

# Kentucky Corn Silage Hybrid Performance Report, 2016

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## Objective

The objective of the Silage Corn Hybrid Performance Test is to provide unbiased forage yield and quality data for corn hybrids commonly grown for silage in Kentucky.

## General Procedures

Hybrids were evaluated for silage performance on cooperating farms. Representatives from seed companies submitted hybrids of their choosing.

University of Kentucky personnel or third-party contractors planted the hybrid seeds. Farmers applied the soil fertility and pest management. University of Kentucky personnel harvested, weighed, chopped, and packaged corn for quality analysis. University personnel conducted the statistical analyses and final reporting of hybrid performance.

Every effort was made to conduct the tests in an unbiased manner according to accepted agronomic practices. In some cases, fertilizer rates are above recommendations. Hybrids were arranged in a randomized complete block design with three replications at each farm. Hybrid seed was planted with standard planters at a target seeding rate near 30,000 seeds per acre. Fields were monitored for pests.

When most hybrids were near 35% dry matter (65% moisture), two 10-ft sections of each hybrid were harvested by hand from each plot. The entire harvested corn sample was weighed. All whole plants from each hybrid were chopped through a silage chopper and a subsample was collected.

Forage quality analyses and dry matter determination were from composite samples of each hybrid at each location and were analyzed by Dairy One Forage Lab, which also calculated milk yield.

Hybrid performance reported here includes silage yield adjusted to 35% dry matter, milk yield per ton and per acre, net energy for gain and for lactation, in vitro true digestibility, crude protein, acid detergent fiber, neutral detergent fiber, and total digestible nutrients.

Yield was separated using the Least Significant Difference (or LSD). The LSD is a method of separating hybrid performance from field variability. Hybrids with yields within one (1) LSD of each other have a very good chance of performing similar to each other next year.

## 2016 Season Comments

The 2016 growing season was wet early and dry later. Timing harvest was difficult for the 2016 season. Forage moisture was wet at harvest at the Casey County location while forage moisture was dry at the Boyle County harvest. Both the Casey County and Boyle County locations had uniform stands and provided excellent comparisons throughout. For Bracken County, yields were excellent, but wild turkeys destroyed stands in some plots early on. Those poor stands resulted in missing plots and reduced replications for the Bracken County site. For that reason, only Boyle and Casey county data were combined for analysis. Gray leaf spot (caused by *Circoospora zea-maydis*), common rust (caused by *Puccinia sorghi*) and southern rust (caused by *Puccinia polysora*) were present on corn at all three locations. Ratings were taken at Casey and Bracken. Foliar fungicide after pollination would have helped final yields.

Even with these challenges, this was an excellent year to compare hybrid performance. Compare hybrids for total silage yield and milk yield.

We thank our farmer cooperators for hosting the plots and helping with planting, management and harvest of the plots.

## Research was conducted by:

### County Extension Agents for Agriculture and Natural Resources:

Nick Roy, Adair County; Jerry Little, Boyle County; Will Stallard, Casey County; David Appelman, Bracken County; Tad Campbell, Mason County; Philip Knopka, Lewis County; Ben Hubbard, Fleming County; Jay Hetmansperger, Garrard County; Tom Mills, Rockcastle County; Linda McClanahan, Mercer County; Jessica Barnes, Harrison County; Clay Stamm, Nicholas County; Ben Hubbard, Fleming County; Shannon Farrell, Robertson County; and Andrew Faison, Pulaski County

**Plant and Soil Sciences:** Chad Lee, Kathleen Russell, James Dollarhide, Lucas Vivantonio, and Edmur Camargo

**Table 1. Agronomic Practices for 2015 Corn Silage Trials**

	Bracken	Boyle	Casey
Planting	6/1/2016	5/30/2016	5/25/2016
N, lb/A	200	220	207
P <sub>2</sub> O <sub>5</sub> , lb/A	0	48	0
K <sub>2</sub> O, lb/A	132	204	135
Zn, lb/A	15		
Lime, tons/A			2
Herbicide(s)	Glyphosate	Sure Start, Capreno	Roundup Powermax, Atrazine
Soil Series	Eden flaggy silty clay loam	Dunning silt loam	Frankstown silt loam
Previous Crop	wheat hay	soybean	wheat haylage/silage
Cooperator	Eric and Greg Sutton	Barry Welty	Curtis Todd

**Table 2. 2016 Combined Location Average (Boyle and Casey Counties)**

Company/Brand	Hybrid	DM	Tons/A		Milk Yield		NEL Mcal/lb	IVTD	Quality, %			
			35% DM	lb/T	lb/A	CP			ADF	NDF	TDN	
AgriGold	A6517VT3PRIB	40.6	20.9	2,990	22,069	0.73	78	7.8	25	43	71	
AgriGold	A6559VT2RIB	36.3	20.4	2,629	19,067	0.62	71	6.5	33	52	64	
Augusta	5465GT3000C1250	42.2	21.3	2,981	23,046	0.72	78	7.6	27	45	72	
Augusta	A7768GT3110D	31.4	19.0	2,904	19,858	0.67	73	7.2	30	48	67	
Beck's	6365AM <sup>TM*</sup>	40.2	22.2	3,004	22,930	0.73	78	7.2	27	45	72	
Beck's	6873AM <sup>TM*</sup>	38.9	22.2	3,010	24,212	0.74	78	7.3	25	44	72	
Caverndale Farms	CF1039 VIP3110	32.2	22.3	2,251	17,512	0.54	66	7.2	37	58	58	
Caverndale Farms	CF839 3000GT	34.9	18.4	2,832	18,019	0.69	75	7.2	30	49	70	
Check	Check	40.3	22.8	2,791	22,311	0.70	75	7.4	28	47	69	
Dyna-Gro	D57VP75	41.4	22.3	2,969	23,677	0.71	76	7.2	27	46	70	
Dyna-Gro	D58QC72	33.6	20.0	2,875	21,624	0.69	74	7.8	29	47	68	
Master's Choice	MCT6363	39.9	19.1	3,105	20,392	0.76	79	7.5	24	42	73	
Master's Choice	MCT6733	39.0	19.5	2,866	19,543	0.71	76	7.6	28	45	70	
Mycogen Seeds	TMF14L46	34.4	22.5	2,759	21,592	0.64	73	7.2	31	50	66	
Mycogen Seeds	TMF2H747	37.1	20.9	3,041	22,504	0.75	79	7.3	25	42	73	
NK Brand	N82V-3111	42.1	25.7	2,970	30,329	0.72	78	7.2	26	45	72	
NK Brand	N83D-300GT	39.1	21.4	3,153	23,439	0.78	80	7.2	23	40	74	
Pioneer	P1637AM	34.8	22.2	2,806	25,635	0.66	73	7.1	31	49	68	
Pioneer	P2089AM	41.1	21.2	3,119	24,066	0.76	79	6.9	23	40	73	
Terral Seed	REV25BHR26	38.7	21.3	2,829	21,029	0.69	74	7.2	30	48	69	
Terral Seed	REV28HR20	32.3	19.8	2,461	16,972	0.61	71	7.2	34	54	63	
Wyffels	W7888RIBMP	37.6	16.8	2,790	16,557	0.66	73	7.1	30	50	67	
Wyffels	W8376RIBMP	31.1	13.2	2,538	11,872	0.57	68	7.4	35	57	61	
<b>LSD (0.10)</b>			3.2		4,420		4	0.4	4	6	4	
<b>Grand Mean</b>		37	21	2,855	21,228	0.69	75	7.3	29	47	69	

Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield. Milk Yield was calculated through Dairy One Forage Laboratories. Milk per ton was calculated from DM yields. Net energy for lactation (NEL). In vitro True Digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid. Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and neutral detergent fiber (NDF) indicate better forage quality.

**Table 3. 2016 Boyle County, Kentucky**

Company/Brand	Hybrid	DM	Tons/A		Milk Yield		NEL Mcal/lb	IVTD	Quality, %			
			35% DM	lb/T	lb/A	CP			ADF	NDF	TDN	
AgriGold	A6517VT3PRIB	51.9	19.8	2,352	16,276	0.66	73	7.3	28	47	66	
AgriGold	A6559VT2RIB	45.5	19.0	1,929	12,814	0.51	64	5.9	39	59	56	
Augusta	A5465GT3000C	51.1	18.2	2,187	13,932	0.57	69	7.3	36	57	62	
Augusta	A7768GT3110D	36.8	16.7	2,618	15,318	0.62	70	7.1	33	51	63	
Beck's	6365AM <sup>TM*</sup>	52.4	23.5	2,242	18,444	0.60	70	6.9	34	54	63	
Beck's	6873AM <sup>TM*</sup>	44.3	18.9	2,233	14,805	0.61	70	6.6	32	52	63	
Caverndale Farms	CF1039 VIP3110	40.0	23.2	2,030	16,511	0.49	63	6.7	41	63	55	
Caverndale Farms	CF839 3000GT	44.6	19.8	2,422	16,779	0.66	73	7.2	31	50	67	
Check	Check	51.4	22.5	2,377	18,693	0.66	73	7.2	30	49	66	
Dyna-Gro	D57VP75	52.1	20.5	2,249	16,131	0.60	69	7.0	33	55	63	
Dyna-Gro	D58QC72	41.9	18.6	2,483	16,126	0.65	71	7.1	31	49	65	
Master's Choice	MCT6363	50.6	20.8	2,412	17,575	0.67	73	7.4	28	48	67	
Master's Choice	MCT6733	51.4	19.7	2,487	17,129	0.70	75	7.2	27	44	68	
Mycogen Seeds	TMF14L46	40.9	23.2	2,140	17,359	0.52	65	7.3	38	60	57	
Mycogen Seeds	TMF2H747	45.4	19.7	2,528	17,407	0.70	75	7.3	27	44	68	
NK Brand	N82V-3111	47.3	24.9	2,196	19,112	0.56	67	6.5	37	59	61	
NK Brand	N83D-300GT	49.2	22.2	2,717	21,121	0.76	79	7.1	23	39	73	
Pioneer	P1637AM	35.4	13.6	1,835	8,737	0.43	58	5.8	45	66	52	
Pioneer	P2089AM	52.8	20.1	2,573	18,137	0.72	76	6.6	26	43	70	
Terral Seed	REV25BHR26	48.1	21.6	1,896	14,318	0.52	62	6.5	39	60	58	
Terral Seed	REV28HR20	42.1	22.4	2,377	18,647	0.62	70	6.7	33	51	63	
Wyffels	W7888RIBMP	47.6	16.0	2,069	11,588	0.54	66	6.2	37	59	59	
Wyffels	W8376RIBMP	39.3	12.6	2,076	9,138	0.48	63	7.3	41	63	55	
<b>LSD (0.10)</b>			4.0		3,300							
<b>Grand Mean</b>		46	20	2,279	15,917	0.60	69	6.9	33	53	63	

Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield. Milk Yield was calculated through Dairy One Forage Laboratories. Milk per ton was calculated from DM yields. Net energy for lactation (NEL). In vitro True Digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid. Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and neutral detergent fiber (NDF) indicate better forage quality. Plant material was too dry to make accurate assessments of disease pressure, but disease pressure was high across all hybrids.

**Table 4. 2016 Casey County, Kentucky**

Company/Brand	Hyb	DM	Tons/A		Milk Yield		NEL		Quality, %					
			35% DM		lb/T	lb/A	Mcal/lb	IVTD	CP	ADF	NDF	TDN	GLS	Rust
AgriGold	A6517VT3PRIB	29.2	21.9		3,628	27,862	0.80	82	8.3	22	38	76	1.0	1.7
AgriGold	A6559VT2RIB	27.1	21.7		3,329	25,321	0.73	78	7.1	28	45	72	1.0	2.0
Augusta	A5465GT3000C	33.2	24.3		3,774	32,160	0.87	87	7.8	18	34	81	1.0	2.0
Augusta	A7768GT3110D	26.0	20.5		3,189	22,884	0.71	76	7.3	28	46	70	1.0	1.7
Beck's	6365AM™	27.9	20.8		3,765	27,416	0.85	86	7.4	19	36	80	1.0	2.0
Beck's	6873AM™	33.5	25.4		3,787	33,619	0.86	85	8.0	18	35	80	1.0	1.7
Caverndale Farms	CF1039 VIP3110	24.3	21.4		2,471	18,514	0.59	69	7.6	33	54	61	1.0	2.0
Caverndale Farms	CF839 3000GT	25.1	17.0		3,242	19,259	0.71	77	7.2	28	49	72	1.0	2.0
Check	Check	29.1	23.1		3,205	25,928	0.73	77	7.5	26	45	71	1.0	1.3
Dyna-Gro	D57PV75	30.6	24.2		3,688	31,223	0.81	83	7.3	21	38	77	1.0	3.0
Dyna-Gro	D58QC72	25.2	20.5		3,266	23,456	0.73	77	8.5	26	44	71	1.0	2.0
Master's Choice	MCT 6363	29.2	17.5		3,797	23,209	0.84	84	7.6	20	36	79	1.0	2.3
Master's Choice	MCT 6733	26.5	19.3		3,245	21,957	0.72	77	8.0	28	47	71	1.0	1.3
Mycogen Seeds	TMF14L46	27.8	21.8		3,378	25,825	0.76	80	7.1	24	41	74	1.3	2.3
Mycogen Seeds	TMF2H747	28.7	22.2		3,553	27,600	0.80	82	7.2	22	39	77	1.0	2.3
NK Brand	82V-3111	36.8	26.0		3,743	34,068	0.88	88	7.9	16	32	82	1.0	2.7
NK Brand	83D-3000GT	28.9	20.5		3,589	25,758	0.79	81	7.2	23	40	75	1.0	1.7
Pioneer	P1637AM	34.2	27.9		3,777	36,901	0.89	87	8.3	18	33	83	1.0	2.0
Pioneer	P2089AM	29.3	21.8		3,664	28,020	0.80	82	7.2	21	38	76	1.0	1.3
Terral Seed	REV25BHR26	29.3	21.1		3,762	27,740	0.86	86	7.9	20	35	80	1.0	2.0
Terral Seed	REV28HR20	22.4	17.2		2,545	15,297	0.60	71	7.6	36	56	63	1.0	1.0
Wyffels	W7888RIB	27.5	17.5		3,510	21,525	0.77	80	8.0	23	42	74	1.0	2.3
Wyffels	W8376RIB	22.9	13.9		2,999	14,605	0.66	73	7.5	29	50	67	1.0	3.0
<b>LSD (0.10)</b>			2.0		2,524								1.7	0.6
<b>Grand Mean</b>		28.5	21.2		3,431	25,659	0.77	80	7.6	24	41	74	1.0	2.0

Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield. Milk Yield was calculated through Dairy One Forage Laboratories. Milk per ton was calculated from DM yields. Net energy for lactation (NEL). In vitro True Digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid. Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and neutral detergent fiber (NDF) indicate better forage quality. Gray leaf spot (GLS) and both common rust and southern rust (Rust) were quickly assessed on a scale of 0 to 3 with 3 equal to all leaves exhibiting symptoms of the respective disease.

**Table 5. 2016 Bracken County, Kentucky**

Company/Brand	Hyb	DM	Tons/A		Milk Yield		NEL		Quality, %					
			35% DM		lb/T	lb/A	Mcal/lb	IVTD	CP	ADF	NDF	TDN	GLS	Rust
AgriGold	A6517VT3PRIB	43.0	24.1		2,887	24,332	0.78	80	7.7	23	40	74	.	3.0
AgriGold	A6559VT2RIB	52.0	22.4		2,937	23,061	0.80	81	7.4	19	35	75	.	3.0
Augusta	A5465GT3000C	47.3	22.3		2,861	22,329	0.78	81	7.0	22	39	75	.	3.0
Augusta	A7768GT3110D	39.7	24.4		3,398	29,004	0.85	84	8.0	19	34	79	.	3.0
Beck's	6365AM™	43.7	25.9		2,865	26,000	0.77	80	7.3	23	41	74	.	3.0
Beck's	6873AM™	42.1	24.7		2,511	21,671	0.64	72	8.5	31	51	65	.	3.0
Caverndale Farms	CF1039 VIP3110	34.2	22.3		1,726	13,459	0.40	53	6.6	46	70	52	.	3.0
Caverndale Farms	CF839 3000GT	43.4	25.3		2,983	26,410	0.80	82	7.8	22	39	76	.	3.0
CHECK	CHECK	41.0	18.7		2,186	14,295	0.57	66	9.4	33	55	60	.	3.0
Dyna-Gro	D57PV75	38.8	24.2		3,026	25,654	0.76	78	8.2	23	40	72	.	3.0
Dyna-Gro	D58QC72	39.9	26.7		3,029	28,281	0.75	78	7.6	24	41	72	.	3.0
Master's Choice	MCT 6363	41.5	25.0		2,796	24,425	0.74	77	6.7	24	41	71	.	3.0
Master's Choice	MCT 6733	39.0	26.0		2,520	22,932	0.74	81	8.2	22	34	69	.	3.0
Mycogen Seeds	TMF14L46	38.3	31.8		2,979	33,202	0.74	78	7.0	24	39	71	.	3.0
Mycogen Seeds	TMF2H747	42.8	24.9		2,745	23,967	0.73	78	7.0	26	43	71	.	3.0
NK Brand	82V-3111	37.7	25.6		2,944	26,378	0.71	77	6.9	29	47	70	.	3.0
NK Brand	83D-3000GT	39.2	23.8		2,964	24,690	0.73	78	7.2	26	43	71	.	3.0
Pioneer	P1637AM	42.9	23.3		2,591	21,119	0.67	74	7.3	29	47	67	.	3.0
Pioneer	P2089AM	45.7	29.8		2,879	29,998	0.80	81	6.8	20	35	75	.	3.0
Terral Seed	REV25BHR26	43.1	27.1		3,098	29,331	0.84	84	7.7	17	34	78	.	3.0
Terral Seed	REV28HR20	36.3	24.6		3,332	28,726	0.78	81	8.2	22	39	75	.	3.0
Wyffels	W7888RIB	43.1	22.8		2,951	23,593	0.78	79	7.7	21	38	74	.	3.0
Wyffels	W8376RIB	43.8	22.5		2,834	22,281	0.78	80	7.9	20	36	74	.	3.0
<b>LSD (0.10)</b>			4.3		4,254									
<b>Grand Mean</b>		41.7	24.7		2,828	24,571	0.74	78	7.6	25	42	71	.	3.0

Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield. Milk Yield was calculated through Dairy One Forage Laboratories. Milk per ton was calculated from DM yields. Net energy for lactation (NEL). In vitro True Digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid. Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and neutral detergent fiber (NDF) indicate better forage quality. Gray leaf spot (GLS) and both common rust and southern rust (Rust) were quickly assessed on a scale of 0 to 3 with 3 equal to all leaves exhibiting symptoms of the respective disease. Rust was so severe that accurate assessment of GLS was difficult.

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