

Technical Report 36

New Mexico Corn and Sorghum Performance Tests 1998



Agricultural Experiment Station • Cooperative Extension Service

College of Agriculture and Home Economics

Contents

New Mexico corn and sorghum performance tests 1998	1
Corn	2
Sorghum	2
Statistical procedures	2
Understanding feed test results	2
Corn performance test results	7
Forage sorghum and forage sorghum-sudangrass performance results	21
Appendix I (Two- and three-year averages for grain corn, grain sorghum, forage sorghum and forage sorghum-sudangrass)	29
Appendix II	33
Sponsors	39

NEW MEXICO CORN AND SORGHUM PERFORMANCE TESTS 1998

R.D Baker, E.J. Gregory, R.N. Arnold, L.M. English, C. Barnes, E. Hanson, and L.M. Lauriault¹

Grain corn and sorghum hybrids were evaluated for performance at New Mexico State University's agricultural science centers in Clovis, Farmington, Artesia, Los Lunas and Tucumcari. Seed companies entered hybrids in tests at these locations for a grant-in-fee (the 1998 participants are listed in the appendix). Entry blanks and information about the various tests may be obtained from the Agricultural Science Center at Clovis, Star Route Box 77, Clovis, NM 88101, (505) 985-2292.

The elevation and temperature conditions at each location are given in table 1. Weather for each center is given in tables 3 through 7. Soil types and cultural practices for each location are given in table 8. Experimental layouts, planting and harvest dates are given in table 9.

On October 30, 1998, a severe storm hit the Agricultural Science Center at Clovis. The storm damaged buildings, caused extensive soil erosion and destroyed all the grain sorghum performance tests. Heavy rain fell (3.60inches) bringing with it high winds and golf-ball

size hail. The grain sorghum performance tests were not harvested and no data for those tests were recorded for the Agricultural Science Center at Clovis.

NEW MEXICO CORN AND SORGHUM PERFORMANCE TESTS 1998

Field grain corn and sorghum hybrids were evaluated for adaptability and performance. Sorghum tests were conducted under full irrigation, limited irrigation and dryland conditions. Hybrids for greenbug resistance sorghum and forage sorghum, forage corn and forage sorghum-sudangrass yields were evaluated. All corn hybrids were conducted under full irrigation. The agronomic characteristics measured included yield, test weight, percentage grain moisture, dry matter content (forages), maturity, plant population density, plant height and ear height (corn). A randomized complete block design with four replications was used.

Table 1. Locations, elevations and other climatic conditions for corn and sorghum hybrid tests, NMSU agricultural science centers, 1998.

Location	Approximate Elevation	1998 Frost Dates (°F)			Average Frost Dates (°F)		
		Last Spring Frost	First Fall Frost	Frost-free Period	Last Spring Frost	First Fall Frost	Frost-free Period
Artesia	3,375	April 21	November 11	203	April 16	October 24	191
Clovis	4,435	April 8	November 10	216	April 24	October 22	182
Farmington	5,640	May 15	October 6	144	May 4	October 14	163
Los Lunas	4,840	April 20	October 6	168	May 16	October 15	162
Tucumcari	4,100	April 19	November 11	206	April 17	October 24	190

*Source: weather stations at each location.

¹Superintendent and professor, NMSU Agricultural Science Center at Clovis; professor of crop and soil sciences and pest management specialist, NMSU Agricultural Science Center at Farmington; farm superintendent and technician II, NMSU Agricultural Science Center at Artesia; superintendent and associate professor of plant sciences at NMSU Agricultural Science Center at Los Lunas; and forage agronomist at NMSU Agricultural Science Center at Tucumcari.

CORN

Yield. Grain yields were estimated on a bushel per acre basis of shelled corn. Yields were adjusted to 15.5% moisture content and based on 56 pounds per bushel. Forage yield (entire plant except the basal part of stem and roots) are reported as tons per acre of green and oven-dried forage.

Test Weight. High test weight is an indicator of excellent seed development and is given in pound per bushel. Standard test weight of grain corn is 56 pounds per bushel.

Maturity. Corn maturity was estimated in days from planting to when approximately half the plants were beginning to silk.

Miscellaneous Measurements. In addition to the above, plant populations, plant and ear heights, grain moisture and dry matter content (forages) were estimated. Analyses of the forage corn by near infrared reflectance (NIR) were done by Clovis and Artesia.

SORGHUM

Yield. Grain yields were estimated in bushels per acre and adjusted to 14% moisture. Forage yields are reported in tons per acre of green and dry forage.

Test Weight. Grain sorghum test weight is given in pounds per bushel. Standard test weight is 55 pounds per bushel.

Maturity. Classifications were determined by seed companies. Relative maturities were recorded as the number of days from planting to half bloom. However, since grain sorghum hybrids dry at different rates, the bloom date is not always an accurate maturity indicator.

Miscellaneous Measurements. Other measurements include plant population, plant heights and grain moisture content. Analyses by near infrared reflectance (NIR) were run on forage sorghum and forage sorghum-sudangrass hybrids at Clovis.

STATISTICAL PROCEDURES

Each test was arranged in a randomized complete block (RCB). The number of replications for each experiment is shown in table 4. When significant differences were detected at the 95% level of probability using analysis of variance (ANOVA), a least significant difference (LSD) was computed. The LSD value represents how much an entry must differ from another to be significantly different. Small yield differences are meaningless as they may result from soil and environmental variability. When the yield difference between two entries is smaller than the LSD the entries are consid-

ered the same. A coefficient of variability (CV) is calculated as the standard error divided by the mean and multiplied by 100. Large differences in soil types through the study or differences in water infiltration from the top of the field to the bottom during irrigation may increase variability. A CV percentage less than 20% for forage and sorghum testing is a good indication of normal variability.

UNDERSTANDING FEED TEST RESULTS¹

Crude Protein: It is termed “crude” protein because it is not a direct measurement of protein but a measurement of the total nitrogen in the feed (nitrogen x 6.25 = crude protein).

Digestible Protein: To be used in specialized situations, protein nutrient requirements are based on a crude protein value that has been adjusted for digestibility.

Acid Detergent Fiber (ADF): This constituent consists of cellulose, lignin and heat-damaged protein. It is closely related to indigestibility of forages and is the major factor in calculating energy content of feeds. The lower the ADF, the more energy the feed contains and the more digestible it will be.

Neutral Detergent Fiber (NDF): The total fiber content of a forage is contained in the NDF or cell wall fraction. This fraction contains cellulose, hemicellulose, lignin and heat damaged protein. The NDF gives the best estimate of the feed’s total fiber content and is closely related to feed intake. As the NDF value increases, total feed intake decrease. A low percentage of NDF is desirable.

Total Digestible Nutrients (TDN): Total digestible nutrients represent the sum of digestible crude protein, crude fiber, nitrogen free extract and ether extract (fat). Ether extract is multiplied by 2.25 to compensate for the higher caloric value of fats. TDN tends to overestimate the nutritive value of forages compared to Net Energy (NE). TDN is estimated from the feed’s Acid Detergent Fiber (ADF) content.

Net Energy Lactation (NEI): For dairy cattle, net energy of lactation is used to meet both maintenance and milk production requirements.

Net Energy Maintenance (NEm) and Net Energy Gain (NEg): Feed energy is used less efficiently for depositing new body tissue than for maintaining existing body tissue. NEm is the net energy value of feeds for maintenance. NEg is the net energy value of feed for depositing body tissue, growth or gain. Both NEm and NEg are needed to express the total energy needs of growing cattle.

¹Adapted from R.C. Ward. 1992. Understanding Feed Test Reports. In Wardguide, Ward Laboratories Inc., Kearney, Nebraska

Table 2. Nutrient requirements of a 300, 400 and 500 pound steer gaining 2+ pounds per day¹.

Growing steer	Gain	Intake	Protein	TDN	NEm	NEg	Ca	P
Body weight	lb/d	lb	%	%	Mcal/lb	Mcal/lb	%	%
300	2.0	9.0	15.1	62.5	0.63	0.37	0.76	0.32
300	2.5	9.2	17.0	66.5	0.69	0.42	0.91	0.36
300	3.0	9.2	18.8	70.5	0.75	0.47	1.08	0.43
300	3.5	9.2	20.9	75.5	0.82	0.53	1.24	0.48
400	2.0	11.2	13.1	62.5	0.63	0.37	0.61	0.28
400	2.5	11.4	14.5	66.5	0.69	0.42	0.72	0.31
400	3.0	11.5	15.9	70.5	0.75	0.47	0.82	0.35
400	3.5	11.5	17.5	75.5	0.82	0.53	0.96	0.39
500	2.0	13.2	11.8	62.5	0.63	0.37	0.52	0.25
500	2.5	13.5	12.9	66.5	0.69	0.42	0.59	0.28
500	3.0	13.6	14.0	70.5	0.75	0.47	0.68	0.31
500	3.5	13.6	15.3	75.5	0.82	0.53	0.77	0.35

¹Adapted from the National Research Council, Nutrient Requirements of Beef Cattle, 6th edition, 1984, National Academy Press, Washinton, D.C.

Table 3. Weather summary (average maximum, minimum, mean temperatures (°F) and precipitation) from January through December 1998 at the Agricultural Science Center at Clovis.

Month	Average maximum (°F)	Average minimum (°F)	Average mean (°F)	Total precipitation inches
January	53.45	30.39	41.92	0.00
February	59.76	32.00	45.88	1.07
March	63.45	30.74	47.09	1.53
April	74.73	39.03	56.88	1.37
May	90.53	51.39	70.96	0.00
June	95.77	61.53	78.65	0.14
July	94.65	64.39	79.52	1.71
August	88.35	60.71	74.53	1.39
September	90.43	58.53	74.48	0.56
October	75.22	49.32	62.27	8.87
November	62.50	37.87	50.18	0.13
December			Total	17.20

Table 4. Weather summary (average maximum, minimum, mean temperatures (°F) and total precipitation) from January through December 1998 at the Agricultural Science Center at Farmington.

Month	Average maximum (°F)	Average minimum (°F)	Average mean (°F)	Total precipitation inches
January	44.8	22.3	33.6	0.12
February	46.0	24.5	35.3	0.61
March	56.5	28.1	42.3	0.65
April	62.3	32.9	47.6	0.73
May	77.8	44.5	61.2	0.03
June	85.2	48.4	66.8	0.02
July	91.9	62.0	77.0	1.38
August	89.8	58.7	74.3	1.48
September	85.8	53.9	69.9	0.68
October	68.1	39.6	53.9	2.07
November	55.8	26.8	42.3	1.27
December	45.4	18.7	32.1	0.06
			Total	9.10

Table 5. Weather summary (average maximum, minimum, mean temperatures (°F) and precipitation) from January through December 1998 at the Agricultural Science Center at Artesia.

Month	Average maximum	Average minimum	Average mean	Total precipitation
	(°F)	(°F)	(°F)	inches
January	58.52	22.87	40.69	0.00
February	61.71	27.36	44.54	0.18
March	66.39	33.58	49.98	0.52
April	74.73	35.23	54.98	0.04
May	91.16	50.71	70.94	0.00
June	98.77	59.93	79.35	0.25
July	98.13	67.03	82.58	1.01
August	91.74	63.23	77.48	1.84
September	91.60	59.27	75.43	0.44
October	78.39	46.55	62.47	2.34
November	67.83	34.80	51.32	0.09
December	49.39	18.55	33.97	1.97
			Total	8.68

Table 6. Weather summary (average maximum, minimum, mean temperatures (°F) and precipitation) from January through December 1998 at the Agricultural Science Center at Los Lunas.

Month	Average maximum	Average minimum	Average mean	Total precipitation
	(°F)	(°F)	(°F)	inches
January	54.5	18.6	36.6	0.07
February	55.2	23.1	39.2	1.20
March	63.7	28.9	46.3	2.11
April	69.0	33.1	51.1	0.30
May	82.5	41.9	62.2	0.00
June	92.1	49.9	71.0	0.14
July	93.4	62.4	77.9	5.25
August	93.1	59.5	76.3	1.17
September	89.6	53.0	71.3	0.28
October	74.5	38.8	56.7	2.37
November	63.9	26.4	45.2	0.57
December	55.5	19.4	37.5	0.29
			Total	13.75

Table 7. Weather summary (average maximum, minimum, mean temperatures (°F) and precipitation) from January through December 1998 at the Agricultural Science Center at Tucumcari.

Month	Average maximum	Average minimum	Average mean	Total precipitation
	(°F)	(°F)	(°F)	inches
January	57	28	42	0.03
February	55	30	43	0.61
March	61	32	46	2.59
April	69	40	54	1.23
May	86	51	69	0.08
June	94	60	77	0.14
July	90	65	78	2.45
August	92	63	77	4.77
September	91	58	75	0.61
October	74	49	62	4.60
November	64	38	51	0.42
December	56	26	41	0.17
			Total	17.70

Table 8. Soil types and cultural practices for corn and sorghum test, 1998.

Location and type	Planting rate ¹ pounds/acre (seeds/acre)	Previous crops	N	P	K	S	Irrigations number
			pounds/acre				
Artesia (Reeves loam)							
Forage corn	(39,700)	Forage corn	140	—	—	—	5
Forage sorghum	(50,965)	Forage corn	120	—	—	—	6
Clovis (Olton silty clay loam)							
Grain corn (full season and white grain)	(36,000)	Fallow	156 ²	46.8	16	21.6	7
Forage corn	(36,000)	Fallow	156 ²	46.8	16	21.6	7
Forage sorghum	12	Fallow	156 ²	46.8	16	21.6	5
Forage sorghum-sudangrass	16	Fallow	156 ²	46.8	16	21.6	5
Farmington (Doak fine sandy loam)							
Forage corn	(35,000)	Small grains	235	104	120	—	cp
Grain corn (full season)	(35,000)	Small grains	235	104	120	—	cp
Grain corn (early season)	(35,000)	Small grains	235	104	120	—	cp
Los Lunas (Vinton loamy fine sand)							
Grain corn (full season)	AR*	Alfalfa	250	—	—	—	8
Forage corn	AR*	Alfalfa	250	—	—	—	8
Forage sorghum-sudangrass	16	Alfalfa	250	—	—	—	
Tucumcari (Canez fine sandy loam)							
Grain corn (full season) ³	(32,000)	Fallow	111	59	34	22	8
Grain sorghum (full irrigated) ⁴	8	Fallow	111	59	34	22	5
Grain sorghum (limited irrigated)	5	Fallow	111	59	34	22	3
Forage sorghum ⁵	40	Fallow	111	59	34	40	4
Forage sorghum-sudangrass ⁵	40	Fallow	111	59	34	40	4

*As requested by the seed company; seeds per acre: Germain's GC4333(32,000), Germain's HT4138 (29,000), Germain's HT76221(28,000), Germain's BH4622 (30,000) and Germain's HT5046 (28,000).

¹Corn planting rates are given in seed per acre (in parentheses).

²Clovis: pre-planted on April 10 and also fertilized on February 15 with 28 lb/a N, 46.8 lb/a P and 21.6 lb/a S.

³Tucumcari: Grain corn (full season) also received 100 lb/a N and 36 lb/a S, broadcast (June 19).

⁴Tucumcari: Grain sorghum (full irrigated) also received 50 lb/a N and 18 lb/a S, broadcast (June 19).

⁵Tucumcari: Forage sorghum and forage sorghum-sudangrass also received 50 lb/a N and 19 lb/a S (August 14).

Table 9. Experimental layout¹ and dates planted and harvested for corn and sorghum hybrid tests by location and crop 1998.

Location	Hybrids number	Bed spacing inches	Plot length feet	Rows per plot number	Replications number	Planting date	Harvest date
Artesia							
Forage corn	23	30	25	2	4	April 20	August 10
Forage sorghum	6	30	25	2	6	May 11	August 24
Clovis							
Grain corn (full season and white grain)	39	40	16	2	4	May 1	September 24
Forage corn	25	40	34	2	4	April 24	August 27
Forage sorghum	12	40	34	2	4	April 24	August 27
Forage sorghum-sudangrass	10	40	34	2	4	April 24	August 27
Farmington							
Grain corn (full season)	4	34	20	4	4	May 13	September 14
Grain corn (early season)	20	34	20	4	4	May 13	November 20
Grain corn (white grain)	20	34	20	4	4	May 13	November 19
Forage corn							
Los Lunas							
Grain corn (full season)	4	38	20	1	4	May 12	September 15
Forage corn	3	38	20	1	4	May 12	November 2
Forage sorghum-sudangrass	2	38	20	1	4	May 12	September 15
Tucumcari							
Grain corn (full season)	12	36	25	4	4	May 7	September 1
Grain sorghum (full irrigation) ²	4	36	25	4	4	May 15	November 2
Grain sorghum (limited irrigation) ²	5	36	25	4	4	May 15	November 2
Forage sorghum	2	36	25	2	4	May 15	Aug. 10 and Oct. 15.
Forage sorghum-sudangrass	4	36	25	4	4	May 15	Aug. 10 and Oct. 15

¹All tests, except otherwise noted, were conducted using a randomized complete block design.

²Tucumcari used a Latin square design for its full irrigated grain sorghum and used Youden square for its limited irrigated grain sorghum.

CORN PERFORMANCE TEST RESULTS

Clovis Full Season Grain Corn (table 10)

Location average: 71 bushels/acre
ranging from 32 bushels/acre to 114 bushels/acre

Clovis White Grain Corn (table 11)

Location average: 131 bushels/acre
ranging from 105 bushels/acre to 151 bushels/acre

Farmington Full Season Grain Corn (table 12)

Location average: 190.0 bushels/acre
ranging from 154.8 bushels/acre to 228.1 bushels/acre

Farmington Early Season Grain Corn (table 13)

Location average: 202.2 bushels/acre
ranging from 169.5 bushels/acre to 239.5 bushels/acre

Los Lunas Full Season Grain Corn (table 14)

Location average: 181 bushels/acre
ranging from 177 bushels/acre to 185 bushels/acre

Tucumcari Full Season Grain Corn (table 15)

Location average: 77.39 bushels/acre
ranging from 53.07 bushels/acre to 103.19 bushels/acre

Clovis Forage Corn (table 16)

Location average: 6.4 tons/acre dry forage
ranging from 4.6 tons/acre dry forage to 8.5 tons/acre dry forage

Artesia Forage Corn (table 17)

Location average: 5.42 tons/acre dry forage
ranging from 4.32 tons/acre dry forage to 6.29 tons/acre dry forage

Farmington Forage Corn (table 18)

Location average: 9.9 tons/acre dry forage
ranging from 9.3 tons/acre dry forage to 10.3 tons/acre dry forage

Los Lunas Forage Corn (table 19)

Location average: 12 tons/acre dry forage
ranging from 11 tons/acre dry forage to 13 tons/acre dry forage

Table 10. Yields and other measurements for full season grain corn, NMSU Agricultural Science Center at Clovis, 1998*.

Company or brand name	Variety	Yield ¹ pounds/acre	bushels/acre	Moisture percentage	Test weight pounds/bushel	Plants at harvest number	Days to half silk number	Plant height inches	Ear height inches	Lodging percentage
AgriPro Seeds Inc.	HS9843	6,390	114	14	57	27,151	82	83	43	11
Freedom Seed Company	5680	5,978	107	13	57	29,397	82	77	39	10
AgriPro Seeds Inc.	HY9646	5,429	97	12	57	30,009	82	81	45	14
Asgrow Seed	XP8897	5,374	96	13	59	29,805	81	78	45	15
Golden Harvest	H-2641	4,985	89	12	58	29,295	83	74	39	17
Douglass W. King Company	5201	4,838	86	12	58	28,069	83	79	40	19
Germain's Inc.	GC4333	4,807	86	13	58	29,805	83	78	36	11
Asgrow Seed	RX913	4,654	83	14	58	29,090	83	74	39	11
Germain's Inc.	HT4138	4,551	81	13	58	26,947	84	80	39	12
Asgrow Seed	RX813	4,542	81	12	57	27,763	82	74	36	14
Freedom Seed Company	5695	4,491	80	13	58	27,049	83	76	42	12
DeKalb Genetics Corp.	DK626	4,455	76	12	58	28,784	84	75	43	17
Douglass W. King	5445	4,377	78	13	58	27,661	82	80	47	11
Mycogen Seeds	2888	4,311	77	13	58	27,355	82	80	41	14
AgriPro Seeds Inc.	AP9707	4,154	74	12	58	28,784	83	84	39	17
Mycogen Seeds	2828	4,146	74	13	57	28,968	85	81	42	11
Frontier Hybrids, Inc.	F-3200	4,084	73	12	59	28,069	83	73	43	12
Pioneer® Hi-Bred Int'l Inc.	33A14	3,968	71	13	59	30,009	82	63	34	11
Garst Seed Company	8366	3,923	70	13	58	26,130	84	77	39	10
NC+Hybrids	NC+RE675	3,914	70	12	59	28,172	84	78	39	20
Pioneer® Hi-Bred Int'l Inc.	31B13	3,893	69	13	59	28,682	82	73	33	9
Triumph Seed Co. Inc.	2010	3,846	69	13	58	27,355	82	74	39	17
Frontier Hybrids Inc.	F-3038	3,807	68	13	58	28,376	81	74	41	15
DeKalb	DK679	3,767	67	13	58	30,315	83	75	34	24
Mycogen Seeds	7250	3,751	67	12	58	30,622	82	76	37	17
Frontier Hybrids Inc.	F-3175	3,633	65	13	58	28,172	83	76	30	24
DeKalb	DK641	3,547	63	12	58	26,640	83	75	39	14
Garst Seed Company	8222IT	3,393	60	14	58	28,274	85	78	41	16
Golden Harvest	H-2515	3,371	60	12	57	28,784	86	81	43	11
Mycogen Seeds	2832IMI	3,345	60	13	57	23,680	82	76	41	16
AgriPro Seeds Inc.	AP9616	3,273	58	12	58	28,172	82	79	39	17
Germain's, Inc.	BH4622	3,221	57	12	57	27,763	81	79	43	14
NC+Hybrids	NC+7117	3,216	57	12	58	27,355	84	71	38	14
NC+Hybrids	NC+6868	3,116	56	13	58	26,640	38	74	33	12
DeKalb	DK632	2,752	49	12	57	30,111	82	73	36	19
Triumph Seed Co. Inc.	1866	2,713	48	13	58	27,457	81	77	43	10
Pioneer® Hi-Bred Int'l Inc.	33H67	2,654	47	12	58	27,457	86	80	45	10
Mycogen Seeds	2725	2,564	46	13	58	28,376	81	76	37	22
Golden Harvest	H-2516	1,798	32	12	56	28,580	84	81	40	22
Average		3,975	71	13	58	28,234	83	77	40	15
LSD(0.05)		1,966	35	ns	1	ns	ns	5	6	9
CV%		35	35	62	2	13	4	5	11	41

ns=No significant differences.

*Severe drought for season contributed to low yields.

¹Yield adjusted to 15.5% moisture.

Table 11. Yields and other measurements for white grain corn, NMSU Agricultural Science Center at Clovis, 1998*.

Company or brand name	Variety	Yield ¹ pounds/acre	bushels/acre	Moisture percentage	Test weight pounds/bushel	Plants at harvest number	Days to half silk number	Plant height inches	Ear height inches	Lodging percentage
Asgrow Seed	RX921W	8,483	151	14	61	31,445	87	76	45	12
Pioneer® Hi-Bred Int'l, Inc.	32H39	8,456	151	13	61	26,544	86	74	48	15
Asgrow Seed	RX901W	7,858	140	15	59	24,502	87	75	41	10
Douglass W. King Co.	9105W	7,752	138	16	57	28,586	88	77	48	7
NC+Hybrids	NC+6989W	7,671	137	15	59	25,635	86	78	41	9
DeKalb Genetics Corp.	EX866W	6,987	125	15	59	28,643	81	78	51	11
DeKalb Genetics Corp.	DK665W	6,877	123	14	60	29,403	88	75	38	12
DeKalb Genetics Corp.	EX868W	6,076	108	13	60	28,994	82	74	48	15
Douglass W. King Co.	9101W	5,882	105	15	58	26,952	85	77	51	11
	Average	7,338	131	15	59	25,194	86	76	46	11
	LSD(0.05)	1,497	27	1.3	1.5	1,394	4.1	ns	ns	ns
	CV%	14	14	6.0	1.7	16	3.3	5.6	2.2	48

ns=No significant differences.

*Severe drought for season contributed to low yields

Table 12. Yields and other measurements for full season grain corn, NMSU Agricultural Science Center at Farmington, 1998.

Company or brand name	Hybrid	Yield*		Moisture percentage	Plant height inches	Ear height inches	Plant density plants/acre	Lodging percentage
		bushels/acre	pounds/bushel					
Pioneer® Hi-Bred Int'l, Inc.	34P93 (white)	228.1	56.5	18.4	121	49.5	28,826	0
Mycogen Seeds	2725	222.8	53.3	17.4	105	44.3	25,175	0
Grand Valley Hybrids	SX1300	222.6	53.8	18.2	106	45.0	26,809	0
Grand Valley Hybrids	GVX8258	219.8	52.5	17.4	103	40.5	26,905	0
AgriPro Seeds, Inc.	AP9616	218	49.8	18.7	115	51.8	27,385	0
Pioneer® Hi-Bred Int'l, Inc.	33H67	212.2	55.0	20.2	122	53.3	27,962	0
Pioneer® Hi-Bred Int'l, Inc.	34K77	210.4	55.3	16.9	113	47.3	29,499	0
AgriPro Seeds, Inc.	HY9646	204.4	50.3	20.2	122	61.5	30,748	0
Grand Valley Hybrids	GVX7268	200.1	55.5	16.1	111	48.0	25,271	0
DeKalb Genetics Corp.	DK626	199.4	52.8	19.4	117	48.0	25,175	0
Germain's Seeds, Inc.	HT4612	194.8	52.8	18.7	107	43.5	22,292	0
Grand Valley Hybrids	GVX0268	192.4	54.0	17.3	109	46.5	26,616	0
Germain's Seeds, Inc.	HT4138	192.2	51.5	18.9	118	53.3	26,040	0
DeKalb Genetics Corp.	DK595	190.5	54.5	17.1	109	41.3	21,428	0
AgriPro Seeds, Inc.	AP9707	178.1	51.3	20.9	112	48.8	28,538	0
Mycogen Seeds	7250	175.9	53.0	18.5	116	44.3	22,773	0
Pioneer® Hi-Bred Int'l, Inc.	3489	174.5	54.8	17.5	113	37.5	24,214	0
Germain's Seeds, Inc.	BH4622	167.5	48.8	19.3	115	45.0	23,349	0
Germain's Seeds, Inc.	GC4333	162.4	52.8	18.5	115	51.0	22,869	0
Germain's Seeds, Inc.	HT75046	154.8	48.5	21.0	122	51.0	20,947	0
	Average	190	52.8	18.5	113	47.6	25,641	0
	LSD(0.05)	43.7	1.4	1.2	5.0	5.1	4,821	
	CV%	15.7	1.9	4.4	2.9	7.6	13.3	

*Yields adjusted to 15.5% moisture and a 56-pound bushel.

Table 13. Yields and other measurements for early season grain corn , NMSU Agricultural Science Center at Farmington, 1998.

Company or brand name	Hybrid	Yield*		Moisture	Plant height	Ear height	Plant density	Lodging
		bushels/acre	pounds/bushel					
Grand Valley Hybrids	SX1264	239.5	56.0	17.0	100	40.5	32,190	0
Grand Valley Hybrids	GVX4616	223.2	56.5	17.9	106	44.3	30,076	0
Pioneer® Hi-Bred Int'l, Inc.	36A43	221.0	57.0	14.8	114	51.8	32,382	0
Pioneer® Hi-Bred Int'l, Inc.	3568	215.9	55.8	15.3	118	50.3	31,709	0
Mycogen Seeds	2500	213.2	56.3	14.8	96	36.0	30,940	0
DeKalb Genetics Corp.	DK477	212.9	55.5	14.3	106	42.0	32,574	0
Grand Valley Hybrids	GVX7236	211.2	54.3	14.6	107	43.5	32,574	0
DeKalb Genetics Corp.	DK512	209.7	54.8	14.6	110	48.0	32,766	0
Grand Valley Hybrids	GVX7219	208.4	56.0	14.7	106	45.0	30,460	0
Germain's Seeds, Inc.	BH4602	207.8	55.0	16.3	110	43.5	24,599	0
Pioneer® Hi-Bred Int'l, Inc.	3730	202.9	57.0	14.8	105	42.8	32,574	0
Mycogen Seeds	2595	202.8	55.8	15.4	98	42.0	30,940	0
DeKalb Genetics Corp.	DK493	201.1	55.5	13.9	103	48.0	31,901	0
Grand Valley Hybrids	GVX7297	199.7	55.3	15.2	105	45.0	29,115	0
Germain's Seeds, Inc.	HT4199	184.8	57.0	13.7	104	45.8	25,944	0
Pioneer® Hi-Bred Int'l, Inc.	37M81	184.1	56.0	13.8	102	45.8	32,190	0
Mycogen Seeds	2569	183.3	55.0	15.2	101	40.5	29,306	0
Grand Valley Hybrids	GVX0946	176.6	55.8	14.4	105	43.5	29,403	0
Germain's Seeds, Inc.	HT4185	173.3	55.8	13.4	99	41.3	24,695	0
Grand Valley Hybrids	GVX4776	169.5	54.0	14.5	100	42.8	27,001	0
Average		202.2	55.7	14.9	105	44.1	30,167	0
LSD(0.05)		30.0	0.9	0.6	5.0	4.3	2,890	
CV%		10.5	1.1	2.8	3.4	6.9	6.8	

*Yields adjusted to 15.5% moisture and a 56-pound bushel.

Table 14. Yields and other measurements for full season corn, NMSU Agricultural Science Center at Los Lunas, 1998.

Company or brand name	Hybrid	Yield bushels/acre	Moisture percentage	Test weight pounds/bushel	Plant population number/acre	Plant height inches	Ear height inches
Germain's Seeds, Inc.	BH4622	184.9	15.6	57	30,262	112	48
Germain's Seeds, Inc.	GC4333	181.1	16.3	58	32,326	110	46
Germain's Seeds, Inc.	HT4138	176.9	15.8	57	29,575	108	45
	Average	181	15.9	57	30,721	110	46
	LSD(0.01)	ns	ns	ns	ns	ns	2.6
	LSD(0.05)	ns	ns	ns	ns	ns	1.7
	CV%	9.8	3.9	2.2	ns	2.8	2.2

ns=No significant differences.

Table 15. Yield and other measurements for grain corn hybrids (full season), NMSU Agricultural Science Center at Tucumcari, 1998.

Company or Brand Name	Hybrid number/acre	Plant population number	Days to half silk ¹	Frayed husks ² feet	Ear height number	Ears per plant percentage	Smutty ears grams	Grain per ear lbs/bu	Test weight
Mycogen Seeds	2888	29,947.5*	79.25*	0.00**	3.50*	0.77	2.14**	140.50**	54.88*
Germain's Seeds	HT4138	29,403.0*	77.25	0.00**	2.99	0.89*	22.43	119.45*	54.88*
Freedom Seed Company	5680	30,373.5**	79.75*	0.00**	3.67*	0.80	11.56*	113.34*	52.13
Germain's Seeds	GC4333	28,314.0*	76.00	0.00**	2.79	0.87*	14.15*	109.57	53.75*
Freedom Seed Company	5695	28,495.5*	81.00**	0.00**	3.22	0.75	16.84	127.09*	54.75*
Frontier Hybrids	F-3038	25,047.0	74.25	0.00**	2.64	0.85*	16.10	126.70*	55.50**
Frontier Hybrids	F-3175	27,769.5*	79.00*	0.00**	3.24	0.88*	21.14	115.98*	54.88*
Frontier Hybrids	F-3200	28,677.0*	79.75*	0.00**	2.86	0.94**	24.27	102.74	53.50
NC+Hybrids	NC+6868	27,951.0*	70.75	0.00**	2.65	0.83*	21.34	124.61*	53.75*
Germain's Seeds	BH 4622	28,858.5*	74.25	0.75	2.43	0.89*	25.90	107.13	49.25
NC+Hybrids	NC+7117	29,766.0*	79.75*	0.00**	2.99	0.82*	22.31	105.54	53.13
DeKalb Genetics Corp.	DK512RR	29,040.0*	69.00	1.00	2.46	0.88*	18.87	68.54	48.63
	Average	28,661.9	76.67	0.15	2.96	0.85	18.09	113.43	53.25
	LSD(0.05)	2,914.2	3.15	0.21	0.29	0.13	13.52	24.93	1.87

¹Days after planting when 50% of plants had ears showing silk.

²Frayed husks: 0=tips were not frayed. t=tips were uniformly frayed.

**Highest or best numerical value in the column.

*Not significantly different from the highest or best numerical value in the column based on the 5% LSD.

Table 16. Grain and silage yields and other measurements for grain corn hybrids (full season-irrigated), NMSU Agricultural Science Center at Tucumcari, 1998.

Company or brand name	Hybrid	Yields										Loss ⁴ percentage
		Moisture percentage			Silage (tons per acre)			Grain (bushels per acre)				
		Silage	Grain		Dry	Wet	Unadjusted ¹	Adjusted ²	Estimate ³	Estimate ³		
Mycogen Seeds	2888	65.57	29.35*	7.00**	20.34**	125.39**	103.19**	105.76*	105.76*	1.79**		
Germain's Seeds	HT138	66.00	25.98	6.33*	18.56*	100.11*	85.76*	108.39**	108.39**	20.28		
Freedom Seed Company	5680	66.80*	27.93*	6.16*	18.54*	102.41*	81.90*	90.26*	90.26*	10.18*		
Germain's Seeds	GC4333	65.31	26.25	5.94*	17.27*	94.86	79.54	91.93*	91.93*	13.26*		
Freedom Seed Company	5695	67.74*	29.38*	5.69*	17.63*	94.88	77.29	88.72*	88.72*	13.51*		
Frontier Hybrids	F-3038	65.51	28.63*	5.65*	16.28	92.07	77.28	89.57*	89.57*	13.75		
Frontier Hybrids	F-3175	66.39*	30.30**	5.74*	17.10*	92.87	75.37	91.64*	91.64*	19.59		
Frontier Hybrids	F-3200	68.70**	24.68	6.28*	19.89*	88.29	75.04	94.48	94.48	20.65		
NC+Hybrids	NC+6868	63.60	28.03*	5.68*	15.60	91.32	74.68	96.77	96.77	20.22		
Germain's Seeds	BH4622	64.22	25.23	5.62*	15.70	94.67	73.77	96.43	96.43	23.29		
NC+Hybrids	NC+7117	66.79*	26.73	5.96*	17.94*	86.80	71.76	88.36	88.36	19.79		
DeKalb Genetics Corp.	DK 512 RR	59.01	20.08	5.32	12.94	64.67	53.07	64.27	64.27	16.03		
Average		65.47	26.88	5.95	17.31	94.02	77.39	92.22	92.22	16.00		
LSD(0.05)		2.43	3.00	1.43	3.99	25.33	21.71	22.99	22.99	11.76		

¹Unadjusted yield: shelled grain yield before adjusting for moisture or test weight.

²Adjusted yield: grain yield adjusted to 15.5% moisture and 56 lb per bushel test weight.

³Estimated yield: estimated grain yield had there been no smut infestation.

⁴Estimated grain yield loss due to smut infestation.

**Highest or best numerical value in the column.

*Not significantly different from the highest or best numerical value in the column based on the 5% LSD.

Table 17. Grain yields and other measurements for forage corn hybrids, NMSU Agricultural Science Center at Clovis, 1998*.

Company	Variety	Green Yield	Dry Yield	Dry Matter	Plants at harvest	Plant Height
		—tons/acre—		percentage	number	inches
Garst Seed Co.	8285	23.6	8.5	0.35	27,116	74
Asgrow Seed	RX938	22.8	7.8	0.34	27,772	77
Freedom Seed Company	5680	20.8	7.8	0.37	31,039	74
Garst Seed Co.	8315	20.7	6.5	0.31	28,752	68
Golden Harvest	H-2643 IMI	20.1	6.9	0.34	30,059	74
Triumph Seed Co., Inc.	1866	20.1	7.5	0.37	29,405	74
Golden Harvest	H-2641	20.1	7.5	0.37	29,078	71
Freedom Seed Co.	5695	19.6	6.3	0.31	31,692	69
AgriPro Seeds, Inc.	HS9843	19.3	7.1	0.36	26,138	75
AgriPro Seeds, Inc.	HY9646	17.8	6.7	0.37	25,811	73
Frontier Hybrids, Inc.	F-3200	17.7	5.9	0.32	27,772	66
Frontier Hybrids, Inc.	F-3175	17.4	5.9	0.34	32,019	66
DeKalb Genetics Corp.	DK743	17.3	5.9	0.33	32,673	72
DeKalb Genetics Corp.	DK679	17.2	6.9	0.39	32,019	74
Germain's, Inc.	Exp. 75046	17.2	6.0	0.35	22,346	68
Germain's, Inc.	Exp. 76221	16.3	6.3	0.37	26,712	83
AgriPro Seeds, Inc.	AP9707	16.1	5.9	0.37	35,939	74
Pioneer® Hi-Bred Int'l, Inc.	31B13	16.1	6.0	0.36	36,264	65
Asgrow Seed	RX913	15.6	5.8	0.36	28,752	68
Germain's, Inc.	HT4138	15.6	5.6	0.35	28,059	65
Germain's, Inc.	GC4333	15.1	6.7	0.45	31,326	74
DeKalb Genetics Corp.	DK641	13.8	6.4	0.46	28,096	71
AgriPro Seeds, Inc.	AP9616	13.7	4.6	0.33	33,326	67
Golden Harvest	H-2547	13.6	5.9	0.45	30,059	67
DeKalb Genetics Corp.	DK626	10.4	4.6	0.43	27,444	66
	Average	17.5	6.4	0.37	28,547	71
	LSD(0.05)	4.4	1.5	0.06	1,427	8.7
	CV%	17.9	17.2	11.9	15.5	8.7

ns=No significant differences.

*Severe drought for season contributed to low yields

Table 18. Yields and feed analysis¹ for forage corn hybrids, NMSU Agricultural Science Center at Clovis, 1998.

Yields and forage analysis	AgriPro AP9616	AgriPro AP9707	AgriPro HS9843	AgriPro HY9646	Asgrow RX913	Asgrow RX938	DeKalb DK626	DeKalb DK641	DeKalb DK679	DeKalb DK743	Freedom 5680	Freedom 5695	Frontier F-3175	Frontier F-3200
Fresh yield, tons/acre	13.7	16.1	19.3	17.8	15.6	22.8	10.4	13.8	17.2	17.3	20.8	19.6	17.4	17.7
Dry yield, tons/acre	4.6	5.9	7.1	6.7	5.8	7.8	4.6	6.4	6.9	5.9	7.8	6.3	5.9	5.9
Protein														
Crude, %	11.6	9.7	9.7	9.1	9.9	9.6	9.0	8.6	9.3	9.6	9.1	9.7	9.8	10.2
Digestible, %	7.6	7.0	7.1	6.8	7.1	6.9	6.5	6.4	6.8	7.1	6.6	7.0	7.1	7.2
Fibers														
Acid det., %	32.5	31.0	32.8	32.4	32.5	32.5	31.3	31.8	33.4	30.6	32.6	31.4	33.8	33.8
Neut. det., %	42.9	44.5	48.9	49.1	49.9	50.0	47.3	49.0	50.7	47.1	49.1	47.0	52.0	50.4
Energies														
TDN, Est., %	56.7	60.9	58.9	59.7	59.2	59.1	60.8	60.1	58.4	61.0	59.1	59.8	58.0	57.3
NE/Lact., MCal/lb	0.58	0.63	0.60	0.61	0.61	0.61	0.62	0.62	0.60	0.63	0.61	0.61	0.59	0.59
NE/Maint., MCal/lb	0.57	0.63	0.60	0.61	0.60	0.60	0.63	0.62	0.59	0.63	0.60	0.61	0.58	0.58
NE/Gain, MCal/lb	0.33	0.38	0.35	0.36	0.36	0.36	0.38	0.37	0.34	0.38	0.35	0.37	0.34	0.33
Minerals														
Calcium, %	0.51	0.38	0.41	0.40	0.41	0.37	0.41	0.39	0.46	0.43	0.39	0.39	0.42	0.46
Phosphorus, %	0.23	0.19	0.18	0.18	0.19	0.19	0.19	0.18	0.19	0.19	0.18	0.19	0.20	0.20
Potassium, %	2.14	1.72	1.75	1.68	1.80	1.74	1.71	1.67	1.79	1.65	1.60	1.76	1.84	2.04
Magnesium, %	0.16	0.12	0.15	0.10	0.16	0.17	0.12	0.14	0.16	0.13	0.13	0.17	0.15	0.19

Table 18. Yields and feed analysis¹ for forage corn hybrids, NMSU Agricultural Science Center at Clovis, 1998. (Continued)

Yields and forage analysis	Garst		Germain's Exp. 75046		Germain's Exp. 76221		Germain's GC4333		Germain's HT4138		Golden Harvest H-2547		Golden Harvest H-2641		Golden Harvest H-2643IMI		Pioneer® 31B13		Triumph 1866		Average		LSD ²
	8285	8315	Exp. 75046	Exp. 76221	GC4333	HT4138	H-2547	H-2641	H-2643IMI	31B13	1866	Average	LSD ²										
Fresh yield, tons/a	23.6	20.7	17.2	16.3	15.1	15.6	13.6	20.1	20.1	20.1	20.1	16.1	17.5	17.9									
Dry yield, tons/a	8.5	6.5	6.0	6.3	6.7	5.6	5.9	7.5	6.9	6.0	7.5	6.4	17.2										
Protein																							
Crude, %	9.9	11.3	9.4	8.9	9.0	10.3	8.1	9.7	9.5	9.2	9.6	9.3	---										
Digestible, %	7.4	7.8	6.8	6.4	6.7	7.2	6.0	7.2	7.0	6.8	7.0	6.9	---										
Fibers																							
Acid det., %	30.3	32.9	31.9	32.6	31.4	34.0	31.1	31.1	33.1	30.2	31.6	32.1	---										
Neut. det., %	47.7	49.0	50.3	48.2	47.1	47.8	46.9	48.5	51.9	45.8	49.6	48.4	---										
Energies																							
TDN, Est., %	61.7	58.5	59.3	59.0	60.6	58.0	60.3	60.8	58.5	61.3	60.4	59.2	---										
NE/Lact., MCal/lb	0.64	0.60	0.61	0.61	0.62	0.59	0.62	0.63	0.60	0.63	0.62	0.61	---										
NE/Maint., MCal/lb	0.64	0.59	0.61	0.60	0.62	0.58	0.62	0.63	0.59	0.64	0.62	0.61	---										
NE/Gain, MCal/lb	0.39	0.34	0.36	0.35	0.37	0.34	0.37	0.37	0.35	0.39	0.37	0.36	---										
Minerals																							
Calcium, %	0.38	0.52	0.43	0.38	0.40	0.44	0.39	0.41	0.46	0.40	0.36	0.42	---										
Phosphorus, %	0.20	0.20	0.18	0.18	0.19	0.20	0.18	0.20	0.19	0.18	0.20	0.19	---										
Potassium, %	1.75	2.05	1.69	1.58	1.75	2.01	1.58	1.79	1.81	1.59	1.77	1.77	---										
Magnesium, %	0.11	0.18	0.15	0.13	0.12	0.17	0.11	0.12	0.16	0.14	0.15	0.14	---										

¹Understanding Feed Test Results and Nutrient Requirements (page 3).

²LSD not available since replications were combined for analysis.

Forage analyses were performed by: Ward Laboratories, Inc., P.O. Box 788, Kearney, NE 66448-0788.

Table 19. Yields and other measurements for forage corn hybrids, NMSU Agricultural Science Center at Artesia, 1998.

Company or brand name	Hybrid	Yield		Dry matter percent	Days to half silk number
		Green forage tons/acre	Dry forage tons/acre		
Garst Seed Company	8285	24.19	614.00	25.44	84
Garst Seed Company	8315	23.25	5.61	24.18	86
Frontier Hybrids, Inc.	F-3200	23.18	5.42	23.41	86
Germain's Seed	HT4138	22.30	5.91	26.50	84
DeKalb Genetics Corp.	DK679	22.08	6.29	28.31	84
Golden Harvest Seeds, Inc.	H-2641	21.13	5.36	25.43	84
Novartis Seeds	N83N5	20.69	5.67	27.14	84
Germain's Seed	Exp. 76221	20.56	5.69	27.63	87
Frontier Hybrids, Inc.	F-3175	20.32	5.30	25.96	83
DeKalb Genetics Corp.	DK743	19.84	5.57	28.14	84
Germain's Seed	Exp. 75046	19.79	5.37	27.16	87
Pioneer® Hi-Bred Int'l, Inc.	31B13	19.18	5.96	31.23	82
Golden Harvest Seeds, Inc.	H-2643IMI	19.17	5.12	26.82	84
Novartis Seeds	4662	19.16	5.26	27.53	83
Germain's Seed	GC4333	17.59	5.23	29.67	84
DeKalb Genetics Corp.	DK641	16.36	5.15	31.59	82
Golden Harvest Seeds, Inc.	H-2547	15.74	5.14	32.67	82
Novartis Seeds	N79L3 Bt	15.71	5.01	31.76	81
Novartis Seeds	N7639 Bt	14.92	4.91	32.84	83
DeKalb Genetics Corp.	DK626	13.14	4.32	33.24	84
	Average	19.42	5.42	28.33	84
	LSD(0.05)	3.00	ns	3.21	2.0
	LSD(0.01)	4.00	ns	4.27	2.7
	CV%	10.93	15.3	8.00	1.7

Table 20. Feed analysis for forage corn hybrids, NMSU Agricultural Science Center at Artesia, 1998*.

Company or brand name	Hybrid	Acid detergent fiber		Neutral detergent fiber		Crude protein	TDN (CALC)	Phosphorus (P)	Potassium (K)	Magnesium (Mg)	Calcium (Ca)	NEM
		%	%	%	%							
DeKalb Genetics Corporation	DK626	29.06	46.84	9.25	67.71	0.25	1.38	0.22	0.23	0.71		
DeKalb Genetics Corporation	DK641	26.74	43.35	8.86	69.24	0.25	1.23	0.19	0.19	0.73		
DeKalb Genetics Corporation	DK679	30.55	49.14	9.34	66.72	0.25	1.34	0.20	0.20	0.70		
DeKalb Genetics Corporation	DK743	30.19	48.36	9.43	66.96	0.25	1.38	0.22	0.22	0.70		
Frontier Hybrids, Inc.	F-3175	30.85	49.99	9.58	66.53	0.25	1.34	0.21	0.22	0.69		
Frontier Hybrids, Inc.	F-3200	30.92	49.91	10.55	66.48	0.26	1.44	0.22	0.24	0.69		
Garst Seed Company	8285	31.32	50.52	10.02	66.22	0.26	1.38	0.21	0.24	0.69		
Garst Seed Company	8315	30.32	49.41	9.97	66.88	0.25	1.37	0.21	0.23	0.70		
Germain's Seed	Exp. 75046	30.76	50.15	9.44	66.58	0.25	1.36	0.22	0.22	0.69		
Germain's Seed	Exp. 76221	33.21	54.13	8.91	64.97	0.23	1.36	0.22	0.24	0.67		
Germain's Seed	GC4333	27.40	43.94	9.13	68.80	0.25	1.28	0.19	0.19	0.72		
Germain's Seed	HT4138	30.08	48.33	9.55	67.03	0.25	1.31	0.20	0.19	0.70		
Golden Harvest Seeds, Inc.	H-2547	25.86	41.86	8.99	69.81	0.25	1.25	0.20	0.19	0.74		
Golden Harvest Seeds, Inc.	H-2641	32.86	53.18	9.30	65.20	0.25	1.33	0.21	0.23	0.67		
Golden Harvest Seeds, Inc.	H-2643IMI	31.53	51.07	9.50	66.08	0.25	1.37	0.21	0.23	0.69		
Novartis Seeds	4662	27.62	44.61	8.74	68.65	0.24	1.24	0.20	0.18	0.73		
Novartis Seeds	N7639Bt	28.47	45.99	8.29	68.09	0.24	1.19	0.19	0.17	0.71		
Novartis Seeds	N79L3Bt	27.95	45.20	8.91	68.44	0.25	1.29	0.20	0.20	0.72		
Novartis Seeds	N83N5	33.61	53.69	9.23	64.71	0.25	1.41	0.21	0.23	0.67		
Pioneer® Hi-Bred Int'l, Inc.	31B13	28.88	46.32	8.79	67.83	0.24	1.27	0.20	0.18	0.71		
Average		29.91	48.29	9.29	67.14	0.25	1.32	0.21	0.21	0.70		
LSD(0.05)		3.13	4.92	0.75	2.06	0.01	0.12	0.02	0.04	0.03		
LSD(0.01)		4.16	6.55	0.99	2.74	0.02	0.15	ns	ns	0.04		
CV%		7.38	7.20	5.68	2.17	3.38	6.17	6.81	14.68	3.15		

*Determinations made by near infrared (NIR) analysis.
ns=No significant differences.

Table 21. Yields and other measurements for forage corn hybrids, NMSU Agricultural Science Center at Farmington, 1988.

Company or brand name	Hybrid	Yield		Dry matter percentage	Plant height inches	Ear height inches	Plant population number/acre
		Green wt. tons/acre	Dry wt. tons/acre				
Germain's Seeds, Inc.	HT 76221	39.1	10.2	25.5	129	57	25,752
Germain's Seeds, Inc.	HT 4138	37.8	10.3	27.2	116	50	27,289
Germain's Seeds, Inc.	HT 75046	37.4	10.0	26.7	122	53	24,599
Germain's Seeds, Inc.	GC 4333	34.4	9.3	27.0	119	53	26,520
	Average	37.2	9.9	26.6	121	53	26,040
	LSD(0.05)	ns	ns	ns	ns	ns	ns
	CV%	14.3	16.7	5.2	7.6	7.7	20.6

Table 22. Yields and other measurements for forage corn hybrids, NMSU Agricultural Science Center at Los Lunas, 1998.

Company or brand name	Hybrid	Yield per acre		Plants per acre number	Dry matter percentage	Plant height inches
		Oven dry tons	Green forage tons			
Germain's Seeds, Inc.	HY75046	11.2	36.5	28,509	30.7	103
Germain's Seeds, Inc.	HT4138	11.0	34.8	28,509	31.6	108
Germain's Seeds, Inc.	HY76221	12.3	37.8	28,509	32.5	116
Germain's Seeds, Inc.	GC4333	13.5	41.8	31,903	32.2	114
	Average	12.0	37.7	29,357	31.7	110
	LSD(0.01)	1.43	4.5	ns	ns	11.5
	LSD(0.05)	1.43	3.9	ns	ns	11.5
	CV%	7.5	6.5	ns	5.2	6.6

ns=no significant differences

Table 23. Yields and other measurements for grain sorghum (full irrigated and limited irrigation), NMSU Agricultural Science Center at Tucumcari, 1998.

Company or brand name	Hybrid	Yield ¹ pounds/acre	Moisture percentage	Test weight pounds/bushel	Days to heading number(DAP ²)
Full Irrigated					
Asgrow Seed Company	A570	4,947.87**	14.88**	60.00**	87.50**
Frontier Hybrids	F647E	4,508.83*	14.20	59.50*	81.00
Asgrow Seed Company	A574	4,439.48*	13.50	59.88*	77.75
Frontier Hybrids	F557E	3,261.04	14.73	59.75*	78.25
	Average	4,289.29	14.33	89.78	81.13
	LSD(0.05)	1,361.20	2.31	1.76	3.80
Limited Irrigated					
Asgrow Seed Company	A574	3187.02**	14.65*	60.13*	79.50
Frontier Hybrids	F457E	2693.28*	15.08**	59.50*	81.50
Seed Resource, Inc.	Exp 251	2155.95	13.40*	60.38**	70.00
Asgrow Seed Company	A571	1522.75	13.90*	58.75*	91.00**
Frontier Hybrids	F303C	672.54	12.33	58.50*	71.00
	Average	2046.31	13.87	59.45	78.60
	LSD(0.05)	750.63	2.08	2.00	2.93

**Highest numerical value in the column within irrigations.

*Not significantly different from the highest numerical value in the column within irrigations based on the 5% LSD.

¹Grain yields are adjusted to 14% moisture.²DAP=Days after planting

**FORAGE SORGHUM and FORAGE SORGHUM-SUDANGRASS
PERFORMANCE RESULTS**

Clovis Forage Sorghum (table 24)

Location average: 5.5 tons/acre dry forage
ranging from 5.2 tons/acre dry forage to 6.9 tons/acre dry forage

Artesia Forage Sorghum (table 26)

Location average: 5.40 tons/acre dry forage
ranging from 2.92 tons/acre dry forage to 6.94 tons/acre dry forage

Tucumcari Forage Sorghum and Forage Sorghum-sudangrass (table 28)

Location average: harvest 1) 2.52 tons/acre dry forage
ranging from 2.30 tons/acre dry forage to 2.84 tons/acre dry forage

Location average: harvest 2) 3.02 tons/acre dry forage
ranging from 2.13 tons/acre dry forage to 3.96 tons/acre dry forage

Los Lunas Forage Sorghum (table 29)

Location average: 10.0 tons/acre dry forage
ranging from 10.0 tons/acre dry forage to 10.1tons/acre dry forage

Clovis Forage Sorghum-sudangrass (table 30)

Location average: 5.9 tons/acre dry forage
ranging from 3.9 tons/acre dry forage to 7.3 tons/acre dry forage

Table 24. Yields and other measurements for forage sorghum hybrids (irrigated), NMSU Agricultural Science Center at Clovis, 1998*.

Company	Hybrid	Green forage	Dry forage	Dry Matter	Plant height
		—tons/acre—		percentage	inches
Asgrow Seed Co.	Beefbuilder	31.8	6.1	0.19	80
Seed Resource, Inc.	Exp F-87-2	31.1	5.6	0.18	67
Seed Resource, Inc.	Exp F-97-1	30.5	5.8	0.19	73
Frontier Hybrids, Inc.	Silmaker 7000	30.0	6.0	0.20	72
Cargill Hybrid Seeds	X24442	29.4	6.9	0.24	76
Cargill Hybrid Seeds	BMRX1	28.3	5.3	0.18	80
Asgrow Seed Co.	XPBMRX1	28.1	6.1	0.21	72
Cargill Hybrid Seeds	FS455	27.0	5.3	0.19	68
DeKalb Genetics Corp.	FS5	26.2	5.3	0.20	71
DeKalb Genetics Corp.	FS22	23.8	4.5	0.19	72
Cargill Hybrid Seeds	X43024	22.7	4.3	0.19	70
Frontier Hybrids, Inc.	Silmaker 6000	21.7	5.2	0.24	81
	Average	27.6	5.5	0.20	74
	LSD(0.05)	4.0	ns	ns	ns
	CV%	10.0	17.1	14.7	13.5

ns=No significant differences.

Table 25. Yields and forage quality analysis¹ for forage sorghum hybrids (irrigated), NMSU Agricultural Science Center at Clovis, 1998.

Yields and forage analysis	Asgrow		Cargill		Cargill		Cargill		DeKalb		Frontier		Seed Resource		LSD ²
	Beefbuilder	XPBMRXI	XPBMRXI	BMRXI	FS455	X2442	X43024	FS5	FS22	Silmaker 6000	Silmaker 7000	EXP F-87-2	EXP F-97-1	Average	
Fresh yield, tons/acre	31.8	28.1	28.3	27.0	29.4	22.7	26.2	23.8	21.7	30.0	31.1	30.5	27.6	4.0	
Dry yield, tons/acre	6.1	6.1	5.3	6.9	4.3	5.3	4.5	5.2	6.0	5.6	5.8	5.5	ns		
Protein															
Crude, %	9.1	8.3	9.4	9.0	7.6	9.6	9.0	11.0	8.9	7.4	7.7	7.9	8.7	---	
Digestible, %	6.4	5.9	6.7	6.4	5.5	6.7	6.3	7.6	6.2	5.4	5.6	5.7	6.2	---	
Fibers															
Acid det., %	38.9	39.6	37.5	70.8	70.8	39.8	38.1	38.4	39.9	38.9	39.5	38.9	39.2	---	
Neut. det., %	59.0	60.4	59.2	61.5	62.8	61.3	58.7	58.9	61.6	61.1	60.4	59.1	60.3	---	
Energies															
TDN, Est., %	51.8	50.6	52.6	50.5	49.7	51.5	52.4	52.6	50.1	51.4	50.7	51.0	51.2	---	
NE/Lact., MCal/lb	0.53	0.51	0.54	0.51	0.50	0.52	0.53	0.53	0.51	0.52	0.51	0.52	0.52	---	
NE/Maint., MCal/lb	0.49	0.47	0.51	0.47	0.46	0.49	0.50	0.50	0.47	0.49	0.48	0.48	0.48	---	
NE/Gain, MCal/lb	0.26	0.24	0.27	0.23	0.22	0.25	0.26	0.27	0.23	0.25	0.24	0.25	0.25	---	
Minerals															
Calcium, %	0.44	0.44	0.46	0.44	0.44	0.53	0.44	0.46	0.44	0.47	0.44	0.43	0.45	---	
Phosphorus, %	0.19	0.19	0.20	0.21	0.20	0.22	0.19	0.21	0.19	0.19	0.20	0.19	0.20	---	
Potassium, %	2.00	2.00	2.16	2.07	1.99	2.21	2.09	2.09	1.88	2.11	2.03	1.98	2.05	---	
Magnesium, %	0.20	0.20	0.21	0.20	0.20	0.22	0.20	0.22	0.19	0.18	0.19	0.21	0.20	---	

ns=no significant differences.

¹Understanding Feed Test Results and Nutrient Requirements (Page 3).

²LSD not available since replications were combined for analysis.

Forage analyses were performed by: Ward Laboratories, Inc., P.O. Box 788, Kearney, NE 6648-0788

Table 26. Yields and other measurements for forage sorghum hybrids (irrigated), NMSU Agricultural Science Center at Artesia, 1998.

Company or brand name	Hybrid	Dry forage tons/a	Dry matter percentage	Plant height inches	Lodging percentage
Frontier Hybrids, Inc.	Silmaker 7000	6.94	20.64	134.3	2.50
Seed Resources, Inc.	Exp. F-87-2	6.46	19.76	132.3	5.83
Asgrow Seed Company	Beefbuilder	6.24	19.30	126.3	8.33
Asgrow Seed Company	EXP BMR 1	4.99	20.26	111.0	12.50
Seed Resources, Inc.	Exp. F-97-1	4.85	19.76	112.0	23.33
Frontier Hybrids, Inc.	Silmaker 6000	2.92	26.31	59.0	0.83
	Average	5.40	21.01	112.5	8.89
	LSD(0.05)	0.81	1.05	8.9	9.98
	LSD(0.01)	1.09	1.42	12.0	13.51
	CV%	12.55	4.19	6.6	94.42

Table 27. Forage quality determinations* for forage sorghum hybrids (irrigated), NMSU Agricultural Science Center at Artesia, 1998.

Company or brand name	Hybrid	Crude				TDN (CALC)	Phosphorus (P)	Potassium (K)	Magnesium (Mg)	Calcium (Ca)	NEM
		Acid	Neutral	detergent fiber	protein						
		detergent fiber	detergent fiber	detergent fiber	protein	%	%	%	%	%	%
Frontier Hybrids, Inc. Seed Resources, Inc.	Silmaker 7000	42.98	62.32	8.78	62.89	0.17	1.09	0.29	0.61	0.64	
	Exp. F-87-2	43.98	64.26	8.81	62.57	0.16	0.95	0.27	0.59	0.63	
Asgrow Seed Company Asgrow Seed Company	Beefbuilder	40.43	57.79	10.65	63.67	0.21	1.12	0.26	0.65	0.65	
	XP BMR 1	42.03	63.35	9.07	63.18	0.14	0.28	0.27	0.54	0.64	
Seed Resources, Inc. Frontier Hybrids	Exp. F-97-1	40.26	57.59	10.64	63.73	0.21	1.23	0.26	0.62	0.65	
	Silmaker 6000	43.34	61.98	8.64	62.77	0.17	1.01	0.29	0.61	0.64	
Average LSD(0.05) LSD(0.01) CV%		42.17	61.21	9.43	63.13	0.17	0.95	0.27	0.60	0.64	
		1.84	3.07	0.87	0.57	0.02	0.20	0.02	ns	0.01	
		2.49	4.15	1.18	0.77	0.03	0.27	ns	ns	0.01	
		3.67	4.22	7.76	0.76	8.20	17.57	7.12	10.04	1.04	

*Determinations made by near infrared (NIR) analysis.

ns=No significant differences.

Table 28. Yields and other measurements for forage sorghum hybrids (irrigated), NMSU Agricultural Science Center at Los Lunas, 1998.

Company or Brand Name	Hybrid	Yield		Dry matter percentage	Plant height inches
		Green forage	Dry forage		
		————tons/acre————			
Asgrow Seed Company	Beefbuilder	31	10.0	32.0	113
Asgrow Seed Company	XP BMR 1	33	10.1	30.9	102
	Average	32	10.0	31.4	107
	LSD(0.05)	ns	ns	ns	ns
	LSD(0.01)	ns	ns	ns	ns
	CV%	7.1	8.5	4.23	9.6

ns=No significant differences.

Table 29. Yields and other measurements for forage sorghum and forage sorghum-sudangrass hybrids (irrigated), NMSU Agricultural Science Center at Tucumcari, 1998.

Company or brand name	Hybrid	Harvest date:	Harvest date:	Harvest date:	Harvest date:	Total Dry matter tons/acre
		August 10 Dry matter percentage	October 15 Dry matter percentage	August 10 Dry matter tons/acre	October 15 Dry matter tons/acre	
Forage Sorghum						
Asgrow Seed Company	Beefbuilder	18.76	24.01	2.34*	2.35	4.69
Asgrow Seed Company	XP BMR 1	18.83	22.61	2.30*	2.13	4.43
Forage sorghum-sudangrass						
DeKalb Genetics Corp.	Sudax ST 6E	21.52	26.04*	2.55*	3.96**	6.50**
Richardson Seeds	HoneyGraze IV	24.61*	23.73	2.84**	3.20	6.04*
Seed Resource, Inc.	Exp. S-84-2	25.17*	26.59**	2.49*	3.49*	5.99*
Frontier Hybrids	Champ II	25.66**	26.29*	2.63*	3.02	5.66*
	Average	22.43	24.88	2.52	3.02	5.55
	LSD(0.05)	2.37	1.43	0.73	0.73	1.07

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

Table 30. Yields and other measurements for forage sorghum-sudangrass hybrids (irrigated), NMSU Agricultural Science Center at Clovis, 1998*.

Company	Hybrid	Green forage	Dry forage	Dry matter	Plant height
		————tons/acre————		percentage	inches
DeKalb Genetics Corp.	SX8	34.1	7.0	0.20	94
Seed Resource, Inc.	Exp S-97-1	33.0	6.7	0.20	92
Cargill Hybrid Seeds	Sweet Sioux 5	31.6	7.2	0.23	97
DeKalb Genetics Corp.	SX17	31.2	6.7	0.21	94
DeKalb Genetics Corp.	ST6E	30.0	7.3	0.24	98
Cargill Hybrid Seeds	X18347	26.3	5.5	0.21	98
Cargill Hybrid Seeds	X25477	24.9	5.0	0.20	100
Seed Resource, Inc.	Exp S-96-3	22.9	5.3	0.23	95
Seed Resource, Inc.	Exp M-87-1	19.5	3.9	0.20	93
Frontier Hybrids, Inc.	Champ II	17.5	4.3	0.25	90
	Average	27.1	5.9	0.22	95
	LSD(0.05)	3.1	1.3	ns	ns
	CV%	8.0	15.3	11.7	7.2

ns=No significant differences.

Table 31. Yields and forage quality analysis¹ for forage sorghum-sudangrass hybrids (irrigated), NMSU Agricultural Science Center at Clovis, 1998.

Yields and forage analysis	Cargill X18347I		Cargill X25477		Cargill Sweet Sioux 5		DeKalb SX8		DeKalb ST6E		DeKalb SX17		Frontier Champ II		Seed Resource Exp M-87-1		Seed Resource Exp S-96-3		Seed Resource Exp S-97-1		Average	LSD ²
	26.3	5.5	24.9	5.0	31.6	7.2	34.1	7.0	30.0	7.3	31.2	6.7	17.5	4.3	19.5	3.9	22.9	5.3	33.0	6.7	27.1	3.1
Fresh yield, tons/acre																						
Dry yield, tons/acre																						
Protein																						
Crude, %	10.9		10.6		9.4		10.1		9.8		9.5		12.4		13.6		10.9		9.4		10.7	****
Digestible, %	7.7		7.4		6.6		7.2		7.0		6.6		8.8		9.5		7.6		6.5		7.5	****
Fibers																						
Acid det., %	39.2		37.7		39.5		39.4		38.8		39.3		33.7		39.1		36.9		42.0		38.6	****
Neut. det., %	59.2		58.8		60.8		61.0		60.6		60.0		52.9		60.9		56.5		63.7		59.4	****
Energies																						
TDN, Est., %	52.1		53.3		51.2		51.5		51.8		51.9		57.1		52.9		54.0		48.6		52.4	****
NE/Lact., MCal/lb	0.53		0.54		0.52		0.52		0.52		0.53		0.59		0.54		0.55		0.49		0.53	****
NE/Maint., MCal/lb	0.49		0.51		0.48		0.49		0.49		0.49		0.57		0.51		0.53		0.44		0.50	****
NE/Gain, MCal/lb	0.26		0.28		0.25		0.25		0.25		0.25		0.33		0.26		0.29		0.21		0.26	****
Minerals																						
Calcium, %	0.47		0.50		0.47		0.45		0.43		0.50		0.48		0.53		0.44		0.42		0.47	****
Phosphorus, %	0.22		0.20		0.19		0.20		0.19		0.21		0.20		0.25		0.20		0.21		0.21	****
Potassium, %	2.25		1.91		1.79		1.97		1.87		0.13		1.99		2.56		1.90		2.19		2.06	****
Magnesium, %	0.22		0.21		0.17		0.18		0.17		0.20		0.19		0.29		0.20		0.21		0.20	****

¹Understanding Feed Test Results and Nutrient Requirements (page 3).

²LSD not available since replications were combined for analysis.

Forage analyses were performed by: Ward Laboratories, Inc., P.O. Box 788, Kearney, NE 66448-0788.

APPENDIX I

TWO- AND THREE-YEAR AVERAGES FOR GRAIN CORN, GRAIN SORGHUM,
FORAGE SORGHUM AND FORAGE SORGHUM-SUDANGRASS

Table 32. Two- and three-year averages for grain corn hybrids (full season and white grain), NMSU Agricultural Science Center at Clovis, 1995-1998.

Company or brand	Hybrid	1996	1997	1998	Two-year average 1997-1998	Three-year average 1995-1998
bushels/acre						
Full Season Grain Corn						
AgriPro Seeds, Inc.	AP9616	—	141	58	99	—
AgriPro Seeds, Inc.	AP9707	—	154	74	114	—
AgriPro Seeds, Inc.	HY9646	168	163	97	130	143
AgriPro Seeds, Inc.	HS9843	175	174	114	144	154
DeKalb Genetics Corp.	DK626	—	157	76	116	—
DeKalb Genetics Corp.	DK641	182	164	63	113	136
Douglass W. King Co.	5201	201	175	86	130	154
Freedom Seed Co.	5680	—	149	107	128	—
Freedom Seed Co.	5695	—	144	80	112	—
Frontier Hybrids, Inc.	F-3038	160	125	68	96	118
Frontier Hybrids, Inc.	F-3175	—	147	65	106	—
Frontier Hybrids, Inc.	F-3200	149	170	73	121	131
Garst Seed Co.	8366	—	161	70	115	—
Golden Harvest Seeds, Inc.	H-2641	182	175	89	132	149
Mycogen	2725	—	173	46	109	—
Mycogen	7250	—	167	67	117	—
NC+Hybrids	NC+7117	156	144	57	100	119
Triumph Seed Co., Inc.	2010	151	174	69	121	131
White Grain Corn						
Asgrow Seed	RX921W	—	181	151	166	—
Douglass W. King Co.	9105W	—	170	138	154	—
NC+Hybrids	NC+6989W	—	167	137	152	—

Table 33. Two-year yields for forage sorghum and forage sorghum-sudangrass, NMSU Agricultural Science Center at Clovis, 1996-1998.

Company	Hybrid	1997	1998	two- year average 1997-1998
tons/acre dry forage				
Forage Sorghum				
Asgrow Seed	Beefbuilder	3.3	6.1	4.6
DeKalb Genetics Corp.	FS5	3.0	5.3	4.1
Frontier Hybrids, Inc.	Silmaker 7000	2.8	6.0	4.4
Forage Sorghum-sudangrass				
Cargill Hybrid Seeds	Sweet Sioux 5	7.8	7.2	7.5
DeKalb Genetics Corp.	SX17	3.7	6.7	5.2
DeKalb Genetics Corp.	ST6E	3.9	7.3	5.6
Frontier Hybrids, Inc.	Champ II	3.5	4.3	3.9

Table 34. Two- and three-year average yields for corn hybrids (full season), NMSU Agricultural Science Center at Farmington, 1996-1998.

Company or brand name	Hybrid	1996	1997	1998	2 year average	3 year average
					1997-1998	1996-1998
bushels/acre						
Mycogen Seeds	2725	—	262.7	222.8	242.8	—
AgriPro Seeds, Inc.	AP9616	—	244.0	218.0	231.0	—
DeKalb Genetics Corp.	DK595	—	255.3	190.5	222.9	—
DeKalb Genetics Corp.	DK626	—	239.1	199.4	219.3	—
Pioneer® Hi-Bred Int'l, Inc.	34K77	—	221.2	210.4	215.8	—
Pioneer® Hi-Bred Int'l, Inc.	3489	211.7	255.8	174.5	215.2	214
AgriPro Seeds, Inc.	AP9707	—	228.1	178.1	203.1	—

Table 35. Two- and three-year average yields for hybrid corn (early season): , NMSU Agricultural Science Center at Farmington, 1996-1998.

Company or brand name	Hybrid	1996	1997	1998	2 year average	3 year average
					1997-1998	1996-1998
bushels/acre						
DeKalb Genetics Corp.	DK493	22.0	234.8	201.1	218.0	219.3
DeKalb Genetics Corp.	DK512	213.6	221.3	209.7	215.5	214.9
Pioneer Hi-Bred Int'l, Inc.	3568	178.0	22.1	215.9	219.0	205.3
Mycogen Seeds	2500	—	213.0	213.2	213.1	—
DeKalb Genetics Corp.	DK477	—	206.0	212.9	209.5	—

Table 36. Multi-year forage corn analysis, NMSU Agricultural Science Center at Artesia, 1996-1998.

Company or brand name	Hybrid	Dry matter*	Acid detergent fiber*	Neutral detergent fiber*	Phosphorus (P)*	TDN*
		tons/acre	%	%	%	%
Germain's Seed, Inc.	HT 4138	6.00 a	30.7 a	52.48 a	0.24 b	66.4 b
DeKalb Genetics Corp.	DK 743	5.95 a	31.1 a	52.65 a	0.25 ab	66.2 b
DeKalb Genetics Corp.	DK 641	5.79 a	29.8 b	47.75 b	0.24 b	68.4 a
Frontier Hybrids, Inc.	F-3200	5.63 a	32.2 a	54.70 a	0.26 a	65.5 b
	Average	5.84				
	LSD (0.05)		1.36	2.06	0.006	0.9
	CV%	10.54	10.4	5.03	12.42	2.2

*Means with the same letter are not significantly different.

Determinations were made by near infrared (NIR) analysis.

APPENDIX II

**NEW MEXICO AGRICULTURAL EXPERIMENT STATION
AGRICULTURAL SCIENCE CENTER AT TUCUMCARI**

Title: Performance of full-season corn hybrids (irrigated) in 1998.

Investigator(s): L.M. Lauriault, R.E. Kirksey, G. Arguello, E. Garcia and J.L. Robbins.

Objective(s): To measure yield parameters and plant characteristics.

Treatment(s): Twelve corn hybrids were submitted for testing by companies.

Experiment Design and Layout: Randomized complete block with four replications each block consisted of three rows of four 12 X 25 foot plots (4-36" furrow beds).

Soil Type: Canez fine sandy loam.

Planting Information: Sown May 7, 1998; convention tilled seed-bed formed into 36 inch beds for furrow irrigation. 32,000 seeds per acre were planted with a four-row John Deere flex-planter fitted with a seed metering cone on each planter unit.

Fertilizer(s): April 21: 111 lb/a N, 59 lb/a P, 34 lb/a K and 22 lb/a S.
June 19: 100 lb/a N and 36 lb/a S (broadcast).

Pesticide(s): April 21: 2.5 lb/a Aatrex 80W
June 9: cultivation

Irrigation Schedule: As needed: May 8 and 21; June 4 and 19; July 2, 13 and 24; and August 20 through gated pipe, so that the beds were soaked to the center.

Measurement Methods: Plant populations in 20 foot of row was counted 50 days after planting (June 20). From that date, observations on silk emergence were taken daily until all plots had silk emerging on at least 50 percent of the plants. On August 12, observations for the presence or absence of frayed husk tips were taken. On August 31, height from the ground to ear node and top leaf node and stem diameter below the ear node were measured on five plants in each plot. On September 1, whole plants from one of the center rows were harvested by hand to ground level, bundled and weighed to determine silage yield. A sub-sample of approximately four plants from each plot was chopped with a mulcher, weighed and dried at 70o Celsius until a constant weight to determine dry matter concentration. Ears were hand harvested from the center row on September 25. Equal numbers of plants were harvested for silage and grain, based on the previously determined population. Ears of lodged plants were replaced, if present, by plants from adjacent rows. Grain was removed from ears by a hand-operated sheller. As there was a high incidence of smut on most plots, clean and infested ears were shelled separately. Smutted and un-smutted cobs of each plot were counted to determine the percentage of smut infestation. Grain of each hybrid was weighed, after which an aliquot of the clean grain was taken for test weight and moisture. Grain moisture was determined using a Burrows Digital Moisture Computer 700. Grain yields were adjusted for moisture (15.5%) and test weight (56 lb/bu) and an estimate of yield in the absence of smut and yield loss were calculated.

Results and Discussion:

All data, presented in tables 12 and 13, were subjected to SAS procedures for tests of significance, regression and correlation analyses. While plant populations and ears per plant were similar to those in 1997 (28, 866.19 plants per acre having 0.90 ears per plant), yields were less (8.58 vs. 5.95 tons per acre and 176.6 vs. 77.39 bushels per acre silage for dry matter and adjusted grain yields in 1997 and 1998, respectively). These was a difference in plant size because of environmental effect or a difference between hybrids, since none of the hybrids were tested in both years. Maturity may also have been a factor in this as most of the hybrids tested in 1998 were slightly earlier in 1997. The later maturing varieties generally had higher yields, higher ear node and lower incidence of smut. Ear node height, which is correlated to plant height ($r=0.77$ and 0.71 for 1997 and 1998, respectively), appears to also be associated with fraying of the husk and smut infestation such that varieties with ears mounted lower on the stalk were frayed and those with high ears had less smut. Infestation of smut is associated with high soil temperatures (73-86oF) and dry soil conditions during the seedling stage. The late planting date may have enhanced the incidence of smut; however, resistant varieties are available and producers are encouraged to use those whenever possible. The frayed husk was also slightly correlated with test weight ($r=0.70$, $P<0.001$). This may be due to dessication of the kernels that occurred under the frayed areas near the end of the cob. The high yield varieties also tended to be higher in grain moisture, which increases drying costs. Higher silage and grain moisture, although well within the ranges appropriate for the intended use, were probably due to the early harvest, which was done to prevent further lodging by high winds. High wet silage yields are misleading because of the higher moisture content. As with any forage crop, corn hybrid selection for silage should be based on dry matter yields rather than “as harvested” yields.

**NEW MEXICO AGRICULTURAL EXPERIMENT STATION
AGRICULTURAL SCIENCE CENTER AT TUCUMCARI**

Title:	Performance of grain sorghum under full and limited irrigation in 1998.
Investigator(s):	L.M. Lauriault, R.E. Kirksey, G. Agruello, E. Garcia and J.L. Robbins.
Objective(s):	To measure grain yield and other characteristics.
Treatment(s):	Four varieties under full irrigation and five varieties under limited irrigation were submitted for testing by companies.
Experimental Design and Layout:	The full irrigated test was a Latin square with four rows and four columns; the limited irrigation test was a Youden square with five rows and four columns. Each plot was 12 feet X 25 feet (4-36" furrow beds).
Soil Type:	Canez fine sandy loam.
Planting Information:	Sown May 15: conventional tilled seed bed formed into 36 inch beds for furrow irrigation; seeding rate for the fully irrigated test was 8 pounds per acre while the limited irrigation test was 5 pounds per acre. Plots were sown with a four-row John Deere flex-planter having each planter unit fitted with a seed metering cone.
Fertilizer(s):	April 21: all plots received 111 lb/a N, 59 lb/a P, 34 lb/a K and 22 lb/a S June 19: full irrigated lots received 50 lb/a N, 18 lb/a S, broadcast
Pesticide(s):	April 21: 2.5 lb/acre Aatrex 80W
Irrigation Schedule:	Full-irrigated test: May 18, June 19, July 13 and September 11 and 24. Limited irrigated test: May 18, June 29 and September 16.
Measurement Methods:	Beginning June 13, Plots were rated for 50% head emergence until all plots had reached 50% emergence. On November 2, both tests were hand harvested by severing and bagging all heads from the center 15 feet of the two center rows of each plot. Bagged heads were hung and permitted to air dry until December 11, when they were threshed using an Allis-Chalmers Model 66 All-Crop B series harvester. Grain yields were weighed, after which an aliquot of the clean grain was taken for test weight and moisture. Grain moisture was determined using a Burrows Digital Moisture Computer 700. Grain yields were adjusted for moisture (14%). Heading date, test weight, moisture and yield data were subjected to SAS procedures for tests of significance. Data is presented in table 20.
Results and Discussion:	Full-irrigated test: The later maturing variety, A570, also had the highest percent moisture, being different from all other varieties in both maturity and percent moisture. It also had the highest yield but was higher only than F557E. There were no differences between varieties in regard to test weight. Limited-irrigation test: Within this test there were three maturity classes, with A571 classified as being late, A574 and F457E classified as being medium and Exp. 251 and F303C classified as being early maturing. Again, there were no differences between varieties for test weight. There was, however, a difference in percent moisture. It must be remembered that grain moisture was measured after the heads had air dried for more than a month. Thus, grain moisture may not accurately reflect harvest moisture. Differences also existed for adjusted grain yield.

NEW MEXICO AGRICULTURAL EXPERIMENT STATION
AGRICULTURAL SCIENCE CENTER AT TUCUMCARI

Title:	Performance of forage sorghum and forage sorghum-sudangrass hybrids under full-irrigation in 1998.
Investigator(s):	L.M. Lauriault, R.E. Kirksey, G. Arguello, E. Garcia and J.L. Robbins
Objective(s):	To measure forage yields under a two-cut system
Treatment(s):	Two forage sorghums and four forage sorghum-sudangrass hybrids were submitted for testing by companies.
Experimental Design and Layout:	Randomized complete block with four replications; each plot was 6 feet by 25 feet (2-36 inch") furrow beds of which the center 20 feet were harvested.
Soil Type:	Canez fine sandy loam.
Planting Information:	Sown May 15; convention tilled seed-bed formed into 36-inch beds for furrow irrigation; 40 pounds of seed per acre sown with a disk drill fitted with a seed metering cone.
Fertilizer(s):	April 21: 111 lb/a N, 59 lb/a P, 34 lb/a K and 40 lb/a S. August 14: 50 lb/a N and 18 lb/a S
Pesticide(s):	April 21: 2.5 lb/a Aatrex 80W
Irrigation Schedule:	May 18, June 24, July 23 and August 25 through gated pipe such that the beds were soaked to the center.
Measurement Methods:	On August 10 and October 15 plots were harvested using a self-propelled forage plot harvester equipped with an electronic weighing system. The cutting height for the first cutting was at 8 inches, while the stubble height for the second harvest was 3 inches. A sub-sample from each plot was weighed and dried at 70ocelcius until a constant weight to determine dry matter concentration. Percent dry matter and dry matter yield data were subjected to SAS procedures for tests of significance.
Results and Discussion:	While the forage sorghum hybrids were just over the recommended harvestable height of 40 inches, the haygrazer hybrids were taller and heading at each harvest. Data is presented in table 25. Difference in percent dry matter were variable across cuttings among the sorghum-sudangrass hybrids but always higher than dry matter percent of the forage sorghum hybrids. This is probably related to maturity stage as the forage sorghums generally require the full season to reach the heading stage. For dry matter yields there was no differences between cultivars in the first cutting. However, in the second cutting and for total yield, differences did exist. The current year's findings are consistent with those of 1997, when the haygrazer types had greater yields than the forage sorghums. Additionally, this is the second consecutive year that the Sudax 'ST 6E' had the highest yield for Tucumcari. None of the other varieties had been recently tested at this location.

SPONSORS

Corn Performance Tests

Company Entries

AgriPro Seeds, Inc.
6075 Poplar Ave., Suite 435
Memphis, TN 38119
(901) 537-8640

HS9843, HY9646, AP9707, AP9616

Asgrow Seed
4140 114th St.
Des Moines, IA 50322-7570
(800) 828-9283

XP8897, RX813, RX913, RX921W, RX901W

Asgrow Seed Company
2533 S. Hertzler
Halstead, KS 67056
(888) 8ASGROW

A201, A425, A459, A570, A571, A574, Seneca

DeKalb Genetics Corporation
3100 Sycamore Road
DeKalb, IL 60115
(815) 758-9323

DK477, DK493, DK512, DK595, DK626, DK632, DK641,
DK665W, DK679, Exp. 866W, Exp. 868W

Douglass W. King Company
P.O. Box 200320
San Antonio, TX 78220
(210) 661-4191

5201, 5445

Freedom Seed Company
US Rt. 24
Astoria, IL 61501
(309) 759-4480

5680, 5695, 9101W, 9105W

Frontier Hybrids, Inc.
P.O. Box 177
Abernathy, TX 79311
(806) 298-2595

F-3175, F-3038, F-3200

Garst Seed Company
2369-330th St.
Slater, IA 50058
(800) 831-6630

Garst 8222IT, Garst 8366

Germain's Seed, Inc.
P.O. Box 12447
Fresno, CA 93777
(209) 233-8823

BH4602, BH4622, HT4138, HT4185, HT 4199, HT4612,
Exp. 75046, GC4333

Golden Harvest Seeds, Inc.
100 J.C. Robinson Blvd.
P.O. Box A
Waterloo, NE 68069
(800) 228-9906

H-2515, H-2516, H-2641

Grand Valley Hybrids
840 23 Rd
Grand Junction, CO 81505
(970) 243-3115

SX12664, SX1300, GVX0268, GVX0946, GVX4616,
GVX4776, GVX7219, GVX7236. GVX7268, GVX7297,
GVX8258

Mycogen Seeds
3600 N. Columbia
Plainview, TX 79072
(806) 293-1322

2500, 2595, 2569, 2725, 2828, 2888, 2832 IMI, 7250

NC+Hybrids
Box 4408
Lincoln, NE 68504
(406) 467-2517

NC+6868, NC+6989W, NC+RE675, NC+7117

Pioneer Hi-Bred International, Inc.
1616 S. Kentucky, Suite C-150
Amarillo, TX 79102
(806) 356-0160

31B13, 33A14, 33H39, 33H67, 37M81, 3730, 36A43,
3568, 3489, 34K77, 34P93

Triumph Seed Co., Inc.
P.O. Box 1050
Ralls, TX 79357
(806) 253-2584

1866, 2010

Grain Sorghum Performance Tests

Company Entries

Asgrow Seed
4140 114th St.
Des Moines, IA 50322-7570
(800) 828-9283

A201, A425, A570, A571, A574, Seneca

DeKalb Genetics Corporation
Rt. 2 Box 56
Lubbock, TX 79415
(806) 763-3336

DK-38y, DK-40y, DK-41y, DK-44, DK-45, DK-47,
DK-53, DK-54, DK-55, DK-56, DK-65, DK-66

Frontier Hybrids, Inc.
P.O. Box 177
Abernathy, TX 79311
(806) 298-2595

F270E, F303C, F457E, F557E, F647E

Seed Resource, Inc.
505 S. Hwy. 87
Tulia, TX 79088
(806) 995-3882

Exp. 251, Exp. 420, Exp. 444, Exp. 615 FG, Exp. 628

Forage Corn Performance Tests

Company Entries

AgriPro Seeds, Inc.
6075 Poplar Ave., Suite 435
Memphis, TN 38119
(901) 537-8640

AP9616, AP9707, HY9646, HS9843

Asgrow Seed
4140 114th St.
Des Moines, IA 50322-7570
(800) 828-9283

RX913, RX938

DeKalb Genetics Corporation
3100 Sycamore Road
DeKalb, IL 60115
(815) 758-9323

DK626, DK641, DK679, DK743

Frontier Hybrids, Inc.
P.O. Box 177
Abernathy, TX 79311
(806) 298-2595

F-3175, F-3200

Garst Seed Company
2369-330th St.
Slater, IA 50058
(800) 831-6630

8315, 8285

Germain's Seed, Inc.
P.O. Box 12447
Fresno, CA 93777
(209) 233-8823

Exp. 75046, Exp. 76221, HT4138, GC4333

Golden Harvest Seeds, Inc.
100 J.C. Robinson Blvd.
P.O. Box A
Waterloo, NE 68069
(800) 228-9906

H-2547, H-2641, H-2643IMI

Mycogen Seeds
3600 N. Columbia
Plainview, TX 79072
(806) 293-1322

TMF114, 8460

Novartis Seeds, Inc.
Box 189
New Deal, TX 79350
(800) 645-7478

N79L3 Bt, N7639 Bt, N83N5, 4662

Pioneer Hi-Bred International, Inc.
1616 S. Kentucky, Suite C-150
Amarillo, TX 79102
(806) 356-0160

31B13

Forage Sorghum Performance Tests

Company Entries

Asgrow Seed
4140 114th St.
Des Moines, IA 50322-7570
(800) 828-9283

Beefbuilder, XP BMRI

Cargill Hybrid Seeds
RR2 Box 82
Lockney, TX 79241
(806) 652-3301

Cargill, BMRXI, FS455, X2442, X43024

DeKalb Genetics Corporation
Rt. 2 Box 56
Lubbock, TX 79415
(806) 763-3336

FS5, FS22

Frontier Hybrids, Inc.
P.O. Box 177
Abernathy, TX 79311
(806) 298-2595

Silmaker 6000, Silmaker 7000

Richardson Seed
(no address available)

Honeygrazer II

Mycogen Seeds
3600 N. Columbia
Plainview, TX 79072
(806) 293-1322

Greenchopper, T-E Milkmaker I, T-E Silomaker

Seed Resource, Inc.
505 S. Hwy. 87
Tulia, TX 79088

Exp. F-87-2, Exp. F-97-1

Forage Sorghum-sudangrass Performance Tests

Company Entries

Cargill Hybrid Seeds
RR2 Box 82
Lockney, TX 79241
(806) 652-3301

Sweet Sioux 5, X18327, X25477

DeKalb Genetics Corporation
Rt. 2 Box 56
Lubbock, TX 79415
(806) 763-3336

ST6E, SX8, SX17

Frontier Hybrids, Inc.
P.O. Box 177
Abernathy, TX 79311
(806) 298-2595

Champ II

Mycogen Seeds
3600 N. Columbia
Plainview, TX 79072
(806) 293-1322

T-E Evergreen, T-E Haygrazer II

Seed Resource, Inc.
505 S. Hwy. 87
Tulia, Tx 79088
(806) 995-3882

Exp. S-84-2, Exp. M-87-1, Exp. S-96-3, Exp. S-97-1

New Mexico State University is an equal opportunity/affirmative action employer and educator. NMSU and the U.S. Department of Agriculture cooperating.

March 2001

Las Cruces, NM
5C