

2015 Kentucky Silage Hybrid Performance Report

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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 percent dry matter (65% moisture), two 10-foot 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 percent 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 LSD of each other have a very good chance of performing similarly to each other next year.

2015 Season Comments

The 2015 growing season was excellent for all three locations. The average silage yield across all three locations was only 20 tons per acre (adjusted to 35% dry matter). That is a respectable, but not excellent, yield. A late planting at Bracken County followed by dry weather later in the season resulted in hastened maturity at that location. The dry weather late hurt final silage yields. The corn at Boyle County was flooded three times before it reached the V4 growth stage. Root development was extremely shallow and some of the corn lodged later in the season. Lodging was not consistent with any hybrid. Common rust (caused by *Puccinia sorghi*) infested corn at Green County the worst, followed by Boyle and Bracken counties. Other diseases were present as well. All of these factors reduced yields this year. In hindsight, this was a season where a foliar fungicide after pollination would have helped final yields.

Even with these challenges, 2015 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 the following:

- County Extension Agents for Agriculture and Natural Resources: Nick Roy, Adair County; Dan Grigson, Lincoln County; Jerry Little, Boyle County; Rickey Arnett, Green County; David Appelman, Bracken County; Tad Campbell, Mason County; Ben Hubbard, Fleming County; Will Stallard, Casey County; Jay Hettmansperger, Garrard County; Tom Mills, Rockcastle County; and Linda McClanahan, Mercer County
- Plant and Soil Sciences: Chad Lee, Kathleen Russell, James Dollarhide, Julie Baniszewski, Julia Santoro, Gerson Marquesi, and Celito Huntemann

Table 1. Hybrid Silage Test, All Locations (Boyle, Bracken, and Green counties), 2015

Company/Brand	Hybrid	DM	Tons/A		Milk Yield		NEL		Quality, %			
			35% DM	lb/T	lb/A	Mcal/lb	IVTD	CP	ADF	NDF	TDN	
Augusta Seed	A4363VT2ProC250	34.5	20.5	3,340	24,369	0.79	85	6.7	24	41	76	
Augusta Seed	A7664AVT3ProP250	32.9	18.6	3,235	20,963	0.76	84	7.6	26	43	74	
Beck's	XL6365AMTM	32.5	20.9	3,351	24,664	0.77	85	6.4	24	41	74	
Beck's	6542A4	30.3	17.5	3,194	19,940	0.73	82	6.7	27	46	72	
Pioneer	P1637 AM	34.5	23.0	3,465	27,963	0.80	86	6.5	24	41	77	
Pioneer	P2088 AMX	31.0	20.8	3,220	23,429	0.73	83	6.3	28	46	72	
Masters Choice	MCT6583	34.0	19.6	3,168	21,721	0.72	82	6.1	27	47	72	
Masters Choice	MC6733	31.7	20.0	3,261	22,724	0.73	83	7.2	28	47	72	
Agrigold	A6559VT2RIB	34.4	20.7	3,095	22,342	0.71	81	6.5	28	47	71	
Agrigold	A6573VT2RIB	34.1	19.6	3,381	23,070	0.78	85	6.1	24	41	75	
Dyna-Gro CPS	D58QC72	31.5	21.1	3,278	24,185	0.75	83	6.5	26	44	74	
Dyna-Gro CPS	D57VP75	31.8	22.6	2,978	23,876	0.70	80	6.5	28	49	70	
Dekalb	DKC65-20VT2PDGRIB	30.8	17.1	2,967	17,970	0.73	81	7.1	27	45	72	
Dekalb	DKC68-26VTZPRIB	31.2	18.8	3,056	20,263	0.72	81	6.4	27	45	71	
Wyffels Hybrid	W8376RIB	31.6	19.1	3,006	20,571	0.70	80	6.3	29	47	70	
Wyffels Hybrid	W7736RIB	38.2	19.8	3,056	21,009	0.75	83	6.5	25	44	73	
Northrup King	N82V-3111	34.4	19.9	2,972	20,689	0.73	82	6.2	27	46	73	
Northrup King	N83D	31.3	19.5	3,101	21,153	0.71	82	7.0	29	49	71	
Caverndale Farms	CF1039VIP3110	28.5	20.2	2,233	16,311	0.58	74	6.7	37	57	62	
Caverndale Farms	CF926GT	31.6	20.6	2,877	20,781	0.65	77	6.4	32	52	67	
Check	Check	30.4	19.3	2,727	18,638	0.64	78	6.8	33	53	67	
LSD (0.10)			2.0		2,897	0.03	2	0.4	2	3	2	
Grand Mean		32.4	20.0	3,093	21,730	0.72	82	6.6	28	46	72	

Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM; highest numerical yield is bold and highlighted; 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 2. Hybrid Silage Test, Boyle County, 2015

Company/Brand	Hybrid /Brand	DM	Tons/A		Milk Yield		NEL		Quality, %			
			35% DM	lb/T	lb/A	Mcal/lb	IVTD	CP	ADF	NDF	TDN	
Augusta Seed	A4363VT2ProC250	35.7	21.1	3,328	24,600	0.78	84	7.2	24	42	75	
Augusta Seed	A7664AVT3ProP250	35.5	23.0	3,438	27,733	0.80	85	6.9	23	39	76	
Beck's	XL6365AMTM	33.4	23.9	3,214	26,933	0.73	82	6.7	26	43	71	
Beck's	6542A4	33.2	19.5	3,398	23,167	0.76	82	6.6	25	42	73	
Pioneer	P1637 AM	36.8	26.5	3,277	30,333	0.77	84	6.0	25	42	75	
Pioneer	P2088 AMX	32.9	23.5	3,015	24,800	0.71	81	6.4	30	47	70	
Masters Choice	MCT6583	38.7	21.6	3,251	24,567	0.80	85	6.1	22	39	76	
Masters Choice	MC6733	34.0	24.2	3,226	27,367	0.73	82	6.2	27	46	72	
Agrigold	A6559VT2RIB	38.4	24.6	3,065	26,400	0.74	82	7.1	26	44	73	
Agrigold	A6573VT2RIB	36.6	23.5	3,300	27,167	0.78	85	6.5	24	40	75	
Dyna-Gro CPS	D58QC72	36.6	26.2	3,323	30,467	0.78	84	6.1	23	40	75	
Dyna-Gro CPS	D57VP75	37.9	28.5	3,197	31,833	0.76	83	6.2	25	44	74	
Dekalb	DKC65-20VT2PDGRIB	35.6	20.6	3,395	24,567	0.79	84	6.7	22	39	75	
Dekalb	DKC68-26VTZPRIB	35.2	22.7	3,413	27,167	0.79	85	6.3	22	38	75	
Wyffels Hybrid	W8376RIB	34.8	22.8	3,213	25,633	0.73	81	6.3	27	45	72	
Wyffels Hybrid	W7736RIB	45.6	22.8	2,792	22,267	0.78	84	6.7	23	40	75	
Northrup King	N82V-3111	42.1	23.4	3,080	25,233	0.80	86	6.4	23	39	77	
Northrup King	N83D	34.7	21.9	3,264	25,000	0.75	84	6.5	26	44	73	
Caverndale Farms	CF1039VIP3110	33.4	25.0	2,929	25,633	0.65	78	6.8	32	52	67	
Caverndale Farms	CF926GT	34.7	23.4	3,140	25,667	0.72	80	6.4	27	46	71	
Check	Check	35.1	24.4	2,982	25,433	0.69	79	6.5	31	49	69	
LSD (0.10)			2.8		3,098							
Grand Mean		36.2	23.5	3,202	26,284	0.8	83	6.5	25	43	73	

Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM; highest numerical yield is bold and highlighted; 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. Hybrid Silage Test, Bracken County, 2015

Company/Brand	Hybrid/Brand	DM	Tons/A		Milk Yield		NEL		Quality, %			
			35% DM	lb/T	lb/A	Mcal/lb	IVTD	CP	ADF	NDF	TDN	
Augusta Seed	A4363VT2ProC250	30.4	12.4	3,170	13,726	0.75	85	5.7	27	45	74	
Augusta Seed	A7664AVT3ProP250	28.0	12.2	3,419	14,596	0.81	87	5.4	24	41	78	
Beck's	XL6365AMTM	28.9	13.8	3,293	15,902	0.75	85	4.8	26	45	74	
Beck's	6542A4	24.4	11.5	2,878	11,623	0.68	81	5.5	31	51	70	
Pioneer	P1637 AM	30.8	14.4	3,410	17,230	0.76	85	5.0	25	44	75	
Pioneer	P2088 AMX	28.8	14.7	3,218	16,595	0.73	84	4.9	27	48	73	
Masters Choice	MCT6583	33.0	16.9	3,240	19,133	0.71	82	5.1	28	49	72	
Masters Choice	MC6733	30.0	14.9	3,461	18,000	0.76	85	5.2	25	45	75	
Agrigold	A6559VT2RIB	33.7	15.7	3,237	17,782	0.72	83	5.3	27	49	73	
Agrigold	A6573VT2RIB	31.4	15.3	3,564	19,116	0.81	87	4.3	22	40	78	
Dyna-Gro CPS	D58QC72	28.2	15.1	3,343	17,656	0.73	83	5.1	26	47	73	
Dyna-Gro CPS	D57VP75	26.9	14.7	2,793	14,377	0.66	80	4.7	29	51	68	
Dekalb	DKC65-20VT2PDGRIB	29.4	13.5	2,897	13,718	0.75	83	5.0	27	44	74	
Dekalb	DKC68-26VTZPRIB	29.8	14.8	3,041	15,781	0.75	84	5.1	25	43	74	
Wyffels Hybrid	W8376RIB	25.5	12.4	2,613	11,296	0.64	78	5.4	32	52	66	
Wyffels Hybrid	W7736RIB	31.9	13.9	3,242	15,816	0.71	82	5.1	27	49	72	
Northrup King	N82V-3111	29.5	15.1	3,031	16,065	0.71	83	4.5	27	49	72	
Northrup King	N83D	29.7	14.8	3,064	15,921	0.69	81	4.6	29	50	70	
Caverndale Farms	CF1039VIP3110	24.4	15.0	1,941	10,161	0.54	72	5.2	40	59	59	
Caverndale Farms	CF926GT	29.6	16.9	2,925	17,342	0.65	78	4.9	30	52	67	
Check	Check	26.2	15.8	2,694	14,900	0.64	79	5.7	33	55	67	
LSD (0.10)			2.0		2,102							
Grand Mean		29.1	14.5	3,067	15,516	0.7	82	5.0	28	48	72	

Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM; highest numerical yield is bold and highlighted; 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 4. Hybrid Silage Test, Green County, 2015

Company/Brand	Hybrid/Brand	DM	Tons/A		Milk Yield		NEL		Quality, %			
			35% DM	lb/T	lb/A	Mcal/lb	IVTD	CP	ADF	NDF	TDN	
Augusta Seed	A4363VT2ProC250	37.4	25.3	3,523	31,232	0.84	87	7.1	20	36	79	
Augusta Seed	A7664AVT3ProP250	35.2	20.6	2,848	20,561	0.68	79	10.6	31	50	68	
Beck's	XL6365AMTM	35.3	25.1	3,547	31,158	0.83	88	7.7	21	36	78	
Beck's	6542A4	33.2	21.6	3,305	25,030	0.75	82	7.9	26	44	73	
Pioneer	P1637 AM	35.8	28.0	3,709	36,327	0.86	89	8.5	21	37	81	
Pioneer	P2088 AMX	31.4	24.1	3,428	28,893	0.76	83	7.5	26	44	74	
Masters Choice	MCT6583	30.2	20.4	3,013	21,463	0.66	78	7.0	31	53	68	
Masters Choice	MC6733	31.1	21.1	3,095	22,805	0.69	82	10.3	31	52	70	
Agrigold	A6559VT2RIB	31.1	21.9	2,983	22,844	0.66	77	7.0	30	49	67	
Agrigold	A6573VT2RIB	34.2	20.0	3,279	22,926	0.75	82	7.6	26	44	73	
Dyna-Gro CPS	D58QC72	29.7	22.0	3,167	24,432	0.74	83	8.2	27	45	73	
Dyna-Gro CPS	D57VP75	30.7	24.7	2,945	25,418	0.67	78	8.7	31	51	69	
Dekalb	DKC65-20VT2PDGRIB	27.4	17.1	2,608	15,626	0.65	76	9.5	32	52	66	
Dekalb	DKC68-26VTZPRIB	28.5	18.8	2,713	17,840	0.63	75	7.8	34	53	65	
Wyffels Hybrid	W8376RIB	34.5	22.2	3,191	24,784	0.73	81	7.2	28	45	72	
Wyffels Hybrid	W7736RIB	37.2	22.7	3,135	24,945	0.75	82	7.6	26	42	73	
Northrup King	N82V-3111	31.5	21.2	2,804	20,768	0.67	78	7.6	32	51	69	
Northrup King	N83D	29.5	21.6	2,975	22,539	0.68	82	9.9	32	53	70	
Caverndale Farms	CF1039VIP3110	27.6	20.5	1,830	13,139	0.54	71	8.2	38	58	59	
Caverndale Farms	CF926GT	30.5	21.5	2,566	19,335	0.58	74	7.8	38	59	63	
Check	Check	29.9	17.8	2,506	15,580	0.60	75	8.3	36	56	64	
LSD (0.10)			3.6		4,104							
Grand Mean		31.9	21.7	3,018	23,150	0.7	80	8.2	29	48	70	

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 5. Agronomic Practices, 2015 Corn Silage Trials

	Boyle County	Bracken County	Green County
Tillage	Conventional	No-Till	Conventional
Fertilizer, lb/A	221-41-72 N-P-K (pre) N sources: urea, ESN, and DAP	160-0-110 N-P-K	50-37-54 N-P-K (pre); 150 N sidedressed; starter N sources: urea, DAP, 32%UAN
Planting Date	May 12, 2015	June 3, 2015	May 29, 2015
Row Spacing, in	30	34	30
Herbicides	Corvus, PowerMax, Capreno	Glyphosate (pre + post)	Halex GT, Atrazine
Insecticides	--	--	Capture
Fungicides	--	--	--
Soil Type	Dunning silt loam	Eden flaggy silty clay loam	Dickson silt loam
Cooperator	Barry Welty	Eric Sutton	Jim Sidebottom, Stacy Sidebottom

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