PR-814

University of Kentucky
College of Agriculture,
Food and Environment
Agricultural Experiment Station

Kentucky Corn Silage Hybrid Performance Report, 2022

Richard C. Kenimer, Philip W. Shine, Dalton Mertz, Kelsey Woodrum, and Chad Lee, Plant and Soil Sciences

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. Most companies submitted only two hybrids.

University of Kentucky personnel planted the hybrid seeds. Farmers applied the 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 at 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, 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 very good chance of performing similar to each other next year.

Table 1. All location average, 2022.

	Tons/A at 35%DM[1]			Forage Quality[2]				Milk Yield[3]		Beef Yield[4]	
Hybrid	'22	'21-'22	'20-'22	CP	ADF	aNDF	TDN	lb/T	lb/A	lb/T	lb/A
Partners Brand PB 11702	23.2	25.0		8.4	18.5	34.8	75	3657	33230	287	2578
NuTech 77A5	23.0	25.4		8.5	19.2	36.1	74	3645	33299	302	2754
NK 1755	21.7			8.1	17.6	32.8	76	3756	31443	289	2354
DEKALB DKC67-66	21.4	24.6		8.0	20.5	38.0	74	3632	28547	285	2195
Seed Consultants SC1170AM	21.2			8.4	18.5	34.0	75	3672	28487	290	2252
Croplan CP5900S	21.2	23.8	17.7	8.5	19.5	36.1	74	3620	28742	272	2138
DEKALB DKC64-44RIB	21.0	23.2		8.5	19.2	35.6	74	3713	29122	300	2473
NK 1701	20.9			8.0	20.4	38.0	74	3599	27956	290	2306
DEKALB DKC70-94	20.8			8.4	20.1	36.5	74	3595	29182	257	2109
Seed Consultants SC1183AM	20.8			8.4	18.3	34.0	75	3781	30274	303	2422
Seed Consultants SC1141AM	20.6			8.5	18.6	34.6	75	3697	28908	304	2392
Armor A1717	20.6		13.1	8.6	18.5	34.8	75	3753	29786	293	2327
Channel 213-49VT2P	20.4			8.2	19.2	35.4	74	3600	27636	289	2260
Pioneer P1718AML	20.4			8.3	19.9	36.7	74	3656	29288	289	2305
NK Seeds NK1523	20.2	23.2		8.5	18.1	34.0	75	3692	28092	293	2284
Channel 220-98 STX	19.9	24.0		8.2	19.1	35.0	75	3660	28878	259	1922
Average	**21.1**	**24.2**	**15.4**	**8.3**	**19.1**	**35.4**	**74**	**3671**	**29554**	**288**	**2317**
C.V. (%)[5]	8.5	7.5	6.8								
LSD[6]	2.0	2.3	1.6								

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

[1] 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.

[2] 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.

[3] 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.

[4] 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.

[5] Coefficient of variation.

[6] Least significant difference.

2022 Season Comments

Corn silage trials were planted in Caldwell, Fayette, and Casey counties. The 2022 growing season started wet, delaying planting. We thank our farmer cooperator, Woodrum Bros Farms, for allowing us access to his farm to conduct this trial.

Table 2. Caldwell County, 2022.

	Tons/A at 35%DM[1]			Forage Quality[2]				Milk Yield[3]		Beef Yield[4]	
Hybrid	**'22**	**'21-'22**	**'20-'22**	**CP**	**ADF**	**aNDF**	**TDN**	**lb/T**	**lb/A**	**lb/T**	**lb/A**
Partners Brand PB 11702	26.9	28.1		7.7	18.7	34.3	75	3388	37604	284	3152
NuTech 77A5	25.0	27.5		7.9	20.6	38.7	73	3410	37999	285	3176
NK 1755	23.4			7.6	17.8	33.3	75	3571	33547	272	2544
Seed Consultants SC1183AM	23.3			7.7	19.8	35.8	74	3586	35518	279	2763
DEKALB DKC67-66	23.2	25.9		7.5	21.2	38.7	73	3495	32690	260	2432
Seed Consultants SC1141AM	23.1			7.8	18.2	34.3	75	3538	35726	302	3050
NK Seeds NK1523	22.9	25.0		7.4	19.7	36.0	74	3389	30459	288	2706
Seed Consultants SC1170AM	22.8			7.4	18.6	34.1	75	3526	33346	285	2695
Croplan CP5900S	22.7	25.4	18.5	8.0	22.9	41.5	72	3309	32091	261	2531
DEKALB DKC70-94	22.6			7.7	23.2	39.7	72	3290	32881	224	2239
Channel 213-49VT2P	22.5			7.7	17.3	32.3	76	3556	33310	290	2716
DEKALB DKC64-44RIB	21.6	24.5		7.8	20.4	37.0	74	3617	32062	282	2500
Pioneer P1718AML	21.5			7.3	22.1	38.1	72	3300	32159	256	2495
NK 1701	21.2			7.8	22.0	40.5	72	3358	31407	276	2481
Channel 220-98 STX	21.1	25.0		7.7	22.8	38.1	72	3494	32122	240	2206
Armor A1717	20.6		13.1	7.8	21.3	38.6	73	3502	30180	266	2292
Average	**22.8**	**25.9**	**15.8**	**7.7**	**20.4**	**36.9**	**74**	**3458**	**33319**	**272**	**2624**
C.V. (%) [5]	8.8	8.4	7.4								
LSD[6]	4.0	2.8	1.9								

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

[1] 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.

[2] 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.

[3] 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.

[4] 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.

[5] Coefficient of variation.

[6] Least significant difference.

Table 3. Casey County, 2022.

	Tons/A at 35%DM[1]			Forage Quality[2]				Milk Yield[3]		Beef Yield[4]	
Hybrid	**'22**	**'21-'22**	**'20-'22**	**CP**	**ADF**	**aNDF**	**TDN**	**lb/T**	**lb/A**	**lb/T**	**lb/A**
NuTech 77A5	25.9	29.4		7.8	15.9	31.5	77	4073	38585	329	3117
Armor A1717	24.5		15.5	9.3	15.4	30.1	77	3988	33292	318	2655
NK 1755	23.8			8.4	17.1	32.2	76	3904	32690	306	2562
DEKALB DKC70-94	23.5			8.3	18.5	34.3	75	3796	30893	285	2319
Pioneer P1718AML	23.5			8.6	16.9	33.2	76	4036	31881	312	2465
Croplan CP5900S	23.0	27.9	20.8	9.2	18.5	34.1	75	3710	26670	279	2006
Seed Consultants SC1170AM	22.8			8.7	17.3	32.9	76	3852	30031	299	2331
Partners Brand PB 11702	22.5	27.0		9.1	18.7	35.2	75	3771	32106	285	2426
DEKALB DKC67-66	22.5	27.4		8.3	16.9	33.6	76	3910	29300	301	2256
NK 1701	22.4			7.5	18.8	35.3	75	3815	27943	296	2168
Seed Consultants SC1141AM	22.2			8.5	16.5	31.6	76	3932	29117	319	2362
DEKALB DKC64-44RIB	22.1	26.3		8.0	16.4	32.0	76	3964	32015	310	2504
Channel 220-98 STX	21.7	27.2		9.1	21.3	39.5	73	3620	24247	264	1768
Seed Consultants SC1183AM	21.0			8.8	15.5	30.5	77	4039	31053	333	2560
NK Seeds NK1523	20.4	26.4		9.2	16.0	30.5	77	3881	29248	307	2314
Channel 213-49VT2P	19.9			7.7	20.7	37.5	73	3597	24807	267	1841
Average	**22.6**	**27.4**	**18.1**	**8.5**	**17.5**	**33.4**	**76**	**3868**	**30242**	**301**	**2353**
C.V. (%) [5]	9.2	6.1	5.8								
LSD[6]	4.2	2.2	1.6								

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

[1] 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.

[2] 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.

[3] 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.

[4] 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.

[5] Coefficient of variation.

[6] Least significant difference.

Table 4. Fayette County, 2022.

	Tons/A at 35%DM[1]			Forage Quality[2]				Milk Yield[3]		Beef Yield[4]	
Hybrid	**'22**	**'21-'22**	**'20-'22**	**CP**	**ADF**	**aNDF**	**TDN**	**lb/T**	**lb/A**	**lb/T**	**lb/A**
Partners Brand PB 11702	20.0	19.9		8.4	18.1	34.9	75	3813	29981	291	2155
DEKALB DKC64-44RIB	19.4	18.7		9.6	20.9	37.7	73	3559	23289	307	2414
NK 1701	19.1			8.8	20.6	38.1	73	3624	24519	297	2270
Channel 213-49VT2P	18.9			9.2	19.5	36.5	74	3648	24790	311	2224
DEKALB DKC67-66	18.6	20.6		8.3	23.3	41.7	72	3492	23650	294	1898
Seed Consultants SC1170AM	18.2			9.1	19.6	35.0	74	3638	22085	285	1730
NK 1755	18.1			8.4	17.8	32.9	75	3794	28092	288	1957
Seed Consultants SC1183AM	18.1			8.8	19.6	35.8	74	3717	24251	298	1944
Croplan CP5900S	18.0	18.1	13.9	8.2	17.1	32.9	76	3841	27466	277	1876
NuTech 77A5	17.9	19.3		9.7	21.1	38.3	73	3452	23312	291	1969
NK Seeds NK1523	17.4	18.3		8.8	18.6	35.6	75	3805	24568	285	1832
Channel 220-98 STX	17.0	19.7		7.8	18.6	33.1	75	3804	29077	274	1793
Seed Consultants SC1141AM	16.7			9.1	20.9	37.9	73	3620	21881	292	1765
Armor A1717	16.6		10.9	8.8	18.8	35.7	75	3768	25884	296	2033
DEKALB DKC70-94	16.4			9.2	18.6	35.5	75	3699	23773	262	1769
Pioneer P1718AML	16.2			9.0	20.7	38.9	73	3632	23823	298	1955
Average	**17.9**	**19.2**	**12.4**	**8.8**	**19.6**	**36.3**	**74**	**3682**	**25028**	**290**	**1974**
C.V. (%) [5]	6.5	8.0	7.1								
LSD[6]	2.3	2.0	1.4								

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

[1] 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.

[2] 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.

[3] 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.

[4] 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.

[5] Coefficient of variation.

[6] Least significant difference.

Table 5. Agronomic practices, 2022.

Management	Caldwell County	Fayette County	Casey County
Planting	5/10/2022	5/3/2022	5/13/2022
N/P/K	182/0/0	182/0/0	200/0/0
Soil	Crider Silt Loam	Lanton Silt Loam	Nolin Silt Loam
Harvest	8/31/2022	8/26/2022	8/25/2022

University of Kentucky
College of Agriculture, Food and Environment

11-2022