I. PROJECT TITLE: Corn variety trials, silage and grain, 1994.

II. PROJECT LEADERS: G.F. Stallknecht, K.M. Gilbertson

III. PROJECT COOPERATORS: Private sector agronomists, Industry seed corn companies.

IV. PROJECT LOCATION: MSU, Southern Agricultural Research Center Huntley, MT 59037.

V. OBJECTIVE: To evaluate corn varieties for silage and grain production in south central Montana. To assist seed corn companies in evaluation of corn varieties adapted to Montana growing conditions.

VI. RESULTS AND SUMMARY: 1994 was an exceptional year for corn. Both silage and grain corn yields in plot trials were the highest in 14 years of study. Grain corn yields were exceptionally high. The top variety yielded 272 bu/A, compared to a high of 254 in 1985, and a high average for 6 years of 228 bu/A. While the top yield of silage was 39.7 ton/A, this was not significantly higher than 37 ton/A in 1993, and the top yields of silage in 6 of the past 9 years averaged 36 ton/A. However, the percent grain in the silage ranged from 4.7 to 3.1 ton dry matter, with a average of 4.05 ton/A, which would indicate that 1994 was a outstanding corn year. As an example, in 1993 the average percent grain in the silage on a dry weight basis was only 2.4 ton/A. Thus one must look at more than tonnage, since the 1993 silage corn variety yielded 37 ton/A, with only 1.7 ton/A grain content.

GROWING DEGREE DAYS
MONTANA STATE UNIVERSITY
SOUTHERN AGRICULTURAL RESEARCH CENTER
748 RR HWY
HUNTLEY, MT 59037
(406)348-3400

LATITUDE 45° 55' LONGITUDE 108° 15'
ELEVATION 3200

YEAR	SEASON GDD 4/25-9/17 *	DRY DOWN UNITS 9/17-10/31
1980	2186	400
1981	2060	309
1982	1987	311
1983	2138	243
1984	1879	258
1985	2015	247
1986	1886	280
1987	2170	397
1988	2339	377
1989	2039	365
1990	2101	373
1991	2178	372
1992	2156	219
1993	1723	354
1994	2233	364

*SEPTEMBER 17 IS AVERAGE DATE OF FIRST FROST

TABLE 1 . 1994 SILAGE CORN VARIETY TRIAL, SOUTHERN AG RESEARCH CENTER HUNTLEY, MT.

COMPANY	VARIETY	YIELD COMPLETE SILAGE T/A @ HARVEST[1]	T/A @ 70% MOISTURE	T/A STOVER D.M.	T/A GRAIN D.M.	% MOISTURE @ HARVEST	PLANT POP *1000[2]	50% SILK DATE
CENEX/LOL	801	39.73	38.86	8.212	3.100	71.70	31.90	8/03
DEKALB	DK683	38.77	39.33	8.462	3.648	69.03	36.49	8/01
CARGILL	H560A	34.40	36.61	7.573	3.535	65.70	40.11	7/29
ICI	8314	34.31	34.91	7.918	3.435	68.72	34.32	8/01
CENEX/LOL	787	33.94	35.27	7.608	3.922	67.43	29.24	8/02
CENEX/LOL	DC555	33.41	35.20	7.532	4.180	66.60	35.04	7/28
DEKALB	DK604	32.66	35.82	7.073	4.608	63.78	34.56	7/28
PIONEER	3527	32.21	34.38	7.058	4.445	65.70	38.91	7/29
ICI	8400	31.99	34.28	6.945	4.403	65.33	35.28	7/28
ICI	8513	30.26	31.97	6.148	3.842	66.38	30.94	7/28
DEKALB	DK591	29.92	33.25	6.535	4.040	63.02	34.80	7/29
CIBA-GEIGY	4494	29.79	31.33	6.400	4.115	66.72	33.35	7/25
DEKALB	DK566	28.47	32.78	6.430	4.160	60.67	41.33	7/27
SEEDTEC	ST/181	28.17	30.99	6.088	4.435	63.63	37.22	7/23
NK	N5220	28.16	31.33	6.290	4.220	62.93	30.93	7/25
GERMAIN	GC4242	26.16	30.87	5.665	3.928	59.38	34.07	7/22
CIBA-GEIGY	4214	25.82	30.60	5.918	4.725	59.03	31.66	7/22
CARGILL	3777	24.47	31.76	6.408	4.332	53.88	34.32	7/22
GERMAIN	GC22013	20.53	26.63	4.742	3.948	54.20	35.28	7/23

1. Silage yield, T/A at harvest moisture.
2. Multiply by 1000 for actual plant population per acre.

SUMMARY STATISTICS:

OVERALL MEAN =	30.69	33.48	6.790	4.054	63.88	34.72
CV (S/MEAN) =	10.13	10.15	11.34	11.13	4.118	10.20
SE TRT MEANS =	1.555	1.699	.3851	.2257	1.315	1.770
CV (SE/MEAN) =	5.066	5.073	5.672	5.567	2.059	5.099
LSD(0.05 by t)=	4.409	4.816	1.092	.6399	3.729	5.020

DATE PLANTED: 5/04/94

HARVEST DATES: 9/8-9-10/94

TABLE 2 . 1994 GRAIN CORN VARIETY TRIAL SOUTHERN AG RESEARCH CENTER, HUNTLEY, MT.

COMPANY	VARIETY	YIELD BU/AC @ 15.5% M.	MOISTPER % AT HARV	TESTWT WEIGHT LB/BU	*PLANT POP/ ACRE	50% SILK DATE
DEKALB	DK527	272.6	24.11	55.85	31.88	7/23
NORTHRUP KING	N2555	260.0	17.16	58.10	35.53	7/19
DEKALB	DK471	258.2	22.72	55.17	35.28	7/23
CENEX/LOL	D5954	249.3	21.74	55.47	30.70	7/20
CIBA-GEIGY	2130X	246.0	20.42	56.15	30.45	7/23
CIBA-GEIGY	4273	245.4	19.55	58.90	34.08	7/21
CIBA-GEIGY	4144	240.9	14.98	59.05	30.92	7/19
DEKALB	DK442	239.0	17.36	56.70	31.42	7/23
CENEX/LOL	491	233.6	23.19	55.67	28.27	7/21
DEKALB	DK381	233.1	14.14	57.80	33.13	7/24
CARGILL	2037	225.1	14.12	57.45	33.10	7/22
NORTHRUP KING	N2409	224.4	15.65	59.63	29.75	7/17
GERMAIN	GC33001	222.1	16.33	59.75	31.88	7/25
CARGILL	2497	215.8	15.74	58.08	33.83	7/23
GERMAIN	GC22013	215.8	18.41	58.58	32.88	7/23
ICI	8990	214.4	16.87	58.10	31.88	7/22
CENEX/LOL	MF289	207.4	22.16	56.17	29.23	7/22
CENEX/LOL	809	206.1	18.05	58.38	27.10	7/17
ICI	8751	194.2	19.02	56.82	28.75	7/25
PIONEER	3907	186.0	13.11	58.97	29.48	7/14
SEEDTEC	ST7147	172.8	15.60	60.75	33.82	7/19

*Multiply by 1000 for actual plant population per acre.

SUMMARY STATISTICS:

OVERALL MEAN =	226.8	18.12	57.69	31.59
NO. BLKS USED =	4	4	4	4
MEAN TRT MEANS=	226.8	18.11	57.69	31.59
F-RATIO TRTS =	4.088	13.07	20.27	2.355
P-VALUE TRTS =	.0000	.0000	.0000	.0051
STD DEV (S) =	24.94	1.800	.6966	3.014
CV (S/MEAN) =	11.00	9.937	1.207	9.543
SE TRT MEANS =	12.47	.9000	.3483	1.507
CV (SE/MEAN) =	5.500	4.968	.6037	4.771
LSD(0.05 by t)=	35.28	2.546	.9853	4.264

Corn rows ran east/west.
We observed 5-15% breakage due to high winds during the growing season.

DATE PLANTED: 5/04/94
DATE HARVESTED: 10/25/94