91	-	-	94	99	109	97	
AUGUSTA	A885	104	-	-	-	93	90	-	-	96	

**EARLY MATURITY**

BRAND	HYBRID	MT HOLLY		BLACK-STONE ORANGE		BLACKS-BURG		AUGUSTA	TAZEWELL	WYTHE	MEAN
		IRR									
NORTHROP KING	NX7305	-	-	-	-	111	100	120	93	107	
PIONEER BRAND	32K61	110	106	102	107	105	105	105	120	107	
AUGUSTA	A385	104	-	107	-	108	-	-	-	106	
DEKALB	DK626	104	-	102	-	108	-	-	-	105	
PIONEER BRAND	3260	108	98	100	107	105	-	-	-	104	
SOUTHERN STATES	676	-	-	96	104	113	-	-	-	104	
AUGUSTA	A552	108	104	116	104	91	105	105	89	103	
PIONEER BRAND	3223	103	99	103	-	-	-	-	-	102	
AUGUSTA	A285	102	-	101	107	98	-	-	-	102	
PIONEER BRAND	33V08-Bt	97	100	101	-	-	-	-	-	99	
PIONEER BRAND	3310	-	91	102	109	106	92	92	92	99	
DEKALB	DK642	106	-	102	104	109	96	96	72	99	
PIONEER BRAND	3394	104	90	101	-	-	-	-	-	98	
PIONEER BRAND	3245	106	97	100	-	90	-	-	-	98	
PIONEER BRAND	33Y09-Bt	97	84	98	109	112	99	99	87	98	
MID-ATLANTIC	MA9141	-	-	97	100	89	90	90	113	97	
TERRA	TR1106	107	76	-	105	-	-	-	-	96	
MID-ATLANTIC	MA9142	-	-	87	93	95	92	92	110	95	
PIONEER BRAND	34A55	94	75	90	-	-	-	-	-	86	

**MEDIUM MATURITY**

BRAND	HYBRID	MT HOLLY		BLACK-STONE ORANGE		BLACKS-BURG		AUGUSTA	TAZEWELL	WYTHE	MEAN
		IRR									
SOUTHERN STATES	742A	-	-	-	120	109	106	134	115		
DEKALB	DK668	-	118	99	-	110	-	-	-	109	
DEKALB	DK679	103	-	-	92	113	115	124	108		
PIONEER BRAND	3153	102	113	105	119	101	103	111	108		
DOEBLERS	746XY	104	-	101	109	-	-	-	-	105	
PIONEER BRAND	31B13-Bt	108	102	107	-	-	-	-	-	105	
TERRA	TR1157	97	109	-	110	-	-	-	-	105	
MID-ATLANTIC	MA9181	-	-	109	109	80	98	121	103		
DOEBLERS	82XP	102	-	-	-	95	100	120	103		

DOEBLERS	859XY	101	-	104	114	92	-	-	102
DEKALB	DK687	97	128	96	93	101	93	108	102
AUGUSTA	A2062	106	95	107	103	107	104	94	102
SOUTHERN STATES	797IT	-	103	104	-	98	-	-	102
TERRA	TR1167	100	100	-	103	-	-	-	101
SOUTHERN STATES	897	-	97	102	95	117	102	93	101
NORTHRUP KING	N83-R7	-	-	-	92	100	110	100	101
PIONEER BRAND	3163	103	93	104	104	94	109	94	100
NORTHRUP KING	NX7906	-	-	-	91	104	101	91	97
MID-ATLANTIC	MA9171	-	-	106	85	94	100	94	96
TERRA	TR1185	89	99	-	98	-	-	-	95
DEKALB	DK683	93	-	91	88	97	93	107	95

**MID-FULL MATURITY**

BRAND	MT HOLLY		BLACK-		BLACKS-		AUGUSTA	TAZEWELL	WYTHE	MEAN
	HYBRID	IRR	STONE	ORANGE	BURG					
MID-ATLANTIC	MA9220	-	105	106	91	95	95	117	101	
PIONEER BRAND	3156	-	115	102	81	106	104	87	99	
SOUTHERN STATES	943	-	92	113	95	109	84	93	98	
MID-ATLANTIC	MA9200	-	-	108	93	97	96	91	97	
TERRA	E1186	110	87	-	88	-	-	-	95	
TERRA	TR702	100	102	-	73	-	-	-	92	

\*Relative yield is calculated by dividing the yield of a hybrid by the average yield of all hybrids of all maturities at that location. A hybrid with a relative yield of 105 was 5% above the average of all hybrids at that location. The value of 105 is **not** a yield but a value relative to all other yield values at that location. Relative yields are listed in order of descending mean values.

**Table 2. Two Year Average Relative Yield\* (1996-1997) of hybrids entered in the same three or more locations.**

Very Early Maturity			Relative
Brand/Company	Hybrid	# Observations	Yield
SOUTHERN STATES	SS576	24	96

Early Maturity			Relative
Brand/Company	Hybrid	# Observations	Yield
AUGUSTA	A552	32	109
DEKALB	DK642	32	107
PIONEER BRAND	3223	24	106
MID-ATLANTIC	MA9141	24	105
PIONEER BRAND	3260	40	105
PIONEER BRAND	3245	32	103
PIONEER BRAND	3310	32	103
DEKALB	DK626	24	101
TERRA	TR1106	24	98
MID-ATLANTIC	MA9142	24	93

Medium Maturity			Relative
Brand/Company	Hybrid	# Observations	Yield
PIONEER BRAND	3153	40	109
DOEBLERS	746XY	24	105
PIONEER BRAND	3163	40	104
MID-ATLANTIC	MA9171	24	103
TERRA	TR1157	24	103
TERRA	TR1167	24	103
MID-ATLANTIC	MA9181	24	99
DEKALB	DK687	24	98
SOUTHERN STATES	SS897	32	96
TERRA	TR1185	24	96
DEKALB	DK683	24	94

Mid-Full Maturity			Relative
Brand/Company	Hybrid	# Observations	Yield
MID-ATLANTIC	MA9200	24	102
PIONEER BRAND	3156	32	101
SOUTHERN STATES	SS943	32	101
TERRA	TR702	24	90

**Table 3. Three Year Average Relative Yield\* (1995-1997) of hybrids entered in the same three or more locations.**

<b>Very Early Maturity</b>			
<b>Brand\Company</b>	<b>Hybrid</b>	<b># Observations</b>	<b>Relative Yield</b>
SOUTHERN STATES	SS576	36	100
<b>Early Maturity</b>			
<b>Brand\Company</b>	<b>Hybrid</b>	<b># Observations</b>	<b>Relative Yield</b>
PIONEER BRAND	3223	36	107
PIONEER BRAND	3245	48	107
DEKALB	DK642	36	105
<b>Medium Maturity</b>			
<b>Brand\Company</b>	<b>Hybrid</b>	<b># Observations</b>	<b>Relative Yield</b>
TERRA INT'L	TR1167	36	108
PIONEER BRAND	3163	60	106
DEKALB	DK683	36	100
TERRA INT'L	TR1185	36	97
<b>Mid-Full Maturity</b>			
<b>Brand\Company</b>	<b>Hybrid</b>	<b># Observations</b>	<b>Relative Yield</b>
SOUTHERN STATES	SS943	48	105
PIONEER BRAND	3156	48	100

\*Relative yield is calculated by dividing the yield of a hybrid by the average yield of all hybrids of all maturities at that location. A hybrid with a relative yield of 105 was 5% above the average of all hybrids at that location. The value of 105 is **not** a yield but a value relative to all other yield values at that location. Relative yields are listed in order of descending mean values.

**Table 4. Yields at BLACKSTONE, VA in 1997.**

<b>Early Maturity</b>						
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>	<b>Ear Ht inches</b>	<b>Plants/acre</b>
PIONEER BRAND	32K61	134	23.8	94	37	21490
AUGUSTA	A552	130	23.1	95	40	22303
PIONEER BRAND	33V08-Bt	128	20.2	91	35	22303
PIONEER BRAND	3245	124	23.7	93	35	22303
PIONEER BRAND	3260	122	24.1	93	40	22303
PIONEER BRAND	3223	120	24.7	95	41	22303
PIONEER BRAND	3310	108	22.7	91	34	22303
PIONEER BRAND	33Y09-Bt	107	32.0	93	39	20560
PIONEER BRAND	3394	104	20.8	90	34	22070
PIONEER BRAND	34A55	92	22.2	91	33	21257
TERRA	TR1106	91	19.1	93	34	22303
Maturity Average		114	23.3	93	36	21954
LSD		20	5.0	1	3	954
<b>Medium Maturity</b>						
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>	<b>Ear Ht inches</b>	<b>Plants/acre</b>
DEKALB	DK668	148	26.0	95	40	22303
PIONEER BRAND	3153	143	28.0	94	39	22187
DEKALB	DK687	140	31.0	96	40	22303
HYTEST	BH4748	139	24.9	94	40	22303
TERRA	TR1157	139	26.7	96	40	22303
PIONEER BRAND	31B13-Bt	129	29.7	95	44	22303
TERRA	TR1167	129	31.7	95	42	22070
TERRA	TR1185	129	26.8	95	40	22303
SOUTHERN STATES	897	124	32.0	93	35	22303
SOUTHERN STATES	797IT	122	23.2	93	33	22187
PIONEER BRAND	3163	119	25.8	94	37	22303
MYCOGEN	2829	118	31.4	96	36	22303
AUGUSTA	A2062	116	27.9	94	41	22303
SOUTHERN STATES	828	116	21.8	93	33	20676
MID-ATLANTIC	MA9191	92	38.4 *	97	43	22070
Maturity Average		126	27.1	94	38	22166
LSD		18	6.1	2	4	649

\* These hybrids were not physiologically mature when harvested and therefore yields may be reduced.

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>	<b>Ear Ht inches</b>	<b>Plants/acre</b>
PIONEER BRAND	3156	146	30.9	96	39	22303
TERRA	TR702	132	33.3	97	36	22303
PIONEER BRAND	3082	130	34.4	96	42	22303
MID-ATLANTIC	MA9220	126	28.6	96	35	22303
DEKALB	DK743	123	29.0	94	38	22303
TERRA	E1186	115	24.9	96	35	21722
PIONEER BRAND	3167	113	45.6 *	96	39	22303
SOUTHERN STATES	943	112	46.5 *	96	42	22187
Maturity Average		125	34.4	96	38	22216
LSD		26	9.6	1	4	643
Location Average		122	27.6	94	38	22112

\* These hybrids were not physiologically mature when harvested and therefore yields may be reduced.



**Table 5. Two year average yields at BLACKSTONE, VA in 1996 and 1997.**

<b>Early Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>	<b>DaysTo</b>	<b>EarHt</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>		<b>Silk</b>	<b>In</b>
PIONEER BRAND	3223	144	23.3	22303	87	40
PIONEER BRAND	3260	138	25.9	22303	87	40
PIONEER BRAND	3245	130	25.5	22303	86	33
PIONEER BRAND	3310	129	23.8	22216	84	34
PIONEER BRAND	3394	125	20.6	22128	84	33
TERRA	TR1106	120	21.0	22303	86	34
Maturity Average		131	23.3	22259	85	36
LSD (0.05)		17	2.3	246	1	3
<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>	<b>DaysTo</b>	<b>EarHt</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>		<b>Silk</b>	<b>In</b>
PIONEER BRAND	3153	150	27.2	22041	87	40
TERRA	TR1167	149	25.8	22128	87	41
PIONEER BRAND	3163	143	24.9	22303	87	37
TERRA	TR1185	139	27.3	22128	88	40
TERRA	TR1157	139	24.3	22303	88	40
SOUTHERN STATES	SS897	126	32.2	22303	88	34
Maturity Average		142	26.8	22201	87	39
LSD (0.05)		14	3.3	349	1	3
<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>	<b>DaysTo</b>	<b>EarHt</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>		<b>Silk</b>	<b>In</b>
PIONEER BRAND	3082	147	33.9	22216	89	42
PIONEER BRAND	3156	140	28.5	22216	88	39
TERRA	TR702	138	31.5	22216	90	36
SOUTHERN STATES	SS943	133	38.5	22216	88	40
Maturity Average		140	32.9	22216	89	39
LSD (0.05)		14	2.8	228	1	4
Location Average		137	27.0	22226	87	38

**Table 6. Three year average yields at BLACKSTONE, VA in 1995, 1996, and 1997.**

<b>Early Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>DaysTo</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	<b>Silk</b>
PIONEER BRAND	3223	131	22.4	84
PIONEER BRAND	3245	121	23.5	82
PIONEER BRAND	3394	116	19.5	80
Maturity Average		123	21.9	82
LSD (0.05)		14	1.5	1
<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>DaysTo</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	<b>Silk</b>
PIONEER BRAND	3163	139	22.8	83
TERRA INT'L	TR1167	138	23.4	83
TERRA INT'L	TR1185	127	25.0	83

Maturity Average	135	23.8	83
LSD (0.05)	12	2.4	1

<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>DaysTo</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	<b>Silk</b>
SOUTHERN STATES	SS943	128	33.2	84
PIIONEER BRAND	3156	127	26.3	84

Maturity Average	127	29.6	84
LSD (0.05)	13	2.1	1

Location Average	128	24.4	83
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**Table 7. Yields at MT HOLLY, VA under irrigation in 1997.**

<b>Very Early Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
AUGUSTA	A885	235	19.8
AUGUSTA	A359	233	18.9
DOEBLERS	636XY	232	20.4
MYCOGEN	2677	218	19.9
SOUTHERN STATES	576	217	18.5
DEKALB	DK546	204	18.0
AUGUSTA	A2067	175	19.1
Maturity Average		216	19.2
LSD		14	0.7

<b>Early Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
PIIONEER BRAND	32K61	248	22.0
PIIONEER BRAND	3260	243	25.5
AUGUSTA	A552	243	25.3
TERRA	TR1106	241	23.3
DEKALB	DK642	238	21.9
PIIONEER BRAND	3245	238	22.3
DEKALB	DK626	234	20.5
AUGUSTA	A385	233	22.4
PIIONEER BRAND	3394	233	20.3
CHEMGRO	7796	232	25.3
PIIONEER BRAND	3223	231	23.4
WILSON	1792	231	24.5
AUGUSTA	A285	230	21.6
CHEMGRO	7596	224	24.5
SOUTHERN STATES	767	222	22.5
SOUTHERN STATES	747	222	24.3
MYCOGEN	7250cb	221	22.9
PIIONEER BRAND	33Y09-Bt	219	20.9
GARST	8464	219	22.5
PIIONEER BRAND	33V08-Bt	217	20.8
PIIONEER BRAND	34A55	212	20.6
SOUTHERN STATES	726	211	23.1
CHEMGRO	7496	206	21.8

Maturity Average	228	22.6
LSD	15	1.2

<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER BRAND	31B13-Bt	242	24.1
AUGUSTA	A2062	238	25.6
DOEBLERS	746XY	235	21.8
DEKALB	DK679	232	24.1
PIONEER BRAND	3163	232	24.3
BECK'S	6205	231	22.6
DOEBLERS	82XP	230	24.7
PIONEER BRAND	3153	228	23.1
DOEBLERS	859XY	227	27.0
DYNAGRO	5456	226	21.6
TERRA	TR1167	224	25.9
DYNAGRO	5508	223	22.9
GARST	8342	221	21.6
BECK'S	8280	221	25.3
DEKALB	DK687	218	24.5
TERRA	TR1157	217	24.4
DEKALB	DK683	209	24.0
TERRA	TR1185	200	25.1

Maturity Average	223	23.5
LSD	20	1.6

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
TERRA	E1186	247	21.9
DYNAGRO	5570	240	23.5
DYNAGRO	5561A	233	23.8
TERRA	TR702	226	26.5
GARST	8220	218	31.3

Maturity Average	233	25.4
LSD	18	3.1

Location Average	225	22.8
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**Table 8. Two year average yields at MT HOLLY, VA under irrigation in 1996 and 1997.**

<b>Very Early Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
AUGUSTA	A359	236	18.9
DOEBLERS	636XY	225	20.2
SOUTHERN STATES	SS576	218	18.3
DEKALB	DK546	197	18.0
Maturity Average		219	18.9
LSD (0.05)		11	0.6
<b>Early Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
PIONEER BRAND	3260	249	24.3
PIONEER BRAND	3245	248	22.1
AUGUSTA	A552	246	24.4
DEKALB	DK642	243	21.3
TERRA	TR1106	242	22.6
AUGUSTA	A385	239	21.8
PIONEER BRAND	3223	237	22.3
DEKALB	DK626	236	20.2
PIONEER BRAND	3394	235	20.5
SOUTHERN STATES	SS747	235	23.5
AUGUSTA	A285	234	21.3
SOUTHERN STATES	SS726	229	22.2
MYCOGEN	7250cb	221	22.1
Maturity Average		238	22.2
LSD (0.05)		13	0.8
<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
PIONEER BRAND	3163	246	22.9
PIONEER BRAND	3153	240	23.0
BECK'S	6205	238	21.9
DOEBLERS	82XP	235	23.1
BECK'S	8280	232	24.4
DOEBLERS	746XY	231	21.3
TERRA	TR1157	230	22.7
DYNAGRO	5456	229	21.3
DYNAGRO	5508	229	22.4
TERRA	TR1167	228	23.8
TERRA	TR1185	215	25.6
Maturity Average		232	23.0
LSD (0.05)		13	1.0
<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
TERRA	TR702	225	24.5
Location Average		233	22.1

**Table 9. Three year average yields at MT HOLLY, VA under irrigation in 1995, 1996, and 1997.**

<b>Very Early Maturity</b>	<b>Yield</b>	<b>Moist</b>
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<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
SOUTHERN STATES	SS576	211	18.4
DOEBLERS	636XY	207	20.0
Maturity Average		209	19.2
LSD (0.05)		9	0.4
<b>Early Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER BRAND	3245	240	21.7
AUGUSTA	A552	235	23.5
PIONEER BRAND	3223	231	21.9
DEKALB	DK642	227	21.0
PIONEER BRAND	3394	222	20.3
AUGUSTA	A285	221	21.2
Maturity Average		229	21.6
LSD (0.05)		12	0.7
<b>Medium Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER BRAND	3163	238	22.7
BECK'S	8280	223	23.6
TERRA INT'L	TR1167	218	22.9
DOEBLERS	82XP	217	22.5
TERRA INT'L	TR1185	211	24.6
Maturity Average		221	23.3
LSD (0.05)		13	0.9
Location Average		223	21.9

**Table 10. Yields at AUGUSTA, VA in 1997.**

<b>Very Early Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	576	127	19.0
AUGUSTA	A885	122	18.9
Maturity Average		124	18.9
LSD		12	0.5
<b>Early Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	676	154	21.9
PIONEER BRAND	33Y09-Bt	152	23.4
DEKALB	DK642	148	22.5
DEKALB	DK626	147	21.3
AUGUSTA	A385	146	21.8
DOEBLERS	642XP	144	21.0
PIONEER BRAND	3310	144	22.5
PIONEER BRAND	32K61	143	24.6
PIONEER BRAND	3260	142	24.4
AUGUSTA	A3510	139	23.0

NORTHRUP KING	NX7305	137	21.7
AUGUSTA	A285	133	21.0
DOEBLERS	636XY*	132	20.8
MID-ATLANTIC	MA9142	130	22.4
AUGUSTA	A552	124	26.8
PIONEER BRAND	3245	123	21.9
MID-ATLANTIC	MA9141	121	21.8
DOEBLERS	746XY*	114	21.7
Maturity Average		138	22.4
LSD		19	1.6

<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	897	159	27.4
DEKALB	DK679	153	25.5
DEKALB	DK668	150	23.7
SOUTHERN STATES	742A	149	28.1
AUGUSTA	A2062	146	25.4
NORTHRUP KING	NX7906	141	24.4
PIONEER BRAND	3153	138	24.5
DEKALB	DK687	138	29.2
NORTHRUP KING	N83-R7	136	27.1
SOUTHERN STATES	797IT	133	23.8
DEKALB	DK683	132	31.0
DOEBLERS	82XP	129	24.5
MID-ATLANTIC	MA9171	128	25.3
PIONEER BRAND	3163	128	23.8
DOEBLERS	859XY	125	27.5
MID-ATLANTIC	MA9181	109	26.9

Maturity Average		135	25.1
LSD		22	2.0

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER BRAND	3156	144	26.9
DOEBLERS	854V2	123	25.0
MID-ATLANTIC	MA9200	131	25.8
MID-ATLANTIC	MA9220	129	35.6
SOUTHERN STATES	943	148	27.4

Maturity Average		134	28.2
LSD		24	3.5

Location Average		136	24.1
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**Table 11. Two year average yields at AUGUSTA, VA in 1996 and 1997.**

<b>Very Early Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	SS576	148	18.3
AUGUSTA	A885	139	18.4
Maturity Average		143	18.3
LSD (0.05)		12	0.3
<b>Early Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	SS676	162	20.7
DEKALB	DK642	158	22.3
AUGUSTA	A385	158	20.0
PIONEER BRAND	3310	156	22.2
NORTHRUP KING	NX7305	151	21.0
PIONEER BRAND	3260	149	23.8
MID-ATLANTIC	MA9142	148	20.6
AUGUSTA	A285	148	19.6
MID-ATLANTIC	MA9141	143	20.4
PIONEER BRAND	3245	143	21.7
DEKALB	DK626	143	19.8
AUGUSTA	A552	140	23.8
Maturity Average		150	21.3
LSD (0.05)		12	1.0
<b>Medium Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	SS742A	153	27.0
SOUTHERN STATES	SS897	152	25.9
PIONEER BRAND	3153	152	24.4
MID-ATLANTIC	MA9171	145	24.5
DEKALB	DK687	144	27.8
PIONEER BRAND	3163	144	23.7
DEKALB	DK683	144	28.3
MID-ATLANTIC	MA9181	127	24.3
Maturity Average		145	25.8
LSD (0.05)		17	1.4
<b>Mid-Full Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER BRAND	3156	156	25.7
SOUTHERN STATES	SS943	145	26.2
MID-ATLANTIC	MA9200	140	25.5
DOEBLERS	854V2	136	24.4
Maturity Average		144	25.4
LSD (0.05)		15	1.9
Location Average		147	23.1

**Table 12. Three year average yields at AUGUSTA, VA in 1995, 1996, and 1997.**

<b>Very Early Maturity</b>			
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>

SOUTHERN STATES	SS576	147	17.6
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<b>Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
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DEKALB	DK642	152	20.9
SOUTHERN STATES	SS676	150	19.8
PIONEER BRAND	3245	145	20.6

Maturity Average		149	20.4
LSD (0.05)		11	1.1

<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
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SOUTHERN STATES	SS742A	154	24.3
DEKALB	DK683	142	25.8
PIONEER BRAND	3163	139	21.6
MID-ATLANTIC	MA9181	133	22.5

Maturity Average		142	23.6
LSD (0.05)		17	1.2

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
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PIONEER BRAND	3156	150	23.9
SOUTHERN STATES	SS943	145	24.2
MID-ATLANTIC	MA9200	143	23.5
DOEBLERS	854V2	134	23.1

Maturity Average		143	23.7
LSD (0.05)		11	1.4

Location Average		145	22.4
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**Table 13. Yields at BLACKSBURG, VA in 1997.**

<b>Very Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>
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AUGUSTA	A885	126	18.4	84
AUGUSTA	A359	124	18.9	86

Maturity Average		125	18.6	85
LSD		15	0.5	3

<b>Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>
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NORTHROP KING	NX7305	150	20.6	84
PIONEER BRAND	3310	148	21.6	84
PIONEER BRAND	33Y09-Bt	147	21.0	84
PIONEER BRAND	32K61	145	21.7	87
PIONEER BRAND	3260	144	23.7	86
AUGUSTA	A285	144	18.8	83
TERRA	TR1106	142	19.6	84
DEKALB	DK642	140	20.8	84
SOUTHERN STATES	676	140	20.3	84
AUGUSTA	A552	140	23.6	88
DOEBLERS	737XP	139	21.1	84
MID-ATLANTIC	MA9141	136	20.7	85



DOEBLERS	636XY*	136	18.7	84
WILSON	1792	129	24.4	86
MID-ATLANTIC	MA9142	126	20.7	84
Maturity Average		141	21.1	85
LSD		32	1.8	2

<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>
SOUTHERN STATES	742A	162	24.0	88
PIONEER BRAND	3153	161	23.6	86
DOEBLERS	859XY	154	25.5	86
HYTEST	BH4748	153	23.9	88
TERRA	TR1157	149	22.7	88
MID-ATLANTIC	MA9181	147	25.8	89
DOEBLERS	746XY	147	20.6	84
PIONEER BRAND	3163	141	21.3	86
AUGUSTA	A2062	139	24.2	86
TERRA	TR1167	139	23.9	87
DOEBLERS	75X2	133	24.5	88
TERRA	TR1185	133	25.6	87
BECK'S	8280	132	23.8	87
SOUTHERN STATES	897	128	24.1	87
DEKALB	DK679	125	23.9	87
DEKALB	DK687	125	27.6	88
NORTHRUP KING	N83-R7	124	24.1	85
NORTHRUP KING	NX7906	123	22.3	84
WILSON	E975305	121	24.4	89
DEKALB	DK683	119	27.6	88
MID-ATLANTIC	MA9171	115	24.1	87
Maturity Average		137	23.7	87
LSD		40	2.3	2

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>
HYTEST	BH4924	135	23.8	85
DEKALB	DK743	130	27.6	87
SOUTHERN STATES	943	128	26.3	87
MID-ATLANTIC	MA9200	126	25.4	86
MID-ATLANTIC	MA9220	123	28.0	87
DOEBLERS	854V2	123	24.5	86
TERRA	E1186	119	19.9	87
PIONEER BRAND	3156	109	24.2	86
TERRA	TR702	98	25.4	89
Maturity Average		121	24.8	87
LSD		25	2.9	2
Location Average		135	22.8	86

**Table 14. Two year average yields at BLACKSBURG, VA in 1996 and 1997.**

<b>Very Early Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>	<b>DaysTo</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>		<b>Silk</b>
AUGUSTA	A359	156	21.4	26877	78
AUGUSTA	A885	148	19.7	26964	76
Maturity Average		152	20.6	26920	77
LSD (0.05)		27	0.7	844	1
<b>Early Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>	<b>DaysTo</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>		<b>Silk</b>
MID-ATLANTIC	MA9141	184	23.0	27051	77
NORTHRUP KING	NX7305	173	24.3	26223	77
PIONEER BRAND	3260	170	26.2	27573	78
DEKALB	DK642	170	23.3	26877	77
AUGUSTA	A552	169	26.9	28488	81
PIONEER BRAND	3310	165	23.2	25744	76
DOEBLERS	737XP	154	22.7	25918	77
TERRA	TR1106	150	20.9	26092	77
SOUTHERN STATES	SS676	150	21.5	26789	77
MID-ATLANTIC	MA9142	133	23.6	26005	76
Maturity Average		162	23.6	26676	77
LSD (0.05)		26	1.7	1659	1
<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>	<b>DaysTo</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>		<b>Silk</b>
PIONEER BRAND	3153	178	26.4	27443	78
DOEBLERS	746XY	169	23.3	26702	77
PIONEER BRAND	3163	163	26.2	26615	78
TERRA	TR1157	160	24.8	26572	79
TERRA	TR1167	160	25.4	27051	79
MID-ATLANTIC	MA9181	159	29.3	26833	82
SOUTHERN STATES	SS742A	157	27.8	27922	81
MID-ATLANTIC	MA9171	157	26.7	27573	79
BECK'S	8280	154	26.1	27356	78
DOEBLERS	75X2	147	27.2	27138	81
DEKALB	DK687	147	30.9	26092	80
SOUTHERN STATES	SS897	140	28.4	26702	80
TERRA	TR1185	138	26.8	27835	79
DEKALB	DK683	132	33.3	27007	80
Maturity Average		155	27.2	27060	79
LSD (0.05)		33	2.1	1194	1.3
<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>	<b>DaysTo</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>		<b>Silk</b>
DEKALB	DK743	175	28.9	27661	78
MID-ATLANTIC	MA9200	174	29.4	27573	78
SOUTHERN STATES	SS943	157	29.6	28270	78
PIONEER BRAND	3156	145	27.7	28009	78
TERRA	TR702	109	28.1	28053	81
Maturity Average		152	28.7	27913	79
LSD (0.05)		27	2.4	827	1
Location Average		156	25.9	27065	78

**Table 15. Three year average yields at BLACKSBURG, VA in 1995, 1996, and 1997.**

<b>Early Maturity</b>	<b>Yield</b>	<b>Moist</b>	<b>Plants/A</b>
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<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	
DEKALB	DK642	143	23.0	27007
DOEBLERS	737XP	141	22.4	25788
SOUTHERN STATES	SS676	137	21.3	26514
Maturity Average		140	22.2	26436
LSD (0.05)		21	0.7	1335
<b>Medium Maturity</b>				
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Plants/A</b>
TERRA INT'L	TR1167	153	24.4	27443
BECK'S	8280	148	24.6	27704
SOUTHERN STATES	SS742A	144	26.2	27849
PIONEER BRAND	3163	137	25.1	26891
MID-ATLANTIC	MA9181	132	27.5	27414
DEKALB	DK683	129	30.2	27152
TERRA INT'L	TR1185	122	25.9	27849
Maturity Average		138	26.3	27472
LSD (0.05)		26	1.4	879
<b>Mid-Full Maturity</b>				
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Plants/A</b>
DEKALB	DK743	154	27.6	27936
MID-ATLANTIC	MA9200	145	27.8	27501
SOUTHERN STATES	SS943	144	27.8	27820
PIONEER BRAND	3156	129	26.3	27530
Maturity Average		143	27.3	27697
LSD (0.05)		20	1.5	833
Location Average		140	25.6	27314

**Table 16. Yields at ORANGE, VA in 1997.**

<b>Very Early Maturity</b>					
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>	<b>Ear Ht inches</b>
AUGUSTA	A359	241	19.3	79	57
DOEBLERS	636XY	216	17.8	77	51
SOUTHERN STATES	576	214	17.3	76	55
PIONEER BRAND	3525	203	15.9	76	52
DEKALB	DK546	199	17.1	76	50
AUGUSTA	A2067	172	16.6	76	47
Maturity Average		208	17.3	76	52
LSD		30	0.9	2	5
<b>Early Maturity</b>					
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>	<b>Ear Ht inches</b>
AUGUSTA	A552	273	22.8	83	63
AUGUSTA	A385	252	21.0	81	55
SOUTHERN STATES	747	245	21.3	83	52
PIONEER BRAND	3223	242	21.5	82	57
DOEBLERS	746XY*	242	20.9	81	54
PIONEER BRAND	3310	240	20.9	79	56
DEKALB	DK642	240	20.8	79	49
DEKALB	DK626	239	18.4	78	56
PIONEER BRAND	32K61	239	19.1	80	55
SOUTHERN STATES	726	239	20.1	79	54
PIONEER BRAND	33V08-Bt	236	18.4	78	55
PIONEER BRAND	3394	236	18.6	77	54

AUGUSTA	A285	236	19.8	78	50
PIONEER BRAND	3245	235	21.3	81	53
PIONEER BRAND	3260	234	21.2	82	53
AUGUSTA	A3510	233	21.3	81	62
PIONEER BRAND	33Y09-Bt	230	18.9	79	59
MID-ATLANTIC	MA9141	228	21.6	79	53
SOUTHERN STATES	676	226	18.9	81	53
DOEBLERS	642XP	215	18.9	77	52
SOUTHERN STATES	767	214	19.6	80	49
PIONEER BRAND	34A55	212	19.0	78	52
MID-ATLANTIC	MA9142	203	20.4	80	47
Maturity Average		235	20.3	80	54
LSD		17	1.6	1	5

<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>	<b>Ear Ht inches</b>
MID-ATLANTIC	MA9181	255	24.0	83	63
BECK'S	6205	253	20.3	80	53
PIONEER BRAND	31B13-Bt	252	20.5	82	67
AUGUSTA	A2062	251	20.5	79	61
MID-ATLANTIC	MA9171	249	22.9	81	61
PIONEER BRAND	3153	248	21.5	82	60
SOUTHERN STATES	828	246	22.0	80	55
SOUTHERN STATES	797IT	245	20.7	77	53
PIONEER BRAND	3163	245	21.4	81	58
DOEBLERS	859XY	244	23.7	82	59
DYNAGRO	5508	243	20.3	79	55
SOUTHERN STATES	897	240	22.1	80	53
DYNAGRO	5456	237	19.0	78	55
DOEBLERS	746XY	237	19.4	81	57
DOEBLERS	75X2	235	20.3	83	56
DEKALB	DK668	234	20.0	79	61
MYCOGEN	2815	230	19.9	78	53
DEKALB	DK687	226	21.9	80	56
MYCOGEN	2829	225	21.5	82	60
DEKALB	DK683	215	22.4	81	58
Maturity Average		237	20.8	80	57
LSD		15	1.7	3	4

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Days To Silk</b>	<b>Ear Ht inches</b>
SOUTHERN STATES	943	266	26.9	80	55
DYNAGRO	UAPX 15057	256	25.1	84	59
MID-ATLANTIC	MA9200	253	25.3	80	54
DYNAGRO	5570	251	22.5	82	62
MID-ATLANTIC	MA9220	250	24.7	83	54

PIONEER BRAND	3167	241	24.7	84	55
PIONEER BRAND	3156	239	23.4	82	58
PIONEER BRAND	3082	234	24.4	84	57
DYNAGRO	5561A	229	21.0	83	57
Maturity Average		247	24.2	82	57
LSD		25	1.8	2	3
Location Average		235	20.8	80	55

**Table 17. Two year average yields at ORANGE, VA in 1996 and 1997.**

<b>Very Early Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>DaysTo</b>	<b>EarHt</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	<b>Silk</b>	<b>In</b>
DOEBLERS	636XY	196	18.4	70	48
PIONEER BRAND	3525	192	17.0	69	51
SOUTHERN STATES	SS576	191	18.3	69	52
Maturity Average		193	17.9	69	50
LSD (0.05)		16	0.8	1	3
<b>Early Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>DaysTo</b>	<b>EarHt</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	<b>Silk</b>	<b>In</b>
AUGUSTA	A552	245	22.7	76	57
PIONEER BRAND	3223	225	21.3	75	55
PIONEER BRAND	3245	221	20.7	73	47
PIONEER BRAND	3310	216	21.5	72	53
DEKALB	DK642	214	20.7	72	44
PIONEER BRAND	3260	212	21.5	74	51
SOUTHERN STATES	SS726	211	19.7	71	50
SOUTHERN STATES	SS747	210	21.2	75	49
DEKALB	DK626	209	18.6	71	53
MID-ATLANTIC	MA9141	206	21.6	72	48
MID-ATLANTIC	MA9142	187	20.5	72	45
Maturity Average		214	20.9	73	50
LSD (0.05)		14	1.1	1	3
<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>DaysTo</b>	<b>EarHt</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	<b>Silk</b>	<b>In</b>
PIONEER BRAND	3153	224	21.0	74	53
MID-ATLANTIC	MA9171	224	22.8	73	56
BECK'S	6205	223	20.7	73	50
MID-ATLANTIC	MA9181	221	23.3	76	60
PIONEER BRAND	3163	216	21.6	74	52
DOEBLERS	746XY	214	19.9	73	52
DEKALB	DK668	212	19.8	73	55
DOEBLERS	75X2	208	20.9	76	53
DYNAGRO	5456	206	19.7	71	50
DEKALB	DK687	205	22.4	73	52
SOUTHERN STATES	SS897	199	23.3	74	49
DEKALB	DK683	196	22.7	74	53
Maturity Average		212	21.5	74	53
LSD (0.05)		13	1.2	2	3
<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>DaysTo</b>	<b>EarHt</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	<b>Silk</b>	<b>In</b>

DYNAGRO	UAPX 15057	225	23.3	76	58
SOUTHERN STATES	SS943	220	25.6	74	51
PIONEER BRAND	3082	215	25.0	77	55
PIONEER BRAND	3156	210	23.1	74	56
MID-ATLANTIC	MA9200	204	25.7	74	50
Maturity Average		215	24.5	75	54
LSD (0.05)		14	1.3	1	3
Location Average		212	21.4	73	52

**Table 18. Three year average yields at ORANGE, VA in 1995, 1996, and 1997.**

<b>Very Early Maturity</b>					
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>DaysTo Silk</b>	<b>EarHt In</b>
SOUTHERN STATES	SS576	200	18.6	71	54
DOEBLERS	636XY	196	18.9	69	49
Maturity Average		198	18.8	70	51
LSD (0.05)		14	0.7	1	3
<b>Early Maturity</b>					
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>DaysTo Silk</b>	<b>EarHt In</b>
AUGUSTA	A552	234	23.1	77	59
PIONEER BRAND	3245	233	21.1	73	50
PIONEER BRAND	3223	231	21.6	75	58
Maturity Average		233	21.9	75	56
LSD (0.05)		10	1.0	1	2
<b>Medium Maturity</b>					
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>DaysTo Silk</b>	<b>EarHt In</b>
PIONEER BRAND	3163	225	23.0	75	54
DOEBLERS	75X2	212	21.5	76	55
DEKALB	DK683	207	23.2	74	54
Maturity Average		214	22.6	75	54
LSD (0.05)		9	1.1	1	2
<b>Mid-Full Maturity</b>					
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>DaysTo Silk</b>	<b>EarHt In</b>
SOUTHERN STATES	SS943	226	26.4	74	53
PIONEER BRAND	3156	216	23.9	74	57
Maturity Average		221	25.1	74	55
LSD (0.05)		15	1.1	1	2
Location Average		218	22.1	74	54

**Table 19. Yields at TAZEWELL, VA in 1997.**

<b>Very Early Maturity</b>				
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Lodging %</b>
SOUTHERN STATES	576	123	25.3	3
<b>Early Maturity</b>				
<b>Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Lodging %</b>
NORTHRUP KING	NX7305	150	29.2	5
NORTHRUP KING	N7931	138	28.1	9

AUGUSTA	A552	131	31.3	4
PIONEER BRAND	32K61	131	28.7	5
DEKALB	DK618	126	29.1	5
PIONEER BRAND	33Y09-Bt	123	28.8	6
DEKALB	DK642	120	29.8	2
PIONEER BRAND	3310	115	30.1	3
MID-ATLANTIC	MA9142	114	29.9	11
MID-ATLANTIC	MA9141	112	29.7	11
PIONEER BRAND	3217	103	31.3	5
NORTHRUP KING	N7639Bt	100	30.5	7
Maturity Average		122	29.7	6
LSD		34	2.0	6

<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Lodging %</b>
DEKALB	DK679	143	29.6	4
PIONEER BRAND	3172	139	32.6	7
NORTHRUP KING	N83-R7	138	31.0	5
HYTEST	BH4748	137	33.2	10
PIONEER BRAND	3163	136	30.9	7
SOUTHERN STATES	742A	133	32.7	12
AUGUSTA	A2062	130	31.4	6
PIONEER BRAND	3153	129	29.2	6
SOUTHERN STATES	897	128	34.8	9
NORTHRUP KING	NX7906	126	28.1	8
DOEBLERS	82XP	126	30.9	6
MID-ATLANTIC	MA9171	124	32.9	5
SOUTHERN STATES	883A	124	34.2	2
MID-ATLANTIC	MA9181	123	33.5	11
DOEBLERS	75X2	122	31.9	6
DEKALB	DK683	117	35.4	11
DEKALB	DK687	116	33.7	6
Maturity Average		129	32.1	7
LSD		32	1.6	9

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Lodging %</b>
DEKALB	DK743	135	36.5	6
PIONEER BRAND	3156	130	34.5	13
HYTEST	BH4924	130	37.3	6
MID-ATLANTIC	MA9200	120	35.4	11
MID-ATLANTIC	MA9220	119	38.0	5
SOUTHERN STATES	943	105	36.0	17
Maturity Average		123	36.3	10
LSD		22	1.3	13
Location Average		125	31.8	7

**Table 20. Yields at WYTHE, VA in 1997.**

<b>Very Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>	<b>Plants/acre</b>
SOUTHERN STATES	576	189	24.4	21635

<b>Early Maturity</b>	<b>Yield</b>	<b>Moist</b>	<b>Plants/acre</b>
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<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	
PIONEER BRAND	32K61	207	27.4	24539
MID-ATLANTIC	MA9141	195	31.2	13213
MID-ATLANTIC	MA9142	190	30.2	18295
NORTHRUP KING	N7931	172	29.0	25700
NORTHRUP KING	N7639Bt	171	29.9	20473
NORTHRUP KING	NX7305	161	28.2	20618
PIONEER BRAND	3310	158	27.9	24684
AUGUSTA	A552	153	30.8	20038
PIONEER BRAND	33Y09-Bt	151	26.6	23087
PIONEER BRAND	3217	150	29.4	20473
DEKALB	DK618	148	28.2	20328
DEKALB	DK642	124	29.7	19021
Maturity Average		165	29.0	20614
LSD		46	3.3	5899

<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/acre</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	
SOUTHERN STATES	742A	232	33.9	24394
DEKALB	DK679	214	29.3	22942
MID-ATLANTIC	MA9181	209	34.5	19384
DOEBLERS	82XP	207	30.8	21344
DOEBLERS	75X2	205	32.9	19892
PIONEER BRAND	3153	192	28.7	24394
DEKALB	DK687	188	30.2	22942
DEKALB	DK683	185	33.9	15682
SOUTHERN STATES	883A	176	33.2	23958
NORTHRUP KING	N83-R7	173	30.4	23377
MID-ATLANTIC	MA9171	163	31.8	19747
PIONEER BRAND	3163	163	29.7	18440
AUGUSTA	A2062	162	31.2	23522
SOUTHERN STATES	897	161	33.0	22651
HYTEST	BH4748	159	34.2	14810
NORTHRUP KING	NX7906	158	28.2	15972
PIONEER BRAND	3172	143	31.5	22796
Maturity Average		180	31.5	20918
LSD		60	4.1	5123

<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>	<b>Plants/acre</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>	
MID-ATLANTIC	MA9220	202	34.8	19602
DEKALB	DK743	192	33.8	22070
SOUTHERN STATES	943	161	36.9	24539
MID-ATLANTIC	MA9200	158	33.4	23668
PIONEER BRAND	3156	151	30.4	23522
HYTEST	BH4924	137	33.9	21490
Maturity Average		168	33.9	22482
LSD		48	3.1	4446
Location Average		173	30.9	21124

The following two and three year average yield tables are included in the absence of current year data at Holland and Mt. Holly. Please note that the data is from the years 1994, 1995, and 1996.



**Table 21. Two year average yields at HOLLAND, VA in 1995 and 1996.**

<b>Very Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER	3525	165	17.8
<hr/>			
<b>Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
DEKALB	DK642	203	19.2
PIONEER	3223	202	21.4
PIONEER	3245	198	21.5
PIONEER	3394	188	18.6
HYPERFORMER	HS9502	179	18.2
AUGUSTA	A613aa	178	20.9
BECK'S	5405	176	18.7
<hr/>			
Maturity Average		188	19.7
LSD (0.05)		13	0.8
<hr/>			
<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER	3163	198	20.2
HYPERFORMER	HS9843	193	20.7
DEKALB	DK683	192	20.8
BECK'S	8280	192	21.8
HYPERFORMER	HY9899V	190	24.1
DOEBLERS	82XP	181	20.6
DEKALB	DK668	179	20.7
CARGILL	7557	178	21.3
NORTHROP KING	N8656	166	24.7
<hr/>			
Maturity Average		186	21.7
LSD (0.05)		13	1.2
<hr/>			
<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	SS943	195	23.1
HYPERFORMER	HY9919V	192	22.6
NORTHROP KING	N8811	179	24.0
PIONEER	3165	173	23.3
<hr/>			
Maturity Average		185	23.3
LSD (0.05)		13	1.3
Location Average		185	21.2

The following two and three year average yield tables are included in the absence of current year data at Holland and Mt. Holly. Please note that the data is from the years 1994, 1995, and 1996.

**Table 22. Three year average yields at HOLLAND, VA in 1994, 1995, and 1996.**

<b>Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER	3245	170	20.1
PIONEER	3394	167	17.9
AUGUSTA	A613aa	162	19.8
BECK'S	5405	158	18.1

HYPERFORMER	HS9502	156	17.9
Maturity Average		163	18.8
LSD (0.05)		13	0.8

<b>Medium Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER	3163	173	19.4
HYPERFORMER	HY9899V	166	23.2
DEKALB	DK683	165	20.4
HYPERFORMER	HS9843	164	19.7
DOEBLERS	82XP	156	19.8
NORTHRUP KING	N8656	152	23.0
Maturity Average		163	20.9
LSD (0.05)		10	0.9

<b>Mid-Full Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	SS943	170	22.8
NORTHRUP KING	N8811	160	22.8
PIONEER	3165	152	22.3
Maturity Average		160	22.7
LSD (0.05)		11	1.1
Location Average		162	20.5

The following two and three year average yield tables are included in the absence of current year data at Holland and Mt. Holly. Please note that the data is from the years 1994, 1995, and 1996.

**Table 23. Two year average yields at MT HOLLY, VA in 1995 and 1996 - Non-irrigated.**

<b>Very Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
SOUTHERN STATES	SS576	161	16.8
PIONEER	3525	160	17.0
AUGUSTA	A285	157	18.8
DOEBLERS	636XY	151	17.8
AUGUSTA	A286	141	16.4

Maturity Average		154	17.4
LSD (0.05)		14	0.5

<b>Early Maturity Brand/Company</b>	<b>Hybrid</b>	<b>Yield bu/A</b>	<b>Moist %</b>
PIONEER	3245	189	20.1
AUGUSTA	A552	171	20.7
PIONEER	3394	171	17.7
PIONEER	3223	171	20.0
AUGUSTA	A520	163	19.5
BECK'S	5885	163	18.0
SOUTHERN STATES	SS656	160	17.8
BECK'S	5405	157	18.5
SOUTHERN STATES	SS676	156	18.0
AUGUSTA	A613aa	156	20.1
DEKALB	DK642	155	18.0
DOEBLERS	737XP	146	18.3

AUGUSTA	A2112	145	20.8
AUGUSTA	A518	144	23.7
Maturity Average		161	19.4
LSD (0.05)		19	0.7

<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
PIONEER	3163	181	19.8
BECK'S	8280	168	21.8
CARGILL	7557	167	20.6
DOEBLERS	82XP	165	20.1
DEKALB	DK668	160	19.9
LYNKS	2821	157	19.9
TERRA	TR1185	157	22.4
LYNKS	2815	157	19.6
TERRA	TR1167	144	20.1

Maturity Average		162	20.5
LSD (0.05)		18	0.6

<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>

CARGILL	8327	161	19.7
Location Average		160	19.4

The following two and three year average yield tables are included in the absence of current year data at Holland and Mt. Holly. Please note that the data is from the years 1994, 1995, and 1996.

**Table 24. Three year average yields at MT HOLLY, VA in 1994, 1995, and 1996.**

<b>Very Early Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
PIONEER	3525	155	16.8

<b>Early Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
PIONEER	3245	178	19.5
PIONEER	3394	160	17.2
BECK'S	5405	156	17.8
AUGUSTA	A613aa	151	19.6
AUGUSTA	A518	150	23.3
DOEBLERS	737XP	141	17.7

Maturity Average		156	19.2
LSD (0.05)		19	0.6

<b>Medium Maturity</b>		<b>Yield</b>	<b>Moist</b>
<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
PIONEER	3163	174	19.6
TERRA	TR1185	165	21.9
DOEBLERS	82XP	161	19.4
TERRA	TR1167	146	19.4

Maturity Average		162	20.1
LSD (0.05)		13	0.6

<b>Mid-Full Maturity</b>		<b>Yield</b>	<b>Moist</b>
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<b>Brand/Company</b>	<b>Hybrid</b>	<b>bu/A</b>	<b>%</b>
CARGILL	8327	156	19.1
Location Average		158	19.3

## SECTION II. EVALUATION OF BT HYBRIDS AT MT. HOLLY AND HOLLAND

R. Youngman, C. Laub, T. Kuhar, H. Behl, E. Bender, D. Brann

Six Bt corn hybrids and a non-Bt corn standard were planted April 1997 at the Virginia Crop Improvement Farm in Mt. Holly, and the Eastern Virginia Agricultural Research and Extension Center in Holland. The Bt hybrids evaluated at both sites included: 'Pioneer 35N05', 'Pioneer 33V08', 'Mycogen 7059', 'Mycogen 7559', 'Novartis N7639-Bt(11)', and 'Novartis N6800-Bt(11)'. The non-Bt hybrid used as a standard at both sites was 'Pioneer 3394', a hybrid which is consistently in the top group for its maturity. At the Mt. Holly test site, corn was planted on 30-inch rows, thinned to 26,000 plants/acre, and grown under irrigation, whereas at Holland, corn was planted on 36-inch rows, thinned to 22,000 plants/acre, and grown under dryland conditions. All corn hybrids were replicated 4 times in a randomized complete block design.

### Evaluating Second Generation European Corn Borer Damage

Second generation damage was determined in all plots at both sites in late-August. The sampling procedure was to thoroughly inspect 20 cornstalks per plot for evidence of feeding and tunneling activity. A plant was destructively sampled only when damage was detected, with records made on the location and extent of the damage on the plant. For more details on the sampling process, contact the author.

### European Corn Borer Pest Pressure

Second generation corn borer pressure was very low at both locations in 1997. Of the 480 cornstalks sampled at Mt. Holly, a total of only 2 (0.4%) corn borer tunnels were found. Likewise, only 12 (2.5%) corn borer tunnels were found at the Holland site. It is worth noting that no tunnels were detected in 'Pioneer 3394' stalks at Holland. The lack of pest pressure in both locations precluded an evaluation of the different Bt hybrids' ability to withstand late-season damage from European corn borer. Despite the lack of pest pressure, however, there were significant differences in yield among hybrids at the Mt. Holly site (Table 25). Grain yields ranged from a high of 249.7 bu/A for 'Novartis N7639-Bt(11)' to a low of 213.0 bu/A for 'Pioneer 35N05'. Other top yielding varieties included the Bt-hybrid: 'Pioneer 33V08' (241.5 bu/A), and the non-Bt standard: 'Pioneer 3394' (243.3 bu/A). 'Novartis N6800-Bt(11)' gave an intermediate yield of 232.0 bu/A, which was followed by the two Mycogen Bt hybrids: '7059' (222.3 bu/A) and '7559' (222.0 bu/A). Under the conditions of this test, these results indicate that at least two Bt hybrids: 'Novartis N7639-Bt(11)' and 'Pioneer 33V08' are competitive with the non-Bt hybrid, 'Pioneer 3394', for eastern Virginia.

Grain yields were dramatically lower among all corn hybrids evaluated at the Holland site (Table 26). The lack of sufficient moisture during critical times for corn growth at Holland, contributed substantially to the low hybrid grain yields experiment-wide. The large LSD was caused by previous plot-induced variation. The corn plots did not match the previous peanut plots.

**Table 25. Bt hybrids under irrigation at Mt. Holly, Virginia in 1997.**

Brand/Company	Hybrid	Yield bu/acre	Percent moisture	Test Wt lb/bu
Novartis	N7639-Bt(11)	249.7 a	23.2 a	52.9 d
Pioneer	3394	243.3 a	20.6 d	54.2 b
Pioneer	33V08	241.5 ab	21.3 c	54.4 b
Novartis	N6800-Bt(11)	232.0 bc	22.1 b	53.4 c
Mycogen	7059	222.3 cd	22.0 b	52.2 e
Mycogen	7559	222.0 cd	23.0 a	53.5 c
Pioneer	35N05	213.0 d	18.2 e	56.2 a
Location average		231	21.4	53.8
LSD		10	0.5	0.5

**Table 26. Bt hybrids at Holland, Virginia in 1997.**

Brand/Company	Hybrid	Yield bu/acre	Percent moisture	Test Wt lb/bu
Pioneer	33V08	115.8	23.4 ab	54.4 b
Novartis	N7639-Bt(11)	102.3	22.9 ab	52.6 c
Novartis	N6800-Bt(11)	100.0	23.8 a	52.8 c
Mycogen	7059	96.8	21.9 bc	52.4 c
Mycogen	7559	90.3	22.4 ab	53.2 bc
Pioneer	35N05	87.0	20.2 c	56.0 a
Pioneer	3394	81.5	21.5 bc	54.1 b
Location average		96	22.3	53.6
LSD		37	1.8	1.2

### SECTION III. 1997 European Corn Borer Survey

R. Youngman, C. Laub, T. Kuhar

European corn borer damage from the second generation was surveyed in August. Fifty-four non-Bt cornfields were selected in 14 eastern Virginia counties (Figure 1). The counties included three in the northern neck: Northumberland, Lancaster, and Richmond; three in the middle peninsula: Essex, Middlesex, and King and Queen; three in the lower peninsula: New Kent, Charles City, and James City; and five counties south of the James River: Surry, Sussex, Isle of Wight, Southampton, and Suffolk. In each field, 100 stalks were sampled for corn borer damage making up a total sample size of 5,400 plants.

The percentage of stalks with corn borer tunnels in 1997 ranged from very low in the northern counties to moderate in the southern counties. Infestation levels averaged only 0.6% in the northern neck and middle peninsula counties, and 3.5% in the lower peninsula counties. However, the highest percentage (13.2%) of infested stalks occurred in those counties surveyed south of the James River. Overall, most of the cornfields in this survey had below-threshold infestation levels of corn borer; however, at least one field in New Kent Co., and as many as six fields in counties south of the James River had infestation levels that probably would have benefited from the Bt corn hybrid technology. The field in our survey with the highest percentage of infested stalks (77%) was located in Isle of Wight Co.

**Figure 1.** 1997 survey of European corn borer damage in 54 non-Bt cornfields in eastern Virginia. Numbers in counties represent average percentage of stalks with ECB tunnels.

## **SECTION IV. Evaluation of Double Crop Corn in Eastern Virginia**

H. Behl, E. Bender, D. Brann, D. Moore, L. Barrack

Double cropping corn for silage after small grain silage is practiced on a number of farms in Virginia. Double cropping corn for grain after small grain harvest for grain is not currently practiced. This research was initiated to ultimately develop a cropping system for continuous double cropping. This system may be especially well-suited on soils that are too droughty to produce only a summer crop profitably. The cropping system will emphasize well-managed wheat, barley, or some other winter annual.

Corn hybrids with a relative maturity from 75 to 115 days were planted at Corbin Hall near Saluda and on the Eastern Virginia AREC near Warsaw, Virginia at the time of barley harvest. The plots at Warsaw were planted conventional tillage whereas the plots at Corbin Hall were planted no-till. Nitrogen at 125 lb N/acre was applied at planting at Corbin Hall and 150 lb N/acre at Warsaw. No insecticide was applied.

Amazingly, corn was 5-6 inches tall two weeks after planting, 5 feet tall one month after planting, and beginning to tassel 55-65 days after planting. Excellent quality corn grain yields of 100 to 150 bu/acre were obtained both non-irrigated and with supplemental irrigation.

Corn hybrids with a relative maturity less than 90 days produced nearly 50% less yield than hybrids in the 100-115 day relative maturity range. Fortunately, corn hybrids with a relatively maturity of 100-115 days will be less than 25% grain moisture by mid-October even when planted in mid-June. We will not have to plant extremely early corn hybrids to fit double crop corn into a continuous double crop system.

When planted in mid-June in eastern Virginia the 91-105 day hybrids may yield similar to 106-115 day hybrids over years because the 91-105 day hybrids initiate tasseling during longer days. The ultimate yield-determining factor will be rainfall and available moisture at silking and tasseling. It may be advisable to plant at least two hybrids with different maturities to spread risk of drought at silking.

The study at Warsaw compared corn with Group IV soybeans (Table 29). The best corn hybrids yielded 122-126 bu/acre, whereas the two soybean varieties averaged 37 bu/acre, and the best grain sorghum averaged 141 bu/acre. At current prices, the net profits from the above three species would be similar. Two factors need to be considered. Double crop soybeans work extremely well and our goal is not to beat soybeans but to add another alternative for long term rotations. Second, the grain sorghum did extremely well this year and was sufficiently dry to harvest due to low rainfall and high temperatures for two weeks prior to harvest. Grain sorghum is normally slow to dry in the field and cannot be harvested and dried above 20% moisture.

European corn borer pressure was low at these locations this year. Corn earworm pressure was relatively low but the number of damaged ears at Corbin Hall was lower when comparing iso-lines such as N6800 with N6800 Bt(11). It is also interesting to note that the top 5 hybrids non-irrigated as well as supplementally irrigated had the Bt gene incorporated.

Further research must be conducted to evaluate the importance of insect resistance in selecting corn to be planted double crop in eastern Virginia.

In summary, 1997 results showed that double crop corn behind barley can be successful. The degree to which it is successful long term will be determined by further research and producer experience.

**Table 27. Double crop study at Corbin Hall in 1997 - Non-Irrigated.**

Brand/Company	Hybrid	Yield bu/A	Relative Maturity	Moist %	Test Wt lb/bu	Plants/A	%CEW Damaged Ears
NK	N6800-Bt(11)	125	112	20.0	55.9	26136	17
PIONEER	35N05-Bt	118	107	18.7	57.0	24321	23
NK	N4640-Bt(11)	113	106	16.9	55.4	24684	17
PIONEER	33Y09-Bt	113	113	20.9	54.5	25501	44
PIONEER	33V08-Bt	112	110	20.5	56.0	25229	38
NK	N4242-Bt(11)	111	104	17.5	56.3	24049	15
MYCOGEN	7559	107	115	19.6	54.0	24321	79
NK	N4640	106	106	16.8	54.5	25501	59
NK	N6800	106	112	20.3	56.0	23323	63
NK	N7639-Bt(11)	105	112	22.9	54.0	25592	20
PIONEER	36K27-Bt	105	102	16.2	53.6	22778	28
MYCOGEN	2598	104	105	18.4	54.0	23323	62
AUGUSTA	2067	101	90	18.2	56.7	21054	75
NK	N4242	97	104	17.5	55.3	23777	48
MYCOGEN	2382	95	94	16.6	55.0	23141	25
MYCOGEN	2362	93	93	17.0	56.9	22325	34
DEKALB	DK546	90	104	17.8	55.2	22506	65
DEKALB	DK446	88	94	16.1	54.3	23504	48
PIONEER	3905	87	87	17.0	56.1	23232	59
PIONEER	3984	57	75	18.7	58.8	23323	43
Corn Average		102		18.4	55.5	23881	43
LSD (0.05)		18		0.8	1.1	2387	24

Site was planted June 10 and harvested October 21, 1997. Leaf damage, European corn borer stalk and ear shank ratings, and number of ECB larvae evaluations were made on each hybrid by Dr. Rob Youngman, Extension Entomologist at VA Tech. There was little to no damage in any plots. The corn ear worm ratings were also made by Dr. Youngman. Sorghum at this site ranged in yield from 70 to 80 bu/acre.

**Table 28. Double Crop Study at Corbin Hall in 1997 - Irrigated**

Brand/Company	Hybrid	Yield bu/A	Relative Maturity	Moist %	Test Wt lb/bu	Plants/A
PIONEER	35N05-Bt	150	107	21.0	55.3	26894
PIONEER	33Y09-Bt	138	113	21.7	52.7	25268
PIONEER	33V08-Bt	130	110	23.1	54.0	24834
NK	N6800-Bt(11)	125	112	22.9	53.4	25378
PIONEER	36K27-Bt	122	102	17.9	53.4	23863
NK	N6800	119	112	22.8	53.3	25378
DEKALB	DK446	114	94	19.4	53.1	22190
NK	N4640-Bt(11)	113	106	19.4	53.2	24487
AUGUSTA	2067	108	90	20.2	53.9	24810
NK	N7639-Bt(11)	105	112	24.2	53.2	24053
MYCOGEN	2598	102	105	19.6	52.8	26325
MYCOGEN	2362	102	93	18.1	56.1	22956
NK	N4242-Bt(11)	99	104	20.2	55.6	24242
MYCOGEN	2382	99	94	18.4	53.8	24297
PIONEER	3905	98	87	19.3	55.3	25757
NK	N4640	94	106	19.4	52.9	22159
MYCOGEN	7559	89	115	25.6	51.7	22656
DEKALB	DK546	82	104	19.0	54.1	20873
NK	N4242	79	104	20.2	52.9	22474
PIONEER	3984	76	75	19.1	58.4	24053
Corn Average		108		20.6	54.0	24147
LSD		28		2.1	2.0	3919

Site was planted June 10 and harvested October 21, 1997. Irrigation included 0.75" applied three times during the growing season. There was one storm near the end of July that provided 3" of rain. Complete rainfall data is unavailable. The relatively high LSD is related to the fact that there was space for only two replications in the irrigated area.



**Table 29. Double crop study at Warsaw in 1997 - Non-Irrigated.**

Hybrid/Line	Yield bu/A	Relative Maturity	Moist %	Days To Silk	Days To Tassel	Test Wt lb/bu
Asgrow AG4341	39	Group IV	12.2			
FFR-439	36	Group IV	12.3			
<b>Soybean Average</b>	<b>37</b>		<b>12.3</b>			
<b>LSD</b>	<b>7</b>		<b>0.2</b>			
P33V08-Bt	126	110	17.2	59	58	58.6
P36K27-Bt	122	102	15.4	57	53	53.4
P35N05-Bt	108	107	15.3	58	54	60.0
N7639-Bt(11)	92	112	15.4	59	55	60.0
N4242	91	104	11.7	53	52	57.4
N4242-Bt(11)	79	104	13.3	55	51	59.2
<b>Corn Average</b>	<b>103</b>		<b>14.7</b>	<b>57</b>	<b>54</b>	<b>58.1</b>
<b>LSD</b>	<b>21</b>		<b>3.4</b>	<b>1</b>	<b>3</b>	<b>3.0</b>
P8446-GAUCHO	141	Medium	11.2			56.7
P8699	88	Very Early	10.1			53.9
<b>Sorghum Average</b>	<b>115</b>		<b>10.6</b>			<b>55.3</b>
<b>LSD</b>	<b>21</b>		<b>0.2</b>			<b>5.3</b>

European corn borer ratings on the corn plots were made by Dr. Rod Youngman, Extension Entomologist at VA Tech. There were essentially no corn earworms or European corn borers present in these plots. Site was planted June 17 and harvested October 14, 1997. Rainfall data for this site is as follows:

June 14	0.71"	August 4	0.25"	September 9	0.12"
26	0.32"	5	0.02" (98°F)	10	0.03"
27	0.50"	17	0.03" (99°F)	11	0.37"
Total	1.53"	20	1.26"	13	0.42"
		28	0.76"	24	0.05"
July 2	0.14"	Total	2.32"	28	0.40"
10	0.43"			Total	2.39"
17	0.04"				
22	1.10"			October 1-14	0.02"
23	0.74"				
24	3.22"				
29	0.12"				
Total	5.79"				

