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Agricultural Experiment Station

Kentucky Corn Silage Hybrid Performance Report, 2023

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Procedures for the 2023 Kentucky Silage Corn Hybrid Performance Trials

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

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

University of Kentucky personnel planted hybrid seeds. Farmers applied soil amendments 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. Corn hybrids were arranged in a randomized complete block design with three replications at each farm. Hybrid seed was planted in four row plots with Wintersteiger Dynamic Disk precision planter that planted each plot at 32,000 seeds per acre. Fields were monitored for pests.

When most hybrids were near 35% dry matter (65% moisture), the two center rows of each plot were harvested with a John Deere 5400 modified for small plots. The entire harvested corn sample was weighed, and a subsample was collected.

Forage quality analyses and dry matter determination were from composite chopped samples of each hybrid at each location and were analyzed by Dairyland Labs, who also calculated milk and beef yield.

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

Silage 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 good chance of performing similarly to each other next year.

Table 1. State Summary.

Hybrid	Tons/A at 35%DM			Forage Quality***				Milk Yield****		Beef Yield*****	
	2023	2022-23	2021-23	CP	ADF	aNDF	TDN	lb/T	lb/A	lb/T	lb/A
NuTech 77A5	20.3	21.6	23.7	7.7	22.1	37.8	72.4	3528	25512	264	1912
Revere 1627 TC	20.2			7.1	20.1	36.2	73.8	3710	24267	290	1894
Enogen E117-D-EZ1	20.1			7.2	21.8	38.5	72.6	3694	27482	285	2121
Partners Brand PB 8653	19.7			7.7	27.1	46.7	68.8	3196	23512	214	1579
NuTech 75C1	19.2			7.6	21.8	39.5	72.5	3594	23773	273	1804
Revere 1776 VT2P	19.2			6.6	20.4	36.6	73.6	3695	26889	291	2112
DEKALB DKC67-66	19.2	20.3	22.8	7.5	22.8	39.6	71.9	3538	25588	252	1830
DEKALB DKC70-94	19.1	20.0		7.3	21.6	38.3	72.7	3710	25225	292	1986
Partners Brand PB 8961	18.7			7.4	18.6	32.9	74.8	3694	24910	281	1895
Partners Brand PB 11702	18.7	20.9	22.9	7.7	22.5	38.7	72.1	3488	24552	241	1694
DEKALB DKC64-44RIB	18.5	19.8	21.6	7.4	20.7	36.0	73.4	3637	25260	281	1946
Average	**19.5**	**20.5**	**22.7**	**7.4**	**21.8**	**38.2**	**72.6**	**3590**	**25179**	**269**	**1888**
C.V.	8.9	8.7	8.0								
LSD	2.0	2.4	1.9								

Shaded cells are not significantly different from top yield (0.10)

*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; yields with a gray box are not significantly different from highest yield.

**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.

****Milk Yield was calculated through Dairyland Labs. Milk per ton (Milk Yield, lb/T) was calculated from DM yields and Milk yield per acre was the product of Milk yield per ton by silage yield per acre.

*****Beef Yield was calculated through Dairyland Labs. Beef per ton was calculated from DM yields and Beef per acre was the product of Beef yield per ton by silage yield per acre.

2023 Season Comments

Corn silage trials were planted in Caldwell, Fayette, and Casey counties. The 2023 growing season started wet, delaying planting, then turned dry just before harvest.

We thank our farmer cooperator, Woodrum Bros Farms, for allowing us access to his farm to conduct this trial.

Table 2. Caldwell County.

Hybrid	Tons/A at 35%DM			Forage Quality***				Milk Yield****		Beef Yield*****	
	2023	2022-23	2021-23	CP	ADF	aNDF	TDN	lb/T	lb/A	lb/T	lb/A
Enogen E117-D-EZ1	21.4			7.0	22.0	38.1	72.4	3496	27638	280	2214
Partners Brand PB 8653	19.9			6.8	23.5	41.1	71.4	3377	26710	243	1922
Partners Brand PB 8961	19.7			7.3	16.9	28.1	76.0	3522	23262	292	1929
NuTech 77A5	19.1	22.1	24.7	7.0	21.3	34.6	72.9	3393	27121	267	2134
Partners Brand PB 11702	18.7	22.8	24.9	7.4	21.2	35.3	73.0	3373	23775	243	1713
NuTech 75C1	18.7			7.1	18.4	33.9	75.0	3644	23540	288	1860
Revere 1627 TC	17.7			6.5	17.5	32.8	75.6	3543	22717	299	1917
Revere 1776 VT2P	17.6			6.5	20.2	35.5	73.7	3514	22596	294	1890
DEKALB DKC67-66	17.5	20.3	23.1	7.5	24.5	40.6	70.7	3286	20594	220	1379
DEKALB DKC70-94	17.3	19.9		7.6	19.3	33.2	74.3	3621	24514	297	2011
DEKALB DKC64-44RIB	17.3	19.4	22.1	7.0	19.8	33.9	74.0	3411	20954	274	1683
Average	**18.7**	**20.9**	**23.7**	**7.1**	**20.4**	**35.2**	**73.6**	**3471**	**23947**	**272**	**1877**
C.V.	9.1	9.2	8.9								
LSD	3.5	2.6	2.2								

Shaded cells are not significantly different from top yield (0.10).

*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; yields with a gray box are not significantly different from highest yield.

**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.

****Milk Yield was calculated through Dairyland Labs. Milk per ton (Milk Yield, lb/T) was calculated from DM yields and Milk yield per acre was the product of Milk yield per ton by silage yield per acre.

*****Beef Yield was calculated through Dairyland Labs. Beef per ton was calculated from DM yields and Beef per acre was the product of Beef yield per ton by silage yield per acre.

Table 3. Casey County.

Hybrid	Tons/A at 35%DM			Forage Quality***				Milk Yield****		Beef Yield*****	
	2023	2022-23	2021-23	CP	ADF	aNDF	TDN	lb/T	lb/A	lb/T	lb/A
Revere 1627 TC	22.7			7.4	23.8	41.5	71.2	3649	27669	269	2040
Revere 1776 VT2P	21.8			6.0	21.3	39.0	72.9	3635	29998	276	2278
DEKALB DKC70-94	20.7	22.1		6.2	23.9	43.4	71.1	3679	26864	280	2045
NuTech 75C1	20.4			7.5	21.8	40.1	72.6	3698	26268	278	1975
DEKALB DKC67-66	20.4	21.4	25.0	6.9	22.2	40.4	72.3	3647	30345	269	2238
Partners Brand PB 8653	20.3			6.9	28.9	51.1	67.6	3196	20522	206	1323
NuTech 77A5	19.9	22.9	26.2	7.5	21.7	39.0	72.6	3638	24200	267	1776
DEKALB DKC64-44RIB	19.0	20.5	23.8	6.6	19.2	33.3	74.4	3912	27550	305	2148
Partners Brand PB 11702	18.9	20.7	24.3	7.8	22.7	40.9	72.0	3622	25448	253	1778
Enogen E117-D-EZ1	18.2			6.9	20.2	37.7	73.7	3883	25360	297	1940
Partners Brand PB 8961	17.4			6.9	19.1	35.6	74.5	3759	29563	273	2147
Average	**20.3**	**21.5**	**24.8**	**7.0**	**22.2**	**40.2**	**72.3**	**3665**	**26708**	**270**	**1971**
C.V.	7.4	8.5	6.6								
LSD	3.1	2.5	1.7								

Shaded cells are not significantly different from top yield (0.10).

*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; yields with a gray box are not significantly different from highest yield.

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*****Beef Yield was calculated through Dairyland Labs. Beef per ton was calculated from DM yields and Beef per acre was the product of Beef yield per ton by silage yield per acre.

Table 4 . Fayette County.

Hybrid	Tons/A at 35%DM			Forage Quality***				Milk Yield****		Beef Yield*****	
	2023	2022-23	2021-23	CP	ADF	aNDF	TDN	lb/T	lb/A	lb/T	lb/A
NuTech 77A5	22.0	20.0	20.2	8.7	23.2	39.7	71.6	3552	25214	257	1824
Enogen E117-D-EZ1	20.7			7.7	23.3	39.7	71.5	3703	29449	278	2211
Revere 1627 TC	20.3			7.4	19.0	34.3	74.6	3939	22416	303	1724
DEKALB DKC67-66	19.6	19.1	20.3	8.1	21.6	37.9	72.7	3682	25825	267	1873
DEKALB DKC70-94	19.5	17.9		8.1	21.6	38.2	72.8	3831	24297	300	1903
DEKALB DKC64-44RIB	19.4	19.4	19.0	8.7	23.1	40.7	71.7	3589	27276	264	2006
Partners Brand PB 8961	19.1			8.1	19.8	34.9	74.0	3800	21905	279	1608
Partners Brand PB 8653	18.9			9.4	29.0	47.9	67.5	3015	23303	193	1492
NuTech 75C1	18.6			8.2	25.4	44.4	70.1	3440	21511	252	1576
Partners Brand PB 11702	18.4	19.2	19.4	8.0	23.7	39.9	71.2	3470	24432	226	1591
Revere 1776 VT2P	18.2			7.3	19.5	35.2	74.2	3937	28074	304	2168
Average	**19.6**	**19.1**	**19.7**	**8.1**	**22.6**	**39.4**	**72.0**	**3633**	**24882**	**266**	**1816**
C.V.	10.2	8.5	8.6								
LSD	4.1	2.3	1.9								

Shaded cells are not significantly different from top yield (0.10).

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*****Beef Yield was calculated through Dairyland Labs. Beef per ton was calculated from DM yields and Beef per acre was the product of Beef yield per ton by silage yield per acre.

Table 5. Agronomic practices.

Management	Caldwell County	Fayette County	Casey County
Planting	5/2/2023	4/26/2023	5/6/2023
N/P/K	182/0/70	182/0/70	200/0/0
Soil	Crider Silt Loam	Lanton Silt Loam	Nolin Silt Loam
Harvest	8/28/2023	8/30/2023	8/23/2023

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