

AGRICULTURE & NATURAL RESOURCES

Kentucky Silage Corn Hybrid Performance Report: 2011

Table I. Corn Hybrid Performance for Silage, Combined Locations (Boyle & Mason counties), Kentucky, 2011.

Brand	Hybrid	Milk Line ¹	Tons/A 35% DM ²	Milk Yield ³		NEL ⁴ Mcal/lb	NEG Mcal/lb	Quality, % ⁵			
				lbs/Ton	lbs/A			CP	ADF	NDF	Lignin
Asgrow	RX 940 RR2	0.38	24.1	3314	27939	0.77	0.50	7.8	25	42	3.4
Becks	6733 HXR	0.42	23.5	3486	28577	0.79	0.53	8.1	24	40	3.3
Becks	6903 HR	0.42	25.3	3406	30085	0.77	0.50	7.8	24	41	3.3
Caverndale Farms	CF 1026 GT	0.25	21.1	2918	21405	0.66	0.41	6.9	30	50	4.3
Caverndale Farms	CF 907 GTCBLL	0.50	21.9	3135	24004	0.73	0.46	7.7	26	45	3.6
Caverndale Farms	CF 926 GT	0.30	22.0	3315	25606	0.76	0.49	7.6	25	42	3.4
DeKalb	DKC 64-69	0.54	24.1	3176	26735	0.75	0.49	7.5	25	44	3.3
DeKalb	DKC 66-96	0.38	25.4	3544	31421	0.82	0.55	7.5	20	36	2.9
Dyna-Gro	D58VP30	0.33	26.8	3445	32309	0.81	0.54	7.8	22	38	2.9
Dyna-Gro	V5683VT3	0.42	25.5	3245	28907	0.77	0.51	7.7	24	41	3.2
Mycogen	TMF2H918	0.25	25.2	3084	27198	0.70	0.43	8.1	28	46	4.6
Mycogen	TMF2W727	0.25	24.1	3411	28739	0.78	0.51	7.9	25	41	3.6
NK Seeds	N73V-3000GT	0.46	23.6	3109	25642	0.71	0.46	7.6	28	47	3.9
NK Seeds	N82V-3000GT	0.42	26.1	3390	30842	0.80	0.53	7.5	22	38	3.1
Pioneer	31G67AMI BLEND	0.38	22.1	3263	25142	0.74	0.48	7.8	26	44	3.5
Pioneer	PI615 HR	0.46	24.1	3286	27558	0.76	0.49	7.5	25	42	3.3
Seed Consultants	SCSI1HQ38	0.46	21.5	3316	24894	0.76	0.49	8.0	26	43	4.2
Seed Consultants	SCSI1HR70	0.42	24.7	3290	28320	0.75	0.49	7.3	24	41	3.6
Southern States	SS 818 GENVT3PRO	0.38	23.5	3180	26113	0.74	0.47	7.7	27	44	3.9
Southern States	SS 868 GENVT3PRO	0.42	23.9	3180	26454	0.76	0.49	7.4	24	41	3.3
Wyffels Hybrids	W7213	0.42	25.2	3390	29873	0.80	0.52	8.1	21	37	3.1
Wyffels Hybrids	W8681	0.46	22.0	3469	26729	0.78	0.51	7.8	25	42	3.4
	LSD (0.10)	0.09	3.7								
	CV	24	11.6								
	Grand Mean	0.39	23.9	3288.5	27477	0.8	0.5	7.7	24.8	42.1	3.5

¹ Milk line measures the starch formation on the corn kernel. 0.75 milk line is considered ideal for silage.

² Yields adjusted to 35% dry matter; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield.

³ Milk Yield was calculated with Milk 2000. Milk per ton of silage was rounded to the nearest ten and milk per acre was rounded to the nearest hundred.

⁴ Net energy for lactation (NEL) and gain (NEG).

⁵ Quality measurements based on dry weight and are calculated from composite samples at each site

Table 2. Corn Hybrid Performance for Silage, Boyle County, Kentucky, 2011.

Cooperator: Barry Welty, Caverndale Farms

Fertilizer

Planting Date: May 30, 2011
 Target Seeds/A: 31,000
 Final Plants/Acre: 29,863
 Harvest Date: Sep. 2, 2011

N: 184 lbs/acre (urea)
 P₂O₅: 0 lbs/acre
 K₂O: 120 lbs/acre
 Lime: ton/acre
 Manure: tons/acre

Tillage Type: conventional
 Soil Type: Dunning silt loam
 Previous Crop: soybean
 Study Design: randomized complete block
 Replications: 3

Brand	Hybrid	Milk Line ¹	Tons/A 35% DM ²	Milk Yield ³		NEL ⁴ Mcal/lb	NEG Mcal/lb	Quality, % ⁵			
				lbs/Ton	lbs/A			CP	ADF	NDF	Lignin
Asgrow	RX 940 RR2	0.25	29.7	3286	34102	0.78	0.52	7.9	23	40	3.2
Becks	6733 HXR	0.33	24.9	3311	28857	0.76	0.5	7.9	25	43	3.3
Becks	6903 HR	0.33	25.8	3336	30108	0.75	0.48	7.6	24	42	3.3
Caverndale Farms	CF 1026 GT	0.25	23.7	2785	23112	0.64	0.37	7.4	31	51	4.8
Caverndale Farms	CF 907 GTCBLL	0.25	25.1	2789	24492	0.64	0.39	6.2	33	54	4.3
Caverndale Farms	CF 926 GT	0.42	23.8	3155	26288	0.72	0.45	7.9	27	45	3.5
DeKalb	DKC 64-69	0.42	24.0	3103	26098	0.73	0.47	7.8	26	45	3.8
DeKalb	DKC 66-96	0.33	25.1	3404	29905	0.79	0.52	7.7	22	39	3.1
Dyna-Gro	D58VP30	0.25	24.5	2673	22899	0.62	0.35	7.8	32	51	5.0
Dyna-Gro	V5683VT3	0.50	25.7	3054	27460	0.72	0.47	7.6	27	47	3.3
Mycogen	TMF2H918	0.33	27.1	3496	33103	0.81	0.54	7.4	23	40	3.7
Mycogen	TMF2W727	0.33	26.3	3369	30953	0.81	0.54	7.6	21	37	2.8
NK Seeds	N73V-3000GT	0.33	25.6	3083	27584	0.73	0.47	7.7	27	46	3.7
NK Seeds	N82V-3000GT	0.25	26.1	3008	27441	0.68	0.42	8.6	30	49	5.0
Pioneer	31G67AMI BLEND	0.25	25.0	3258	28548	0.74	0.48	8	26	44	4.4
Pioneer	PI615HR	0.33	25.5	3044	27136	0.71	0.46	7.7	29	49	4.2
Seed Consultants	SCS11HQ38	0.33	26.7	3099	28989	0.75	0.48	7.5	26	44	3.5
Seed Consultants	SCS11HR70	0.25	23.8	3130	26099	0.71	0.45	7.7	27	47	4.2
Southern States	SS 818 GENVT3PRO	0.33	27.5	3163	30451	0.75	0.48	7.7	25	43	3.2
Southern States	SS 868 GENVT3PRO	0.42	24.7	3285	28425	0.76	0.49	8.3	25	42	4.5
Wyffels Hybrids	W7213	0.25	25.5	3066	27364	0.7	0.44	7.3	27	46	4.3
Wyffels Hybrids	W8681	0.25	24.7	3065	26456	0.71	0.45	7.6	29	47	4.6
	LSD (0.10)	0.33	25.8	2880	25984	0.71	0.44	7.3	27	45	4.1
	CV	0.33	25.7	3097	27845	0.74	0.47	8.2	25	41	3.9
	Grand Mean	0.42	22.9	3397	27282	0.76	0.5	8	25	43	3.5

¹ Milk line measures the starch formation on the corn kernel. 0.75 milk line is considered ideal for silage.

² Yields adjusted to 35% dry matter; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield.

³ Milk Yield was calculated with Milk 2000. Milk per ton of silage was rounded to the nearest ten and milk per acre was rounded to the nearest hundred.

⁴ Net energy for lactation (NEL) and gain (NEG).

⁵ Quality measurements based on dry weight and are calculated from composite samples at each site

Table 3. Corn Hybrid Performance for Silage, Mason County, Kentucky, 2011.

Cooperator: Ronnie and Jerry Lowe

Fertilizer

Planting Date:

Target Seeds/A: 31,000

Final Plants/Acre: 27,482

Harvest Date: Sep. 22, 2011

N: 200 lbs/acre (46-0-0 + UAN)

P₂O₅: 34 lbs/acre

K₂O: 60 lbs/acre

Lime:

Manure

Tillage Type: No-Till

Soil Type: Faywood-Lowell silt loams

Previous Crop: corn silage, wheat cover crop

Study Design: randomized complete block

Replications: 3

Brand	Hybrid	Milk Line ¹	Tons/A 35% DM ²	Milk Yield ³		NEL ⁴ Mcal/lb	NEG Mcal/lb	Quality, % ⁵			
				lbs/Ton	lbs/A			CP	ADF	NDF	Lignin
Asgrow	RX 940 RR2	0.50	18.6	3342	21776	0.75	0.48	7.7	27	44	3.6
Becks	6733 HXR	0.50	22.1	3660	28297	0.81	0.55	8.2	24	38	3.2
Becks	6903 HR	0.50	24.7	3475	30062	0.79	0.52	7.9	24	39	3.2
Caverndale Farms	CF 1026 GT	0.25	17.2	3046	18318	0.68	0.42	7.5	28	47	4.3
Caverndale Farms	CF 907 GTCBLL	0.58	19.8	3167	21911	0.72	0.45	7.5	26	44	3.3
Caverndale Farms	CF 926 GT	0.25	18.9	3226	21307	0.72	0.46	7.4	27	45	3.6
DeKalb	DKC 64-69	0.58	22.5	3297	26009	0.77	0.50	7.4	23	41	3.3
DeKalb	DKC 66-96	0.42	23.7	3591	29740	0.83	0.56	7.5	18	33	2.1
Dyna-Gro	D58VP30	0.33	27.3	3520	33664	0.80	0.54	7.9	22	38	3.0
Dyna-Gro	V5683VT3	0.50	25.4	3407	30229	0.81	0.54	7.6	21	37	2.6
Mycogen	TMF2H918	0.25	24.4	3160	26955	0.72	0.44	7.5	27	43	4.2
Mycogen	TMF2W727	0.25	23.2	3563	28930	0.81	0.54	7.7	23	37	2.8
NK Seeds	N73V-3000GT	0.58	21.7	3173	24147	0.71	0.45	7.4	28	45	3.5
NK Seeds	N82V-3000GT	0.50	25.4	3681	32695	0.84	0.57	7.5	19	33	2.6
Pioneer	31G67AMI BLEND	0.50	20.3	3396	24184	0.76	0.50	7.8	25	42	2.7
Pioneer	PI615HR	0.58	20.7	3408	24665	0.76	0.49	7.3	24	41	3.4
Seed Consultants	SCS11HQ38	0.50	18.2	3347	21364	0.75	0.48	7.7	27	44	3.8
Seed Consultants	SCS11HR70	0.58	23.8	3514	29277	0.80	0.53	7.3	22	37	2.9
Southern States	SS 818 GENVT3PRO	0.50	22.3	3295	25770	0.76	0.49	7.7	24	41	3.2
Southern States	SS 868 GENVT3PRO	0.50	22.1	3479	26924	0.81	0.54	7.4	22	37	2.5
Wyffels Hybrids	W7213	0.50	24.8	3682	31901	0.85	0.57	7.9	18	33	2.2
Wyffels Hybrids	W8681	0.50	21.1	3540	26175	0.79	0.52	7.5	24	41	3.2
	LSD (0.10)	0.11	3.7								
	CV	17	11.6								
	Grand Mean	0.47	22.2	3408	26557	0.77	0.51	7.6	24	40	3.1

¹ Milk line measures the starch formation on the corn kernel. 0.75 milk line is considered ideal for silage.

² Yields adjusted to 35% dry matter; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield.

³ Milk Yield was calculated with Milk 2000. Milk per ton of silage was rounded to the nearest ten and milk per acre was rounded to the nearest hundred.

⁴ Net energy for lactation (NEL) and gain (NEG).

⁵ Quality measurements based on dry weight and are calculated from composite samples at each site

Procedures for the 2011 Kentucky Silage Corn Hybrid Performance Report



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 in Adair County, Boyle County and Mason County.

Representatives from seed companies submitted hybrids of their choosing. Total study size was kept to about 20 hybrids.

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, who 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, crude protein, acid detergent fiber, neutral detergent fiber, and lignin.

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 similar to each other next year.

Explanation of Terms:

- Milk Line – visible line on the kernel resulting from starch deposition. As starch fills the kernel, the milk line moves from the bottom to top of the kernel. Three-quarter (0.75) milk line is ideal for silage harvest.
- Milk Yield – calculated with Milk 2000 (Univ. of Wisconsin)
- NEL – net energy for lactation: Main energy value for dairy ration balancing
- NEG – net energy for gain.

- CP – crude protein
- ADF – acid detergent fiber
- NDF – neutral detergent fiber: higher NDF generally indicates lower forage intake and lower animal performance.
- Lignin – indigestible fiber.

Specific Location Information:

Adair County was lost to hot, dry weather. Despite the hot weather at the other two locations, yields at Boyle County and Mason County averaged near 27 and 25 tons/A, respectively. Stands were a little lower at Mason County (27,500 plants/A) compared to Boyle County (29,800 plants/A). Disease pressure was very low at both locations.

Corn was harvested near 0.5 milk line at both locations, which should result in slightly lower yields and slightly higher forage quality. Ideally, corn should be harvested closer to 0.75 milk line for the optimum combination of forage quality and yield.

Although there milk line was different for some hybrids those differences did not affect forage yield (Fig. 1) or milk yield (Fig. 2)

At the Boyle County site, corn hybrids were harvested for silage (forage dry matter) and for grain. The correlation between forage yield and grain yield was fairly low ($R^2=0.22$, Fig. 3). However, grain yield has a better correlation to milk yield (Figs. 4 and 5). In the absence of silage data, grain yield will provide some indication as to how a hybrid will perform as a silage.

Figure 1. Milk line effect on forage yield, combined location, 2011.

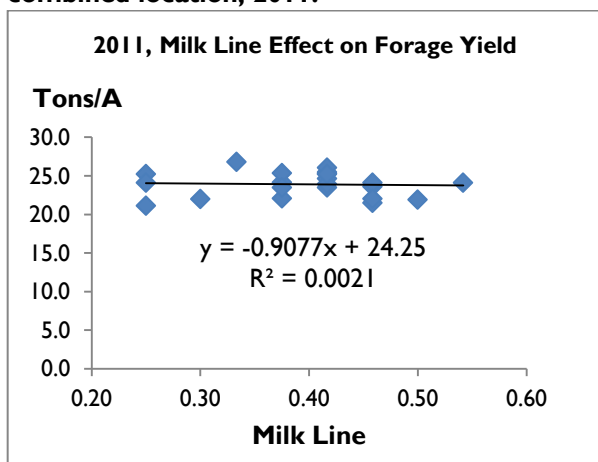


Figure 3. Relation between forage yield and grain yield, Boyle County, 2011.

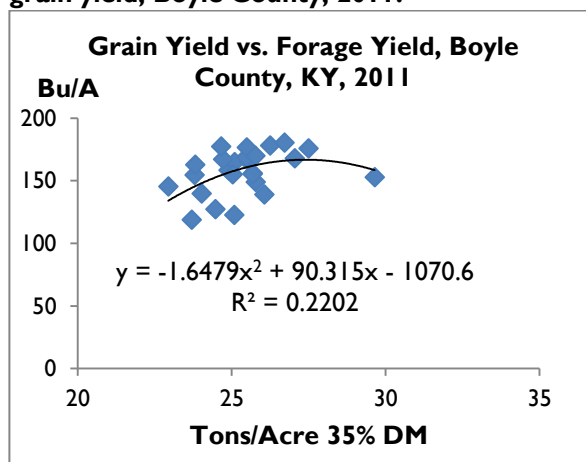


Figure 5. Relation between milk yield (lbs/A) and grain yield, , Boyle County, 2011.

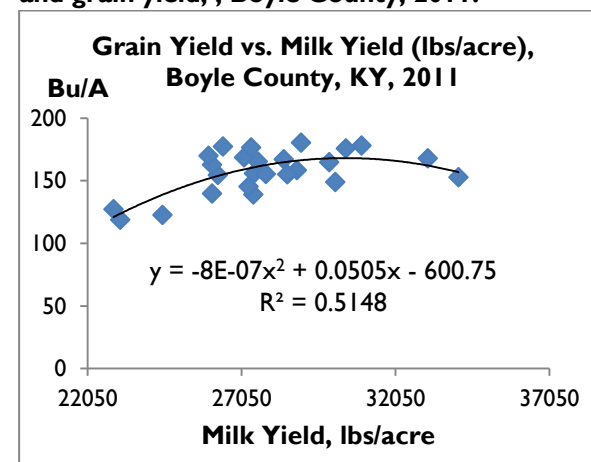


Figure 2. Milk line effect on milk yield (lbs/ton), combined locations, 2011.

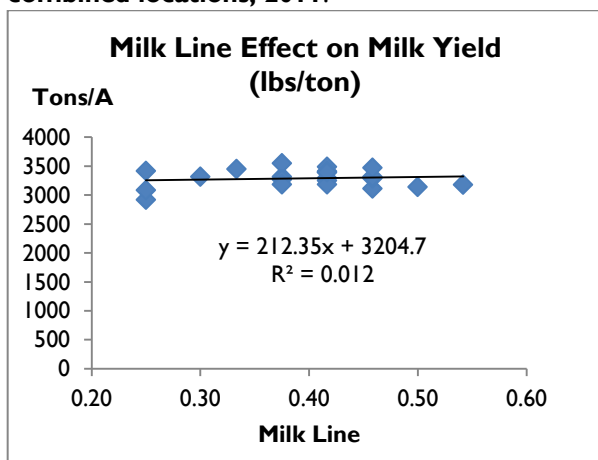
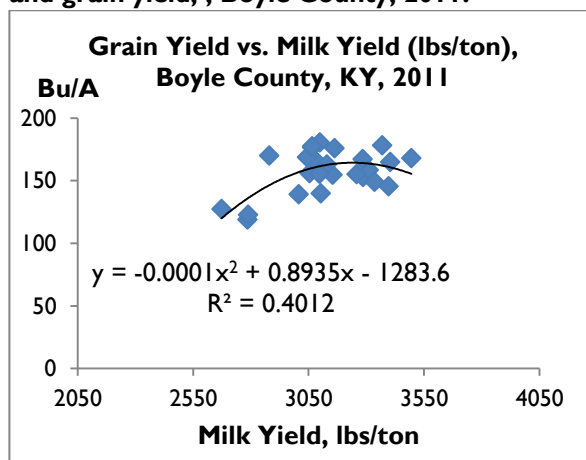


Figure 4. Relation between milk yield (lbs/acre) and grain yield, , Boyle County, 2011.



Research conducted by:

County Extension Agents for Agriculture:

ANR Agent	County	
Nick Roy	Adair	test site
Jerry Little	Boyle	test site
Tad Campbell	Mason	test site
David Appelman	Bracken	
Will Stallard	Casey	
Jeff Smith	Fleming	
Jay Hettmansperger	Garrard	
Philip Konopka	Lewis	
Dan Grigson	Lincoln	
Linda McClanahan	Mercer	
Tom Mills	Rockcastle	
Shannon Farrell	Robertson	
Robert Marsh	Rowan	
Richard Whitis	Pulaski	

Plant & Soil Sciences Department:

Chad Lee, Kathleen Russell, Grant Mackey, James Dollarhide, Chelsea McFarland, and Matthew Allen.

Available online at:

<http://www.uky.edu/Ag/GrainCrops/varietytesting.htm>

Combined Location Data, 2 Years (2010-2011)

Brand	Hybrid	Tons/A 35% DM ²	Milk Yield ³		NEL ⁴ Mcal/lb	NEG Mcal/lb	Quality, % ⁵			
			lbs/Ton	lbs/A			CP	ADF	NDF	Lignin
Becks	6733 HXR	25.0	3388	28788	0.81	0.54	7.7	22	38	3.2
Caverndale Farms	CF 926 GT	22.6	3393	26803	0.78	0.51	7.3	24	41	3.2
DeKalb	DKC 66-96	24.3	3372	28561	0.77	0.50	6.9	23	41	3.4
NK Seeds	N82V-3000GT	24.9	3420	29721	0.78	0.51	7.2	23	40	3.1
Pioneer	PI615 HR	24.0	3243	27229	0.77	0.51	7.5	24	41	3.4
Seed Consultants	SCS 11HQ38	22.0	3348	25747	0.78	0.51	7.7	24	41	3.6
Mycogen	TMF2H918	25.3	3167	27999	0.73	0.46	7.6	27	44	4.3
Dyna-Gro	V5683VT3	23.8	3313	27603	0.78	0.51	7.3	23	41	3.3
Wyffels	W8681	22.7	3494	27814	0.80	0.54	7.4	22	39	3.0
	LSD (0.10)	ns	ns	ns	ns	ns	0.4	ns	ns	ns
	CV	12.5	4	7	4.91	7.42	3.0	11	8	13
	Grand Mean	23.8	3348.5	27807.3	0.78	0.51	7.4	24	41	3.4

Combined Location Data, 3 Years (2009-2011)

Brand	Hybrid	Tons/A 35% DM ²	Milk Yield ³		NEL ⁴ Mcal/lb	NEG Mcal/lb	Quality, % ⁵			
			lbs/Ton	lbs/A			CP	ADF	NDF	Lignin
NK Seeds	N82V-3000GT	26.9	3403	31981	0.79	0.51	6.9	22	40	2.8
Mycogen	TMF2H918	28.1	3255	32199	0.75	0.46	7.3	25	43	3.8
Dyna-Gro	V5683VT3	25.8	3266	29369	0.78	0.51	7.0	23	40	3.1
	LSD (0.10)	ns	ns	ns	ns	ns	0.2	ns	ns	ns
	CV	5.6	4	7	4.91	7.42	1.4	11	8	13
	Grand Mean	26.9	3308	31183	0.77	0.49	7.1	24	41	3.3

¹ Milk line measures the starch formation on the corn kernel. 0.75 milk line is considered ideal for silage.

² Yields adjusted to 35% dry matter; highest numerical yield is bold with gray box; bold yields are not significantly different from highest yield.

³ Milk Yield was calculated with Milk 2000. Milk per ton of silage was rounded to the nearest ten and milk per acre was rounded to the nearest hundred.

⁴ Net energy for lactation (NEL) and gain (NEG).

⁵ Quality measurements based on dry weight and are calculated from composite samples at each site