



Kentucky Corn Silage Hybrid Performance Report, 2021

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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

Corn hybrids were evaluated for silage performance on cooperating farms. Representatives from seed companies submitted hybrids of their choosing. Most companies submitted only two (2) 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 36,000 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

Table 1 - All location average, 2021.

Hybrid	Tons/A at 35% DM ¹			Forage Quality ³				Milk Yield ⁴	
	2021	2020-21	IVTD ²	CP	ADF	aNDF	TDN	lb/T	lb/A
NuTech 77A5	26.0	26.0	84	8.5	22	38	75	3459	29724
Dyna-Gro D55VC80	25.6	20.9	87	8.4	20	35	79	3621	32415
Pioneer P1637YHR	25.1	21.0	86	8.8	22	38	77	3569	30435
Channel 219-77VT2PRIB	25.0	21.0	85	8.5	22	38	76	3540	30366
Armor A1575	24.5	19.8	87	8.3	20	36	78	3522	30554
DEKALB DKC67-66	24.3	24.3	83	8.8	24	42	74	3448	29457
NK Seeds NK1523-3220	23.6	23.6	86	8.4	22	38	76	3588	29076
Partners Brand PB 11702	23.6	23.6	84	8.6	25	42	74	3405	28729
Croplan CP5700S	23.6	20.2	83	8.4	23	41	74	3443	29627
Channel 220-98 STX	23.6	23.6	83	8.5	24	42	74	3415	29664
Partners Brand PB 8580	23.1	23.1	86	8.8	22	39	76	3556	29520
DEKALB DKC64-44RIB	23.0	23.0	87	8.8	20	37	78	3650	28786
Croplan CP5900S	23.0	19.5	84	8.3	24	42	74	3415	26690
Partners Brand PB 8600	22.9	22.9	84	8.8	25	42	75	3454	27116
Average	24.1	22.3	85	8.6	23	39	76	3506	29440
C.V. (%) ⁵	6.1	6.5							
LSD ⁶	1.8	1.7							

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.

² In vitro true digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ 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 acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk yield was calculated through Dairy One Forage Laboratories. Milk per ton (milk yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

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, 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 similarly to each other next year.

2021 Season Comments

Corn silage trials were planted in Caldwell, Fayette, and Adair counties. The 2021 growing season started wet, delaying planting.

We thank our farmer cooperator David Hutchison for allowing us access to his farm to conduct this trial. Also, special thanks to Dr. Kiersten Wise, Plant Pathology, for taking disease ratings, even though disease levels were too low to give a rating.

Table 2. Adair County, 2021.

Hybrid	Tons/A at 35% DM ¹			Forage Quality ³				Milk Yield ⁴	
	2021	2020-21	IVTD ²	CP	ADF	aNDF	TDN	lb/T	lb/A
Partners Brand PB 8600	29.7		88	8.7	20.1	34.6	79	3808	39564
Pioneer P1637YHR	28.0	24.4	85	9.2	22.5	36.8	77	3661	35853
NuTech 77A5	27.8		87	8.8	21.7	37.4	78	3729	36322
DEKALB DKC67-66	27.6		84	8.3	22.3	39.9	75	3544	34249
NK Seeds NK1523-3220	27.6		86	8.7	23.2	39.6	77	3622	34971
Croplan CP5900S	27.4	23.6	85	8.9	23	38.3	76	3574	34307
Dyna-Gro D55VC80	27.2	23.5	86	9.8	23.5	38.8	77	3643	34670
Partners Brand PB 8580	27.1		86	8.7	21	37.5	78	3690	34988
Channel 220-98 STX	26.7		85	9	22.9	38	76	3582	33464
Croplan CP5700S	26.5	23.4	82	8.8	24.2	41.2	73	3339	31003
Channel 219-77VT2PRIB	26.5	23.2	82	8.9	27.5	45.7	72	3244	30038
Partners Brand PB 11702	26.1		87	9	20.8	35.3	78	3747	34256
DEKALB DKC64-44RIB	25.7		85	9	23.3	39.6	76	3543	31808
Armor A1575	25.6	21.8	84	8.3	23.6	41.2	75	3477	31123
Average	27.1	23.3	85	9	23	39	76	3586	34044
C.V. (%) ⁵	2.3	3.8							
LSD ⁶	1.5	1.2							

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.

² In vitro true digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ 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 acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk yield was calculated through Dairy One Forage Laboratories. Milk per ton (milk yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

Table 3. Caldwell County, 2021.

Hybrid	Tons/A at 35% DM ¹			Forage Quality ³				Milk Yield ⁴	
	2021	2020-21	IVTD ²	CP	ADF	aNDF	TDN	lb/T	lb/A
Pioneer P1637YHR	28.9	23.0	85	8.8	22.9	39.6	76	3433	34723
NuTech 77A5	28.4		84	9.2	22.5	39.5	75	3443	34273
Dyna-Gro D55VC80	27.8	22.1	87	9.1	19.7	35.6	78	3547	34476
Channel 219-77VT2PRIB	27.3	22.0	85	8.8	22.4	38.7	75	3396	32481
Croplan CP5700S	27.3	22.4	80	8.9	25.6	43.9	70	3159	30196
Croplan CP5900S	26.9	21.6	84	8.8	23.1	39.6	75	3468	32630
Partners Brand PB 11702	26.8		84	8.9	24.1	40.8	73	3374	31611
DEKALB DKC64-44RIB	26.5		87	9.3	19.6	36.1	78	3604	33449
NK Seeds NK1523-3220	25.6		87	8.7	20.4	36.4	77	3573	32006
Armor A1575	25.5	20.5	85	8.8	23.1	41.2	76	3378	30132
Channel 220-98 STX	25.2		79	8.8	27.5	45.7	69	3076	27183
Partners Brand PB 8580	25.2		85	9.1	22.7	40.1	74	3329	29411
DEKALB DKC67-66	25.0		82	8.8	24.9	43.2	72	3306	28956
Partners Brand PB 8600	22.9		84	9.4	26.7	44.9	74	3332	26741
Average	26.4	21.9	84	9	23	40	74	3387	31305
C.V. (%) ⁵	7.6	7.7							
LSD ⁶	4.2	2.1							

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.

² In vitro True Digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ 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 acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk Yield was calculated through Dairy One Forage Laboratories. Milk per ton (Milk Yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

Table 4. Fayette County, 2021.

Hybrid	Tons/A at 35% DM ¹			Forage Quality ³				Milk Yield ⁴	
	2021	2020-21	IVTD ²	CP	ADF	aNDF	TDN	lb/T	lb/A
Armor A1575	20.8	16.5	88	7.5	17.9	32.2	79	3379	24639
NuTech 77A5	20.8		87	7.4	19.4	33.3	78	3596	26196
Dyna-Gro D55VC80	20.6	16.7	89	7.4	17.8	31.6	80	3627	26165
Channel 219-77VT2PRIB	20.5	17.3	85	7.5	21.7	38.9	75	3564	25595
DEKALB DKC67-66	20.0		82	7.7	23.6	42.8	73	3396	23827
Channel 220-98 STX	18.8		84	8	23.1	42.4	74	3440	22588
Pioneer P1637YHR	18.2	15.3	89	9.2	18.2	33.4	80	3798	24156
Partners Brand PB 11702	17.7		85	8.1	22.5	39.2	76	3597	22313
NK Seeds NK1523-3220	17.4		86	7.5	22.6	39.7	76	3610	22037
Partners Brand PB 8580	17.1		86	8.3	22.2	41.1	77	3593	21445
Croplan CP5700S	16.8	14.8	86	8.1	22.4	40.3	77	3626	21324
DEKALB DKC64-44RIB	16.5		89	8.2	18.8	35.7	80	3771	21809
Partners Brand PB 8600	16.5		84	8.1	23.6	42.8	75	3486	20115
Croplan CP5900S	14.9	13.4	81	7.4	26.8	46.7	71	3154	16463
Average	18.3	15.7	86	8	21	39	77	3546	22762
C.V. (%) ⁵	8.7	8.8							
LSD ⁶	3.5	1.8							

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.

² In vitro true digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ 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 acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk yield was calculated through Dairy One Forage Laboratories. Milk per ton (milk yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

Table 5. Agronomic practices, 2021.

Management	Caldwell County	Fayette County	Adair County
Planting	5/12/2021	4/20/2021	5/13/2021
N/P/K	182/0/70	182/0/70	200/0/0
Soil	Crider Silt Loam	Lanton Silt Loam	Pricetown Silt Loam
Harvest	8/28/2021	9/2/2021	8/27/2021

