

# CORN HYBRIDS COMPARED

## in the 1994 season

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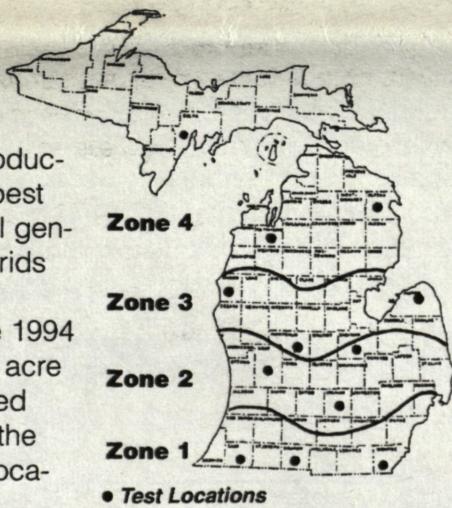
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Hybrid corn trials are conducted each year by the Department of Crop and Soil Sciences, Michigan Agricultural Experiment Station, in cooperation with MSU Extension, seed corn companies, and farmers.

Many hybrids are offered for sale in Michigan. They differ in yield capacity, maturity, lodging resistance, and other characteristics. Choosing corn hybrids that most nearly match the management practices and local environment is an important part of profitable corn production. By planting the hybrids best suited to the individual farm location, a grower can obtain superior yields with little or no increase in overall production costs. Seed of hybrids with the best performance records in Michigan will generally cost no more than seed of hybrids with lower performance ratings.

The highest yielding hybrids in the 1994 trials produced 35 bushels more per acre than the average of 444 hybrids tested (Table A) and 89 bushels more than the lowest yielding hybrids. Eleven trial loca-



tions containing 20 tests were harvested for grain yield. Average yield of all hybrids grown in Zone 1 was 198, Zone 2 was 187, Zone 3 was 170, and Zone 4 was 161. The average moisture for the early maturity hybrid group was 4 percent less than the late hybrids in Zone 1 and Zone 3 and 5 percent in Zone 2. Stalk breakage averaged 8 percent for the hybrids with the highest amount of stalk lodging, 2 percent for the average and 0 percent for the lowest (Table A).

### Entries

All seed companies are invited to enter hybrids in the trials each year. A fee is charged to cover some of the direct expenses.

Table 7 presents a list of all hybrids planted in the 1994 trials. At the 13 locations, 297 hybrids from 37 seed companies were tested for either grain or silage as 1463 entries. Company names used in association with hybrid numbers refer to the brand. The numbers are the companies' designations.

### Methods

Three locations have been identified in each of four maturity zones. These zones are based on growing degree days established from long-term weather records. Hybrids to be tested in each zone are entered in all locations representing that zone. Hybrids tested at each location are assembled into an early and late group according to maturity ratings provided by the seed companies.

Two-row plots are used. Plots are 22 feet long with a 30-inch row spacing. At most locations planting rates are set at 28,300 seeds per acre and thinned to a uniform stand at each location. High yielding, irrigated plots in Cass and Montcalm counties were planted at 31,000. The remaining trials in Mason County and all Zone 4 trials are planted at 26,400 plants per acre. Thinning was completed at the 12-18 inch stage of plant height.

The field research layout is a four-replication randomized complete block design. This means that each hybrid entry is measured in four separate locations in each field. The hybrids performance from the four plots is averaged together to report the values shown.

All hybrids were grown under similar conditions at each location. They are grown in farmers' fields with equal fertilizer, population, date of planting, and other management practices. Trials in Cass, Montcalm, and Mason counties were irrigated.

From seed packaging through harvest and data processing, each hybrid is identified only by a code number to assure that an unbiased estimate is made of each hybrid's potential. The code is deciphered after the data have been processed.

Stands are counted and thinned in June and July prior to tasseling.

**Table A**

**Average, Highest and Lowest Grain Yield, Moisture Content, Test Weight and Stalk Lodging at 11 Locations in 1994**

County - Location	No. of Hybrids	Bushels per Acre			Percent Moisture			Test Weight			Percent Lodging		
		Ave.	High	Low	Ave.	High	Low	Ave.	High	Low	Ave.	High	Low
Monroe - Early	73	196	244	148	19	23	16	59	63	55	1	5	0
Monroe - Late	75	212	251	147	22	28	20	58	62	55	1	2	0
Branch - Early	73	196	220	156	21	25	17	55	59	52	1	3	0
Branch - Late	75	204	236	165	25	29	22	55	59	53	1	2	0
Cass - Early	73	181	213	137	20	26	15	56	60	52	1	7	0
Cass - Late	74	197	233	157	24	31	20	54	58	52	1	2	0
Early - Late Averages Zone 1		191	224	147	20	25	16	57	61	53	1	5	0
Kent - Early	70	202	234	155	20	25	16	58	62	54	2	7	0
Kent - Late	70	212	247	170	25	30	22	55	58	53	2	5	0
Ingham - Early	70	148	185	106	22	27	18	53	56	50	3	9	0
Ingham - Late	70	153	195	114	27	35	21	52	55	49	2	6	0
Saginaw - Early	70	196	219	150	21	27	17	57	61	55	1	4	0
Saginaw - Late	70	209	241	168	25	33	21	55	58	52	1	3	0
Early - Late Averages Zone 2		182	213	137	21	26	17	56	60	53	2	7	0
Huron - Early	66	126	149	100	17	21	15	57	61	53	3	10	0
Huron - Late	43	139	160	106	19	25	17	55	57	52	3	8	0
Montcalm - Early	66	207	242	94	23	31	19	54	59	53	1	5	0
Montcalm - Late	43	214	258	136	28	35	24	55	58	53	1	3	0
Mason - Early	66	168	208	97	20	25	16	57	60	54	2	6	0
Mason - Late	43	172	228	115	24	30	20	55	58	53	2	5	0
Early - Late Averages Zone 3		167	200	97	20	26	17	56	60	53	2	7	0
Alpena	47	170	217	58	20	25	17	57	61	52	4	50	0
Grand Traverse	47	152	189	109	31	38	25	54	57	52	4	8	1
Average Zone 4		161	203	84	26	31	21	55	59	52	4	29	1
Average-All Zones		183	218	129	23	28	19	56	59	53	2	8	0



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Lodging measurements are made at harvest counting all plants broken below the ear. Plots are harvested mechanically for both grain and silage. Moisture content and field weight were determined from shelled grain samples collected in automated test equipment mounted on a plot picker-sheller. In 1994 the data collection equipment was automated, further making it possible to measure test weight on each plot. Test weights are reported at harvest moisture. Grain yields are reported at a standard 15.5 percent moisture. Silage yield estimates are based on an air-dried sample. Further evaluation by means of an in-vitro silage digestibility analysis was conducted by the Department of Animal Science.

## Growing Conditions

All yield trials were planted between April 23 and May 13. Planting was timely. The monthly weather data for each test location is shown in Table B. The 1994 growing season was very favorable for corn grain production. Growing degree day patterns were superior to those recorded in 1993 and significantly warmer than the disastrous 1992 season.

The most apparent weather related problems in this year's corn production was an extended dry period in July in southeast Michigan and excess rainfall in August and September in the Thumb area.

In general fall weather conditions were excellent for the maturity of adapted corn hybrids. Dry-down in the field progressed normally and greatly facilitated harvest. Under most conditions the grain moisture at harvest was lower than normally would be expected.

Harvest was completed between October 11 and November 11. In 1994 Michigan farmers grew an estimated 2,150,000 acres of corn for grain with a state average of 117 bushels, an all-time record yield for Michigan. The previous record of 115 bushels per acre was set in 1990. Total corn production is estimated at more than 250 million bushels, up 6 percent from 1993. Silage acreage was estimated at 300,000 acres with yields averaging about 8 tons per acre.

## Silage

Six locations containing nine tests were harvested for silage. The 47 hybrids entered in Zone 4 were only harvested as silage in Delta county.

Trials conducted in Kent, Ingham, and Huron counties contain two maturity groups with yield data presented in Table 5. Additional silage trials were conducted in Alpena and Missaukee counties in 1994 (Table 6). The results obtained from the 1994 silage digestibility trials are also presented in these same tables. This is the fourth year that digestibility analyses have been made.

Chopped silage (fodder plus grain) samples were weighed. A representative sample collected for use in determining moisture content (air dried) was finely ground with sub samples taken for in-vitro analyses.

Results of four analyses are presented. They are:

1. **DMD=Dry matter digestibility.** This is a measure of energy available from the corn forage. The higher the DMD, the greater the energy content. It is determined by a laboratory method which incubates a sample of the corn forage with microbes from the rumen of a cow. Thirty hours is used to represent the average retention time of feed in the rumen. Differences among hybrids in DMD are approximately

equal to difference in total digestible nutrients of TDN. A high DMD is desirable.

2. **FD=Fiber digestibility.** This is a measure of the degree of fermentation of fiber by ruminant animals. It is determined as the disappearance of neutral detergent fiber during an in-vitro ruminant fermentation. High fiber digestibility has been found to increase intake of ruminants as it decreases the filling effect of the feed and provides energy to microbes in the rumen and increasing microbial protein production. A high FD is desirable.

3. **NDF=Neutral detergent fiber.** This is a measure of the fiber content of the corn forage. Fiber must be fermented by microbes in the gastrointestinal tract to be utilized by ruminants. It is much less digestible than non-fiber constituents of the forage. Forages with high levels of NDF have lower energy. It is also a measure of the gut filling properties of the forage and high NDF decreases forage intake. A low NDF content is desirable.

4. **CP=Crude protein.** Forages are generally supplemented with high protein concentrates such as soybean meal to increase the protein content of ruminant diets. Corn hybrids with high protein require less supplementation and therefore lowered feed costs. A high protein content is desirable.

*\*All analyses were determined by wet-chemical methods.*

## How to Use This Bulletin

One-, two-, and three-year averages are presented for all hybrids tested during 1994, 1993, and 1992 wherever the data are available. One-year results are less reliable than two- or three-year averages and should be interpreted with more caution. Confidence in corn performance data increases with the number of years and locations of testing.

The yield, harvest moisture, and test weight results from the four maturity zones are presented as individual tables. The average hybrid performance over three locations is shown as the first section in each table. Individual location values are shown in adjoining sections of each table. This is the first year that individual hybrid test weight values have been available.

The tables report the following information about the hybrids tested:

1. Average moisture content at harvest.
2. Test weight at harvest moisture.
3. Average yield (in bushels) of shelled corn at 15.5 percent moisture.
4. Average percent of stalk lodging (plants broken below the ear at harvest).
5. Recent stand of target population.

Stalk breakage can be caused by corn borers and/or stalk rot diseases.

Hybrids are recorded in the tables in order of their approximate maturity in the current growing season (early to late), based on grain moisture at harvest.

Two or more plots of the same hybrid in the same field may produce somewhat different results because of uncontrolled variability in the soil and other environmental factors. Replication and randomization of the entries are two methods used to reduce these errors. Because these methods do not eliminate all of these variables, the magnitude of differ-

ence necessary for statistical significance has been calculated for yield and moisture content. The value calculated as the "least significant difference" or "LSD" is the amount that an individual hybrid would have to differ from the experiment average to be significantly different from that average.

Hybrids with yields significantly better than the average grain yield at each location are marked with an asterisk (\*) in each table. Other agronomic information relative to each trial is given at the bottom of the table. Fertilizer amounts are shown as total pounds per acre of nitrogen, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O applied during the season.

## How to Choose a Hybrid

### Adaptation

The map on page 1 shows the locations of the trials, and it divides Michigan into four generalized maturity zones. Local variations in weather, soil type and fertility, time of planting, and other conditions all affect adaptation. Corn hybrids are often adapted to more than one zone.

In the selection of a hybrid there is no real substitute for observing individual characteristics while plants are growing. The best time to compare plants is usually in late August or early September as they approach maturity but before a killing frost has occurred. Each year, at a limited number of locations, demonstration plantings

**Table B**  
**Temperature, Precipitation, and Growing Degree day Summary**  
**1994 Growing Season**

COUNTY		MAY			JUNE			JULY			AUGUST			SEPTEMBER			SEASON		
		OBS.	NORM	DEV.	OBS.	NORM	DEV.	OBS.	NORM	DEV.	OBS.	NORM	DEV.	OBS.	NORM	DEV.	OBS.	NORM	DEV.
MONROE	TEMP	57.2	58.3	-1.1	71.3	67.8	+3.5	72.9	71.7	+1.2	67.7	69.9	-2.2	64.4	62.6	+1.8	66.7	66.1	+0.6
	PPT	1.11	3.04	-1.93	3.56	3.30	+0.26	2.16	3.73	-1.57	3.05	3.20	-0.15	.93	2.62	-1.69	10.81	15.89	-5.08
	GDD	339	353	-14	622	542	+80	708	658	+50	562	616	-54	460	432	+28	2691	2601	+90
BRANCH	TEMP	55.5	57.8	-2.3	69.5	67.2	+2.3	70.7	70.8	-0.1	65.7	69.2	-3.5	63.4	62.4	+1.0	65.0	65.5	-0.5
	PPT	.82	3.03	-2.21	6.60	3.73	+2.87	1.57	4.01	-2.44	4.86	3.40	+1.46	1.74	3.03	-1.29	15.59	17.20	-1.61
	GDD	310	342	-32	586	535	+51	641	646	-5	501	602	-101	432	427	+5	2470	2552	-82
CASS	TEMP	55.1	59.2	-4.1	68.9	68.4	+0.5	70.8	71.9	-1.1	65.9	70.1	-4.2	63.0	63.3	-0.3	64.7	66.6	-1.9
	PPT	1.17	3.12	-1.95	6.23	3.95	+2.28	6.24	3.79	+2.45	5.29	3.16	+2.13	2.40	3.01	-0.61	21.33	17.03	+4.30
	GDD	319	381	-62	576	564	+12	645	670	-25	507	628	-121	424	454	-30	2471	2697	-226
KENT	TEMP	56.6	57.4	-0.8	69.2	67.1	+2.1	71.3	71.2	+0.1	67.2	69.5	-2.3	64.0	61.9	+2.1	65.7	65.4	+0.3
	PPT	2.63	2.86	-0.23	7.33	3.68	+3.65	8.06	2.95	+5.11	7.32	3.14	+4.18	1.09	3.24	-2.15	26.43	15.87	+10.56
	GDD	329	335	-6	581	530	+51	665	654	+11	542	610	-68	447	412	+35	2564	2541	+23
INGHAM	TEMP	55.4	57.5	-2.1	67.6	67.0	+0.6	69.9	70.7	-0.8	65.1	69.0	-3.9	62.1	62.0	+0.1	64.0	65.2	-1.2
	PPT	1.22	2.73	-1.51	7.33	3.54	+3.79	3.91	3.02	+0.89	6.62	3.12	+3.50	6.15	2.50	+3.65	25.23	14.91	+10.32
	GDD	310	338	-28	547	530	+17	620	640	-20	490	598	-108	412	418	-6	2379	2524	-145
SAGINAW	TEMP	55.5	57.8	-2.3	66.4	67.4	-1.0	69.7	71.4	-1.7	65.7	69.4	-3.7	62.3	61.9	+0.4	63.9	65.6	-1.7
	PPT	1.76	2.47	-0.71	7.08	2.94	+4.14	3.52	2.56	+0.96	4.31	3.30	+1.01	2.26	2.83	-0.57	18.93	14.10	+4.83
	GDD	301	340	-39	506	538	-32	615	660	-45	505	608	-103	415	411	+4	2342	2557	-215
HURON	TEMP	53.0	55.2	-2.2	65.6	64.9	+0.7	68.9	69.3	-0.4	64.6	67.8	-3.2	61.9	61.0	+0.9	62.8	63.6	-0.8
	PPT	2.59	2.58	+0.01	5.53	2.88	+2.65	5.94	2.93	+3.01	3.69	3.01	+0.68	2.36	2.67	-0.31	20.11	14.07	+6.04
	GDD	259	298	-39	487	479	+8	591	602	-11	467	569	-102	396	387	+9	2200	2335	-135
MONTCALM	TEMP	54.5	57.7	-3.2	66.4	67.1	-0.7	69.5	71.0	-1.5	64.6	69.3	-4.7	60.8	61.6	-0.8	63.2	65.3	-2.1
	PPT	2.05	2.88	-0.83	5.47	3.43	+2.04	7.89	2.50	+5.39	7.91	3.84	+4.07	2.07	3.12	-1.05	25.39	15.77	+9.62
	GDD	313	351	-38	514	536	-22	600	646	-46	480	603	-123	387	414	-27	2294	2550	-256
MASON	TEMP	52.1	54.4	-2.3	65.9	63.6	+2.3	68.9	68.5	+0.4	64.9	67.2	-2.3	62.8	60.2	+2.6	62.9	62.8	+0.1
	PPT	1.09	2.48	-1.39	2.42	2.93	-0.51	6.34	2.18	+4.16	4.48	3.79	+0.69	2.53	3.25	-0.72	16.86	14.63	+2.23
	GDD	218	273	-55	505	450	+55	592	587	+5	480	552	-72	425	365	+60	2220	2227	-7
ALPENNA	TEMP	53.5	52.0	+1.5	64.5	61.7	+2.8	67.2	66.6	+0.6	64.6	64.9	-0.3	60.2	57.2	+3.0	62.0	60.5	+1.5
	PPT	1.47	2.78	-1.31	3.23	3.12	+0.11	5.53	3.11	+2.42	6.19	3.23	+2.96	1.58	3.08	-1.50	18.00	15.32	+2.68
	GDD	276	251	+25	468	413	+55	552	534	+18	474	496	-22	368	317	+51	2138	2011	+127
GRAND TRAVERSE	TEMP	54.6	53.5	+1.1	65.5	63.7	+1.8	69.1	68.8	+0.3	65.8	67.3	-1.5	63.4	59.3	+4.1	63.7	62.5	+1.2
	PPT	1.44	2.48	-1.04	2.10	3.15	-1.05	4.15	2.88	+1.27	4.52	2.93	+1.59	1.87	3.60	-1.73	14.08	15.04	-0.96
	GDD	299	273	+26	495	454	+41	607	587	+20	507	552	-45	422	348	+74	2330	2214	+116
DELTA	TEMP	52.5	53.6	-1.1	63.3	62.7	+0.6	65.4	67.4	-2.0	62.3	65.5	-3.2	59.7	57.0	+2.7	60.6	61.2	-0.6
	PPT	1.38	3.57	-2.19	2.80	3.72	-0.92	2.62	3.63	-1.01	5.06	3.86	+1.20	3.74	3.60	+0.14	15.60	18.38	-2.78
	GDD	261	285	-24	441	438	+3	503	559	-56	406	513	-107	346	319	+27	1957	2114	-157

TEMP = Temperature (°F)  
PPT = Precipitation (inches)  
GDD = Growing Degree Days calculated at base 50°F, with 50°F and 86°F cutoffs  
OBS = Totals observed in 1994  
NORM = Normals calculated over 30 year period (1951-1980)  
DEV = Deviation of observed from normal

Data provided by: MSU-AGRICULTURAL WEATHER METEOROLOGY OFFICE  
Jeff Andresen and Tom Cate



# 1994 GROWING SEASON WEATHER SUMMARY

**D**uring late April and early May, seasonable conditions allowed planting to proceed at near normal rates. By mid-May, however, upper air "jet stream" steering currents took on a northwest to southeast configuration across the Great Lakes region, bringing a series of cool, dry Canadian-origin air masses into Michigan. Precipitation with this pattern was much below normal while solar radiation levels were abnormally high. The dry air and mostly fair skies characteristic of these air masses allowed nighttime temperatures to drop into the 30s, with scattered frost reported at many locations. This upper air pattern continued through mid-June, resulting in abnormally dry soils (upper levels), moisture stress for shallow-rooted crops, and generally slow growth rates. The prolonged early dryness caused serious problems for moisture-activated herbicides incorporated at or before planting.

The jet stream shifted to a southwest to north-

east average configuration by late June, with warm, tropical-origin air transported into the region on southerly winds. A series of thunderstorms resulted, bringing torrential rains and flooding to central sections of Lower Michigan and generally beneficial rains elsewhere. During a 3-week period ending in mid-July, more than 15 inches of rain fell in spots from west central Lower Michigan eastward to Saginaw Bay and the Thumb (this is the near the entire normal May-September total for these areas). One contrasting exception was the southeastern and south central Lower Peninsula, where a few spots remained abnormally dry for much of the remainder of the growing season.

Following near average conditions in August, a warmer and drier than normal pattern developed in September and generally continued into November. In addition, the first killing freeze of the fall did not occur at many locations until early November, extending the growing season

1-3 weeks beyond its normal termination. Mean temperatures for the August-November autumn period were among the warmest 10% of years since 1985 while precipitation totals were ranked historically in the lowest 1/3. The mild, dry fall was among the most favorable for agricultural activities in recent memory, allowing crops set back by previous heavy rain to catch up phenologically and leading to rapid grain drydown rates following maturation.

Mean temperatures and growing degree day totals for the season (May through September) were generally near to below normal statewide, with greatest departures from normal in the central Lower Peninsula. Rainfall totals ranged from below normal in the extreme north and south to much above normal in central sections.

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## Corn Hybrids Compared...

*Continued from Page 1*

of each hybrid are planted at the front of the test field. At or shortly after pollination each hybrid is identified and labeled. The public is invited to observe these plots and to examine the plant and ear characteristics important in their production operations. In 1994 these demonstration plantings were grown at five locations. No yield results are taken from the demonstration planting or included in the data reported.

### Planting Rate

The number of seeds sown per acre in Michigan has increased steadily over the past several years. Increased planting rates are not a guarantee of increased yields. High plant populations (28,000 or more per acre) should be considered only for fields consistently producing more than 125 bushels per acre. With high plant populations, rainfall deficiencies and other growing season stresses frequently result in no increase in yield and may actually result in decreased yield compared with a more modest plant population of approximately 24,000 plants per acre. Lodging and harvest losses are often greater at higher populations.

### Maturity

Hybrids are listed in the tables in order of maturity (early to late), based on moisture content of the grain at harvest. This is usually a reasonably accurate measure of relative maturity in most years in Michigan. Early-maturing hybrids are generally lower in moisture content than later maturing hybrids. Differences among hybrids in rate of drying in the field also affect moisture content at harvest but usually do not greatly disturb the relative maturity ratings as determined by moisture content.

One percent more moisture at harvest reflects a delay in maturity of about two days. One estimate of corn maturity is when a black layer of cells forms at the base of the kernel. At this time, kernel moisture will be between 32 and 35 percent.

### For Grain

It is better to choose an early hybrid (below average moisture content) than a late hybrid for grain. Data in the tables show that good yields do not totally depend on later maturity. On the average early maturing hybrids in 1994 produced about ten bushels per acre less than the later maturing group. The late maturing groups averaged 4-5 percent high harvest moistures. Even the 10 bushel yield advantage of the late maturing group only provided a break-even return per acre when drying costs were assessed against two dollar corn. Advantages of early-maturing hybrids are:

- They usually mature before killing frosts.
- Adapted early hybrids generally yield as much or more than late hybrids in most areas of Michigan.
- Early hybrids with lower moisture content at harvest reduce drying costs and market discounts for moisture.
- Mature, dry corn makes better livestock feed.
- Harvest can take place earlier in the fall when weather conditions are most favorable. Early harvest may reduce corn losses resulting from broken stalks and dropped ears.
- Fall tillage of corn stubble may be possible with early hybrids on land not subject to erosion.

### For Silage

A good rule of thumb for selecting a superior silage hybrid is to choose one that also has the potential for high grain production. High dry-weight production per acre is a better reason for choosing hybrids for silage than tons of green weight.

Corn for silage should reach the early dent stage well before frost in an average year. The early dent stage (when most of the kernels have dented) is the best time to begin silage harvest. Dry matter production continues to increase until maturity.

### Other Considerations

Choose early hybrids for late plantings, low soil fertility, sandy and muck soils, and for corn that it is to be followed by a winter grain or cover crop. Experience has shown that when corn is grown under no-till operations a significant advantage results from the use of earlier maturity hybrids. This probably relates to the slower spring soil warm-up encountered under no-till operations.

Some degree of "crop insurance" can be obtained by choosing two or three hybrids that differ slightly in their maturity. If one hybrid encounters unfavorable weather at a critical growth stage, another may be less affected and produce a good crop.

Even though you have been growing a hybrid that has given good results, you may be able to improve your average corn production by trying one or more hybrids with better records in these trials. Well tested new hybrids are worth consideration. It may be advisable to try a new hybrid in a strip in the same field with your present hybrid.

### Ways to Reduce Stalk Lodging

Several stalk-rotting fungi may cause broken stalks at harvest and create a major problem in corn production. Stalk rot occurs when fungi increase rapidly after the plant has matured or when the plant dies prematurely. The highest incidence of stalk rot occurs in years when corn matures early and harvest is delayed. Infection and disease development are favored by warm, humid weather and abundant rainfall during the latter part of the growing season.

Hybrid resistance to stalk rot is only one of several factors that determine the extent of stalk breakage. There are no clear-cut cases of specific hybrids that can consistently be depended upon to resist stalk rot under all conditions of soil fertility, plant population, plant stress, and maturity. A major part of the difference in resistance to lodging appears to be mechanical: stiffer stalks do not break as soon when disease attacks.

The most effective practice to reduce losses from stalk rot is to harvest as soon as possible after maturity. Stalk breakage continues to increase rapidly when harvest is delayed. Early hybrids that mature in September will have more stalk breakage than late-maturing hybrids if harvest occurs in November and December. There may be little or no advantage to planting the early-maturing hybrids if harvest is delayed.

To avoid problems, choose high-yielding, early-maturing hybrids, plant early and harvest early.

### Ways to Avoid Moldy Corn in 1995

- Plant early.
- Plant early- to medium-maturing hybrids.
- Harvest early—during October. Weather problems and harvest losses increase with later harvest.
- Plan for adequate artificial drying. Drying in the field or in the crib is slow and undependable in Michigan. Ready access to drying facilities will permit more timely harvest and prevent high pre-harvest loss, a major factor in reduced corn profits.

Most corn seed production operations did not experience unusual production problems in 1994. Seed quality can be expected to be good for most hybrid combinations. A higher than normal demand is expected to continue for early and mid-season maturity hybrids. Fortunately, seed yields were generally high and adequate seed supplies are anticipated for 1995 planting.



**A**gronomists have long known that the rate of corn growth and development is highly dependent on temperature. Seasonal accumulation of growing degree day units (GDD), a temperature-derived index, is a simple way to quantify the amount of heat needed for a given corn hybrid to reach maturity. In general, the higher the yield potential of a corn hybrid, the greater the number of accumulation GDDs in a given season. Therefore, in order to help maximize potential yields, growers must choose a hybrid for their location which has an acceptable chance of reaching maturity before the end of the growing season. In addition, an equally important factor is grain moisture at harvest. Because the highest yielding hybrids generally take the longest to mature, they may also have the highest grain moisture content at harvest, thus costing the grower extra money for drying costs.

GDDs are calculated according to the seed industry standard, i.e. the difference of the daily mean temperature and the base temperature of 50F. Remember that prior to taking the difference, the maximum temperature needs to be set down to 86F if it is above 86F and the minimum temperature set up to 50F if it is below 50F. GDDs are normally summed on a daily basis from the day of planting through physiological maturity, defined as black layer formation. Most seed companies rate the maturity of their own hybrids by GDD accumulations as well as relative maturity units.

A recent Michigan State University bulletin (E-2471), "Using Climatological Information for Corn Hybrid Selection in Michigan," provides corn growers with background climatological information that may help in making hybrid selections (most hybrids have listed GDD ratings for maturity ...

ask your seed dealer or representative). The bulletin provides the total number of GDDs accumulated from 5 hypothetical spring planting dates (at 10 day intervals from April 20 through June 1) through the date of normal first killing fall freeze. The dates are based on data from 20 climatological stations across Michigan for the period 1961-1990. Results from the study indicate that seasonal GDD accumulations in Michigan are highest in the southwest and southeast corners of the Lower Peninsula, with a rapid dropoff north of an east-west line from Muskegon to Bay City. In addition, the climatological importance of early planting in Michigan cannot be overemphasized as the month of May was found to account for 12-16% of the total growing season GDD accumulation (approx. 300-400 GDDs) across the state. Late planted crops (especially full season hybrids) are thus much more likely to have problems reaching physiological maturity (or drying down to acceptable moisture levels) prior to harvest.

If you are uncertain about the length of your own growing season and the number of GDDs normally accumulated, I strongly urge you to obtain a copy of MSU Extension Bulletin E-2471 from your local extension office. With some help from your seed dealer and the numbers given in this bulletin, you should be able to make realistic hybrid selections with the climatological risk of your own choosing.

## CORN MATURITY AND GROWING DEGREE DAY UNITS

# TEST WEIGHT AS A MEASURE OF CORN QUALITY

Test weight has been used since the early 1900s as an index of quality in corn. It is a measure of the weight per bushel at 15.5% moisture content. Kernel moisture has a direct effect on test weight. High moisture causes a kernel to expand and occupy a greater volume of space. As a mature kernel dries, it becomes more compact and has more weight per unit of volume, hence a higher test weight. It is important to recognize that an immature kernel may not shrink uniformly upon drying. When this happens, a dry but misshapened kernel may not achieve the higher density or weight per unit of volume. Aside from the effect of moisture, test weight is decreased by damage from frost, mold, weathering, or almost any other factor that interrupts normal kernel development and delays harvest or damages the grain.

Test weight is also used as a first indicator of grain quality for corn to be used in dry milling

operations. It is considered to be a reasonable indicator of grain with relatively smooth uniform kernels. High test weight also indicates kernels contain a high percentage of hard flint-like starch or endosperm and a correspondingly reduced amount of the soft, floury starch fraction. The hard, flinty portion of the kernel is the most valuable fraction in a dry milling operation.

In the 1994 crop, test weights, on the average, are relatively high. This is to be expected in a season where most corn hybrids reached physiological maturity and enjoyed an extended fall season. The 1994 season is in contrast to the 1992 season in which neither of these conditions prevailed.

The Federal Grain Standards allow minimum test weight values in grades 1, 2, 3, 4, and 5 of 56.0, 54.0, 52.0, 49.0, and 46.0, respectively. Corn with test weights below those for No. 2 are often discounted at the elevator. Although dis-

counts may vary among elevators and from year to year, recent discount schedules for corn under the Agricultural Stabilization and Conservation Service storage program compared to those from local elevators are given below:

Test Weight	Discounts—Cents per Bushel	
	ASCS Programs	Elevator
53.5 or 53.0 lbs	1	1
52.5 or 52.0 lbs	2	2
51.5 or 51.0 lbs	4	4
50.5 or 50.0 lbs	6	6
49.5 or 49.0 lbs	9	8
48.5 or 48.0 lbs	12	10
etc., etc.		

L.O. Copeland and D.D. Harpstead  
Extension Specialist  
Michigan State University

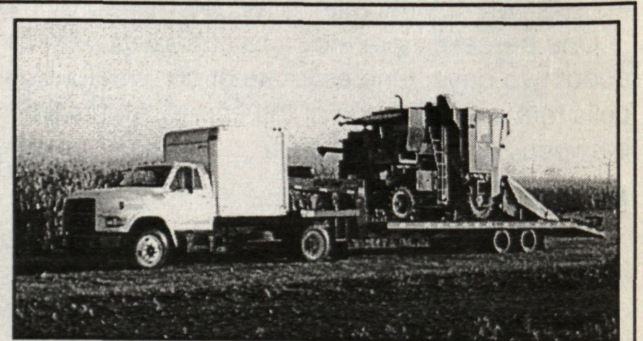
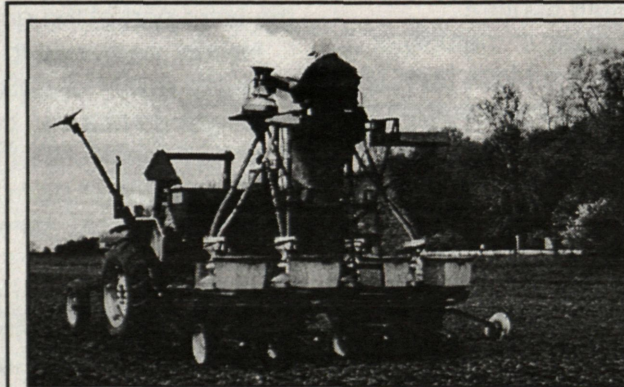
## Plots Require Specialized Equipment

**S**pecialized equipment makes the testing of large numbers of hybrids possible. From planting to harvest, specially constructed machines are used in this program.

Prior to planting, seed is packaged up in accordance with a computer generated field plan. This field plan becomes the permanent record for all field activities during a season. In the field the hybrids being planted change every 25 feet. As the planter moves across the field, two rows of two different hybrids are being planted simultaneously.

Grain harvesting is done with a two-row combine designed for plot harvest. Twenty two feet of row are taken for yield. Field weights are recorded at the end of each plot. The forward motion of the combine is stopped briefly to allow the grain handling system to clear before proceeding. This clearing operation is critical to the accuracy of the data collection system. Harvest normally proceeds at two- to two-and-a-half plots per minute. The data from this operation is recorded both on a computer chip for storage and on hard copy as backup. From the chip the data can be transferred directly into a computer for analysis and printed out in table format.

Portability is another key factor in the corn testing program. All operations are done at the 12 locations with one set of equipment. It is essential to be able to move from one location to another in a safe and efficient manner.





Average of Monroe, Branch & Cass County EARLY trials  
One, two, three year averages — 1994, 1993, 1992

EARLY TRIAL (106 DAY RELATIVE MATURITY OR EARLIER (BASED ON COMPANY RATING))																										
HYBRID (Brand-Variety)		% MOISTURE			TEST WGT 1994	BUSHELS PER ACRE			% STALK LODG			MONROE COUNTY					BRANCH COUNTY					CASS COUNTY				
		1994	2 Yr	3 Yr		1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD
		CARGILL	3777	16.6		--	--	60.7	159.5	---	---	2.4	--	--	17	63	168	2	98	18	59	166	1	100	15	60
PIONEER	3723	16.7	17	19	58.1	186.4	180	184	1.1	2	2	16	61	189	1	99	17	56	192	1	97	17	58	179	1	100
CALLAHAN	C7435	16.9	17	--	56.0	197.3	185	---	0.9	3	--	17	59	208	1	94	18	53	193	1	84	16	57	191	1	88
DEKALB	DK471	17.0	--	--	56.9	192.1	---	---	1.2	--	--	17	59	*219	0	99	18	54	196	2	92	16	58	161	2	88
CROW'S	180	17.1	--	--	55.8	173.7	---	---	3.8	--	--	17	58	181	4	100	18	54	175	3	93	16	55	166	5	100
*DEKALB	DK493	17.1	--	--	57.3	212.6	---	---	1.4	--	--	17	58	*225	1	100	18	55	*216	2	97	16	58	*197	1	97
GOLDEN HARVEST	H-2331	17.3	18	--	56.5	196.3	181	---	1.5	2	--	16	59	201	1	98	19	55	189	3	98	17	56	*199	1	100
NORTHROP KING	N4242	17.4	17	19	59.1	189.8	182	186	1.2	1	1	18	61	197	3	99	19	58	205	0	100	16	59	167	0	98
PAYCO	614	17.7	--	--	58.3	175.1	---	---	2.1	--	--	18	62	181	4	98	18	56	186	1	93	17	58	157	2	87
GOLDEN HARVEST	H-2349	17.8	18	--	56.5	189.2	180	---	0.7	1	--	17	59	182	1	100	19	55	199	0	99	17	56	187	1	100
PIONEER	3752	17.9	18	--	59.3	190.1	174	---	1.8	2	--	18	61	192	2	100	19	57	202	2	99	17	59	177	2	99
*DEKALB	DK512	18.0	--	--	55.4	203.8	---	---	0.9	--	--	18	59	*214	1	100	19	53	*211	0	98	18	55	186	1	96
GOLDEN HARVEST	Ex702	18.3	--	--	58.4	165.5	---	---	0.9	--	--	18	61	172	2	100	19	56	174	1	99	18	59	151	0	91
DEKALB	DK485	18.4	--	--	55.7	195.3	---	---	1.7	--	--	18	59	201	3	95	19	53	196	1	97	18	55	189	1	92
STINE	1033	18.4	--	--	58.3	178.0	---	---	0.7	--	--	18	61	186	1	99	19	55	184	1	100	18	59	164	0	99
GOLDEN HARVEST	H-2390	18.5	19	21	57.0	188.0	169	175	0.9	2	2	18	60	195	0	100	19	56	190	1	100	18	56	178	1	99
RENK	RK617	18.5	18	--	56.9	194.3	179	---	1.3	1	--	17	61	186	2	100	20	54	*209	0	100	18	56	188	2	100
PAYCO	531	18.6	18	20	57.4	195.6	183	189	0.8	1	1	18	59	200	1	100	20	56	*211	1	97	18	57	177	1	98
TOP FARM	TFsx1097A	18.6	--	--	57.0	171.2	---	---	0.3	--	--	17	60	179	0	100	20	53	163	1	98	18	58	172	0	97
STINE	92-70X	18.8	--	--	56.9	171.1	---	---	0.5	--	--	18	59	178	0	92	19	55	180	1	100	19	56	155	1	89
CALLAHAN	C7337	18.9	18	--	57.3	190.2	185	---	1.4	1	--	18	61	193	3	100	20	56	195	1	100	19	56	182	0	100
DAIRYLAND	STEALTH-1198	19.1	--	--	56.9	195.5	---	---	2.0	--	--	18	59	197	3	96	21	55	201	2	99	19	57	189	1	93
RENK	RK646PT	19.2	--	--	58.4	172.7	---	---	1.9	--	--	18	60	183	2	97	21	56	187	1	94	19	59	148	2	95
COUNTRYMARK	432	19.3	--	--	56.1	189.2	---	---	2.1	--	--	19	58	178	4	100	20	54	196	0	96	20	56	*194	2	100
DAIRYLAND	STEALTH-1203	19.3	19	21	55.2	171.5	170	177	2.4	2	3	19	58	174	3	100	20	54	166	3	94	19	54	175	2	98
CROW'S	204	19.4	--	--	57.4	188.1	---	---	0.7	--	--	18	60	184	1	94	21	56	191	0	96	19	57	189	1	99
HYPERFORMER	HY9385	19.4	20	--	56.0	193.4	174	---	1.3	3	--	19	58	199	2	100	20	54	199	1	100	19	56	183	1	99
*PIONEER	3525	19.4	21	22	57.2	219.8	206	210	0.6	1	1	19	60	*239	1	100	20	56	*212	1	99	20	56	*209	0	100
*PIONEER	3573	19.4	19	21	56.3	210.3	197	199	1.8	2	2	19	58	*219	1	98	20	54	*209	2	99	20	57	*203	2	99
TERRA	TR1050	19.5	20	21	57.3	190.2	178	176	2.5	3	4	18	60	208	3	98	21	55	200	3	99	19	57	163	2	99
AMCORN	5230	19.6	--	--	56.5	195.7	---	---	3.2	--	--	19	58	175	5	95	20	55	*209	3	96	20	56	*203	1	99
RUPP	XR1623	19.6	20	--	57.4	182.2	178	---	1.8	1	--	19	61	180	1	99	20	55	194	2	93	20	57	172	3	90
AMCORN	LG 2522	19.7	--	--	58.2	179.9	---	---	0.9	--	--	19	61	174	1	88	20	57	186	1	90	20	57	179	1	91
GOLDEN HARVEST	Ex692	19.7	--	--	57.4	168.4	---	---	0.6	--	--	19	60	177	1	100	21	56	174	0	100	20	57	153	1	100
CARGILL	4277	19.9	20	--	57.1	195.8	191	---	1.2	1	--	21	58	161	1	100	20	56	*214	1	100	20	57	*213	1	100
TERRA	TR1031	19.9	20	--	55.1	175.9	169	---	2.5	3	--	18	58	181	2	100	22	52	180	1	95	20	55	167	4	93
PAYCO	734	20.1	21	--	54.8	201.7	191	---	0.6	1	--	19	57	200	0	96	21	54	*216	1	90	20	54	188	1	86
CALLAHAN	C7249	20.2	21	23	56.5	193.2	178	182	1.0	1	1	20	58	180	1	99	21	56	202	1	97	21	56	*197	1	97
DAIRYLAND	STEALTH-1405	20.2	--	--	55.9	195.2	---	---	3.0	--	--	20	58	197	1	98	21	55	208	1	100	20	55	181	7	97
STINE	1059	20.2	--	--	57.9	163.3	---	---	1.2	--	--	18	60	190	0	100	21	56	156	1	100	21	58	144	2	99
TRELAY	7200	20.2	--	--	54.7	203.1	---	---	1.5	--	--	19	57	203	1	98	21	53	*211	3	98	21	54	*195	1	97
*DAIRYLAND	STEALTH-1407	20.3	--	--	54.8	208.4	---	---	1.4	--	--	18	58	198	2	95	21	54	*220	2	96	22	52	*207	1	93
*DEKALB	DK569	20.3	--	--	54.8	222.3	---	---	1.2	--	--	20	57	*244	1	100	21	53	*214	1	98	20	55	*209	1	95
LEADER	X3654	20.3	--	--	57.5	170.8	---	---	1.3	--	--	19	60	200	0	94	21	55	176	2	88	21	58	137	2	64
*NORTHROP KING	N5220	20.3	--	--	57.6	212.4	---	---	1.3	--	--	20	60	*234	1	99	21	56	200	2	96	20	57	*203	0	98
PAYCO	711	20.3	21	23	55.9	188.3	186	191	2.1	2	2	20	57	168	1	98	21	55	201	2	99	20	55	*197	3	91
TOP FARM	TFsx2103	20.3	--	--	56.7	193.1	---	---	1.3	--	--	20	60	201	1	100	21	56	204	1	97	20	55	175	2	100
CALLAHAN	C7245	20.4	20	22	55.7	186.7	176	176	1.4	1	1	20	57	192	2	100	22	54	195	1	100	19	56	173	1	100
LEADER	SX499	20.4	--	--	56.4	192.6	---	---	0.4	--	--	21	57	158	0	99	20	55	*217	0	99	20	57	*202	1	100
TRELAY	6002	20.4	--	--	55.8	201.6	---	---	0.6	--	--	20	58	*210	0	100	22	54	*212	1	100	20	55	183	1	100
TOP FARM	TFsx2104	20.6	21	--	55.8	192.8	173	---	0.8	1	--	19	58	198	0	100	23	54	192	1	98	20	56	188	1	100
BECK'S	5070	20.7	--	--	56.4	178.0	---	---	1.0	--	--	19	59	205												



Average of Monroe, Branch & Cass County LATE trials  
One, two, three year averages — 1994, 1993, 1992

LATE TRIAL (107 DAY RELATIVE MATURITY OR LATER (BASED ON COMPANY RATING))																										
HYBRID (Brand-Variety)		% MOISTURE			BUSHELS PER ACRE			% STALK LODG			MONROE COUNTY					BRANCH COUNTY					CASS COUNTY					
		1994	2 Yr	3 Yr	TEST WGT 1994	1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD
VIGORO	V1084	20.8	--	--	55.3	190.5	---	---	0.9	--	--	20	57	205	1	96	22	55	197	1	90	21	54	170	1	88
RENK	RK714	20.9	22	--	57.4	188.1	178	---	1.3	1	--	20	60	189	1	100	22	55	193	1	100	21	57	183	1	100
AMCORN	Ex 537	21.0	--	--	57.4	168.8	---	---	0.4	--	--	20	60	165	0	96	22	57	174	1	83	21	56	168	0	82
MYCOGEN	6060	21.0	--	--	57.6	178.1	---	---	0.1	--	--	20	60	190	0	95	23	56	172	0	84	20	57	173	0	75
ICI SEEDS	8570	21.5	--	--	55.9	192.8	---	---	0.7	--	--	22	57	198	1	100	22	54	196	0	95	20	57	185	1	93
*DEKALB	DK580	21.7	--	--	56.0	215.8	---	---	0.8	--	--	22	58	223	1	98	23	54	211	1	99	20	57	*214	1	100
HYPERFORMER	HY9424	21.8	22	--	56.8	200.3	191	---	0.4	1	--	20	59	204	0	98	23	56	198	0	98	23	56	199	0	96
*CARGILL	5677	21.9	22	--	56.1	220.0	199	---	0.8	1	--	21	58	222	1	99	23	54	*220	1	90	22	56	*219	1	89
*CIBA	4394	22.0	--	--	55.5	226.0	---	---	0.1	--	--	21	58	221	0	96	23	55	*233	0	98	23	54	*224	0	99
CROW'S	435	22.1	--	--	54.5	197.4	---	---	0.9	--	--	21	57	191	2	98	24	54	213	0	99	21	53	189	0	100
RENK	RK802PT	22.1	--	--	55.5	185.8	---	---	0.5	--	--	21	57	192	1	99	23	56	189	0	95	23	53	177	1	99
CARGILL	SX269	22.2	24	27	56.4	184.5	181	183	1.1	1	1	21	59	177	0	98	23	55	187	1	99	23	54	189	2	98
HYPERFORMER	HS9408	22.2	--	--	55.9	214.5	---	---	0.7	--	--	22	58	217	1	98	23	56	*236	1	100	22	54	191	0	95
ICI SEEDS	N8541	22.2	--	--	56.1	200.8	---	---	0.0	--	--	21	58	198	0	93	23	56	212	0	95	23	55	192	0	88
NORTHROP KING	X6133	22.2	--	--	57.3	204.9	---	---	0.6	--	--	22	60	217	0	97	23	56	200	0	96	22	56	197	1	93
*PIONEER	3394	22.2	23	26	56.5	227.7	208	206	0.0	--	--	21	58	*227	0	100	22	56	*233	0	100	23	55	*224	0	96
STINE	1076	22.2	--	--	54.9	195.5	---	---	0.9	--	--	22	57	217	1	100	24	53	185	0	98	21	54	185	1	100
CARGILL	6303	22.3	--	--	55.2	200.3	---	---	0.5	--	--	21	57	198	0	99	25	54	198	1	97	21	55	206	0	100
*BECK'S	5305	22.5	--	--	55.7	221.3	---	---	0.4	--	--	21	58	*233	0	91	23	54	211	1	98	24	55	*220	0	97
ASGROW	RX699	22.7	--	--	57.2	210.8	---	---	0.3	--	--	22	60	216	0	100	23	56	213	0	100	23	56	204	0	98
*CIBA	4225X	22.7	--	--	58.8	223.7	---	---	0.1	--	--	22	62	*244	0	100	24	59	211	0	96	23	56	*216	0	99
*CIBA	4494	22.7	--	--	56.8	215.2	---	---	0.6	--	--	21	60	*239	1	100	24	56	199	0	90	24	55	*208	0	98
RENK	RK835	22.7	--	--	56.0	206.4	---	---	0.7	--	--	21	59	214	1	97	24	55	202	0	95	23	54	203	1	99
*DAIRYLAND	STEALTH-1209	22.8	--	--	55.6	220.7	---	---	0.4	--	--	20	58	*227	1	99	24	55	217	0	97	25	54	*219	0	97
HYPERFORMER	HX45101	22.9	--	--	54.1	197.2	---	---	0.3	--	--	23	55	203	0	97	23	54	202	1	84	22	53	187	0	89
*CALLAHAN	C7252	23.1	--	--	55.2	217.0	---	---	0.6	--	--	22	56	220	1	99	24	55	*235	0	99	24	54	196	1	98
NORTHROP KING	N5901	23.1	--	--	57.0	191.0	---	---	0.1	--	--	21	59	202	0	99	25	56	192	0	98	24	56	179	0	87
RENK	RK812	23.1	25	28	54.1	211.6	189	192	0.7	1	1	21	57	213	1	95	25	53	211	0	97	24	53	*211	0	100
*AMCORN	Ex 583	23.2	--	--	55.1	223.8	---	---	0.4	--	--	21	56	*235	0	100	25	55	*222	0	96	23	55	*214	1	99
PAYCO	814	23.2	24	--	55.7	212.0	191	---	0.5	1	--	22	58	*229	0	100	25	54	208	1	99	23	55	199	0	100
*AMCORN	5930	23.3	--	--	54.5	215.8	---	---	0.6	--	--	21	57	224	1	99	25	53	*219	0	95	24	53	204	1	98
AMCORN	5830	23.4	--	--	56.0	202.0	---	---	0.4	--	--	22	58	212	0	93	23	56	200	0	95	25	54	194	0	92
*DEKALB	DK591	23.4	--	--	54.0	217.1	---	---	1.0	--	--	24	55	221	2	100	24	54	*220	1	100	23	53	*211	0	96
GUTWEIN	2434	23.4	--	--	55.2	205.7	---	---	0.6	--	--	22	57	199	1	100	24	54	209	1	98	24	55	*209	0	95
*HYPERFORMER	HY9487	23.4	26	--	54.6	215.5	197	---	0.7	1	--	20	57	225	2	100	26	53	217	0	96	24	54	204	0	98
VIGORO	V1105	23.4	--	--	55.2	185.9	---	---	0.7	--	--	20	58	210	1	96	25	54	175	0	90	25	54	172	1	85
CROW'S	401	23.6	25	28	54.0	214.6	197	199	0.7	1	1	21	57	*230	1	100	25	53	203	1	97	25	52	*212	0	99
*CROW'S	445	23.6	25	--	56.0	215.6	200	---	0.8	1	--	22	59	*229	1	100	24	55	*221	0	98	25	54	196	2	98
*CARGILL	6327	23.7	--	--	54.8	216.1	---	---	0.4	--	--	22	57	*237	0	100	26	54	208	0	100	24	54	203	0	100
VINEYARD	V414W	23.7	--	--	57.3	185.7	---	---	0.9	--	--	23	58	188	1	100	24	56	186	2	100	24	58	183	0	100
*TRI STATE	572	23.7	--	--	55.2	220.6	---	---	0.7	--	--	21	57	217	1	100	26	55	*231	0	100	not planted				
TRI STATE	633	23.7	--	--	55.5	197.2	---	---	0.3	--	--	24	56	186	0	98	25	56	203	0	100	23	55	202	0	100
*GUTWEIN	2474	23.8	26	28	54.2	220.0	194	194	0.7	1	1	22	58	*231	1	100	26	53	214	1	100	24	52	*215	1	98
MYCOGEN	6220	23.8	--	--	55.0	211.1	---	---	0.5	--	--	22	58	*228	0	100	26	54	196	0	92	24	53	*210	1	100
TRI STATE	574	23.8	25	--	54.8	205.2	197	---	0.6	1	--	22	56	189	1	99	24	54	*220	0	100	25	54	206	0	97
MYCOGEN	6970	23.9	--	--	55.3	210.0	---	---	0.9	--	--	23	57	*235	1	100	25	54	197	1	96	24	55	198	1	98
PAYCO	754	23.9	--	--	54.1	195.0	---	---	0.5	--	--	24	56	211	0	96	26	53	179	1	98	22	54	195	0	100
*PAYCO	834	23.9	--	--	55.3	226.0	---	---	0.6	--	--	21	58	*234	1	98	25	54	*227	0	97	26	54	*217	1	94
TOP FARM	TFsx2108	24.0	--	--	54.4	195.2	---	---	0.3	--	--	22	58	206	1	100	25	53	209	0	97	26	53	171	0	83
HYPERFORMER	HY9490	24.2	--	--	56.1	198.3	---	---	0.4	--	--	24	57	189	0	99	24	57	217	0	98	24	55	189	1	99
TERRA	TR1070	24.2	--	--	55.5	195.2	---	---	1.2	--	--	24	58	213	1	100	25	54	181	0	98	23	55	192	2	99
TERRA	TR1091	24.2	--	--	55.0	206.4	---	---	0.8	--	--	23	58	219	2	97	25	55	218	1	98	24	53	183	0	99
RENK	RK886	24.3	26	28	56.1	210.5	184	187	0.6	1	1	22														



**Average of Kent, Ingham & Saginaw County EARLY trials  
One, two, three year averages — 1994, 1993, 1992**

EARLY TRIAL (100 DAY RELATIVE MATURITY OR EARLIER (BASED ON COMPANY RATING))

HYBRID (Brand-Variety)	% MOISTURE			TEST WGT 1994	BUSHELS PER ACRE			% STALK LOOG			KENT COUNTY					INGHAM COUNTY					SAGINAW COUNTY				
	1994	2 Yr	3 Yr		1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD
	VIGORO V875	17.0	--		--	58.6	161.9	---	---	1.3	--	--	16	61	173	2	100	18	56	138	2	97	17	59	175
<b>Average</b>	20.7	21	22	55.9	181.6	183	180	2.0	2	2	20	58	202	2	97	22	53	148	3	91	21	57	195	1	98
<b>Range</b>	17.0 to 26.2	19 to 23	21 to 23	53.2 to 59.2	139.5 to 208.4	161 to 196	168 to 189	0.4 to 5.1	1 to 3	1 to 3	16 to 25	54 to 62	155 to 234	0 to 7	77 to 100	18 to 27	50 to 56	106 to 185	0 to 9	64 to 100	17 to 27	55 to 61	150 to 219	0 to 4	79 to 100
<b>Least Significant Difference</b>	.8			.8	8.7	1			1	10	1			1	11	1			1	8	1			1	8
<b>Coefficient of Variance</b>	4.0			1.6	5.0	5			3	6	7			3	9	5			2	5	5			2	5

\* SIGNIFICANTLY BETTER THAN AVERAGE YIELD IN 1994

**KENT**  
 PLANTED May 4  
 HARVESTED October 26  
 SOIL TYPE Spinks Loamy Sand  
 PREVIOUS CROP Alfalfa Sod  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,600  
 ROW WIDTH 30"  
 FERTILIZER 76-0-0  
 SOIL TEST: pH 5.8  
 P 132 (very high)  
 K 320 (very high)

**INGHAM**  
 PLANTED April 25  
 HARVESTED October 20  
 SOIL TYPE Capac Loam  
 PREVIOUS CROP Soybeans  
 PERFECT STAND 27,700  
 AVERAGE POPULATION 25,680  
 ROW WIDTH 30"  
 FERTILIZER 160-10-107  
 SOIL TEST: pH 5.9  
 P 113 (very high)  
 K 240 (high)

**SAGINAW**  
 PLANTED May 3  
 HARVESTED October 28  
 SOIL TYPE Charity Clay  
 PREVIOUS CROP Dry Beans  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,940  
 ROW WIDTH 30"  
 FERTILIZER 160-0-0  
 SOIL TEST: pH 7.7  
 P 132 (very high)  
 K 528 (very high)

FARM COOPERATORS: Gerald Kayser, Pleasant Acres Farm, Caledonia; Michigan State University, East Lansing  
 COUNTY EXTENSION DIRECTOR: William Harrison, Grand Rapids; Joseph Lessard, Mason  
 EXTENSION AGR'L AGENTS: William Steenwyk, Grand Rapids; John Knorek and Laura Rhodes, Mason

FARM COOPERATORS: Paul Horny, Saginaw Beet & Bean Research Farm, Saginaw  
 COUNTY EXTENSION DIRECTOR: James Thews, Saginaw  
 EXTENSION AGR'L AGENT: Steven Poindexter, Saginaw



**Average of Kent, Ingham & Saginaw County LATE trials  
One, two, three year averages — 1994, 1993, 1992**

LATE TRIAL (101 DAY RELATIVE MATURITY OR LATER (BASED ON COMPANY RATING))

HYBRID (Brand-Variety)	% MOISTURE			TEST WGT 1994	BUSHEL PER ACRE			% STALK LODG			KENT COUNTY					INGHAM COUNTY					SAGINAW COUNTY				
	1994	2 Yr	3 Yr		1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD
	ICI SEEDS 8700	22.1	23		23	55.6	185.7	176	172	1.4	3	4	22	57	222	2	98	23	52	132	2	96	22	58	203
<b>Average</b>	<b>25.7</b>	<b>27</b>	<b>28</b>	<b>54.0</b>	<b>191.3</b>	<b>188</b>	<b>181</b>	<b>1.5</b>	<b>2</b>	<b>2</b>	<b>25</b>	<b>55</b>	<b>212</b>	<b>2</b>	<b>97</b>	<b>27</b>	<b>52</b>	<b>153</b>	<b>2</b>	<b>94</b>	<b>25</b>	<b>55</b>	<b>209</b>	<b>1</b>	<b>98</b>
<b>Range</b>	<b>22.1 to 32.0</b>	<b>23 to 32</b>	<b>23 to 32</b>	<b>51.4 to 56.1</b>	<b>152.1 to 220.9</b>	<b>167 to 204</b>	<b>167 to 196</b>	<b>0.5 to 3.2</b>	<b>2 to 5</b>	<b>2 to 4</b>	<b>22 to 30</b>	<b>53 to 58</b>	<b>170 to 247</b>	<b>0 to 5</b>	<b>90 to 100</b>	<b>21 to 35</b>	<b>49 to 55</b>	<b>114 to 195</b>	<b>0 to 6</b>	<b>78 to 100</b>	<b>21 to 33</b>	<b>52 to 58</b>	<b>168 to 214</b>	<b>0 to 3</b>	<b>87 to 100</b>
<b>Least Significant Difference</b>	<b>1.1</b>			<b>.8</b>	<b>10.4</b>						<b>1</b>	<b>1</b>	<b>12</b>		<b>2</b>	<b>2</b>	<b>14</b>			<b>1</b>	<b>1</b>	<b>11</b>			
<b>Coefficient of Variance</b>	<b>4.5</b>			<b>1.4</b>	<b>5.7</b>						<b>6</b>	<b>2</b>	<b>7</b>		<b>7</b>	<b>4</b>	<b>11</b>			<b>5</b>	<b>2</b>	<b>6</b>			

\* SIGNIFICANTLY BETTER THAN AVERAGE YIELD IN 1994

**KENT**  
 PLANTED May 4  
 HARVESTED October 26  
 SOIL TYPE Spinks Loamy Sand  
 PREVIOUS CROP Alfalfa Sod  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,600  
 ROW WIDTH 30"  
 FERTILIZER 76-0-0  
 SOIL TEST: pH 5.8  
 P 132 (very high)  
 K 320 (very high)

**INGHAM**  
 PLANTED April 25  
 HARVESTED October 20  
 SOIL TYPE Capac Loam  
 PREVIOUS CROP Soybeans  
 PERFECT STAND 27,700  
 AVERAGE POPULATION 25,680  
 ROW WIDTH 30"  
 FERTILIZER 160-10-107  
 SOIL TEST: pH 5.9  
 P 113 (very high)  
 K 240 (high)

**SAGINAW**  
 PLANTED May 3  
 HARVESTED October 28  
 SOIL TYPE Charity Clay  
 PREVIOUS CROP Dry Beans  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,940  
 ROW WIDTH 30"  
 FERTILIZER 160-0-0  
 SOIL TEST: pH 7.7  
 P 132 (very high)  
 K 528 (very high)

FARM COOPERATORS: Gerald Kayser, Pleasant Acres Farm, Caledonia; Michigan State University, East Lansing  
 COUNTY EXTENSION DIRECTOR: William Harrison, Grand Rapids; Joseph Lessard, Mason  
 EXTENSION AGR'L AGENTS: William Steenwyk, Grand Rapids; John Knorek and Laura Rhodes, Mason

FARM COOPERATORS: Paul Horny, Saginaw Beet & Bean Research Farm, Saginaw  
 COUNTY EXTENSION DIRECTOR: James Thews, Saginaw  
 EXTENSION AGR'L AGENT: Steven Poindexter, Saginaw



**Average of Huron, Montcalm & Mason County EARLY trials  
One, two, three year averages — 1994, 1993, 1992**

EARLY TRIAL (98 DAY RELATIVE MATURITY OR EARLIER (BASED ON COMPANY RATING))

HYBRID (Brand-Variety)	TEST WGT 1994	% MOISTURE			BUSHEL PER ACRE			% STALK LODG			HURON COUNTY					MONTCALM COUNTY					MASON COUNTY					
		1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD	
		DEKALB DK381	56.8	16.7	--	--	158.3	---	---	2.2	--	--	15	57	113	3	98	19	57	194	1	96	16	57	168	3
<b>Average</b>		20.2	21	25	56.5	161.7	158	161	2.0	2	2	17	57	126	3	95	23	56	192	1	89	20	57	168	2	74
<b>Range</b>		16.7	19	22	53.7	109.8	130	153	0.4	1	1	15	53	100	0	82	19	53	94	0	36	16	54	97	0	35
<b>Least Significant Difference</b>		1.1			.8	18.7						1	1	9			1	1	13			1	1	11		
<b>Coefficient of Variance</b>		5.8			1.5	12.2						3	3	9			7	2	8			4	2	8		

\* SIGNIFICANTLY BETTER THAN AVERAGE YIELD IN 1994

**HURON**  
 PLANTED May 10  
 HARVESTED November 11  
 SOIL TYPE Kilmanagh Loam  
 PREVIOUS CROP Corn  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,360  
 ROW WIDTH 30"  
 FERTILIZER 150-120-9  
 SOIL TEST: pH 6.8  
 P 73 (high)  
 K 216 (high)  
 IRRIGATION

**MONTCALM**  
 PLANTED April 27  
 HARVESTED November 3  
 SOIL TYPE Montcalm-McBride Sandy Loam  
 PREVIOUS CROP Potatoes  
 PERFECT STAND 29,700  
 AVERAGE POPULATION 27,070  
 ROW WIDTH 30"  
 FERTILIZER 137-0-120  
 SOIL TEST: pH 5.5  
 P 534 (very high)  
 K 248 (high)  
 IRRIGATION 4.25 inches

**MASON**  
 PLANTED May 6  
 HARVESTED November 2  
 SOIL TYPE Ogemaw Sandy Loam  
 PREVIOUS CROP Snap Beans-rye cover  
 PERFECT STAND 24,500  
 AVERAGE POPULATION 18,300  
 ROW WIDTH 30"  
 FERTILIZER 130-4-60  
 SOIL TEST: pH 6.5  
 P 311 (very high)  
 K 528 (very high)  
 IRRIGATION None

FARM COOPERATORS: William, Ron and Ed McCrea, Wil-le Farms, Bad Axe; Richard Crawford, Montcalm Research Farm, Entran  
 COUNTY EXTENSION DIRECTOR: Robert Johnson, Bad Axe; Donald Smucker, Stanton  
 EXTENSION AGR'L AGENTS: James LeCureux, Bad Axe; George Atkeson, Stanton

FARM COOPERATORS: Robert and August Oshe, Scottville  
 COUNTY EXTENSION DIRECTOR: David Peterson, Scottville



Average of Huron, Montcalm & Mason County LATE trials  
One, two, three year averages — 1994, 1993, 1992

HYBRID (Brand-Variety)		% MOISTURE			TEST WGT 1994	BUSHEL PER ACRE			% STALK LODG			HURON COUNTY					MONTCALM COUNTY					MASON COUNTY				
		1994	2 Yr	3 Yr		1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	% TEST			% %		% TEST			% %		% TEST			% %	
												H2O	WT	B/A	SL	STD	H2O	WT	B/A	SL	STD	H2O	WT	B/A	SL	STD
PIONEER	3723	20.5	22	25	57.0	184.1	177	171	1.1	1	1	18	57	140	3	100	24	57	222	1	99	20	57	*190	0	84
DAIRYLAND	STEALTH-1400	20.7	--	--	55.7	149.2	--	--	1.5	--	--	17	55	122	3	100	25	56	160	1	64	21	56	165	1	70
DEKALB	DK493	20.8	--	--	56.3	188.4	--	--	2.1	--	--	17	57	*154	4	99	25	55	*233	1	99	21	57	179	1	74
STINE	993	20.8	22	--	55.7	181.3	173	--	1.4	1	--	17	56	128	0	96	24	55	221	1	99	22	56	*194	3	79
MYCOGEN	AG3965	20.9	21	--	55.7	181.1	170	--	2.2	2	--	17	55	147	2	96	25	56	224	1	100	20	57	173	3	75
ICI SEEDS	8746	21.4	--	--	55.6	175.1	--	--	2.5	--	--	17	56	129	4	98	24	55	222	1	99	23	56	174	3	59
RENK	RK657	21.4	23	26	54.9	165.5	156	151	1.6	1	2	18	54	106	1	100	25	55	214	1	100	22	56	177	3	91
COUNTRYMARK	432	21.5	--	--	55.9	179.4	--	--	0.7	--	--	17	55	122	1	100	25	56	*236	0	100	23	56	181	1	80
MYCOGEN	5270	21.5	--	--	56.0	164.2	--	--	4.3	--	--	19	56	118	8	95	25	56	200	3	99	21	57	175	3	75
RENK	RK617	21.6	23	26	55.9	176.5	164	157	1.9	2	3	17	56	129	1	100	25	56	223	1	100	23	56	178	4	79
STINE	994	21.6	--	--	55.3	159.6	--	--	1.7	--	--	17	56	132	1	97	26	54	172	2	68	21	56	175	2	70
JUNG	2648	21.7	23	25	54.7	167.8	159	156	1.8	2	2	18	54	130	3	100	25	55	210	1	100	22	55	163	2	79
RENK	RK602	21.8	24	26	53.1	181.7	163	158	3.0	2	2	19	52	135	4	100	25	53	215	2	99	22	54	*196	3	82
TOP FARM	TFsx1097A	21.8	--	--	54.9	162.6	--	--	1.1	--	--	18	55	142	1	100	26	54	201	1	97	22	55	145	1	74
CROW'S	180	21.9	--	--	53.7	172.5	--	--	3.1	--	--	19	54	134	5	100	25	53	217	1	100	21	54	167	3	72
CIBA	2130X	22.2	--	--	55.8	175.6	--	--	0.9	--	--	19	57	145	1	98	26	55	197	1	100	22	56	*185	1	87
NORTHROP KING	N4242	22.5	22	26	56.1	182.1	170	161	1.3	1	1	17	57	*156	2	98	27	56	219	1	100	23	55	172	2	74
DEKALB	DK512	22.6	--	--	54.6	183.7	--	--	2.8	--	--	17	55	*160	6	100	28	54	221	1	99	23	54	171	2	75
GOLDEN HARVEST	Ex702	22.7	--	--	56.3	165.8	--	--	1.1	--	--	20	56	127	3	98	25	57	212	1	97	23	56	158	0	69
RUPP	XR1644	23.4	25	29	57.0	166.3	156	151	0.8	1	1	19	57	*158	2	97	27	56	188	0	89	24	58	153	0	72
DAIRYLAND	STEALTH-1200	23.5	--	--	56.2	160.1	--	--	1.6	--	--	19	55	130	1	100	29	56	192	2	100	23	57	159	2	83
PICKSEED	5993	23.6	25	27	53.8	126.4	143	150	0.9	1	1	19	54	128	2	89	28	54	136	0	50	24	53	115	1	68
HYPERFORMER	HY9355	23.9	--	--	55.0	155.2	--	--	1.9	--	--	20	56	*150	2	100	29	55	191	2	100	23	54	125	1	60
*PIONEER	3573	23.9	26	30	54.8	209.5	193	180	1.3	1	1	19	55	*156	2	99	28	55	*245	1	100	25	54	*228	1	81
*PIONEER	3525	24.0	27	31	55.1	197.5	183	173	1.0	1	1	21	54	142	2	99	27	55	*258	1	100	24	56	*192	1	75
TERRA	TR1031	24.0	25	--	54.2	174.0	164	--	2.7	2	--	20	53	141	5	99	29	54	202	2	100	23	56	179	2	84
*CROW'S	204	24.1	--	--	56.0	190.6	--	--	1.4	--	--	18	57	143	3	93	30	55	*234	1	98	24	57	*195	1	85
CROW'S	370	24.1	25	29	53.5	169.9	161	153	3.4	2	3	20	53	128	6	100	28	53	213	1	99	25	54	168	3	73
JUNG	2596	24.2	25	--	53.6	183.9	176	--	3.1	2	--	20	52	138	2	100	28	54	*229	2	100	25	54	*185	5	82
DAIRYLAND	STEALTH-1205	24.9	26	31	54.2	177.6	168	159	1.4	1	1	21	55	134	2	100	29	53	*232	2	99	25	55	167	1	74
DAIRYLAND	STEALTH-1203	25.1	25	29	53.0	177.5	167	159	1.5	1	1	20	52	134	3	100	30	53	223	2	99	26	54	176	0	78
PAYCO	734	25.4	27	--	53.2	184.4	175	--	0.5	1	--	21	53	*156	2	92	30	53	211	0	74	25	53	*186	0	70
CARGILL	4277	25.5	27	--	54.6	187.5	174	--	2.1	1	--	20	53	*151	5	98	31	55	*244	0	100	26	56	167	1	82
*CARGILL	4327	25.6	27	32	56.0	190.8	177	166	3.1	2	3	20	54	146	7	89	31	58	*239	2	99	27	55	*187	1	72
RUPP	XR1623	25.6	26	--	55.2	185.0	167	--	1.6	1	--	21	55	145	4	90	30	55	*234	1	95	26	55	176	0	70
JUNG	2672	25.8	--	--	54.2	164.0	--	--	1.6	--	--	21	54	*149	3	100	31	54	197	1	100	26	55	146	1	77
ASGROW	RX623	25.9	27	31	55.0	183.2	179	167	1.7	2	1	22	55	*153	1	99	29	56	223	1	99	27	54	174	3	70
*GUTWEIN	Ex333	25.9	--	--	53.4	193.8	--	--	1.1	--	--	20	53	*150	1	98	31	54	*237	1	99	26	53	*195	1	75
*PIONEER	3394	26.8	--	--	56.0	195.5	--	--	0.9	--	--	21	55	138	1	99	32	56	*243	0	99	27	57	*206	1	75
CARGILL	5547	27.0	--	--	54.5	187.3	--	--	1.7	--	--	22	54	*154	5	100	31	55	*236	0	100	28	55	172	0	76
CARGILL	5677	28.3	--	--	54.1	174.5	--	--	2.4	--	--	21	54	142	4	98	35	54	206	1	83	29	54	176	2	68
RUPP	XR1727	29.7	--	--	54.2	161.1	--	--	1.3	--	--	25	53	135	1	100	34	55	216	0	100	30	55	133	2	68
Average		23.6	25	28	55.0	175.2	169	161	1.8	1	2	19	55	139	3	98	28	55	214	1	94	24	55	172	2	74
Range		20.5	21	25	53.0	126.4	143	150	0.5	1	1	17	52	106	0	86	24	53	136	0	50	20	53	115	0	59
		to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
		29.7	27	31	57.0	209.5	193	180	4.3	2	3	25	57	160	8	100	35	58	258	3	100	30	58	228	5	91
Least Significant Difference		1.1			1.2	14.8						1	1	9			2	1	12			1	2	12		
Coefficient of Variance		4.7			1.6	8.9						4	2	8			6	3	7			5	3	9		

\* SIGNIFICANTLY BETTER THAN AVERAGE YIELD IN 1994

	HURON	MONTCALM
PLANTED	May 10	April 27
HARVESTED	November 11	November 3
SOIL TYPE	Kilmanagh Loam	Montcalm-McBride Sandy Loam
PREVIOUS CROP	Corn	Potatoes
PERFECT STAND	28,500	29,700
AVERAGE POPULATION	27,360	27,070
ROW WIDTH	30"	30"
FERTILIZER	150-120-9	137-0-120
SOIL TEST: pH	6.8	5.5
P	73 (high)	534 (very high)
K	216 (high)	248 (high)
IRRIGATION		4.25 inches

	MASON
PLANTED	May 6
HARVESTED	November 2
SOIL TYPE	Ogemaw Sandy Loam
PREVIOUS CROP	Snap Beans-rye cover
PERFECT STAND	24,500
AVERAGE POPULATION	18,300
ROW WIDTH	30"
FERTILIZER	130-4-60
SOIL TEST: pH	6.5



Average of Alpena, Grand Traverse & Delta County trials  
One, two, three year averages — 1994, 1993, 1992

HYBRID (Brand-Variety)	TEST WGT 1994	% MOISTURE			BUSHEL PER ACRE			% STALK LODG			ALPENA COUNTY					GRAND TRAVERSE COUNTY					DELTA COUNTY SILAGE				
		1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	1994	2 Yr	3 Yr	% H2O	TEST WT	B/A	% SL	% STD	% H2O	TEST WT	B/A	% SL	% STD	% DM	G WT	D WT	% STD	
		DEKALB DK306	21.9	--	--	55.9	141.1	---	---	1.9	--	--	19	57	135	3	100	25	55	148	1	100	36	15.6	5.6
DEKALB DK352	21.9	--	--	55.1	159.2	---	---	5.0	--	--	17	58	167	4	100	27	52	152	6	100	31	21.3	6.6	84	
DAIRYLAND STEALTH-1174	22.1	--	--	58.4	123.5	---	---	5.7	--	--	19	61	138	5	99	26	56	109	7	100	34	14.2	4.8	71	
PIONEER 3979	22.3	--	--	56.4	92.5	---	---	28.2	--	--	18	58	58	50	100	26	55	127	7	100	33	13.0	4.4	82	
PAYCO 151	22.8	--	--	58.0	144.5	---	---	6.0	--	--	18	61	156	8	100	28	55	133	4	100	32	14.2	4.5	80	
ANDERSONS HSX2241	23.0	--	--	54.5	167.8	---	---	5.0	--	--	18	57	170	7	100	28	52	*166	3	100	31	15.4	4.8	71	
*PIONEER 3905	23.6	--	--	56.7	174.3	---	---	3.2	--	--	19	59	*185	3	100	28	54	*163	4	100	34	18.2	6.2	80	
MYCOGEN 1376	23.8	--	--	53.9	130.0	---	---	3.9	--	--	20	55	112	6	94	28	53	148	2	100	33	16.4	5.3	84	
PIONEER 3907	23.9	26	--	55.7	170.2	143	---	1.6	1	--	19	58	*179	1	100	29	53	*161	2	100	33	19.2	6.3	79	
CARGILL 1037	24.4	--	--	57.1	147.0	---	---	3.1	--	--	20	58	142	5	100	29	56	152	2	100	36	18.2	6.6	84	
ICI SEEDS 8990	24.4	--	--	56.4	166.9	---	---	4.0	--	--	18	60	178	5	97	31	53	156	3	99	32	19.1	6.1	84	
JUNG 2244	24.5	--	--	55.8	159.0	---	---	3.7	--	--	19	58	170	5	100	30	54	148	2	100	34	17.9	6.1	85	
*PAYCO 344	24.5	--	--	54.4	182.9	---	---	2.4	--	--	18	56	*192	1	95	31	53	*174	4	100	27	26.5	*7.1	85	
*DEKALB DK401	24.6	--	--	54.5	193.0	---	---	2.8	--	--	18	57	*197	2	100	32	52	*189	4	100	27	24.6	*6.7	79	
PAYCO 253	24.7	26	--	54.6	158.4	128	---	5.1	3	--	19	56	168	4	97	30	53	149	6	97	32	21.3	*6.8	90	
NORTHROP KING N1500	24.9	--	--	56.7	163.5	---	---	3.0	--	--	20	58	176	2	100	30	55	151	4	100	32	18.9	6.0	84	
DAIRYLAND STEALTH-1285	25.2	26	--	55.1	146.9	121	---	2.0	2	--	21	57	154	2	100	29	53	139	2	100	31	19.0	5.8	84	
*DEKALB DK381	25.2	--	--	54.4	178.4	---	---	1.9	--	--	18	57	*183	3	100	33	52	*173	1	100	28	25.4	*7.1	82	
PICKSEED 2620	25.2	27	27	57.1	166.4	132	125	2.7	2	2	19	60	173	3	100	32	54	*160	2	100	34	17.7	6.0	87	
ICI SEEDS 8940	25.3	--	--	55.5	167.9	---	---	1.4	--	--	19	58	170	0	100	32	53	*166	2	100	30	19.6	5.8	80	
WOLF RIVER VAL WRV9383	25.3	--	--	54.6	168.1	---	---	3.9	--	--	20	56	171	7	94	31	53	*166	1	100	28	21.5	6.0	83	
CIBA 4030	25.4	--	--	54.7	159.8	---	---	2.4	--	--	20	56	170	2	100	31	53	149	3	100	35	19.1	*6.7	86	
*PIONEER 3893	25.4	--	--	54.0	199.1	---	---	1.6	--	--	21	55	*210	2	100	30	53	*188	1	100	34	19.6	6.6	77	
MYCOGEN 4140	25.5	--	--	55.8	151.1	---	---	3.3	--	--	20	59	149	4	90	31	53	153	2	94	32	16.3	5.2	80	
JUNG 2386	25.6	28	--	56.2	162.6	124	---	1.8	2	--	19	59	171	2	97	32	54	154	2	100	28	18.2	5.1	88	
CARGILL 2497	25.7	29	--	54.7	168.5	136	---	5.3	3	--	20	56	177	3	91	31	53	*160	7	100	31	20.6	6.4	87	
AMCORN Ex 272	25.8	--	--	56.1	152.2	---	---	3.1	--	--	20	58	161	2	83	32	54	143	4	96	33	14.1	4.7	50	
DAIRYLAND STEALTH-1284	25.8	--	--	54.1	151.0	---	---	3.4	--	--	21	55	158	3	98	31	53	144	4	100	33	17.2	5.7	76	
WOLF RIVER VAL WRV9185	26.0	26	--	55.7	151.1	121	---	4.6	3	--	21	57	157	3	88	31	55	145	6	99	34	14.7	4.9	62	
NORTHROP KING N2409	26.1	28	29	56.0	164.0	132	131	3.4	2	2	21	58	171	2	100	31	54	157	5	100	30	19.1	5.7	77	
RUPP Ex.4-240	26.6	--	--	54.3	158.2	---	---	5.0	--	--	22	55	*187	5	98	31	54	130	5	100	25	26.8	*6.7	83	
TRELAY 1011	26.6	--	--	55.7	158.4	---	---	3.6	--	--	22	56	169	1	96	31	55	148	6	100	32	20.3	6.4	75	
KING AGRO KGAG 21050	26.7	--	--	55.5	161.2	---	---	4.9	--	--	22	56	*181	3	99	31	55	141	6	98	30	21.8	6.6	89	
MYCOGEN 2440	26.7	--	--	55.3	159.8	---	---	4.4	--	--	21	56	166	3	96	32	55	154	6	99	31	21.3	6.5	88	
AMCORN 3030	27.2	--	--	54.9	158.0	---	---	2.2	--	--	21	57	165	2	93	34	53	151	3	99	31	19.8	6.1	70	
TERRA TR910	27.2	--	--	54.1	172.2	---	---	6.6	--	--	20	55	*186	8	100	35	53	158	6	100	30	21.1	6.4	91	
*AMCORN LG 2388	27.2	--	--	54.4	175.7	---	---	2.0	--	--	20	56	*188	0	94	35	53	*164	4	100	28	24.4	*6.8	87	
JUNG 2366	27.7	--	--	56.4	162.7	---	---	5.8	--	--	22	56	*179	4	96	34	57	146	8	100	27	22.8	6.1	79	
RUPP Ex.4-229	27.7	--	--	55.4	162.4	---	---	3.9	--	--	22	56	*182	1	94	34	54	143	7	99	28	25.6	*7.3	82	
TRELAY 2004	27.9	--	--	54.9	167.8	---	---	4.6	--	--	22	56	*182	2	100	34	54	153	7	100	27	25.9	*6.9	86	
AMCORN LG 2409	28.2	--	--	53.3	168.3	---	---	1.6	--	--	20	55	*185	1	100	36	52	152	2	100	28	22.3	6.3	86	
AMCORN Ex 410	28.3	--	--	55.3	164.2	---	---	2.7	--	--	22	56	*180	0	98	35	54	149	5	100	28	25.3	*7.2	81	
PICKSEED 4990	29.0	32	33	53.9	164.4	132	128	4.0	2	2	23	55	*184	1	91	35	52	145	7	99	28	24.3	*6.8	84	
*DEKALB DK446	30.0	--	--	54.8	179.5	---	---	2.4	--	--	23	55	*217	1	100	38	54	142	4	100	27	25.6	*6.8	85	
RUPP Ex.4-238	30.0	--	--	53.9	171.2	---	---	2.9	--	--	24	54	*192	1	100	36	54	150	5	100	28	24.5	*6.9	89	
CARGILL 2927	30.2	35	35	54.4	169.2	131	126	3.9	3	3	23	55	*193	3	100	37	54	146	5	100	27	25.9	*6.9	99	
JUNG 2496	31.2	37	37	51.8	161.4	131	127	2.7	2	2	25	52	172	3	99	38	52	151	2	100	28	23.1	6.4	90	
Average	25.8	29	32	55.2	161.2	130	127	4.0	2	2	20	57	170	4	97	31	54	152	4	100	31	20.4	6.1	82	
Range	21.9	26	27	51.8	92.5	121	125	1.4	1	2	17	52	58	0	83	25	52	109	1	94	25	13.0	4.4	50	
	31.2	37	37	58.4	199.1	143	131	28.2	3	3	25	61	217	50	100	38	57	189	8	100	36	26.8	7.3	99	
Least Significant Difference	1.3			1.3	12.4						1	1	9			1	1	7			2		.6		
Coefficient of Variance	6.1			4.6	9.8						4	3	6			3	3	5			8		10.4		

\* SIGNIFICANTLY BETTER THAN AVERAGE YIELD IN 1994

ALPENA  
PLANTED May 9  
HARVESTED November 10  
SOIL TYPE Selkirk Loam  
PREVIOUS CROP Navy beans  
PERFECT STAND 26,100  
AVERAGE POPULATION 25,420  
ROW WIDTH 30"  
FERTILIZER 118-78-162  
SOIL TEST: pH 6.3  
P 178 (very high)  
K 272 (high)

GRAND TRAVERSE  
PLANTED May 6  
HARVESTED October 11  
SOIL TYPE Karlin Sandy Loam  
PREVIOUS CROP Alfalfa Sod  
PERFECT STAND 24,550  
AVERAGE POPULATION 24,430  
ROW WIDTH 30"  
FERTILIZER 130-38-98  
SOIL TEST: pH 6.7  
P 136 (very high)  
K 192 (medium)

DELTA  
PLANTED May 13  
HARVESTED September 22  
SOIL TYPE Onaway Fine Sandy Loam  
PREVIOUS CROP Corn  
PERFECT STAND 26,100  
AVERAGE POPULATION 21,400  
ROW WIDTH 30"  
FERTILIZER 80-40-80 + 7 ton manure  
SOIL TEST: pH 7.5  
P 113 (very high)  
K 345 (very high)

FARM COOPERATORS: Allen Schiellard, Hubbard Lake; Richard Dennett, Buckley  
COUNTY EXTENSION DIRECTOR: Paul Wegmeyer, Alpena; James Wiesing, Traverse City  
EXTENSION AGR'L AGENT: Erwin Elsner, Traverse City

FARM COOPERATORS: Benny & Audrey Herioux, Bark River  
MSU COOPERATORS: James Lempke and Dr. Richard Leep, Department Crop & Soil Sciences, Marquette  
COUNTY EXTENSION DIRECTOR: Cynthia Brock, Escanaba  
EXT. AG/DIST. FARM MGMT AGENT: Warren L. Schauer, Escanaba



Average of Alpena & Missaukee County Silage Trials  
One, two year averages — 1994, 1993

HYBRID (BRAND-VARIETY)	% DRY MATTER		TONS PER ACRE				ALPENA COUNTY				MISSAUKEE COUNTY			
			GREEN WEIGHT		DRY WEIGHT		TONS/ACRE				TONS/ACRE			
			1994	2Yr	1994	2Yr	1994	2Yr	% DM	G WT	D WT	%STD	% DM	G WT
PIONEER 3979	35.6	--	13.2	--	4.7	--	31.9	13.0	4.2	100	39.4	13.2	5.2	100
*PIONEER 3905	35.6	--	22.1	--	7.9	--	37.0	23.7	*8.8	99	34.2	20.6	7.0	100
PIONEER 3907	34.9	--	22.0	--	7.7	--	35.0	22.7	8.0	100	34.8	21.2	*7.4	100
DAIRYLAND STEALTH-1284	33.3	--	20.8	--	6.9	--	35.1	20.7	7.3	98	31.5	20.8	6.6	100
PIONEER 3893	31.5	--	24.6	--	7.7	--	31.9	26.3	8.3	100	31.2	22.9	7.2	100
*PICKSEED 4990	30.6	--	26.2	--	8.1	--	31.3	28.0	*8.7	95	30.3	24.4	*7.4	98
*NORTHROP KING N2933	30.4	--	25.6	--	7.8	--	31.4	26.4	8.3	100	29.4	24.9	*7.3	100
*DAIRYLAND DST 9026	29.1	--	27.0	--	7.8	--	29.3	29.2	*8.5	100	28.8	24.8	7.2	100
*NORTHROP KING N3030	29.1	--	26.5	--	7.8	--	31.0	28.5	*8.8	95	27.1	24.6	6.7	98
PICKSEED 5665	28.8	--	26.4	--	7.6	--	26.8	28.2	7.6	100	30.8	24.5	*7.5	100
CARGILL 2927	28.7	29.7	26.6	21.4	7.6	6.3	29.3	28.5	8.3	98	28.1	24.7	6.9	100
NORTHROP KING N2899	27.9	--	25.3	--	7.1	--	27.0	27.0	7.3	97	28.8	23.6	6.8	100
Average	31.3	29.7	23.8	21.4	7.4	6.3	31.4	25.2	7.8	99	31.2	22.5	6.9	100
Range	27.9	--	13.2	--	4.7	--	26.8	13.0	4.2	95	27.1	13.2	5.2	98
	to		to		to		to	to	to	to	to	to	to	to
	35.6	--	27.0	--	8.1	--	37.0	29.2	8.8	100	39.4	24.9	7.5	100
Least Significant Difference	1.3		1.0		0.4		1.2	0.9	0.6		1.3	1.1	0.4	
Coefficient of Variance	4.3		4.7		6.3		3.7	3.6	5.6		4.8	5.8	7.0	

\* SIGNIFICANTLY BETTER THAN AVERAGE DRY WEIGHT PER ACRE IN 1994

Average of Alpena & Missaukee County In-vitro Analyses  
One, two year averages — 1994, 1993

HYBRID (BRAND-VARIETY)	% DRY MATTER DIGEST		% FIBER DIGEST		% NEUTRAL D'GENT FIB		% CRUDE PROTEIN		IN-VITRO QUALITY ANALYSES							
									ALPENA COUNTY				MISSAUKEE COUNTY			
	1994	2 Yr	1994	2 Yr	1994	2 Yr	1994	2 Yr	%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP
PIONEER 3905	76.7	--	45.6	--	42.9	--	7.38	--	76.2	45.2	43.4	7.43	77.1	46.0	42.4	7.33
PIONEER 3979	70.3	--	43.1	--	51.9	--	7.41	--	64.6	41.1	60.2	7.25	76.0	45.2	43.7	7.57
PIONEER 3907	75.1	--	45.9	--	46.2	--	7.42	--	74.5	47.1	48.3	7.66	75.7	44.8	44.1	7.17
DAIRYLAND STEALTH-1284	76.2	--	45.0	--	43.3	--	7.39	--	76.1	44.8	43.4	7.74	76.3	45.2	43.3	7.04
PIONEER 3893	75.7	--	44.7	--	43.9	--	6.73	--	76.1	45.5	44.0	6.87	75.4	43.8	43.8	6.58
PICKSEED 4990	73.7	--	44.7	--	47.5	--	7.48	--	72.2	45.2	50.8	7.19	75.3	44.2	44.2	7.77
NORTHROP KING N2933	73.7	--	45.2	--	47.9	--	7.10	--	74.6	46.9	47.8	7.49	72.8	43.4	48.1	6.71
DAIRYLAND DST 9026	74.7	--	47.3	--	48.0	--	7.23	--	74.7	47.3	48.1	7.71	74.7	47.4	48.0	6.75
NORTHROP KING N3030	76.5	--	49.0	--	46.1	--	6.87	--	76.0	48.6	46.7	7.06	77.0	49.4	45.4	6.67
PICKSEED 5665	75.9	--	47.3	--	45.8	--	7.49	--	74.9	47.0	47.3	7.89	76.8	47.5	44.2	7.08
CARGILL 2927	74.5	76	48.5	50	49.6	49	7.10	7.2	73.0	47.0	51.0	7.24	76.0	50.0	48.1	6.95
NORTHROP KING N2899	73.6	--	45.0	--	47.9	--	6.92	--	72.6	45.2	50.0	7.05	74.7	44.8	45.9	6.78
Average	74.7	76	45.9	50	46.8	49	7.21	7.2	73.8	45.9	48.4	7.38	75.7	46.0	45.1	7.03
Range	70.3		43.1		42.9		6.73		64.6	41.1	43.4	6.87	72.8	43.4	42.4	6.58
	to		to		to		to		to	to	to	to	to	to	to	to
	76.7		49.0		51.9		7.49		76.2	48.6	60.2	7.89	77.1	50.0	48.1	7.77
Least Significant Difference	0.6		1.2		0.5		.13		0.5	1.0	0.6	.15	0.6	1.3	0.4	.11
Coefficient of Variance	0.6		2.0		0.9		1.4		0.6	1.8	1.0	1.6	0.6	2.2	0.7	1.2

DMD = DRY MATTER DIGESTABILITY (higher percentage means greater energy content)  
 FD = FIBER DIGESTABILITY (the measure of the degree of fermentation of fiber, high FD is desirable)  
 NDF = NEUTRAL DETERGENT FIBER (the measure of fiber content, higher levels mean lower energy)  
 CP = CRUDE PROTEIN (higher protein levels require less supplementation)

	ALPENA	MISSAUKEE
PLANTED	May 9	May 6
HARVESTED	September 22	September 23
SOIL TYPE	Selkirk Loam	Nester Sandy Loam
PREVIOUS CROP	Navy Beans	Canola
PERFECT STAND	26,100	24,550
AVERAGE POPULATION	25,780	24,510
ROW WIDTH	30"	30"
FERTILIZER	118-78-162	116-18-70
SOIL TEST: pH	6.3	6.6
P	178 (very high)	88 (high)
K	272 (high)	192 (medium)

FARM COOPERATORS: Allen Schiellard, Hubbard Lake; Doug Nielsen and George McLaughlin, Lake City Experiment Station, Lake City  
 MSU COOPERATORS: Dr. Michael Allen and David Main, Animal Science Department, East Lansing  
 COUNTY EXTENSION DIRECTOR: Paul Wegmeyer, Alpena; Richard Miller, Lake City



**Average of Kent, Ingham & Saginaw County EARLY Silage Trials  
One, two, three year averages — 1994, 1993, 1992**

EARLY TRIAL (106 DAY RELATIVE MATURITY OR EARLIER (BASED ON COMPANY RATING))

HYBRID (BRAND-VARIETY)	%	TONS PER ACRE																				
		% DRY MATTER			GREEN WEIGHT			DRY WEIGHT			KENT COUNTY				INGHAM COUNTY				HURON COUNTY			
		1994	2Yr	3Yr	1994	2Yr	3Yr	1994	2Yr	3Yr	% DM	G WT	D WT	%STD	% DM	G WT	D WT	%STD	% DM	G WT	D WT	%STD
PIONEER 3769	34.7	36.7	--	18.8	19.1	--	6.6	7.0	--	37.3	21.6	8.1	100	33.8	19.8	6.7	99	33.1	15.0	5.0	99	
*CIBA 4202	34.3	--	--	21.8	--	--	7.5	--	--	38.0	25.1	*9.5	99	32.4	23.5	7.6	86	32.4	17.0	5.5	99	
PIONEER 3752	34.1	--	--	19.7	--	--	6.8	--	--	37.4	23.0	8.6	100	34.1	20.5	7.0	95	30.7	15.5	4.7	82	
NORTHROP KING N4342wx	33.0	--	--	21.9	--	--	7.3	--	--	36.4	23.8	8.7	94	31.6	23.5	7.4	98	31.0	18.2	*5.7	100	
PIONEER 3723	33.0	35.6	36.8	21.8	20.9	20.1	7.3	7.5	7.4	37.4	25.3	*9.4	97	31.9	21.9	7.0	89	29.8	18.3	5.4	96	
NORTHROP KING N4242	32.6	--	--	21.2	--	--	7.0	--	--	36.0	23.7	8.5	99	32.7	21.6	7.1	90	29.1	18.2	5.3	96	
NORTHROP KING N3030	32.5	--	--	17.9	--	--	5.9	--	--	36.0	20.3	7.3	89	31.2	18.5	5.8	76	30.3	14.9	4.5	88	
CIBA 4172	32.2	--	--	19.8	--	--	6.5	--	--	36.9	22.5	8.3	100	30.6	21.3	6.5	93	29.1	15.7	4.6	98	
DAIRYLAND STEALTH-1203	32.2	--	--	21.6	--	--	7.0	--	--	34.3	24.8	8.5	98	31.4	23.1	7.3	98	30.9	16.9	5.3	94	
PIONEER 3751	32.1	34.9	37.2	21.1	20.8	19.8	6.8	7.2	7.3	32.5	25.3	8.2	99	33.2	20.3	6.8	90	30.5	17.7	5.4	98	
CIBA 4144	31.9	--	--	20.3	--	--	6.5	--	--	34.2	21.7	7.4	100	31.6	23.2	7.3	97	29.8	16.0	4.8	96	
CIBA 4214	31.8	--	--	22.5	--	--	7.2	--	--	33.1	27.2	9.0	96	33.5	23.0	*7.7	86	28.8	17.2	5.0	97	
NORTHROP KING X4263	31.7	--	--	21.1	--	--	6.7	--	--	33.3	22.8	7.6	100	32.4	22.8	7.4	99	29.2	17.8	5.2	100	
GOLDEN HARVEST Ex702	31.5	--	--	20.4	--	--	6.5	--	--	33.7	23.9	8.1	97	32.7	20.4	6.7	99	28.0	16.8	4.7	99	
*NORTHROP KING N5220	31.2	--	--	24.2	--	--	7.6	--	--	32.3	29.3	*9.5	99	31.4	24.5	*7.7	92	29.8	18.8	5.6	96	
DAIRYLAND STEALTH-1405	30.8	--	--	22.5	--	--	6.9	--	--	32.1	25.5	8.2	100	31.1	24.7	7.6	98	29.2	17.3	5.0	98	
*DAIRYLAND STEALTH-1205	29.8	31.1	--	26.3	25.5	--	7.9	7.9	--	31.6	29.2	*9.2	100	30.9	26.4	*8.1	99	26.9	23.4	*6.3	100	
*PIONEER 3573	29.5	31.4	32.8	26.2	25.6	24.7	7.8	8.1	8.1	32.6	29.5	*9.6	98	28.8	26.1	7.5	97	27.1	23.1	*6.3	98	
*DAIRYLAND STEALTH-1407	28.8	--	--	25.7	--	--	7.5	--	--	29.8	28.5	8.5	98	29.7	26.7	*7.9	94	27.0	22.0	*6.0	92	
*CARGILL 4327	28.7	--	--	26.5	--	--	7.6	--	--	29.2	31.4	*9.1	96	30.0	26.3	*7.9	94	26.9	21.8	*5.9	99	
Average	31.8	33.9	35.6	22.1	22.4	21.5	7.0	7.5	7.6	34.2	25.2	8.6	98	31.7	22.9	7.2	93	29.5	18.1	5.3	96	
Range	28.7	31.1	32.8	17.9	19.1	19.8	5.9	7.0	7.3	29.2	20.3	7.3	89	28.8	18.5	5.8	76	26.9	14.9	4.5	82	
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	34.7	36.7	37.2	26.5	25.6	24.7	7.9	8.1	8.1	38.0	31.4	9.6	100	34.1	26.7	8.1	99	33.1	23.4	6.3	100	
Least Significant Difference	1.8			1.0			0.5			2.1	0.9	0.5		1.8	1.0	0.5		1.4	1.0	0.4		
Coefficient of Variance	6.4			5.3			8.6			6.5	3.9	6.9		7.1	5.2	8.6		5.7	6.9	10.2		

\* SIGNIFICANTLY BETTER THAN AVERAGE DRY WEIGHT PER ACRE IN 1994

**Average of Kent, Ingham & Saginaw County LATE Silage Trials  
One, two, three year averages — 1994, 1993, 1992**

LATE TRIAL (107 DAY RELATIVE MATURITY OR LATER (BASED ON COMPANY RATING))

HYBRID (BRAND-VARIETY)	%	TONS PER ACRE																				
		% DRY MATTER			GREEN WEIGHT			DRY WEIGHT			KENT COUNTY				INGHAM COUNTY				HURON COUNTY			
		1994	2Yr	3Yr	1994	2Yr	3Yr	1994	2Yr	3Yr	% DM	G WT	D WT	%STD	% DM	G WT	D WT	%STD	% DM	G WT	D WT	%STD
*CIBA 4394	38.1	37.4	--	22.9	23.3	--	8.7	8.7	--	39.5	26.1	10.2	100	37.7	23.1	*8.8	99	37.0	19.5	*7.2	99	
CARGILL SX269	35.3	--	--	23.4	--	--	8.3	--	--	35.9	26.0	9.3	97	35.7	25.7	*9.2	91	34.5	18.4	6.3	98	
CALLAHAN C7252	34.8	35.7	36.6	23.5	23.1	22.8	8.3	8.2	8.3	38.4	26.6	*10.3	100	32.8	25.6	8.4	95	33.4	18.3	6.1	94	
HYPERFORMER HY9424	34.7	36.4	--	22.9	23.2	--	8.0	8.4	--	35.9	27.4	9.8	100	33.9	22.8	7.7	91	34.3	18.5	6.3	95	
CARGILL 5547	34.6	--	--	22.8	--	--	7.9	--	--	34.8	26.3	9.1	99	34.4	23.0	7.9	93	34.6	19.2	6.6	95	
*HYPERFORMER HY9490	34.5	--	--	26.0	--	--	9.1	--	--	39.5	29.5	*11.7	100	33.2	26.5	*8.8	92	30.9	21.9	*6.8	100	
NORTHROP KING N6330	34.3	--	--	23.9	--	--	8.2	--	--	33.1	28.7	9.5	100	34.5	24.6	*8.5	79	35.3	18.5	6.6	99	
CALLAHAN C7454X	33.9	--	--	22.4	--	--	7.6	--	--	33.7	27.8	9.3	97	34.3	21.8	7.5	80	33.6	17.7	5.9	96	
RENK RK812	33.9	33.1	33.6	24.2	24.1	24.0	8.2	8.0	8.1	35.3	27.6	9.7	99	34.3	23.9	8.2	96	32.2	21.3	*6.9	100	
*CALLAHAN C7258	33.7	32.8	--	25.4	25.3	--	8.6	8.3	--	36.6	29.6	*10.7	100	32.8	26.1	*8.5	97	31.8	20.4	6.5	99	
NORTHROP KING N5901	33.6	--	--	21.9	--	--	7.4	--	--	34.2	24.5	8.3	98	33.0	23.0	7.6	94	33.7	18.3	6.2	100	
*PIONEER 3525	33.1	30.0	31.6	25.8	27.8	26.7	8.5	8.2	8.3	35.0	29.2	10.1	100	32.0	27.1	*8.6	99	32.2	21.0	*6.8	96	
PIONEER 3394	32.5	32.2	32.3	24.9	25.8	25.6	8.1	8.2	8.2	33.1	28.7	9.4	99	33.7	25.9	*8.7	97	30.8	20.2	6.2	97	
*RENK RK886	32.3	32.0	32.2	25.8	25.9	25.7	8.4	8.3	8.3	33.2	31.1	*10.3	99	33.3	24.4	8.1	86	30.5	21.9	6.7	100	
AMCORN 9292	31.8	33.0	34.2	19.8	21.7	21.9	6.3	7.1	7.4	33.6	23.7	8.0	73	28.8	18.2	5.2	61	33.1	17.4	5.8	81	
PIONEER 3394E	29.9	--	--	19.8	--	--	6.0	--	--	30.7	25.4	7.8	78	29.4	16.0	4.7	56	29.5	18.0	5.3	89	
Average	33.8	33.6	33.4	23.5	24.5	24.5	8.0	8.2	8.1	35.1	27.4	9.6	96	33.4	23.6	7.9	88	33.0	19.4	6.4	96	
Range	29.9	32.0	31.6	19.8	21.7	21.9	6.0	7.1	7.4	30.7	23.7	7.8	73	28.8	16.0	4.7	56	29.5	17.4	5.3	81	
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	38.1	37.4	36.6	26.0	27.8	26.7	9.1	8.7	8.3	39.5	31.1	11.7	100	37.7	27.1	9.2	99	37.0	21.9	7.2	100	
Least Significant Difference	2.0			1.5			0.4			2.9	1.6	0.7		1.7	1.7	0.6		1.4	1.1	0.4		
Coefficient of Variance	6.7			7.4			8.7			8.8	6.2	8.0		6.2	8.9	9.4		5.0	7.0	8.8		

\* SIGNIFICANTLY BETTER THAN AVERAGE DRY WEIGHT PER ACRE IN 1994

**KENT**  
 PLANTED May 4  
 HARVESTED September 15, 29  
 SOIL TYPE Spinks Loamy Sand  
 PREVIOUS CROP Alfalfa Sod  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,670  
 ROW WIDTH 30"  
 FERTILIZER 76-0-0  
 SOIL TEST: pH 5.8  
 P 132 (very high)  
 K 320 (very high)

**INGHAM**  
 PLANTED April 25  
 HARVESTED September 9, 20  
 SOIL TYPE Capac Loam  
 PREVIOUS CROP Soybeans  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 25,900  
 ROW WIDTH 30"  
 FERTILIZER 160-10-107  
 SOIL TEST: pH 5.9  
 P 113 (very high)  
 K 240 (high)

**HURON**  
 PLANTED May 10  
 HARVESTED September 12, 26  
 SOIL TYPE Kilmanagh Loam  
 PREVIOUS CROP Corn  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,390  
 ROW WIDTH 30"  
 FERTILIZER 150-120-9  
 SOIL TEST: pH 6.8  
 P 73 (high)  
 K 216 (high)

FARM COOPERATORS: Gerald Kayser, Pleasant Acres Farm, Caledonia; Michigan State University, East Lansing  
 MSU COOPERATORS: Dr. Micheal Allen and David Main, Animal Science Department, East Lansing  
 COUNTY EXTENSION DIRECTOR: William Harrison, Grand Rapids; Joseph Lessard, Mason  
 EXTENSION AGR'L AGENTS: William Steenwyk, Grand Rapids John Knorek and Laura Rhodes, Mason

FARM COOPERATORS: William, Ron and Ed McCrea, Wil-le Farms, Bad Axe  
 MSU COOPERATORS: Dr. Michael Allen and David Main, Animal Science Department, East Lansing  
 COUNTY EXTENSION DIRECTOR: Robert Johnson, Bad Axe  
 EXTENSION AGR'L AGENT: James LeCureux, Bad Axe



**Average of Kent, Ingham & Huron County EARLY In-vitro Analyses  
One, two, three year averages — 1994, 1993, 1992**

HYBRID (BRAND-VARIETY)		EARLY TRIAL (106 DAY RELATIVE MATURITY OR EARLIER (BASED ON COMPANY RATING))												IN-VITRO QUALITY ANALYSES											
		% DRY MATTER DIGEST			% FIBER DIGEST			% NEUTRAL D'GENT FIB			% CRUDE PROTEIN			KENT COUNTY				INGHAM COUNTY				HURON COUNTY			
		2	3		2	3		2	3		2	3		%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP
		1994	Yr	Yr	1994	Yr	Yr	1994	Yr	Yr	1994	Yr	Yr	%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP
PIONEER	3769	76.4	76	--	46.1	45	--	43.9	43	--	7.55	7.5	--	75.9	46.3	44.9	7.92	76.7	42.6	40.6	7.48	76.6	49.3	46.1	7.26
CIBA	4202	76.9	--	--	47.4	--	--	44.0	--	--	7.32	--	--	77.9	47.1	41.7	7.76	76.1	46.0	44.4	7.39	76.7	49.2	45.9	6.81
PIONEER	3752	77.8	--	--	46.6	--	--	41.6	--	--	7.43	--	--	77.8	44.7	40.2	7.97	79.6	46.9	38.5	7.26	76.1	48.3	46.1	7.06
NORTHROP KING	N4342wx	76.4	--	--	43.4	--	--	41.8	--	--	7.58	--	--	75.5	39.8	40.8	8.15	77.3	44.9	41.3	7.58	76.5	45.6	43.2	7.00
PIONEER	3723	75.3	76	76	44.6	45	45	44.7	43	44	7.50	7.6	7.4	74.8	45.1	46.0	8.00	74.7	39.1	41.6	7.25	76.6	49.6	46.5	7.25
NORTHROP KING	N4242	76.3	--	--	45.8	--	--	43.8	--	--	7.52	--	--	75.4	42.1	42.5	7.98	77.6	47.9	43.1	7.55	76.0	47.4	45.7	7.04
NORTHROP KING	N3030	77.2	--	--	46.6	--	--	42.9	--	--	7.55	--	--	77.2	44.5	41.1	7.86	77.8	46.2	41.3	7.52	76.5	49.3	46.2	7.26
CIBA	4172	77.1	--	--	45.7	--	--	42.4	--	--	7.40	--	--	76.1	40.3	40.1	7.45	77.4	45.3	41.3	7.54	77.9	51.6	45.8	7.21
DAIRYLAND	STEALTH-1203	77.1	--	--	47.8	--	--	44.0	--	--	7.58	--	--	77.7	47.1	42.1	8.39	77.3	46.2	42.2	7.50	76.1	50.0	47.8	6.86
PIONEER	3751	77.7	77	77	48.0	47	46	42.9	42	43	7.88	7.8	7.6	77.9	47.0	41.7	8.60	78.0	47.0	41.5	7.88	77.2	49.9	45.6	7.17
CIBA	4144	76.5	--	--	46.3	--	--	44.0	--	--	7.50	--	--	76.1	44.5	43.0	7.69	77.9	43.9	39.5	7.98	75.4	50.3	49.5	6.84
CIBA	4214	74.6	--	--	47.2	--	--	48.4	--	--	7.24	--	--	75.1	43.5	44.1	7.75	73.7	45.9	48.6	7.14	74.9	52.1	52.4	6.84
NORTHROP KING	X4263	75.9	--	--	46.7	--	--	45.1	--	--	7.47	--	--	73.4	43.3	46.9	7.68	77.7	46.7	41.8	7.60	76.7	50.0	46.7	7.13
GOLDEN HARVEST	Ex702	77.5	--	--	48.4	--	--	43.6	--	--	7.96	--	--	78.4	48.2	41.7	8.92	76.5	45.9	43.5	7.64	77.6	51.0	45.7	7.33
NORTHROP KING	N5220	75.0	--	--	47.8	--	--	48.1	--	--	7.28	--	--	75.9	46.7	45.2	7.91	75.9	47.0	45.4	7.46	73.1	49.8	53.6	6.46
DAIRYLAND	STEALTH-1405	77.4	--	--	48.1	--	--	43.6	--	--	7.43	--	--	78.0	47.5	42.0	8.53	77.9	46.2	41.1	7.70	76.5	50.6	47.6	6.05
DAIRYLAND	STEALTH-1205	77.7	77	--	50.3	48	--	44.8	44	--	8.14	7.9	--	77.9	48.7	43.1	8.30	77.4	49.2	44.6	8.10	77.9	52.8	46.8	8.03
PIONEER	3573	76.6	77	77	48.8	48	47	45.8	44	44	7.60	7.5	7.2	75.1	47.1	47.1	8.25	78.5	49.0	42.3	7.40	76.2	50.4	47.9	7.16
DAIRYLAND	STEALTH-1407	76.4	--	--	47.5	--	--	44.9	--	--	7.24	--	--	77.8	47.2	42.0	8.07	75.7	47.5	46.4	6.69	75.9	47.8	46.2	6.96
CARGILL	4327	76.9	--	--	47.3	--	--	43.8	--	--	7.42	--	--	76.4	44.8	42.7	8.23	76.9	45.6	42.5	7.26	77.5	51.4	46.4	6.78
Average		76.6	77	77	47.0	47	46	44.2	43	43	7.53	7.7	7.4	76.5	45.3	42.9	8.07	77.0	45.9	42.6	7.50	76.4	49.8	47.1	7.03
Range		74.6	76	76	43.4	45	45	41.6	42	43	7.24	7.5	7.2	73.4	39.8	40.1	7.45	73.7	39.1	38.5	6.69	73.1	45.6	43.2	6.05
		77.8	77	77	50.3	48	47	48.4	44	44	8.14	7.9	7.6	78.4	48.7	47.1	8.92	79.6	49.2	48.6	8.10	77.9	52.8	53.6	8.03
Least Significant Difference		0.6			1.4			0.3			.16			0.5	1.2	0.4	.15	0.7	1.8	0.4	.17	0.5	1.1	0.2	.16
Coefficient of Variance		0.7			2.4			0.7			1.7			0.6	2.2	0.8	1.5	0.8	3.2	0.8	1.8	0.6	1.9	0.4	1.9

DMD = DRY MATTER DIGESTIBILITY (higher percentage means greater energy content)  
 FD = FIBER DIGESTIBILITY (the measure of the degree of fermentation of fiber, high FD is desirable)  
 NDF = NEUTRAL DETERGENT FIBER (the measure of fiber content, higher levels mean lower energy)  
 CP = CRUDE PROTEIN (higher protein levels require less supplementation)

**Average of Kent, Ingham & Huron County LATE In-vitro Analyses  
One, two, three year averages — 1994, 1993, 1992**

HYBRID (BRAND-VARIETY)		LATE TRIAL (107 DAY RELATIVE MATURITY OR LATER (BASED ON COMPANY RATING))												IN-VITRO QUALITY ANALYSES											
		% DRY MATTER DIGEST			% FIBER DIGEST			% NEUTRAL D'GENT FIB			% CRUDE PROTEIN			KENT COUNTY				INGHAM COUNTY				HURON COUNTY			
		2	3		2	3		2	3		2	3		%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP
		1994	Yr	Yr	1994	Yr	Yr	1994	Yr	Yr	1994	Yr	Yr	%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP	%DMD	%FD	%NDF	%CP
CIBA	4394	75.3	76	--	44.1	44	--	44.3	44	--	6.50	6.6	--	74.0	40.6	43.7	7.09	75.7	46.3	45.3	5.87	76.1	45.6	44.0	6.55
CARGILL	SX269	73.5	--	--	46.4	--	--	49.4	--	--	7.01	--	--	71.6	42.4	49.3	7.29	74.6	47.0	48.0	6.81	74.3	49.7	51.0	6.92
CALLAHAN	C7252	76.0	77	76	44.5	46	46	43.3	43	44	6.77	6.8	6.6	73.9	39.5	43.1	7.00	75.8	45.0	43.9	6.82	78.2	49.0	42.8	6.50
HYPERFORMER	HY9424	76.1	76	--	43.8	44	--	42.6	42	--	7.72	7.6	--	75.7	39.9	40.4	8.36	77.1	45.8	42.2	7.13	74.5	47.2	48.2	7.00
CARGILL	5547	76.0	--	--	45.4	--	--	44.1	--	--	6.81	--	--	75.9	42.0	41.5	7.40	75.8	46.8	45.5	6.34	76.2	47.3	45.3	6.68
HYPERFORMER	HY9490	75.8	--	--	45.8	--	--	44.8	--	--	7.21	--	--	75.6	42.2	42.3	8.14	77.3	48.1	43.8	6.48	75.5	45.7	45.1	7.66
NORTHROP KING	N6330	76.9	--	--	48.6	--	--	45.0	--	--	7.31	--	--	76.6	46.9	44.1	7.94	76.5	48.9	46.0	6.84	77.6	50.1	45.0	7.16
CALLAHAN	C7454X	76.9	--	--	47.5	--	--	44.0	--	--	7.17	--	--	76.4	45.0	42.9	7.85	78.7	50.8	43.4	6.96	75.7	46.6	45.6	6.70
RENK	RK812	76.4	77	76	47.6	47	46	45.1	44	45	6.72	6.9	6.8	76.0	44.7	43.5	6.97	76.6	48.5	45.4	6.51	74.4	44.3	45.9	6.79
CALLAHAN	C7258	76.1	77	--	46.2	47	--	44.4	44	--	6.86	7.0	--	76.6	46.3	43.5	7.96	75.3	43.9	44.0	5.87	76.5	48.4	45.6	6.74
NORTHROP KING	N5901	75.7	--	--	44.9	--	--	44.1	--	--	7.42	--	--	75.9	44.0	43.1	7.98	75.7	44.5	43.8	7.46	75.4	46.1	45.6	6.81
PIONEER	3525	75.6	76	75	43.2	44	44	43.0	43	45	6.89	7.1	6.7	76.8	43.2	40.9	7.59	74.4	42.0	44.2	6.36	75.5	44.4	44.0	6.72
PIONEER	3394	75.1	76	75	45.6	45	45	45.8	44	46	6.98	7.0	6.8	74.5	43.3	45.0	7.70	73.4	44.8	48.2	6.55	77.3	48.7	44.2	6.68
RENK	RK886	76.8	77	76	48.1	48	47	44.7	44	45	7.52	7.3	7.1	74.9	47.6	48.0	7.65	78.2	48.6	42.5	7.57	77.4	48.0	43.5	7.33
AMCORN	9292	77.5	78	77	45.5	48	48	41.3	42	44	7.22	7.2	7.1	77.4	43.1	39.8	7.63	76.5	44.4	42.4	6.87	78.7	48.9	41.6	7.16
PIONEER	3394E	74.8	--	--	43.5	--	--	44.6	--	--	7.50	--	--	74.7	42.2	43.7	7.86	75.2	44.0	44.3	7.85	74.4	44.3	45.9	6.79
Average		75.9	77	76	45.7	46	46	44.4	43	45	7.10	7.1	6.9	75.4	43.3	43.4	7.65	76.0	46.2	44.5	6.77	76.2	47.5	45.2	6.88
Range		73.5	76	75	43.2	44	44	41.3	42	44	6.50	6.6	6.6	71.6	39.5	39.8	6.79	73.4	42.0	42.2	5.87	74.3	44.3	41.6	6.50
		77.5	78	77	48.6	48	48	49.4	44	46	7.72	7.6	7.1	77.4	47.6	49.3	8.36	78.7	50.8	48.2	7.85	78.7	50.1	51.0	7.66
Least Significant Difference		0.6			1.4			0.5			.13			0.6	1.4	0.5	.16	0.7	1.5	0.5	.11	0.6	1.3	0.4	.12
Coefficient of Variance		0.7			2.5			0.8			1.5			0.7	2.5	0.9	1.7	0.7	2.7	0.8	1.3	0.6	2.2	0.8	1.4

DMD = DRY MATTER DIGESTIBILITY (higher percentage means greater energy content)  
 FD = FIBER DIGESTIBILITY (the measure of the degree of fermentation of fiber, high FD is desirable)  
 NDF = NEUTRAL DETERGENT FIBER (the measure of fiber content, higher levels mean lower energy)  
 CP = CRUDE PROTEIN (higher protein levels require less supplementation)

**KENT**  
 PLANTED May 4  
 HARVESTED September 15, 29  
 SOIL TYPE Spinks Loamy Sand  
 PREVIOUS CROP Alfalfa Sod  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,670  
 ROW WIDTH 30"  
 FERTILIZER 76-0-0  
 SOIL TEST: pH 5.8  
 P 132 (very high)  
 K 320 (very high)

**INGHAM**  
 PLANTED April 25  
 HARVESTED September 9, 20  
 SOIL TYPE Capac Loam  
 PREVIOUS CROP Soybeans  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 25,900  
 ROW WIDTH 30"  
 FERTILIZER 160-10-107  
 SOIL TEST: pH 5.9  
 P 113 (very high)  
 K 240 (high)

**HURON**  
 PLANTED May 10  
 HARVESTED September 12, 26  
 SOIL TYPE Kilmanagh Loam  
 PREVIOUS CROP Corn  
 PERFECT STAND 28,500  
 AVERAGE POPULATION 27,390  
 ROW WIDTH 30"  
 FERTILIZER 150-120-9  
 SOIL TEST: pH 6.8  
 P 73 (high)  
 K 216 (high)

FARM COOPERATORS: Gerald Kayser, Pleasant Acres Farm, Caledonia; Michigan State University, East Lansing  
 MSU COOPERATORS: Dr. Michael Allen and David Main, Animal Science Department, East Lansing  
 COUNTY EXTENSION DIRECTOR: William Harrison, Grand Rapids; Joseph Lessard, Mason  
 EXTENSION AGR'L AGENTS: William Steenwyk, Grand Rapids; John Knorek and Laura Rhodes, Mason

FARM COOPERATORS: William, Ron and Ed McCrea, Wil-le



**TABLE 7**

**Amcorn Hybrids, Inc.**

Amcorn 3030 (3E,4)  
Amcorn 4420 (2E)  
Amcorn 4747 (2E)  
Amcorn 5230 (1E,2L)  
Amcorn 5830 (1L)  
Amcorn 5930 (1L)  
Amcorn 9292 (5L)  
Amcorn Ex 272 (4)  
Amcorn Ex 410 (3E,4)  
Amcorn Ex 537 (1L,2L)  
Amcorn Ex 583 (1L)  
Amcorn LG 2388 (4)  
Amcorn LG 2409 (4)  
Amcorn LG 2465 (2E,3E)  
Amcorn LG 2482 (2E,3E)  
Amcorn LG 2522 (1E,2L)

**The Andersons**

Andersons PSX 300 (1E,2E)  
Andersons PSX 370 (1L)  
Andersons HSX 2241 (4)  
Andersons HSX 44011 (3E)

**Asgrow Seed Co.**

Asgrow RX 444 (2E,3E)  
Asgrow RX 502 (2E,3E)  
Asgrow RX 623 (1E,2L,3L)  
Asgrow RX 699 (1L)  
Asgrow RX 707 (1L)  
Asgrow XP4923 (2E,3E)

**Bayside Seeds**

Bayside 86 (3E)  
Bayside 95 (2E,3E)  
Bayside 102 (2L)  
Bayside 1794 (2E,3E)

**Beck's Superior Hybrids**

Beck's 5070 (1E)  
Beck's 5101 (1E)  
Beck's 5202 (1E)  
Beck's 5305 (1L)  
Beck's 5405 (1L)  
Beck's EX1485 (1L)

**Blaney Seeds**

Blaney 2100 (2E,3E)

**Callahan Seeds**

Callahan C7245 (1E,2L)  
Callahan C7249 (1E,2L)  
Callahan C7252 (1L,5L)  
Callahan C7258 (5L)  
Callahan C7337 (1E,2E)  
Callahan C7348 (1E)  
Callahan C7435 (1E,2E)  
Callahan C7446X (1E,2L)  
Callahan C7454X (5L)  
Callahan C7525 (2E)  
Callahan C7537X (2E)  
Callahan C7548X (2L)  
Callahan C7633X (2E)  
Callahan C7643X (2E)

**Cargill Hybrid Seeds**

Cargill SX269 (1L,2L,5L)  
Cargill 1037 (4)  
Cargill 2497 (2E,3E,4)  
Cargill 2927 (3E,4,6)  
Cargill 3777 (1E,2E,3E)  
Cargill 4277 (1E,2L,3L)  
Cargill 4327 (2L,3L,5E)  
Cargill 5547 (1E,2L,3L,5L)  
Cargill 5677 (1L,2L,3L)  
Cargill 6303 (1L)  
Cargill 6327 (1L,2L)  
Cargill 6677 (2L)  
Cargill 7777 (1L)

**Ciba Seeds**

Ciba 2130X (3L)  
Ciba 4030 (4)  
Ciba 4120 (3E)  
Ciba 4144 (3E,5E)  
Ciba 4172 (5E)  
Ciba 4202 (3E,5E)  
Ciba 4214 (2E,3E,5E)  
Ciba 4225X (1L)  
Ciba 4273 (2E)  
Ciba 4282 (2L)  
Ciba 4372 (2L)  
Ciba 4394 (1L,2L,5L)  
Ciba 4494 (1L)

**Countrymark Cooperative, Inc.**

Countrymark 432 (1E,2E,3L)

**Crow's Hybrid Corn Company**

Crow's 165 (2E,3E)  
Crow's 170 (2E,3E)  
Crow's 180 (1E,2E,3L)  
Crow's 204 (1E,2L,3L)  
Crow's 370 (3L)  
Crow's 375 (2L)  
Crow's 401 (1L)  
Crow's 435 (1L,2L)  
Crow's 445 (1L,2L)  
Crow's 490 (1L)

**Dairyland Seed Company, Inc.**

Dairyland Stealth-1174 (4)  
Dairyland Stealth-1195 (3E)  
Dairyland Stealth-1198 (1E,2L)  
Dairyland Stealth-1200 (2E,3L)  
Dairyland Stealth-1203 (1E,2L,3L,5E)  
Dairyland Stealth-1205 (1E,2L,3L,5E)  
Dairyland Stealth-1209 (1L)  
Dairyland Stealth-1284 (4,6)  
Dairyland Stealth-1285 (4)  
Dairyland Stealth-1400 (2E,3L)  
Dairyland Stealth-1405 (1E,2L,5E)  
Dairyland Stealth-1407 (1E,2L,5E)  
Dairyland DST 9026 (3E,6)

**Dekalb Plant Genetics**

Dekalb DK306 (4)  
Dekalb DK352 (4)  
Dekalb DK381 (3E,4)  
Dekalb DK401 (2E,3E,4)  
Dekalb DK446 (3E,4)  
Dekalb DK471 (1E,2E,3E)  
Dekalb DK474 (2E,3E)  
Dekalb DK485 (1E,2E)  
Dekalb DK493 (1E,2E,3L)  
Dekalb DK512 (1E,2L,3L)  
Dekalb DK560 (1E)  
Dekalb DK569 (1E,2L)  
Dekalb DK580 (1L)  
Dekalb DK591 (1L)

**Gen-Tech Farm Seeds, Inc.**

Gen-Tech 1064 (1E)  
Gen-Tech 1074 (1E)

**Sommers Bros. Seed Company**

Golden Harvest H-2292 (2E,3E)  
Golden Harvest H-2331 (1E,2E,3E)  
Golden Harvest H-2349 (1E,2E,3E)  
Golden Harvest H-2390 (1E,2L)  
Golden Harvest Ex 692 (1E,2L)  
Golden Harvest Ex 702 (1E,2L,3L,5E)

**Gries Seed Farms, Inc.**

Gries GSF-Ex185 (2E)  
Gries GSF-4100 (2E)  
Gries GSF-5208 (1L)

Index for 297 hybrids from 37 seed companies entered in 1463 county tests in the 1994 Michigan Corn Performance Trials. Numbers within parentheses refer to table numbers in which the hybrid appears. (E) or (L) refers to the early or late group within that table. Company names used in association with hybrid numbers refer to the brand and the numbers are the variety (hybrid) designation.

**Fred Gutwein & Sons, Inc.**

Gutwein Ex333 (2L,3L)  
Gutwein 2088 (2E,3E)  
Gutwein 2434 (1L)  
Gutwein 2474 (1L)  
Gutwein 2494 (1L)

**HyPerformer Seed Company**

HyPerformer HY 9207 (3E)  
HyPerformer HY 9262 (2E,3E)  
HyPerformer HS 9330 (2L)  
HyPerformer HY 9355 (2L,3L)  
HyPerformer HY 9385 (1E,2L)  
HyPerformer HS 9408 (1L)  
HyPerformer HY 9424 (1L,2L,5L)  
HyPerformer HY 9487 (1L)  
HyPerformer HY 9490 (1L,5L)  
HyPerformer HX45101 (1L)

**ICI Seed Company**

ICI Seeds 8400 (1L)  
ICI Seeds 8481 (1L)  
ICI Seeds 8513 (1L)  
ICI Seeds N8541 (1L)  
ICI Seeds 8570 (1L)  
ICI Seeds 8700 (2L)  
ICI Seeds 8746 (2E,3L)  
ICI Seeds 8751 (2E,3E)  
ICI Seeds 8940 (4)  
ICI Seeds 8990 (4)

**Jung Farms, Inc.**

Jung 2244 (4)  
Jung 2366 (4)  
Jung 2386 (4)  
Jung 2496 (3E,4)  
Jung 2596 (3L)  
Jung 2648 (3L)  
Jung 2672 (3L)

**King Agro**

King Agro KGAG 18057 (3E)  
King Agro KGAG 21050 (4)

**Leader Seeds, Inc.**

Leader SX499 (1E,2L)  
Leader X3654 (1E,2L)  
Leader X4154 (1E,2L)  
Leader X5154 (1L,2L)

**Mycogen Plant Sciences**

Mycogen 1376 (4)  
Mycogen 2440 (4)  
Mycogen 3440 (3E)  
Mycogen AG3965 (3E,3L)  
Mycogen 4140 (4)  
Mycogen 4440 (3E)  
Mycogen 4770 (3E)

Mycogen 4970 (2E)  
Mycogen 5150cb (2L)  
Mycogen 5270 (2E,3L)  
Mycogen 5480 (1E)  
Mycogen 6060 (1L)  
Mycogen 6220 (1L,2L)  
Mycogen 6970 (1L,2L)  
Mycogen 7460 (1L)  
Mycogen 7660 (1L)

**Northrup King Company**

Northrup King N1500 (4)  
Northrup King N2409 (3E,4)  
Northrup King N2555 (3E)  
Northrup King N2879 (3E)  
Northrup King N2899 (6)  
Northrup King N2933 (2E,6)  
Northrup King N3030 (2E,3E,5E,6)  
Northrup King N4242 (1E,2E,3L,5E)  
Northrup King X4263 (2L,5E)  
Northrup King N4342wx (5E)  
Northrup King N5220 (1E,2L,5E)  
Northrup King N5901 (1L,5L)  
Northrup King X6133 (1L)  
Northrup King N6330 (5L)

**Michigan State Seed**

Payco 151 (4)  
Payco 253 (3E,4)  
Payco 344 (3E,4)  
Payco 413 (2E,3E)  
Payco 444 (2E,3E)  
Payco 531 (1E,2E,3E)  
Payco 614 (1E,2E,3E)  
Payco 711 (1E)  
Payco 734 (1E,2L,3L)  
Payco 754 (1L,2L)  
Payco 814 (2L)  
Payco 834 (2L)  
Payco 903 (2L)  
Payco Ex4241 (2E,3E)

**Pickseed Canada, Inc.**

Pickseed 2620 (4)  
Pickseed 4990 (3E,4,6)  
Pickseed 5665 (6)  
Pickseed 5990 (3E)  
Pickseed 5993 (2E,3L)

**Pioneer Hi-Bred International, Inc.**

Pioneer 3293 (1L)  
Pioneer 3394 (1L,2L,3L,5L)  
Pioneer 3394E (5L)  
Pioneer 3463W (1E,2E)  
Pioneer 3525 (1E,2L,3L,5L)  
Pioneer 3573 (1E,2L,3L,5E)  
Pioneer 3723 (1E,2E,3L,5E)  
Pioneer 3751 (2E,3E,5E)  
Pioneer 3752 (1E,2E,3E,5E)  
Pioneer 3769 (2E,3E,5E)  
Pioneer 3861 (2E,3E)  
Pioneer 3893 (4,6)  
Pioneer 3905 (4,6)  
Pioneer 3907 (4,6)  
Pioneer 3979 (4,6)

**Renk Seed Company**

Renk RK424 (3E)  
Renk RK555 (3E)  
Renk RK602 (3L)  
Renk RK617 (1E,2L,3L)  
Renk RK646PT (1E,2L)  
Renk RK657 (3L)  
Renk RK696 (1E,2L)  
Renk RK714 (1L)  
Renk RK802PT (1L)  
Renk RK812 (1L,2L,5L)

Renk RK835 (1L)  
Renk RK886 (1L,5L)

**Rupp Seeds, Inc.**

Rupp XR1623 (1E,2L,3L)  
Rupp XR1644 (3L)  
Rupp XR1677 (1E,2L)  
Rupp XR1688 (1E)  
Rupp XR1704 (1E)  
Rupp XR1727 (1E,EL)  
Rupp XR1739 (1L)  
Rupp Ex.4-223 (2L)  
Rupp Ex.4-229 (4)  
Rupp Ex.4-238 (4)  
Rupp Ex.4-239 (2E,3E)  
Rupp Ex.4-240 (4)

**Stine Seed Company**

Stine 870 (3E)  
Stine 951 (3E)  
Stine 993 (2E,3L)  
Stine 994 (2E,3L)  
Stine 1033 (1E)  
Stine 1059 (1E)  
Stine 1076 (1L,2L)  
Stine 92-70X (1E,2L)

**Terra International, Inc.**

Terra TR910 (4)  
Terra E981 (2E,3E)  
Terra TR1031 (1E,2L,3L)  
Terra TR1050 (1E,2L)  
Terra TR1070 (1L,2L)  
Terra TR1091 (1L)

**Top Farm Hybrids**

Top Farm TFSX1097A (1E,2E,3L)  
Top Farm TFSX1193 (3E)  
Top Farm TFSX2103 (1E,2L)  
Top Farm TFSX2104 (1E,2L)  
Top Farm TFSX2108 (1L,2L)  
Top Farm TFSX2194 (3E)  
Top Farm TFSX2195 (3E)

**Trelay Seeds, Inc.**

Trelay 1011 (4)  
Trelay 2004 (4)  
Trelay 5200 (2E)  
Trelay 5202 (2E)  
Trelay 6002 (1E)  
Trelay 7200 (1E)

**Tri State Seeds**

Tri State 572 (1L)  
Tri State 574 (1L)  
Tri State 628 (1L)  
Tri State 633 (1L)  
Tri State 685 (1L)  
Tri State 750 (1L)  
Tri State 770 (1L)

**Vigoro Industries**

Vigoro V875 (2E)  
Vigoro V925 (2E)  
Vigoro V974 (2E)  
Vigoro V1055 (1E)  
Vigoro V1084 (1L)  
Vigoro V1105 (1L)

**Vineyard Seed Company**

Vineyard V414W (1L,2E)  
Vineyard V417W (1L,2L)  
Vineyard V438W (1L)

**Wolf River Valley Seeds**

Wolf River Valley WRV-9185 (4)  
Wolf River Valley WRV-9383 (4)

**COMPANIES WITH HYBRIDS ENTERED IN 1994 TRIALS**

BRAND	COMPANY NAME AND ADDRESS
AMCORN	Amcorn Hybrids, Inc., 9875 W. Grand Ledge Hwy. Sunfield, MI 48891
ANDERSONS	The Andersons, P.O. Box 119, Maumee, OH 43537
ASGROW	Asgrow Seed Company, 7000 Portage Road Kalamazoo, MI 49001
BAYSIDE	Bayside Seeds, 259 Bowker Road, Munger, MI 48747
BECK'S	Beck's Superior Hybrids, 6767 East 276th St Atlanta, IN 46031
BLANEY	Blaney Seeds, Rt. 1 Box 40, Francesville, IN 47946
CALLAHAN	Callahan Enterprises, Inc., 1122 E. 169th St Westfield, IN 46074
CARGILL	Cargill Hybrid Seeds, Box 5645 Minneapolis, MN 55440-5645
CIBA	CIBA Seeds, 12275 South Sherman Lake Drive Augusta, MI 49012
COUNTRYMARK	Countrymark CO-OP, 950 N. Meridian St. Indianapolis, IN 46204-3909
CROW'S	Crow's Hybrid Corn Company, Box 306, Milford, IL 60953
DAIRYLAND	Dairyland Seed Co, Inc., Box 958, 3570 Hwy.H West Bend, WI 53095-0958
DEKALB	Dekalb Genetics Corp., 3100 Sycamore Road, Dekalb, IL 60115
GEN-TECH	Gen-Tech Farm Seeds, Inc., 15740 Old 31, Argos, IN 46501
GOLDEN HARVEST	Sommer Bros. Seed Company, P.O. Box 248, Pekin, IL 61554
GRIES	Gries Seed Farms, Inc., 2348 North Fifth St, Fremont, OH 43420
GUTWEIN	Fred Gutwein & Sons, Route 1, Box 40, Francesville, IN 47946
HYPERFORMER	HyPerformer Seed Co. 3477 S.Graham Rd., Hwy M-52 Saginaw, MI 48603

BRAND	COMPANY NAME AND ADDRESS
ICI SEEDS	ICI Seeds, Inc., 6945 Vista Drive, West Des Moines, IA 50266
JUNG	Jung Farms, Inc., 335 South High Street, Randolph, WI 53957
KING-AGRO	King-Agro, P.O. Box 1088, Chatham, Ontario, Canada, N7M5L6
LEADER	Leader Seeds, Inc., 7160 S.R. 118, Celina, OH 45822
MYCOGEN	Mycogen Plant Sciences, 720 St. Croix St., Prescott, WI 54021
NORTHROP KING	Northrup King Company, P.O. Box 959, Minneapolis, MN 55440
PAYCO	Michigan State Seed/Payco, 717 N. Clinton Street Grand Ledge, MI 48837
PICKSEED	Pickseed Canada, Inc., Box 517, R.R.#5 Tilbury, Ontario, Canada N0P 2L0
PIONEER	Pioneer Hi-Bred International, Inc., R3 05-653 Route 15 N, P.O. Box 756, Bryan, OH 43506-0756
RENK	Renk Seed Company, 6800 Wilburn Road, Sun Prairie, WI 53590
RUPP	Rupp Seeds, Inc., 17919 Co. Rd B, Wauseon, OH 43567
STINE	Stine Seed Company, 2225 Laredo Trail, Adel, IA 50003
TERRA	Terra International, Terra Centre, 600 Fourth Street, P.O. Box 6000, Sioux City, IA 51102-6000
TOP FARM	Top Farm Hybrids, Inc., P. O. Box 850, Cokato, MN 55321
TRELA	Trelay Inc., 11623 Hwy 80 N, Livingston, WI 53554
TRI-STATE	Tri-State Seeds, P.O. Box 341, Richmond, MI 49083
VIGORO	Vigoro Industries, P.O. Box 177, Sigourney, IA 52591
VINEYARD	Vineyard Seed Company Inc., P.O. Box 139, Sidney, IL 61877
WOLF RIVER VALLEY	Wolf River Valley Seeds, N. 2976 Cty Hwy. M, White Lake, WI 54491



