

UNIVERSITY OF TENNESSEE
CORN VARIETY SILAGE TESTS

2003

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Experimental Procedures: Twelve corn hybrids (four each of FFR, Dekalb, and Pioneer) were evaluated for silage yield and quality in 2003. The test was conducted at the Knoxville and Tobacco (Greeneville) Experiment Stations and on two farms in Monroe county (Ron Torbett and Butch Lay farms) and one farm in Blount county (Randy and Gary Blair farm). The growing conditions and the moisture supply were very favorable throughout the growing season at all locations.

The plot size at the Knoxville and Torbett farm locations consisted of two rows that were 20 ft. in length. The plot size at Greeneville consisted of two rows that were 50 ft. in length. The strip-plots on the Lay and Blair farms consisted of two rows that were approximately 330 and 800 ft. in length, respectively. The row spacing in all of the tests was 30 inches. The plots at the Knoxville, Greeneville and the Torbett farm in Monroe county were replicated three times. All weights were recorded via portable, digital Intercomp Wheel Load Weigher model PT300 scales. Yields were adjusted to 65% moisture. The plant populations as well as the planting and harvesting dates are given in Table 1.

The plots at Knoxville and at the Torbett farm were harvested by hand. A sub-sample of six plants from each plot was chopped in a small brush chopper, thoroughly mixed and an approximate 2 lb. grab-sample was taken for analysis. The remnant plots at the Knoxville location were allowed to mature and were harvested for grain. The plots at Greeneville and the large strip-plots on the Lay and Blair farms were harvested via commercial silage choppers. A random sample of approximately 10 lbs. of silage was taken from each of the chopped plots, thoroughly mixed and an approximate 2 lb. grab-sample was taken for analysis. The grab-samples were sealed in plastic bags and kept cool until analyzed. Silage quality analyses were provided by the Tennessee Farmers Cooperative Quality Assurance & Analytical Services Center. Two sub-samples from each of the strip-plots in Blount county were packed and sealed in plastic containers and ensiled for 40 days and then reanalyzed for quality.

Table 1. Location information from experiment stations or cooperator farms where the corn silage variety tests were conducted in 2003.

Experiment Station / County	Location	Planting Date	Harvest Date	Seeding Rate
Knoxville Experiment Station	Knoxville	5/13/2003	8/22/2003	33,500
Blount County (Randy & Gary Blair farm)	Maryville	5/13/2003	8/29/2003	34,800
Monroe County 1 (Ron Torbett farm)	Madisonville	5/1/2003	8/21/2003	25,700
Monroe County 2 (Butch Lay farm)	Madisonville	6/5/2003	9/15/2003	27,300
Tobacco Experiment Station	Greenville	5/15/2003	8/26/2003	28,500

Table 2. Mean yields † of 12 corn hybrids evaluated for silage at five locations in Tennessee during 2003.

Brand	Hybrid	Avg. Yield ± Std Err. (n=5)	Avg. Yield ± Std Err. (n=5)				Grain** Yield (n=1)	
			Knoxville	Blount* County	Monroe County 1	Monroe* County 2		Greenville
-----tons/a-----								
FFR	900 BT	27.10 ± 1	27.83	32.10	22.00	25.70	27.87	232.00
Dekalb	DKC 66-80 (RR)	26.93 ± 1	25.70	38.50	25.90	22.20	22.37	195.00
Pioneer	32D99	26.11 ± 1	26.50	27.70	29.23	22.80	24.33	231.00
Pioneer	31G66	25.16 ± 1	23.90	30.30	24.60	25.40	21.60	216.00
FFR	882 CL	24.47 ± 1	24.17	27.10	25.43	22.30	23.33	206.00
FFR	842 RR	24.32 ± 1	23.33	28.00	24.00	22.60	23.67	210.00
Dekalb	DKC 69-70 (Bt)	24.07 ± 1	25.53	28.30	23.00	22.10	21.43	225.00
Pioneer	31R88	23.97 ± 1	25.43	27.30	21.07	21.00	25.03	195.00
Dekalb	DK 743	23.71 ± 1	25.83	25.00	25.73	20.20	21.80	216.00
FFR	849 CL	23.63 ± 1	25.50	27.30	21.03	21.80	22.53	200.00
Pioneer	33J57	23.14 ± 1	22.20	28.30	19.70	18.90	26.60	232.00
Dekalb	DKC 64-10 (RR)	22.07 ± 1	21.93	26.70	21.90	17.20	22.63	192.00
Avg. (bu/a)		24.26	24.82	28.88	23.63	21.85	23.60	212
L.S.D._{.05} (bu/a)		2.42	4.76	---	5.87	---	3.53	15.2
C.V. (%)		11.70	11.33	---	14.68	---	8.84	3.8

† all silage yields are adjusted to 65% moisture; grain yields are adjusted to 15.5%

* Yields from on-farm strip trials; Knoxville, Monroe County 1 and Greenville yields are based on replicated plots.

** Grain yields from remnant plots at the Knoxville Exp. Station.

Table 3. Overall mean yields † and quality data of 12 corn hybrids evaluated for silage at five locations in Tennessee during 2003.

Brand	Variety	Knoxville				Monroe 1				Monroe 2				Greenville				Blount County				Blount County ----Ensiled for 40 days----							
		Crude				Crude				Crude				Crude				Crude				Crude							
		Moist.	Protein	ADF	TDN	Moist.	Protein	ADF	TDN	Moist.	Protein	ADF	TDN	Moist.	Protein	ADF	TDN	Moist.	Protein	ADF	TDN	Moist.	Protein	ADF	TDN	Moist.	Protein	ADF	TDN
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
FFR	900 BT	73.2	1.61	6.96	18.24	72.1	1.67	8.27	18.26	64.1	2.04	8.62	24.92	72.7	1.82	8.12	17.86	67.8	1.71	8.72	21.69	72.3	2.09	8.41	18.02	72.3	2.09	8.41	18.02
Dekalb	DKC 66-80	71.2	1.88	6.97	19.94	71.0	1.74	7.46	19.77	60.0	2.49	11.45	26.51	75.5	1.83	8.64	15.13	58.4	2.70	13.50	26.43	71.2	2.30	7.99	19.27	71.2	2.30	7.99	19.27
Pioneer	32D99	70.3	1.84	8.32	19.78	68.0	1.71	7.31	22.49	67.7	2.00	9.72	21.04	73.8	1.36	10.17	15.53	67.2	1.63	8.76	22.16	70.7	1.94	8.64	19.26	70.7	1.94	8.64	19.26
Pioneer	31G66	69.7	1.88	8.20	20.37	68.8	1.80	7.58	21.57	60.6	2.61	9.20	27.47	74.5	1.64	9.03	15.72	64.8	2.31	7.39	25.17	65.7	2.52	7.94	23.98	65.7	2.52	7.94	23.98
FFR	882 CL	70.1	1.75	7.64	19.92	67.7	1.78	8.27	22.07	62.1	2.47	9.49	26.05	74.9	1.59	8.89	15.43	67.4	1.74	7.88	22.57	69.8	2.13	8.72	19.90	69.8	2.13	8.72	19.90
FFR	842 RR	72.6	1.81	7.18	18.57	71.8	1.74	7.32	19.22	64.3	2.24	8.51	24.81	74.3	1.80	7.64	16.78	69.5	1.94	8.08	20.60	68.8	2.34	7.35	21.73	68.8	2.34	7.35	21.73
Dekalb	DKC 69-70	69.2	1.82	8.02	20.97	70.8	1.88	8.13	19.51	63.1	2.41	10.00	24.77	76.5	1.58	8.94	13.99	66.1	1.61	9.28	22.77	69.6	2.05	9.25	19.77	69.6	2.05	9.25	19.77
Pioneer	31R88	70.1	1.67	7.40	20.60	71.0	1.65	6.98	20.11	67.8	1.85	9.70	20.94	72.6	1.75	7.58	18.29	69.9	1.78	7.40	20.78	69.9	2.02	8.71	19.83	69.9	2.02	8.71	19.83
Dekalb	DK 743	71.7	2.05	6.82	19.65	71.8	1.87	7.26	19.24	65.9	2.27	8.27	23.62	75.2	1.78	6.63	16.77	70.2	1.93	7.57	20.37	70.9	2.36	7.08	20.14	70.9	2.36	7.08	20.14
FFR	849 CL	71.4	1.96	7.55	19.39	68.3	1.95	7.64	21.94	62.3	2.79	8.50	26.52	75.5	---	---	---	67.6	1.78	7.98	22.36	69.2	2.16	7.75	21.13	69.2	2.16	7.75	21.13
Pioneer	33J57	71.1	1.74	6.38	20.42	70.3	1.90	6.73	20.91	69.6	1.90	9.27	19.70	71.9	1.74	8.03	18.60	65.6	2.10	8.03	24.00	71.4	2.37	7.65	19.30	71.4	2.37	7.65	19.30
Dekalb	DKC 64-10	72.2	1.71	7.01	19.03	68.0	2.10	6.54	23.01	63.5	2.45	9.08	25.09	75.2	1.49	9.48	14.80	68.0	2.18	7.10	22.59	70.5	2.29	7.14	20.46	70.5	2.29	7.14	20.46

Codes:

† all yields are adjusted to 65% moisture, feed analysis reported on an "as fed" basis

Bt = contains a *Bacillus thuringiensis* gene for insect resistance

RR = contains a gene for tolerance to glyphosate

CL = contains a gene for tolerance to Imidazolinone class herbicides

ADF = Acid Detergent Fiber

TDN = Total Digestible Nutrients

Table 4. Mean yields † and agronomic characteristics † of 12 corn hybrids evaluated for silage at five locations in Tennessee during 2003.

Brand	Variety	Avg. Yield ± Std Err. (n=5) tons/a	Quality at Harvest				Quality After Ensiled for 40 days*				Lodging (n=2) %	Plant Height (n=3) inches	Ear Height (n=3) inches
			Moisture (n=5) %	Crude Protein (n=5) %	ADF (n=5) %	TDN (n=5) %	Moisture (n=2) %	Crude Protein (n=2) %	ADF (n=2) %	TDN (n=2) %			
FFR	900 BT	27.10 ± 1	71.6	1.82	8.01	19.98	72.3	2.09	8.41	18.02	18	132	56
Dekalb	DKC 66-80 (RR)	26.93 ± 1	70.1	2.13	9.60	21.56	71.2	2.30	7.99	19.27	3	127	57
Pioneer	32D99	26.11 ± 1	70.1	1.71	8.86	20.20	70.7	1.94	8.64	19.26	3	136	59
Pioneer	31G66	25.16 ± 1	69.5	2.05	8.28	22.06	65.7	2.52	7.94	23.98	3	135	56
FFR	882 CL	24.47 ± 1	69.8	1.86	8.60	21.03	69.8	2.13	8.72	19.90	4	130	59
FFR	842 RR	24.32 ± 1	71.6	1.87	7.73	20.35	68.8	2.34	7.35	21.73	4	129	55
Dekalb	DKC 69-70 (Bt)	24.07 ± 1	70.8	1.86	8.87	20.40	69.6	2.05	9.25	19.77	6	131	58
Pioneer	31R88	23.97 ± 1	70.8	1.74	7.81	20.14	69.9	2.02	8.71	19.83	6	134	57
Dekalb	DK 743	23.71 ± 1	72.0	1.98	7.31	19.93	70.9	2.36	7.08	20.14	3	131	55
FFR	849 CL	23.63 ± 1	70.5	2.11	7.89	22.61	69.2	2.16	7.75	21.13	4	131	55
Pioneer	33J57	23.14 ± 1	70.5	1.88	7.69	20.73	71.4	2.37	7.65	19.30	2	130	55
Dekalb	DKC 64-10 (RR)	22.07 ± 1	70.7	1.99	7.84	20.90	70.5	2.29	7.14	20.46	5	124	54

Codes:

† all yields are adjusted to 65% moisture, feed analysis reported on an "as fed" basis

Bt = contains a *Bacillus thuringiensis* gene for insect resistance

RR = contains a gene for tolerance to glyphosate

CL = contains a gene for tolerance to Imidazolinone class herbicides

ADF = Acid Detergent Fiber

TDN = Total Digestible Nutrients

* Two subsamples from each of the Blount County strip plots were ensiled in sealed containers for 40 days and reanalyzed for quality

2003 GRUNDY COUNTY CORN SILAGE TEST

William Cox, UT Extension Agent

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Table 5. Average silage yield and quality of 10 glyphosate tolerant (Roundup Ready) corn hybrids evaluated in Grundy County in 2003.

Brand	Hybrid	Weight (tons/acre) at Harvest	Moisture % Dry Matter %	Acid Detergent Fiber %	Crude Protein %	Total Digestible Nutrients %	Plant Population (per acre)	
DeKalb	DKC69-71	21.2	69.2	30.8	32.9	4.0	65.2	27007
DeKalb	DKC69-72	20.4	65.6	34.4	36.8	3.7	62.6	21897
DeKalb	DKC63-24	18.2	63.2	36.8	21.7	5.8	72.5	23357
DeKalb	DKC64-11	17.9	58.8	41.2	24.2	4.5	70.9	30656
FFR	929W R23	17.5	70.9	29.1	34.1	5.8	64.4	18248
DeKalb	DKC66-80	16.1	70.6	29.3	35.6	3.8	63.4	25547
DeKalb	DKC60-17	13.1	59.9	40.1	20.0	5.1	73.7	17518
Garst	8467	12.4	59.9	40.1	19.5	5.4	74.0	19708
DeKalb	DKC64-10	12.4	67.7	32.3	28.2	5.2	68.3	20437
DeKalb	DKC67-60	12.4	69.3	30.7	28.4	5.6	68.1	24817

Notes:

Planted May 17, 2003;

Harvested September 16, 2003.

Strip-plot of each variety consisted of eight rows.

Fertilizer rate: 140# N:70# P2O5:130# K2O