



March 1994

Dear Friend:

I am extremely pleased to present the Iowa Gold Catalog for 1994.

This catalog offers the most detailed analysis you can find listing the agronomic characteristics and intrinsic values of 61 varieties of corn. This year's catalog also marks the first detailed analysis of soybeans, with 19 varieties represented here.

The Iowa Gold Catalog is the culmination of countless hours of cooperative planning and research involving hybrid seed companies, university researchers, grain shippers and marketers.

It is our hope that this catalog will enable both producers and end users to identify hybrids that meet specific needs.

The varieties listed in this catalog can be especially helpful in identifying qualities that can help end users to produce superior end products and improve their bottom line. It gives the producers an opportunity to increase their income.

Our fertile soil, climate and productive family farmers have made Iowa a consistent national leader in the production of corn and soybeans.

I encourage you to study the material in the catalog and to contact Iowa suppliers about providing the corn and soybeans to meet your special needs.

Sincerely,


Dale M. Cochran
Secretary of Agriculture

ACKNOWLEDGEMENTS

The ad-hoc advisory committee of the Iowa Gold Program is comprised of representatives from the following organizations. The support of these organizations is greatly appreciated.

Iowa Corn Promotion Board

Iowa Crop Improvement Association

Iowa Department of Agriculture and Land Stewardship

Agribusiness Association of Iowa

Iowa Institute for Cooperatives

Iowa Soybean Promotion Board

Iowa State University, Department of Agronomy

Iowa State University, Agriculture and Biosystems
Engineering Department

The following companies participated in the 1993 Iowa Gold Corn and Soybean Program. The support and participation of these firms is greatly appreciated.

CORN

Asgrow Seed Company

Bo-Jac Hybrid Seed Co.

Cargill Hybrid Seeds

Ciba Seeds

Crows Hybrid Corn Company

Dekalb Plant Genetics

Genetec

Hoegemeyer Hybrids

ICI Seeds

Jacques Seed Company

Merchman Seeds

Noblebear Inc.

Northrup King

Pioneer Hi-Bred International

Shissler Seeds Company

Terra International, Inc.

Vineyard Seed Company

Wilson Seeds, Inc.

Wyffels Hybrids, Inc.

SOYBEANS

Iowa State University

Northrup King Company

Sansgaard Seed Company

Stine Seed Company

I O W A ⊕ G O L D

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C O R N T R I A L S

1993 Agronomic Procedures
Iowa State Corn Yield Test Project
Department of Agronomy
Iowa State University
Ames, IA 50011

1993 Procedure

Producers of corn seed and Iowa State University were eligible to enter corn hybrids in the Iowa Gold Catalog Specialty Corn Test. The test included three locations each in a north-yellow test, a central-yellow test, a south-yellow test, and a white test. There were seven hybrids in the north-yellow test, 10 hybrids in the central-yellow test, 11 hybrids in the south-yellow test, and 25 hybrids in the white test entered by 21 different companies. Five to six widely grown yellow-check hybrids were entered by Iowa State University in each of the tests. In the white test these widely grown hybrids were grown only with the white hybrids at the Ames location. Widely grown hybrids are identified by an annual survey of Iowa corn growers.

How information is presented

Unless otherwise noted, the agronomic data are averages of four replications at each of three locations in 1993 and two locations in 1992. The quality data are averages of four replications at each of two locations in 1993 and 1992. Data are shown for all entries in 1993 and for those tested in 1993 that were in the 1992 test. The white test agronomic data are averages of four replications at each of two locations in 1993 and 1992. The agronomic data for the white hybrids and commercial yellow widely grown check hybrids grown in Ames (Table 9) are averages of two replications because half of the plot was lost to standing water. The agronomic data for the south-yellow test are the averages of six replications, 4 at one site and 2 at another. The other six replications were lost because of standing water and poor emergence.

Amino acid profiles (Tables 10, 11, 12 and 13) are nonreplicated values for bulked samples composed of eight replications, four from each of the two sites in a test that was sampled for quality data analysis.

Interpretation of results

Differences between hybrids that are due to variation in soil, fertility, moisture availability, insect infestation, and disease, plus any variation due to planting and harvesting techniques, are identified through statistical analysis. The LSD (least significant difference at .05) values in the tables represent the amount of difference between two hybrids that could be due to variations in the above mentioned factors. In comparing two hybrids for any of the traits, differences greater than the LSD value can be attributed to genetic differences in the potential of the hybrids; differences less than the LSD value indicate the means are not statistically different and could have been due to other factors.

1993 Field Data North-Yellow Test

The north-yellow test was planted on farms operated by Chester Morris near Sheldon in Sioux County, Joe Reigelsberger near Rolfe in Pocahontas County, and Louis Peters near Colwell in Floyd County. Field data are presented in table A.

At planting time, subsoil moisture at the three locations was adequate. The departures from normals listed in table A represent deviations from long term averages for temperature and precipitation near each of the three sites.

Table A. Field Data North-Yellow Test

Morris Farm* Marcus silty clay loam				Reigelsberger Farm Nicollet loam			Peters Farm* Oran loam		
Fertilizer applied, lb.	N	P205	K20	N	P205	K20	N	P205	K20
Plowdown	-	-	-	139	100	100	-	-	-
Preplant	12	40	60	-	-	-	150	-	60
TOTAL	12	40	60	139	100	100	150	-	60
1992 Crop	Soybeans			Soybeans			Soybeans		
Row width	30 inches			30 inches			30 inches		
Planting date	May 26			May 18 & 19			April 30		
Harvest date	Nov. 8 & 9			Oct. 29 & 30			Oct. 27 & 28		
Departures from Normals									
Month	Temp (0F)	Precip (inches)		Temp (°F)	Precip (inches)		Temp (0F)	Precip (inches)	
April	-4.1	+ .83		-3.2	+1.13		-3.2	+0.96	
May	-3.3	+1.19		-2.2	-0.98		-1.2	-0.3	
June	-4.4	+3.32		-2.7	+4.67		-2.9	+6.13	
July	-3.2	+3.59		-1.7	+3.07		-1.9	+3.77	
August	-0.5	+0.61		+1.0	+3.99		-0.2	+2.87	
September	-5.3	-0.52		-5.0	-2.00		-5.2	-2.02	

*Fields sampled for quality data determinations.

1993 Field Data Central-Yellow Test

The central-yellow test was planted on farms operated by Gerald Thiedeman near Westside in Crawford County, Richard Bertram near Holland in Grundy County, and Dave Elijah near Clarence in Cedar County. Field data are presented in table B.

At planting time, subsoil moisture at the three locations was adequate. The departures from normals listed in table B represent deviations from long term averages for temperature and precipitation near each of the three sites.

Table B. Field Data Central-Yellow Test

Thiedeman Farm Marshall silty clay				Bertram Farm* Tama silty clay loam			Elijah Farm* Tama silty clay loam		
Fertilizer applied, lb.	N	P205	K20	N	P205	K20	N	P205	K20
Plowdown	-	-	-	1	52	100	20	50	80
Preplant	135	50	45	130	-	-	-	-	-
Preemergence	-	-	-	-	-	-	120	-	-
TOTAL	135	50	45	141	52	100	140	50	80
1992 Crop	Soybeans			Soybeans			Soybeans		
Row width	30 inches			30 inches			30 inches		
Planting date	May 18			May 12 & 13			May 18 & 19		
Harvest date	Oct. 26 & 27			Oct. 25 & 26			Nov. 1 & 2		
Departures from Normals									
Month	Temp (°F)	Precip (inches)		Temp (°F)	Precip (inches)		Temp (°F)	Precip (inches)	
April	-3.8	+0.20		-3.9	+0.00		-5.1	-1.13	
May	-1.4	+1.20		-0.2	-0.22		-0.8	+2.24	
June	-2.4	+3.10		-1.5	+5.32		-3.4	+2.03	
July	-1.6	+9.69		-0.9	+7.65		-2.9	+5.98	
August	+0.5	+3.15		+1.5	+5.25		-0.4	+4.36	
September	-5.0	-1.50		-4.8	-1.52		-6.2	-0.94	

*Fields sampled for quality data determinations.

1993 Field Data South-Yellow Test

The south-yellow test was planted on farms operated by William Hays near Malvern in Mills County, Keith Sawyers near Winterset in Madison County, and Jerry Fricke near Mt. Union in Henry County. Data from the Henry County location were not included because of damage from excessive rainfall. Only half of the Madison County data were used. The other half was lost to very poor germination. Field data for the Mills County and Madison County locations are presented in table C.

At planting time, subsoil moisture at the three locations was adequate. The departures from normals listed in table C represent deviations from long term averages for temperature and precipitation near each of the three sites.

Table C. Field Data South-Yellow Test

Hays Farm* Monona silt loam				Sawyers Farm* Macksburg silty clay loam		
Fertilizer applied lb.	N	P205	K20	N	P205	K20
Preplant	150	-	-	-	-	-
Sidedress	-	-	-	145	40	10
TOTAL	150	-	-	145	40	10
1992 Crop	Soybeans			Soybeans		
Row width	30 inches			30 inches		
Planting date	April 28			May 29		
Harvest date	Oct. 6 & 7			Oct. 12		
Departures from Normals						
Month	Temp. (°F)	Precip. (inches)		Temp. (°F)	Precip. (inches)	
April	-4.2	-1.07		-3.8	-0.24	
May	-1.1	+3.33		-0.3	+4.23	
June	-2.2	+7.75		-1.6	+2.24	
July	-1.9	+9.24		-1.6	+6.25	
August	+1.5	-0.32		+1.0	+3.11	
September	-5.2	+1.30		-4.3	+0.38	

*Fields sampled for quality data determinations.

1993 Field Data White Corn Test

The white corn test was planted on farms operated by Darrel McAlexander near Sidney in Fremont County, University Farm Services of Iowa State University near Ames in Story County, and Keith Kirkpatrick near Mt. Vernon in Linn County. Because of standing water, only one-half of the Story County location was usable. Since it also included the yellow widely grown check hybrids, data from this location were kept separate and are reported in table 9. Field data are presented in table D.

At planting time, subsoil moisture at the three locations was adequate. The departures from normals listed in table D represent deviations from long term averages for temperature and precipitation near each of the three sites.

Table D. Field Data for White Corn Test

McAlexander Farm* Napier silt loam				I.S.U. Farm Nicollet loam			Kirkpatrick Farm* Tama silty clay loam		
Fertilizer applied, lb.	N	P205	K20	N	P205	K20	N	P205	K20
Plowdown	-	-	-	38	96	102	-	-	-
Preplant	160	-	-	160	-	-	130	-	-
Starter	7	21	7	-	-	-	-	-	-
TOTAL	167	21	7	198	96	102	130	-	-
1992 Crop	Soybeans			Soybeans			Soybeans		
Row Width	30 inches			30 inches			30 inches		
Planting Date	April 29			May 20			May 19		
Harvest Date	Oct. 7			Nov. 1			Nov. 3		
Departures from Normals									
Month	Temp (°F)	Precip (inches)		Temp (°F)	Precip (inches)		Temp (°F)	Precip (inches)	
April	-4.8	- 1.75		-4.4	- 0.82		-4.2	+ 0.63	
May	-2.4	+ 3.02		-1.2	+ 3.04		-0.3	+ 2.03	
June	-2.8	+ 5.44		-2.3	+ 2.39		-2.9	+ 4.17	
July	-2.8	+14.35		-1.8	+12.66		-2.1	+10.85	
August	+1.5	+ 0.99		+0.0	+ 6.47		+0.2	+ 3.41	
September	-6.0	+ 0.70		-5.3	+ 0.51		-5.5	+ 0.42	

*Fields sampled for quality data determinations.

Iowa Gold Catalog
1993 Grain Quality Tests
ISU Grain Quality Laboratory
Agricultural and Biosystems Engineering Department
Iowa State University
Ames, Iowa 50011

The tests run in 1993 were for corn (c) and soybeans (s): Composition (c,s), thins (c), fatty-acid profile (s), and amino-acid profile (c), density (c), test weight (c,s), and seed weight (c,s). For some tests, an estimated standard deviation of precision (repeatability) and an estimated standard deviation of prediction (accuracy) are listed below. Accuracy for composition data is relative to the wet chemistry reference. For other tests, there are no base reference methods, in which case a precision only is given. The statistics include only test variability, not any genetic or field variations. The plot replications were intended to average data correction in the field variations.

The moisture for data correction in the physical tests was determined with a Dickey-john GAC2000 meter using the 1993 factory calibrations for corn and soybeans. The moisture for adjusting composition to a moisture basis was determined by the near infrared analyzer. The moisture bases were 15% for corn and 13% for soybeans.

COMPOSITION

Composition is one of the most easily recognizable intrinsic properties of grain. In corn, protein, oil, and starch content were measured. In soybeans, protein and oil content were measured.

Composition was measured with a Infratec 1225 whole-grain near-infrared transmittance (NIT) analyzer (corn) or a Dickey-john Instilab ground-grain near-infrared reflectance (NIR) unit (soybeans). The NIT required about 400 grams of grain, the NIR about 50 grams. Both were equally accurate and precise relative to their wet chemical calibration standards. Data were converted to a user-specified moisture basis, and reported to the nearest tenth of a percent.

The "average" values for composition factors are:

Grain	Moisture Basis (%)	Protein (%)	Oil (%)	Starch (%)	Fiber (%)
Corn	15.0	8.0	3.6	60.0	--
Soybeans	13.0	35.0	19.0	--	4.5

Moisture correction equation:

$$P_b = \left(\frac{100-M_b}{100-M_a} \right) P_a$$

where: P_b, P_a = basis, original percentages
of protein, oil, starch, fiber, etc. (%)
 M_b, M_a = basis, original moisture (%)

Statistics for the composition test are:

Grain	Statistic	Moisture	Protein	Oil	Starch	Fiber
Corn	Precision ^a	0.2	0.2	0.1	0.3	--
	Accuracy ^b	0.4	0.4	0.2	0.8	--
Soybeans	Precision ^a	0.2	0.2	0.2	--	0.2
	Accuracy ^b	0.3	0.5	0.6	--	0.5

^a Standard deviation among replicates, same sample.

^b Standard error of prediction relative to wet chemistry.

SEED WEIGHT TEST

Some users prefer large or small seeds. In certain situations, seeds of a certain size process or handle better. The usual unit of seed size is thousand-grain weight (TGW).

In the Seed Weight Test, a mechanically-divided known weight of seeds is counted with an electronic seed counter. The weight is divided by the number of seeds and multiplied by 1000 to calculate the TGW. Data are reported to the nearest gram.

Moisture correction equation:

$$(TGW)_b = (TGW)_a \left[1.0 - \frac{1}{(100-M_b)} (M_a - M_b) \right]$$

where: TGW_b, TGW_a = seed weight at basis, original moisture (gm)
 M_b, M_a = basis, original moisture (% wb)

Precision: 10 gms

Seed weight can also be expressed as seeds per lb.

SEED DENSITY TEST

Density of individual corn seeds (not bulk density of seeds packed in a volume) is also a measure of hardness. Harder seeds are generally denser. The density of average corn is about 1.260 - 1.270 gm/cc. Density above 1.300 gm/cc is considered very hard.

In 1993, a near-infrared calibration for density was used, with the Infratec analyzer. Data are reported to the nearest 0.001 gm/cc.

Moisture correction equation:

$$D_s = D_o - 0.00289 (M_o - M_s)$$

where: D_o, D_s = basis, original density (gm/cc)
 M_o, M_s = basis, original moisture (%)

Accuracy: 0.003 gm/cc

Precision: 0.003 gm/cc

THINS TEST

The thins test is a variation of size distribution often used by corn dry millers. The percent thins is the percentage of corn sample passing through a 20/64 inch round-hole screen. Hand sieves are used to collect this data. A preweighed 250g sample is screened with hand screens. The thorough are weighed to compute percent thins, reported to the nearest whole percent.

Less than 30% thins is considered good. More than 50% thins is unacceptable for dry milling. Thins relate to uniformity of grind in the break rolls of a dry mill.

There is no moisture correction equation for percent thins.

Precision: 1.0%

FATTY ACID PROFILE

Fatty acids are the compounds that make up the oil fraction. The various individual fatty acids have special properties - more or less saturation, less beany flavor, etc. Fatty acid modification of soybeans is an important area of genetic development. There is no ideal fatty acid profile -- this varies by use.

Fatty acid profile was measured with gas chromatography on the extracted oil from a 2-6 g sample of soybeans. Five fatty acids form 99% of soybean oil. Data are expressed as a percentage of the oil, to the nearest tenth percent. There is no moisture correction needed because the data are percent of total oil.

Fatty Acid	Chain length: Unsaturated bonds	Typical Average (%) of (total oil)	Estimated standard deviation (precision) (% pts.)
Palmitic	16:0	11	0.3
Stearic	18:0	4	0.1
Oleic	18:1	26	1.5
Linoleic	18:2	53	1.2
Linolenic	18:3	7	0.3

Exact procedural details are available from Dr. Earl Hammond, Food Science and Human Nutrition, ISU.

AMINO-ACID PROFILE

Amino-acids are the compound that make up the protein fraction. The various individual amino acids are important to livestock feeding - for example lysine to swine, sulfur containing (methionine, cysteine) to poultry). Amino-acid modification is a growing area of genetic research.

Amino-acid profile was measured with liquid chromatography, using two digestions (acid and alkali) of 10-15 g ground sample. Data are expressed to the nearest 0.01 percentage point. The moisture basis correction formula is the same as for crude composition. Some important amino-acids are:

Amino Acid	Typical Average (%)	Range (%)
Lysine	0.25	0.20-0.35
Methionine	0.19	0.12-0.25
Tryptophan	0.08	0.05-0.12

Our amino-acid data was done by the University of Missouri, Agriculture Experiment Station Chemical Laboratories. A full 19-acid profile was provided. For cost reasons, the individual plots of a hybrid in a district (4 reps/location x 2 location/district = 8) were combined. The amino acid subsample was mechanically divided from this composite.

I O W A ⊕ G O L D
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C O R N D A T A

**TABLE 1. INDIVIDUAL YEAR AGRONOMIC DATA MEANS FOR DISTRICT 1
THE NORTH-YELLOW TEST**

BRAND	VARIETY	CROSS	YIELD BU/A		MOISTURE PCT		ROOT LDG PCT		STALK LDG PCT		DROP EAR PCT		STAND PCT	
			1992	1993	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
*CARGILL	4327	SX		108.5	26.0		1		3		1		88	
CIBA	4303	SX		109.6	21.5		3		1		0		86	
*DEKALB	DK554	SX		110.8	26.1		0		3		0		86	
GENETEC	1	SXB		65.6	23.6		18		8		2		82	
*GOLDEN HARVEST	H2390	SX		115.2	24.1		0		1		0		88	
NORTHRUP KING	N4242	SX	165.2	109.7	18.0	19.4	1	0	3	0	0	0	88	82
NORTHRUP KING	N4428	SX	153.8	111.2	22.0	21.2	3	0	5	1	0	0	91	80
*PFISTER	2250	SX		104.3	25.2		0		2		0		87	
*PIONEER	3417	SX		105.7	26.0		0		1		0		90	
PIONEER	3514	SX		99.5	24.2		1		1		1		77	
PIONEER	3578	SX		116.8	26.3		1		1		1		90	
AVERAGE OF ALL ENTRIES			159.5	105.2	23.9	20.3	2.5	0.0	2.6	0.5	0.5	0.0	86.6	81.0
AVERAGE OF WIDELY GROWN ENTRIES				108.9	25.5		0.2		2.0		0.2		87.8	
MINIMUM			153.8	65.6	18.0	19.4	0	0	1	0	0	0	77	80
MAXIMUM			165.2	116.8	26.3	21.2	18	0	8	1	2	0	91	82
LSD (.05)				10.5	9.9	3.1	3.4							

SX = SINGLE CROSS. MSX = MODIFIED SINGLE CROSS. 3X = 3-WAY CROSS. 4X = 4-WAY CROSS. SXB = BLEND OF SINGLE CROSSES
 * = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 1A. INDIVIDUAL YEAR QUALITY DATA MEANS FOR DISTRICT 1
THE NORTH-YELLOW TEST**

BRAND	VARIETY	PROTEIN %		OIL %		STARCH %		DENSITY G/CM3		TEST WEIGHT LB/BU		THINS %		SEED WT G/1000 KERNELS	
		1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
*CARGILL	4327	8.0		3.7		61.9		1.238		54.3		57		210	
CIBA	4303	8.5		3.6		61.9		1.259		57.8		59		231	
*DEKALB	DK554	7.8		3.8		61.7		1.228		52.2		51		217	
GENETEC	1	9.6		4.0		59.5		1.258		55.6		41		231	
*GOLDEN HARVEST	H2390	8.7		3.7		61.2		1.249		56.2		33		243	
NORTHROP KING	N4242	8.1	6.7	3.5	3.4	62.2	61.9	1.259	1.272	57.5	54.8	67	60	219	325
NORTHROP KING	N4428	8.2	6.8	3.7	3.5	61.9	61.8	1.250	1.276	58.0	56.0	85	81	205	329
*PFISTER	2250	8.3		3.6		61.4		1.234		53.5		60		209	
*PIONEER	3417	8.0		4.0		61.5		1.236		54.3		54		214	
PIONEER	3514	8.6		3.5		61.7		1.250		56.1		33		244	
PIONEER	3578	8.4		3.6		61.4		1.242		54.1		36		241	
AVERAGE OF ALL ENTRIES		8.4	6.8	3.7	3.5	61.5	61.9	1.246	1.274	55.4	55.4	52	71	224	327
AVERAGE OF WIDELY GROWN ENTRIES		8.2		3.8		61.5		1.237		54.1		51		219	
MINIMUM		7.8	6.7	3.5	3.4	59.5	61.8	1.228	1.272	52.2	54.8	33	60	205	325
MAXIMUM		9.6	6.8	4.0	3.5	62.2	61.9	1.259	1.276	58.0	56.0	85	81	244	329
LSD (.05)		0.3	0.4	0.1	0.2	0.4	0.6	0.013	0.011	2.2	1.7	10	7	21	13

* - WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 2. TWO-YEAR AGRONOMIC DATA MEANS FOR DISTRICT 1
THE NORTH-YELLOW TEST**

BRAND	VARIETY	CROSS	YIELD BU/A	MOISTURE PCT	ROOT LDG PCT	STALK LDG PCT	DROP EAR PCT	STAND PCT
			92-93	92-93	92-93	92-93	92-93	92-93
NORTHROP KING	N4242	SX	137.5	18.7	1	2	0	85
NORTHROP KING	N4428	SX	132.5	21.6	2	3	0	86
AVERAGE OF ALL ENTRIES			135.0	20.1	1.0	2.3	0.0	85.3
AVERAGE OF WIDELY GROWN ENTRIES								
MINIMUM			132.5	18.7	1	2	0	85
MAXIMUM			137.5	21.6	2	3	0	86
LSD (.05)			6.0	0.6				

SX = SINGLE CROSS. MSX = MODIFIED SINGLE CROSS. 3X = 3-WAY CROSS. 4X = 4-WAY CROSS. SXB = BLEND OF SINGLE CROSSES
 * = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 2A. TWO-YEAR QUALITY DATA MEANS FOR DISTRICT 1
THE NORTH-YELLOW TEST**

BRAND	VARIETY	PROTEIN %	OIL %	STARCH %	DENSITY G/CM3	TEST WEIGHT LB/BU	THINS %	SEED WT G/1000 KERNELS
		92-93	92-93	92-93	92-93	92-93	92-93	92-93
NORTHROP KING	N4242	7.4	3.5	62.1	1.266	56.2	64	272
NORTHROP KING	N4428	7.5	3.6	61.9	1.263	57.0	83	267
AVERAGE OF ALL ENTRIES		7.5	3.5	62.0	1.264	56.6	73	270
AVERAGE OF WIDELY GROWN ENTRIES								
MINIMUM		7.4	3.5	61.9	1.263	56.2	64	267
MAXIMUM		7.5	3.6	62.1	1.266	57.0	83	272
LSD (0.05)		0.3	0.1	0.2	0.006	0.5	3	7

* = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 3. INDIVIDUAL YEAR AGRONOMIC DATA MEANS FOR DISTRICT 2
THE CENTRAL-YELLOW TEST**

BRAND	VARIETY	CROSS	YIELD BU/A		MOISTURE PCT		ROOT LDG PCT		STALK LDG PCT		DROP EAR PCT		STAND PCT	
			1992	1993	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
BOJAC	299	SX		92.4	22.0		2		3		2		85	
BOJAC	386	SX		86.7	19.3		3		5		0		90	
BOJAC	427	SX		88.2	23.2		2		10		5		87	
*CARGILL	7997	SX		104.9	34.5		8		4		0		91	
*CIBA	4485	SX		90.6	24.8		1		5		0		88	
*DEKALB	DK612	SX	171.5	88.1	25.1	20.7	2	0	7	2	0	0	83	90
*GARST	8532	SX		94.0	25.5		1		7		0		91	
GENETEC	1	SXB	108.6	56.6	20.2	16.2	16	1	14	18	2	0	80	77
ICI SEEDS	N8400	SX		97.5	26.4		3		7		0		81	
*NORTHROP KING	N6560	SX	166.6	89.2	24.5	20.8	1	1	6	1	0	0	89	87
NORTHROP KING	N6822	SX		85.8	25.8		6		10		1		86	
NORTHROP KING	X501	SX	174.7	88.2	21.0	17.8	1	0	9	1	1	0	88	89
PIONEER	3245	SX	170.2	79.3	28.3	21.3	4	0	5	1	0	0	90	84
*PIONEER	3417	SX		92.6	22.9		1		5		0		90	
PIONEER	3514	SX		93.5	22.2		3		7		2		78	
SHISSLER	LG-2591	SX		101.6	26.5		3		4		0		89	
AVERAGE OF ALL ENTRIES			158.3	89.3	24.5	19.4	3.6	0.4	6.8	4.6	0.8	0.0	86.6	85.4
AVERAGE OF WIDELY GROWN ENTRIES			169.1	93.2	26.2	20.7	2.3	0.5	5.7	1.5	0.0	0.0	88.7	88.5
MINIMUM			108.6	56.6	19.3	16.2	1	0	3	1	0	0	78	77
MAXIMUM			174.7	104.9	34.5	21.3	16	1	14	18	5	0	91	90
LSD (.05)			16.9	9.8	3.2	3.5								

SX = SINGLE CROSS. MSX = MODIFIED SINGLE CROSS. 3X = 3-WAY CROSS. 4X = 4-WAY CROSS. SXB = BLEND OF SINGLE CROSSES
 * = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 3A. INDIVIDUAL YEAR QUALITY DATA MEANS FOR DISTRICT 2
THE CENTRAL-YELLOW TEST**

BRAND	VARIETY	PROTEIN %		OIL %		STARCH %		DENSITY G/CM3		TEST WEIGHT LB/BU		THINS %		SEED WT G/1000 KERNELS	
		1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
BOJAC	299	8.0		3.4		61.5		1.257		57.8		64		224	
BOJAC	386	7.9		3.6		61.1		1.235		57.4		76		200	
BOJAC	427	7.9		3.3		62.0		1.241		55.1		48		229	
*CARGILL	7997	7.5		3.6		62.5		1.247		56.6		61		224	
*CIBA	4485	8.0		3.5		61.5		1.257		58.2		88		194	
*DEKALB	DK612	8.1	7.4	3.6	3.7	61.4	61.3	1.259	1.308	58.6	57.4	88	71	200	342
*GARST	8532	8.1		3.6		61.4		1.259		58.4		87		200	
GENETEC	1	9.4	8.7	3.9	4.0	59.6	59.4	1.273	1.286	59.3	55.8	48	35	233	347
ICI SEEDS	N8400	7.6		3.6		62.2		1.254		57.8		34		262	
*NORTHROP KING	N6560	8.1	7.3	3.6	3.6	61.3	61.4	1.257	1.298	58.7	57.0	88	75	198	333
NORTHROP KING	N6822	7.9		3.2		62.2		1.257		57.9		51		225	
NORTHROP KING	X501	8.1	7.2	3.3	3.6	62.3	61.4	1.263	1.299	59.8	58.2	49	31	228	361
PIONEER	3245	8.7	7.5	3.4	3.6	61.5	61.2	1.278	1.305	59.8	58.4	49	34	225	348
*PIONEER	3417	7.5		3.7		61.8		1.253		58.2		56		224	
PIONEER	3514	8.3		3.4		61.7		1.268		60.2		31		261	
SHISSLER	LG-2591	8.0		3.7		61.0		1.257		58.5		50		234	
AVERAGE OF ALL ENTRIES		8.1	7.6	3.5	3.7	61.6	60.9	1.257	1.299	58.3	57.4	61	49	223	346
AVERAGE OF WIDELY GROWN ENTRIES		7.9	7.4	3.6	3.7	61.6	61.4	1.255	1.303	58.1	57.2	78	73	207	338
MINIMUM		7.5	7.2	3.2	3.6	59.6	59.4	1.235	1.286	55.1	55.8	31	31	194	333
MAXIMUM		9.4	8.7	3.9	4.0	62.5	61.4	1.278	1.308	60.2	58.4	88	75	262	361
LSD (.05)		0.4	0.5	0.1	0.2	0.6	0.6	0.006	0.010	1.0	1.2	7	10	11	10

* - WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 4. TWO-YEAR AGRONOMIC DATA MEANS FOR DISTRICT 2
THE CENTRAL-YELLOW TEST**

BRAND	VARIETY	CROSS	YIELD BU/A	MOISTURE PCT	ROOT LDG PCT	STALK LDG PCT	DROP EAR PCT	STAND PCT
			92-93	92-93	92-93	92-93	92-93	92-93
*DEKALB	DK612	SX	129.8	22.9	1	5	0	87
GENETEC	1	SXB	82.6	18.2	9	16	1	79
*NORTHROP KING	N6560	SX	127.9	22.6	1	4	0	88
NORTHROP KING	X501	SX	131.5	19.4	1	5	1	89
PIONEER	3245	SX	124.8	24.8	2	3	0	87
AVERAGE OF ALL ENTRIES			119.3	21.6	2.6	6.4	0.3	85.7
AVERAGE OF WIDELY GROWN ENTRIES			128.8	22.8	1.0	4.0	0.0	87.3
MINIMUM			82.6	18.2	1	3	0	79
MAXIMUM			131.5	24.8	9	16	1	89
LSD (.05)			6.0	0.8				

SX = SINGLE CROSS. MSX = MODIFIED SINGLE CROSS. 3X = 3-WAY CROSS. 4X = 4-WAY CROSS. SXB = BLEND OF SINGLE CROSSES
 * = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 4A. TWO-YEAR QUALITY DATA MEANS FOR DISTRICT 2
THE CENTRAL-YELLOW TEST**

BRAND	VARIETY	PROTEIN %	OIL %	STARCH %	DENSITY G/CM3	TEST WEIGHT LB/BU	THINS %	SEED WT G/1000 KERNELS
		92-93	92-93	92-93	92-93	92-93	92-93	92-93
*DEKALB	DK612	7.8	3.7	61.4	1.284	58.0	80	271
GENETEC	1	9.1	4.0	59.5	1.280	57.6	42	290
*NORTHROP KING	N6560	7.7	3.6	61.4	1.278	57.9	82	266
NORTHROP KING	X501	7.7	3.5	61.9	1.281	59.0	40	295
PIONEER	3245	8.1	3.5	61.4	1.292	59.1	42	287
AVERAGE OF ALL ENTRIES		8.1	3.6	61.1	1.283	58.3	57	282
AVERAGE OF WIDELY GROWN ENTRIES		7.7	3.6	61.4	1.280	57.9	81	268
MINIMUM		7.7	3.5	59.5	1.278	57.6	40	266
MAXIMUM		9.1	4.0	61.9	1.292	59.1	82	295
LSD (0.05)		0.2	0.1	0.2	0.005	0.5	4	6

* - WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 5. INDIVIDUAL YEAR AGRONOMIC DATA MEANS FOR DISTRICT 3
THE SOUTH-YELLOW TEST**

BRAND	VARIETY	CROSS	YIELD BU/A		MOISTURE PCT		ROOT LDG PCT		STALK LDG PCT		DROP EAR PCT		STAND PCT	
			1992	1993	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
BOJAC	592	SX	100.0	18.5			0		9		0		81	
BOJAC	615	SX	102.7	22.5			3		4		1		88	
*CARGILL	7997	SX	99.1	22.4			0		3		0		81	
*DEKALB	DK636	SX	90.4	20.3			1		2		0		80	
*GARST	8532	SX	94.6	18.4			1		4		0		90	
ICI SEEDS	8326	SX	85.8	18.9			0		1		1		78	
JACQUES	8210	SX	97.9	21.2			0		5		0		87	
NORTHROP KING	N7768	SX	91.6	21.2			0		2		0		87	
NORTHROP KING	PX9540	SX	88.1	20.9			0		4		0		82	
PIONEER	3162	SX	104.6	22.6			2		2		0		83	
PIONEER	3245	SX	87.3	18.3			3		6		0		83	
*PIONEER	3417	SX	98.8	17.5			0		1		0		86	
WILSON	D-110	SX	83.7	19.3			1		2		0		83	
WILSON	D-116	SX	88.7	25.2			2		0		0		83	
WYFFELS	W726	SX	111.0	18.9			0		4		0		88	
AVERAGE OF ALL ENTRIES			94.9	20.4			0.9		3.3		0.1		84.0	
AVERAGE OF WIDELY GROWN ENTRIES			95.7	19.6			0.5		2.5		0.0		84.3	
MINIMUM			83.7	17.5			0		0		0		78	
MAXIMUM			111.0	25.2			3		9		1		90	
LSD (.05)			13.4	2.0										

SX = SINGLE CROSS. MSX = MODIFIED SINGLE CROSS. 3X = 3-WAY CROSS. 4X = 4-WAY CROSS. SXB = BLEND OF SINGLE CROSSES
* = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 5A. INDIVIDUAL YEAR QUALITY DATA MEANS FOR DISTRICT 3
THE SOUTH-YELLOW TEST**

BRAND	VARIETY	PROTEIN %		OIL %		STARCH %		DENSITY G/CM3		TEST WEIGHT LB/BU		THINS %		SEED WT G/1000 KERNELS	
		1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
BOJAC	592	7.1		3.4		62.8		1.260		61.0		67		244	
BOJAC	615	7.4		3.6		62.4		1.265		60.1		67		246	
*CARGILL	7997	6.6		3.7		62.8		1.250		59.3		78		246	
*DEKALB	DK636	7.3	8.1	3.5	3.6	62.6	60.6	1.262	1.310	61.2	58.2	61	13	248	407
*GARST	8532	7.4		3.4		62.3		1.247		60.9		91		206	
ICI SEEDS	8326	7.2		3.3		62.8		1.257		60.3		37		256	
JACQUES	8210	7.4	7.6	3.4	3.7	62.6	61.2	1.270	1.311	61.2	58.5	62	14	247	384
NORTHRUP KING	N7768	7.4	7.6	3.5	3.8	62.6	61.1	1.272	1.314	61.0	59.0	60	13	252	394
NORTHRUP KING	PX9540	7.2	7.4	3.5	3.7	62.2	61.3	1.259	1.315	61.1	58.5	65	17	248	404
PIONEER	3162	7.1		3.3		63.1		1.271		60.7		71		232	
PIONEER	3245	7.7	8.1	3.3	3.5	62.5	61.0	1.273	1.327	61.7	60.5	69	21	228	398
*PIONEER	3417	6.8		3.7		62.2		1.241		59.3		67		231	
WILSON	D-110	7.5	8.7	3.3	4.1	62.8	59.6	1.261	1.306	60.6	59.9	81	37	216	345
WILSON	D-116	7.4		4.0		61.7		1.274		60.3		56		243	
WYFFELS	W726	7.1		3.2		63.3		1.266		61.1		71		239	
AVERAGE OF ALL ENTRIES		7.2	7.9	3.5	3.7	62.6	60.8	1.262	1.314	60.7	59.1	67	19	239	389
AVERAGE OF WIDELY GROWN ENTRIES		7.0	8.1	3.6	3.6	62.5	60.6	1.250	1.310	60.2	58.2	74	13	233	407
MINIMUM		6.6	7.4	3.2	3.5	61.7	59.6	1.241	1.306	59.3	58.2	37	13	206	345
MAXIMUM		7.7	8.7	4.0	4.1	63.3	61.3	1.274	1.327	61.7	60.5	91	37	256	407
LSD (.05)		0.5	0.6	0.1	0.2	0.7	0.7	0.013	0.011	0.8	1.1	10	5	11	14

* - WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 6A. TWO-YEAR QUALITY DATA MEANS FOR DISTRICT 3
THE SOUTH-YELLOW TEST**

BRAND	VARIETY	PROTEIN %	OIL %	STARCH %	DENSITY G/CM3	TEST WEIGHT LB/BU	THINS %	SEED WT G/1000 KERNELS
		92-93	92-93	92-93	92-93	92-93	92-93	92-93
*DEKALB	DK636	7.7	3.6	61.6	1.286	59.7	37	328
JACQUES	8210	7.5	3.6	61.9	1.290	59.9	38	316
NORTHRUP KING	N7768	7.5	3.7	61.9	1.293	60.0	37	323
NORTHRUP KING	PX9540	7.3	3.6	61.8	1.287	59.8	41	326
PIONEER	3245	7.9	3.4	61.8	1.300	61.1	45	313
WILSON	D-110	8.1	3.7	61.2	1.284	60.3	59	281
AVERAGE OF ALL ENTRIES		7.7	3.6	61.7	1.290	60.1	43	314
AVERAGE OF WIDELY GROWN ENTRIES		7.7	3.6	61.6	1.286	59.7	37	328
MINIMUM		7.3	3.4	61.2	1.284	59.7	37	281
MAXIMUM		8.1	3.7	61.9	1.300	61.1	59	328
LSD (0.05)		0.3	0.1	0.4	0.005	0.6	4	8

* - WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 7. INDIVIDUAL YEAR AGRONOMIC DATA MEANS FOR DISTRICT 4
THE WHITE TEST**

BRAND	VARIETY	CROSS	YIELD BU/A		MOISTURE PCT		ROOT LDG PCT		STALK LDG PCT		DROP EAR PCT		STAND PCT	
			1992	1993	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
ASGROW	RX795W	SX		116.9	22.3		0		3		1		74	
BOJAC	523W	SX	184.5	112.1	22.8	18.0	0	2	3	7	1	0	79	89
CARGILL	8097W	SX		107.9	22.1		0		4		2		82	
CROWS	W55	SX		106.3	22.8		0		5		1		81	
DEKALB	DK703W	SX		110.0	24.3		0		1		0		80	
DEKALB	555W	SX		113.6	18.9		0		2		0		79	
DEKALB	563W	SX		101.0	19.9		0		3		1		78	
DEKALB	739W	SX		108.6	23.9		0		3		0		76	
DEKALB	742W	SX		103.3	24.1		0		4		0		75	
HOEGEMEYER	1125W	SX	182.4	113.2	24.6	20.3	1	0	3	3	0	0	80	84
HOEGEMEYER	1131W	SX	189.5	108.1	23.3	18.7	0	0	2	3	1	1	72	85
ICI SEEDS	8320W	SX	188.9	115.2	21.6	18.1	0	0	2	4	3	0	80	87
JACQUES	7860W	SX		114.5	22.2		0		2		1		77	
MERSCHMAN	M2117W	SX		110.4	25.1		0		2		0		80	
MERSCHMAN	M3114W	SX		104.5	22.7		0		4		1		74	
NOBLE BEAR	X2300W	SX		110.8	22.2		1		2		2		80	
NOBLE BEAR	742W	SX	167.6	102.7	23.8	20.3	0	0	4	3	0	0	75	75
NORTHROP KING	N7580W	SX	180.9	112.3	25.2	20.2	0	0	3	4	0	0	83	86
PIONEER	3281W	SX	186.8	108.3	24.6	18.7	0	0	1	1	0	0	80	86
PIONEER	3287W	SX		112.8	22.9		1		1		0		83	
PIONEER	3463W	SX	151.2	98.9	18.8	15.9	0	0	2	0	0	0	83	75
TERRA	TR563E	SX		111.3	27.0		0		7		0		84	
VINEYARD	V449W	SX	193.2	104.8	25.0	20.1	1	0	3	1	0	0	80	91
WILSON	E11933	SX		103.7	29.5		0		2		0		70	
WILSON	1740W	SX	178.8	101.4	28.1	21.0	0	0	7	8	0	0	80	78
AVERAGE OF ALL ENTRIES			180.4	108.5	23.5	19.1	0.2	0.2	3.0	3.4	0.6	0.1	78.6	83.6
AVERAGE OF WIDELY GROWN ENTRIES														
MINIMUM			151.2	98.9	18.8	15.9	0	0	1	0	0	0	70	75
MAXIMUM			193.2	116.9	29.5	21.0	1	2	7	8	3	1	84	91
LSD (.05)			16.4	12.9	3.3	1.6								

SX = SINGLE CROSS. MSX = MODIFIED SINGLE CROSS. 3X = 3-WAY CROSS. 4X = 4-WAY CROSS. SXB = BLEND OF SINGLE CROSSES
 * = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 7A. INDIVIDUAL YEAR QUALITY DATA MEANS FOR DISTRICT 4
THE WHITE TEST**

BRAND	VARIETY	PROTEIN %		OIL %		STARCH %		DENSITY G/CM3		TEST WEIGHT LB/BU		THINS %		SEED WT G/1000 KERNELS	
		1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
ASGROW	RX795W	8.6		3.6		61.5		1.294		62.9		36		273	
BOJAC	523W	8.5	7.5	3.6	3.7	61.5	61.5	1.293	1.331	62.3	60.1	36	25	271	381
CARGILL	8097W	8.4		3.6		61.6		1.290		62.9		35		270	
CROWS	W55	8.4		3.4		61.3		1.277		60.6		35		267	
DEKALB	DK703W	8.1		3.5		62.2		1.291		62.2		34		278	
DEKALB	555W	7.8		3.5		61.7		1.266		60.6		26		256	
DEKALB	563W	8.2		3.5		61.5		1.270		59.7		21		276	
DEKALB	739W	8.1		3.6		61.6		1.283		59.3		30		248	
DEKALB	742W	8.4		3.6		61.5		1.290		60.1		31		272	
HOEGEMEYER	1125W	8.1	7.3	3.8	3.9	61.5	61.4	1.282	1.320	61.8	58.7	45	29	257	374
HOEGEMEYER	1131W	8.2	7.4	3.5	3.7	61.7	61.6	1.280	1.324	61.0	58.8	36	22	267	384
ICI SEEDS	8320W	8.4	7.6	3.5	3.9	61.8	61.4	1.294	1.333	62.6	60.1	38	24	270	383
JACQUES	7860W	8.5		3.5		61.6		1.291		62.8		36		270	
MERSCHMAN	M2117W	8.1		3.7		61.7		1.284		60.9		47		255	
MERSCHMAN	M3114W	8.2		3.5		61.8		1.292		61.6		35		268	
NOBLE BEAR	X2300W	8.4		3.5		61.8		1.294		62.4		38		266	
NOBLE BEAR	742W	8.5	7.9	3.7	3.8	61.5	60.8	1.293	1.318	60.3	57.5	30	14	269	380
NORTHROP KING	N7580W	7.9	7.3	3.7	3.9	61.6	61.3	1.280	1.324	61.1	59.0	48	32	258	374
PIONEER	3281W	8.6	7.8	3.7	4.0	60.9	60.6	1.291	1.321	60.6	58.8	24	12	266	370
PIONEER	3287W	8.1		3.6		62.0		1.299		62.1		52		262	
PIONEER	3463W	8.1	7.0	3.7	3.8	61.4	61.7	1.284	1.315	60.4	59.0	41	24	237	360
TERRA	TR563E	7.9		3.6		62.0		1.277		59.9		38		241	
VINEYARD	V449W	8.3	7.2	3.5	3.9	62.0	61.6	1.292	1.330	62.2	59.8	38	22	251	355
WILSON	E11933	8.7		3.7		60.8		1.288		61.4		28		277	
WILSON	1740W	8.0	7.2	3.5	3.7	61.8	61.7	1.272	1.315	58.9	57.8	39	24	238	349
AVERAGE OF ALL ENTRIES		8.3	7.4	3.6	3.8	61.6	61.4	1.286	1.323	61.2	59.0	36	23	263	371
AVERAGE OF WIDELY GROWN ENTRIES															
MINIMUM		7.8	7.0	3.4	3.7	60.8	60.6	1.266	1.315	58.9	57.5	21	12	237	349
MAXIMUM		8.7	7.9	3.8	4.0	62.2	61.7	1.299	1.333	62.9	60.1	52	32	278	384
LSD (.05)		0.3	0.5	0.2	0.3	0.6	0.5	0.014	0.008	1.4	0.9	6	5	12	14

* - WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 8. TWO-YEAR AGRONOMIC DATA MEANS FOR DISTRICT 4
THE WHITE TEST**

BRAND	VARIETY	CROSS	YIELD BU/A	MOISTURE PCT	ROOT LDG PCT	STALK LDG PCT	DROP EAR PCT	STAND PCT
			92-93	92-93	92-93	92-93	92-93	92-93
BOJAC	523W	SX	148.3	20.4	1	5	1	84
HOEGEMEYER	1125W	SX	147.8	22.4	1	3	0	82
HOEGEMEYER	1131W	SX	148.8	21.0	0	3	1	79
ICI SEEDS	8320W	SX	152.1	19.8	0	3	2	84
NOBLE BEAR	742W	SX	135.2	22.0	0	4	0	75
NORTHRUP KING	N7580W	SX	146.6	22.7	0	4	0	85
PIONEER	3281W	SX	147.6	21.6	0	1	0	83
PIONEER	3463W	SX	125.0	17.3	0	1	0	79
VINEYARD	V449W	SX	149.0	22.5	1	2	0	86
WILSON	1740W	SX	140.1	24.5	0	8	0	79
AVERAGE OF ALL ENTRIES			144.0	21.5	0.2	3.2	0.3	81.4
AVERAGE OF WIDELY GROWN ENTRIES								
MINIMUM			125.0	17.3	0	1	0	75
MAXIMUM			152.1	24.5	1	8	2	86
LSD (.05)			8.0	0.6				

SX = SINGLE CROSS. MSX = MODIFIED SINGLE CROSS. 3X = 3-WAY CROSS. 4X = 4-WAY CROSS. SXB = BLEND OF SINGLE CROSSES
 * = WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**TABLE 8A. TWO-YEAR QUALITY DATA MEANS FOR DISTRICT 4
THE WHITE TEST**

BRAND	VARIETY	PROTEIN	OIL	STARCH	DENSITY	TEST WEIGHT	THINS	SEED WT
		%	%	%	G/CM3	LB/BU	%	G/1000 KERNELS
		92-93	92-93	92-93	92-93	92-93	92-93	92-93
BOJAC	523W	8.0	3.7	61.5	1.312	61.2	31	326
HOEGEMEYER	1125W	7.7	3.9	61.5	1.301	60.3	37	316
HOEGEMEYER	1131W	7.8	3.6	61.7	1.302	59.9	29	326
ICI SEEDS	8320W	8.0	3.7	61.6	1.314	61.4	31	327
NOBLE BEAR	742W	8.2	3.8	61.2	1.306	58.9	22	325
NORTHROP KING	N7580W	7.6	3.8	61.5	1.302	60.1	40	316
PIONEER	3281W	8.2	3.9	60.8	1.306	59.7	18	318
PIONEER	3463W	7.6	3.8	61.6	1.300	59.7	33	299
VINEYARD	V449W	7.8	3.7	61.8	1.311	61.0	30	303
WILSON	1740W	7.6	3.6	61.8	1.294	58.4	32	294
AVERAGE OF ALL ENTRIES		7.8	3.7	61.5	1.305	60.0	30	315
AVERAGE OF WIDELY GROWN ENTRIES								
MINIMUM		7.6	3.6	60.8	1.294	58.4	18	294
MAXIMUM		8.2	3.9	61.8	1.314	61.4	40	327
LSD (0.05)		0.2	0.1	0.3	0.005	0.6	3	6

* - WIDELY GROWN COMMERCIAL YELLOW CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

Table 9. Agronomic Data Means for the District 4 White Test Entries grown along with Yellow Dent Widely Grown Check Hybrids (*) in Ames, IA, 1993.

Brand	Variety	Yield bu/a	Moist %	Root Lodg %	Stalk Lodg %	Dropped Ears %	Stand %
ASGROW	RX795W	76.7	21.0	0.0	5.3	1.7	71
BOJAC	523W	73.9	19.7	1.4	5.3	2.5	76
CARGILL	8097W	69.9	19.0	0.0	2.4	0.0	85
*CARGILL	7997	110.6	25.4	0.0	0.0	0.0	88
CROWS	W55	71.4	23.5	1.4	2.5	1.4	75
DEKALB	DK703W	63.0	22.6	5.2	8.6	0.0	75
DEKALB	555W	88.3	17.1	0.0	3.6	0.0	77
DEKALB	563W	67.3	18.8	0.0	4.7	0.0	80
DEKALB	739W	85.0	23.3	0.0	0.0	0.0	77
DEKALB	742W	85.8	22.5	0.0	10.3	0.0	78
*DEKALB	DK612	88.8	20.0	0.0	1.4	0.0	69
*GARST	8532	107.7	20.3	0.0	0.0	0.0	80
HOEGEMEYER	1125W	68.9	20.7	4.4	4.7	1.2	86
HOEGEMEYER	1131W	72.1	19.4	0.0	0.0	0.0	79
ICI SEEDS	8320W	70.7	20.3	0.0	1.5	3.8	73
JACQUES	7860W	68.2	19.0	0.0	2.8	0.0	69
MERSCHMAN	M3114W	82.9	19.3	0.0	7.8	2.2	80
MERSCHMAN	M2117W	67.9	22.5	0.0	6.8	2.8	74
NOBLE BEAR	742W	85.0	22.7	0.0	7.3	0.0	84
NOBLE BEAR	X2300W	73.0	18.6	1.2	0.0	0.0	84
NORTHROP KING	N7580W	74.3	20.7	0.0	3.8	0.0	81
*NORTHROP KING	N6560	96.9	20.6	0.0	0.0	0.0	84
PIONEER	3281W	93.3	24.6	0.0	0.0	0.0	82
PIONEER	3287W	86.3	22.5	0.0	3.3	0.0	90
PIONEER	3463W	87.4	18.0	0.0	0.0	0.0	81
*PIONEER	3417	105.7	18.7	0.0	2.3	0.0	84
TERRA	TR563E	73.9	25.1	0.0	1.3	0.0	84
VINEYARD	V449W	75.9	23.6	0.0	6.3	3.8	80
WILSON	1740W	68.6	27.8	0.0	6.5	0.0	73
WILSON	E11933	86.5	28.0	0.0	2.9	0.0	70
AVERAGE OF ALL ENTRIES		80.9	21.5	0.5	3.4	0.7	79.0
AVERAGE OF (*) ENTRIES		101.9	21.0	0.0	0.7	0.0	81.0
MINIMUM		63.0	17.1	0.0	0.0	0.0	69.0
MAXIMUM		110.6	28.0	5.2	10.3	3.8	90.0
LSD (.05)		8.1	1.5				

* = WIDELY GROWN COMMERCIAL YELLOW DENT CHECK HYBRID ENTERED BY IOWA STATE UNIVERSITY

**Table 10. Amino Acid Profiles for Hybrids tested in District 1
North-Yellow test**

BRAND	VARIETY	TAU	ASP	THR	SER	GLU	PRO	GLY
CARGILL	4327	0.08	0.50	0.25	0.32	1.30	0.64	0.28
CIBA	4303	0.10	0.54	0.26	0.33	1.46	0.71	0.29
DEKALB	DK554	0.09	0.51	0.25	0.30	1.27	0.62	0.28
GENETEC	1	0.09	0.55	0.28	0.35	1.46	0.71	0.29
GOLDEN HARVEST	H2390	0.09	0.53	0.27	0.35	1.45	0.73	0.30
NORTHROP KING	N4242	0.09	0.54	0.26	0.33	1.39	0.67	0.29
NORTHROP KING	N4428	0.09	0.52	0.26	0.34	1.40	0.67	0.28
PFISTER	2250	0.09	0.54	0.26	0.33	1.39	0.67	0.30
PIONEER	3417	0.08	0.51	0.25	0.31	1.32	0.63	0.27
PIONEER	3514	0.09	0.55	0.26	0.33	1.44	0.69	0.28
PIONEER	3578	0.11	0.52	0.26	0.33	1.36	0.65	0.28

Table 10. (continued)

BRAND	VARIETY	ALA	CYS	VAL	MET	ISO	LEU	TYR	PHE
CARGILL	4327	0.54	0.21	0.36	0.16	0.25	0.87	0.23	0.36
CIBA	4303	0.62	0.21	0.39	0.18	0.30	1.01	0.26	0.39
DEKALB	DK554	0.54	0.19	0.37	0.16	0.26	0.86	0.23	0.36
GENETEC	1	0.62	0.21	0.38	0.20	0.28	1.01	0.27	0.39
GOLDEN HARVEST	H2390	0.61	0.21	0.39	0.20	0.29	0.99	0.26	0.39
NORTHROP KING	N4242	0.58	0.21	0.38	0.16	0.28	0.95	0.24	0.38
NORTHROP KING	N4428	0.59	0.20	0.37	0.17	0.28	0.96	0.24	0.38
PFISTER	2250	0.59	0.21	0.39	0.19	0.28	0.95	0.25	0.38
PIONEER	3417	0.56	0.20	0.36	0.18	0.26	0.91	0.23	0.35
PIONEER	3514	0.60	0.20	0.39	0.17	0.29	0.99	0.25	0.38
PIONEER	3578	0.57	0.20	0.36	0.16	0.26	0.94	0.24	0.37

Table 10. (continued)

BRAND	VARIETY	HIS	LYS	ARG	TRY
CARGILL	4327	0.22	0.24	0.35	0.05
CIBA	4303	0.23	0.25	0.36	0.06
DEKALB	DK554	0.21	0.26	0.35	0.05
GENETEC	1	0.22	0.25	0.36	0.07
GOLDEN HARVEST	H2390	0.23	0.26	0.37	0.06
NORTHROP KING	N4242	0.22	0.25	0.36	0.06
NORTHROP KING	N4428	0.22	0.24	0.34	0.05
PFISTER	2250	0.23	0.26	0.36	0.06
PIONEER	3417	0.21	0.24	0.33	0.06
PIONEER	3514	0.23	0.25	0.35	0.05
PIONEER	3578	0.21	0.23	0.32	0.05

**Table 11. Amino Acid Profiles for Hybrids tested in District 2
Central-Yellow test**

BRAND	VARIETY	TAU	ASP	THR	SER	GLU	PRO	GLY
BOJAC	299	0.07	0.52	0.26	0.31	1.38	0.66	0.28
BOJAC	386	0.07	0.51	0.26	0.31	1.35	0.64	0.28
BOJAC	427	0.09	0.46	0.23	0.29	1.19	0.57	0.26
CARGILL	7997	0.06	0.45	0.24	0.29	1.27	0.64	0.26
CIBA	4485	0.07	0.52	0.26	0.33	1.44	0.66	0.28
DEKALB	DK612	0.09	0.53	0.25	0.33	1.43	0.69	0.29
GARST	8532	0.08	0.52	0.25	0.30	1.38	0.65	0.28
GENETEC	1	0.11	0.63	0.31	0.38	1.69	0.82	0.35
ICI SEEDS	N8400	0.07	0.48	0.25	0.30	1.29	0.63	0.26
NORTHROP KING	N6560	0.09	0.53	0.26	0.34	1.42	0.68	0.29
NORTHROP KING	N6822	0.10	0.50	0.25	0.31	1.37	0.67	0.28
NORTHROP KING	X501	0.10	0.53	0.26	0.32	1.40	0.69	0.28
PIONEER	3245	0.10	0.53	0.28	0.36	1.53	0.76	0.29
PIONEER	3417	0.07	0.49	0.24	0.30	1.26	0.60	0.26
PIONEER	3514	0.08	0.54	0.27	0.37	1.45	0.68	0.28
SHISSLER	LG-2591	0.09	0.53	0.25	0.32	1.36	0.67	0.29

Table 11. (continued)

BRAND	VARIETY	ALA	CYS	VAL	MET	ISO	LEU	TYR	PHE
BOJAC	299	0.56	0.20	0.38	0.19	0.27	0.93	0.23	0.37
BOJAC	386	0.55	0.19	0.37	0.18	0.27	0.93	0.23	0.37
BOJAC	427	0.49	0.18	0.32	0.15	0.23	0.81	0.21	0.33
CARGILL	7997	0.52	0.18	0.35	0.16	0.24	0.87	0.22	0.34
CIBA	4485	0.60	0.17	0.38	0.17	0.29	1.00	0.24	0.38
DEKALB	DK612	0.59	0.19	0.38	0.16	0.29	0.99	0.24	0.39
GARST	8532	0.57	0.21	0.37	0.18	0.27	0.94	0.23	0.37
GENETEC	1	0.70	0.23	0.46	0.23	0.34	1.17	0.31	0.47
ICI SEEDS	N8400	0.53	0.18	0.36	0.14	0.26	0.88	0.22	0.36
NORTHROP KING	N6560	0.60	0.21	0.38	0.18	0.29	0.98	0.25	0.39
NORTHROP KING	N6822	0.57	0.21	0.38	0.18	0.28	0.95	0.24	0.38
NORTHROP KING	X501	0.58	0.20	0.38	0.14	0.29	0.99	0.24	0.39
PIONEER	3245	0.63	0.22	0.40	0.19	0.30	1.07	0.27	0.41
PIONEER	3417	0.53	0.18	0.35	0.18	0.25	0.86	0.23	0.34
PIONEER	3514	0.59	0.17	0.34	0.18	0.23	0.97	0.25	0.38
SHISSLER	LG-2591	0.56	0.20	0.38	0.17	0.27	0.92	0.24	0.38

Table 11. (continued)

BRAND	VARIETY	HIS	LYS	ARG	TRY
BOJAC	299	0.23	0.24	0.36	0.06
BOJAC	386	0.22	0.24	0.35	0.06
BOJAC	427	0.20	0.23	0.30	0.06
CARGILL	7997	0.22	0.22	0.32	0.05
CIBA	4485	0.22	0.24	0.36	0.06
DEKALB	DK612	0.23	0.24	0.35	0.06
GARST	8532	0.22	0.24	0.36	0.06
GENETEC	1	0.27	0.31	0.43	0.07
ICI SEEDS	N8400	0.22	0.24	0.34	0.06
NORTHROP KING	N6560	0.22	0.25	0.35	0.06
NORTHROP KING	N6822	0.22	0.24	0.34	0.05
NORTHROP KING	X501	0.23	0.27	0.36	0.05
PIONEER	3245	0.25	0.24	0.35	0.06
PIONEER	3417	0.21	0.23	0.33	0.06
PIONEER	3514	0.22	0.23	0.35	0.06
SHISSLER	LG-2591	0.23	0.25	0.36	0.05

**Table 12. Amino Acid Profiles for Hybrids tested in District 3
South-Yellow test**

BRAND	VARIETY	TAU	ASP	THR	SER	GLU	PRO	GLY
BOJAC	592	0.07	0.44	0.24	0.33	1.22	0.57	0.26
BOJAC	615	0.07	0.44	0.24	0.31	1.22	0.59	0.28
CARGILL	7997	0.06	0.40	0.22	0.26	1.07	0.53	0.27
DEKALB	DK636	0.07	0.45	0.25	0.31	1.28	0.61	0.28
GARST	8532	0.07	0.46	0.24	0.31	1.29	0.59	0.29
ICI SEEDS	8326	0.06	0.44	0.24	0.31	1.26	0.60	0.27
JACQUES	8210	0.08	0.46	0.24	0.29	1.29	0.59	0.28
NORTHROP KING	N7768	0.07	0.46	0.25	0.30	1.27	0.60	0.28
NORTHROP KING	PX9540	0.07	0.44	0.24	0.28	1.19	0.58	0.27
PIONEER	3162	0.07	0.44	0.25	0.29	1.21	0.58	0.26
PIONEER	3245	0.07	0.50	0.26	0.32	1.35	0.65	0.29
PIONEER	3417	0.07	0.45	0.23	0.28	1.13	0.54	0.26
WILSON	D-110	0.07	0.48	0.26	0.32	1.30	0.63	0.29
WILSON	D-116	0.07	0.49	0.26	0.33	1.34	0.67	0.30
WYFFELS	W726	0.06	0.42	0.23	0.28	1.17	0.55	0.27

Table 12. (continued)

BRAND	VARIETY	ALA	CYS	VAL	MET	ISO	LEU	TYR	PHE
BOJAC	592	0.51	0.18	0.28	0.24	0.20	0.82	0.22	0.32
BOJAC	615	0.51	0.18	0.33	0.21	0.23	0.81	0.22	0.33
CARGILL	7997	0.44	0.17	0.31	0.19	0.22	0.69	0.17	0.28
DEKALB	DK636	0.53	0.19	0.35	0.21	0.25	0.86	0.23	0.35
GARST	8532	0.53	0.19	0.35	0.23	0.25	0.86	0.22	0.34
ICI SEEDS	8326	0.52	0.18	0.34	0.22	0.23	0.84	0.22	0.33
JACQUES	8210	0.54	0.19	0.36	0.23	0.25	0.87	0.23	0.35
NORTHROP KING	N7768	0.53	0.18	0.35	0.20	0.25	0.86	0.23	0.35
NORTHROP KING	PX9540	0.49	0.19	0.34	0.17	0.24	0.79	0.21	0.32
PIONEER	3162	0.50	0.18	0.33	0.22	0.24	0.80	0.22	0.32
PIONEER	3245	0.55	0.21	0.37	0.20	0.26	0.90	0.23	0.36
PIONEER	3417	0.48	0.16	0.31	0.21	0.23	0.75	0.21	0.31
WILSON	D-110	0.54	0.20	0.36	0.18	0.25	0.86	0.23	0.34
WILSON	D-116	0.55	0.19	0.37	0.23	0.26	0.89	0.23	0.36
WYFFELS	W726	0.48	0.17	0.32	0.22	0.23	0.77	0.20	0.31

Table 12. (continued)

BRAND	VARIETY	HIS	LYS	ARG	TRY
BOJAC	592	0.19	0.22	0.33	0.06
BOJAC	615	0.21	0.23	0.36	0.06
CARGILL	7997	0.19	0.22	0.31	0.06
DEKALB	DK636	0.22	0.23	0.36	0.06
GARST	8532	0.22	0.24	0.35	0.06
ICI SEEDS	8326	0.22	0.22	0.35	0.06
JACQUES	8210	0.22	0.24	0.36	0.06
NORTHRUP KING	N7768	0.21	0.24	0.36	0.06
NORTHRUP KING	PX9540	0.21	0.24	0.35	0.06
PIONEER	3162	0.21	0.23	0.35	0.06
PIONEER	3245	0.23	0.24	0.37	0.06
PIONEER	3417	0.19	0.23	0.34	0.06
WILSON	D-110	0.23	0.25	0.39	0.06
WILSON	D-116	0.23	0.25	0.38	0.06
WYFFELS	W726	0.19	0.22	0.33	0.06

**Table 13. Amino Acid Profiles for Hybrids tested in District 4
The White test**

BRAND	VARIETY	TAU	ASP	THR	SER	GLU	PRO	GLY
ASGROW	RX795W	0.07	0.51	0.27	0.36	1.50	0.70	0.30
BOJAC	523W	0.07	0.51	0.26	0.34	1.48	0.71	0.29
CARGILL	8097W	0.07	0.51	0.27	0.34	1.51	0.70	0.30
CROWS	W55	0.07	0.51	0.26	0.34	1.46	0.68	0.30
DEKALB	555W	0.07	0.48	0.25	0.31	1.29	0.64	0.28
DEKALB	563W	0.07	0.50	0.26	0.33	1.41	0.67	0.29
DEKALB	739W	0.07	0.51	0.25	0.32	1.36	0.67	0.30
DEKALB	742W	0.07	0.51	0.25	0.31	1.35	0.63	0.28
DEKALB	DK703W	0.06	0.48	0.51	0.31	1.34	0.62	0.27
HOEGEMEYER	1125W	0.07	0.51	0.27	0.35	1.46	0.71	0.30
HOEGEMEYER	1131W	0.07	0.50	0.26	0.33	1.44	0.70	0.29
ICI SEEDS	8320W	0.07	0.52	0.27	0.35	1.50	0.71	0.30
JACQUES	7860W	0.07	0.49	0.26	0.33	1.44	0.67	0.29
MERSCHMAN	M2117W	0.07	0.51	0.26	0.32	1.44	0.69	0.31
MERSCHMAN	M3114W	0.07	0.51	0.26	0.35	1.45	0.69	0.30
NOBLE BEAR	742W	0.07	0.51	0.25	0.32	1.39	0.66	0.28
NOBLE BEAR	X2300W	0.07	0.50	0.26	0.34	1.46	0.68	0.28
NORTHROP KING	N7580W	0.07	0.47	0.25	0.34	1.33	0.65	0.28
PIONEER	3281W	0.08	0.55	0.28	0.38	1.55	0.74	0.30
PIONEER	3287W	0.07	0.50	0.26	0.34	1.41	0.66	0.29
PIONEER	3463W	0.07	0.50	0.25	0.31	1.35	0.66	0.28
TERRA	TR563E	0.07	0.48	0.25	0.31	1.36	0.65	0.28
VINEYARD	V449W	0.07	0.50	0.26	0.33	1.44	0.72	0.29
WILSON	1740W	0.07	0.49	0.25	0.31	1.40	0.68	0.29
WILSON	E11933	0.07	0.53	0.27	0.35	1.55	0.73	0.30

Table 13. (continued)

BRAND	VARIETY	ALA	CYS	VAL	MET	ISO	LEU	TYR	PHE
ASGROW	RX795W	0.61	0.19	0.38	0.16	0.29	1.04	0.24	0.40
BOJAC	523W	0.60	0.19	0.39	0.16	0.29	1.02	0.24	0.39
CARGILL	8097W	0.61	0.18	0.39	0.17	0.30	1.05	0.25	0.40
CROWS	W55	0.60	0.19	0.39	0.16	0.29	1.00	0.24	0.40
DEKALB	555W	0.52	0.19	0.35	0.13	0.25	0.87	0.21	0.35
DEKALB	563W	0.57	0.19	0.37	0.14	0.28	0.98	0.22	0.38
DEKALB	739W	0.56	0.20	0.37	0.15	0.27	0.93	0.23	0.37
DEKALB	742W	0.55	0.17	0.36	0.15	0.27	0.94	0.22	0.37
DEKALB	DK703W	0.54	0.17	0.37	0.13	0.26	0.92	0.23	0.36
HOEGEMEYER	1125W	0.59	0.19	0.39	0.18	0.28	0.99	0.24	0.39
HOEGEMEYER	1131W	0.58	0.19	0.38	0.16	0.28	0.99	0.24	0.39
ICI SEEDS	8320W	0.61	0.21	0.39	0.16	0.29	1.03	0.22	0.40
JACQUES	7860W	0.58	0.18	0.38	0.15	0.28	0.99	0.23	0.39
MERSCHMAN	M2117W	0.58	0.21	0.40	0.19	0.28	0.96	0.23	0.38
MERSCHMAN	M3114W	0.59	0.19	0.38	0.16	0.28	0.99	0.24	0.38
NOBLE BEAR	742W	0.57	0.17	0.36	0.16	0.27	0.95	0.22	0.38
NOBLE BEAR	X2300W	0.59	0.18	0.38	0.15	0.28	1.03	0.24	0.40
NORTHRUP KING	N7580W	0.54	0.18	0.34	0.16	0.24	0.91	0.24	0.36
PIONEER	3281W	0.63	0.21	0.40	0.17	0.29	1.05	0.25	0.41
PIONEER	3287W	0.57	0.19	0.36	0.15	0.27	0.98	0.23	0.38
PIONEER	3463W	0.55	0.18	0.37	0.14	0.26	0.93	0.21	0.36
TERRA	TR563E	0.55	0.19	0.37	0.17	0.26	0.91	0.22	0.36
VINEYARD	V449W	0.58	0.19	0.38	0.15	0.28	0.99	0.23	0.38
WILSON	1740W	0.56	0.20	0.39	0.16	0.26	0.95	0.23	0.37
WILSON	E11933	0.63	0.19	0.41	0.16	0.31	1.07	0.25	0.41

Table 13. (continued)

BRAND	VARIETY	HIS	LYS	ARG	TRY
ASGROW	RX795W	0.23	0.24	0.36	0.06
BOJAC	523W	0.24	0.25	0.35	0.06
CARGILL	8097W	0.24	0.25	0.37	0.06
CROWS	W55	0.25	0.26	0.37	0.06
DEKALB	555W	0.23	0.24	0.34	0.06
DEKALB	563W	0.22	0.22	0.34	0.06
DEKALB	739W	0.23	0.24	0.34	0.06
DEKALB	742W	0.22	0.24	0.33	0.06
DEKALB	DK703W	0.23	0.24	0.35	0.06
HOEGEMEYER	1125W	0.24	0.25	0.36	0.06
HOEGEMEYER	1131W	0.24	0.25	0.35	0.06
ICI SEEDS	8320W	0.24	0.25	0.36	0.06
JACQUES	7860W	0.24	0.25	0.35	0.06
MERSCHMAN	M2117W	0.25	0.26	0.37	0.06
MERSCHMAN	M3114W	0.24	0.25	0.36	0.06
NOBLE BEAR	742W	0.22	0.23	0.32	0.06
NOBLE BEAR	X2300W	0.24	0.25	0.35	0.06
NORTHRUP KING	N7580W	0.24	0.24	0.36	0.06
PIONEER	3281W	0.24	0.24	0.36	0.06
PIONEER	3287W	0.22	0.23	0.35	0.06
PIONEER	3463W	0.25	0.24	0.33	0.06
TERRA	TR563E	0.24	0.24	0.34	0.06
VINEYARD	V449W	0.24	0.24	0.34	0.06
WILSON	1740W	0.24	0.24	0.35	0.05
WILSON	E11933	0.25	0.25	0.37	0.05