Visit the Iowa Crop Improvement Association online at http://www.agron.iastate.edu/icia/

A supplement to the December 13, 2003, issue of *Iowa Farmer Today*

2003 Iowa Crop Performance Test—Corn District 4

Results of the Iowa Crop Performance Test—Corn are published to aid Iowa farmers in selecting corn hybrids. This is the 84th consecutive year for the test.

These data are first released on the Iowa Crop Improvement Association's homepage at http://www.agron.iastate.edu/icia/ usually around the end of November.

The next released format of these data is in the Iowa Crop Management Database program. A description of this program and an order form can be found at http://extension.agron.iastate.edu/CMD/. A short description of how this program manages these data is provided in the "Other Reports" section of this report.

In 2002, DTN (Data Transmission Network) began including a summarized version of these data on their system.

The final format is the printed version, which is printed and distributed by *Iowa Farmer Today* in its Dec. 13, 2003 issue. A few days later, the printed reports also are available from county extension offices.

The presentation of data for the hybrids tested does not imply approval or endorsement by the authors or the agencies sponsoring or conducting the test. Entries in Tables 1, 1A, and 2 are designated by brand name and variety.

Use of These Data in Advertisements

Iowa State University and the Iowa Crop Improvement Association desire to maintain the credibility of data from the Iowa Crop Performance Test—Corn. Misuse of these data in advertisements can have a negative effect on the perception of the value of these data. For advertising purposes, brand-to-brand comparisons should not be made unless more than one competitor brand is used in the ad and all entries of competitor brands in a reported table are included in the ad. Advertisement statements by an individual company about the performance of its entries can be made as long as they are accurate statements about the data as published with no reference to other companies' hybrids. A statement similar to: "See the official *Iowa Crop Performance Test—Corn* report, PM 660 (1–7) 03, for details," should be included in the ad.

2003 Procedure

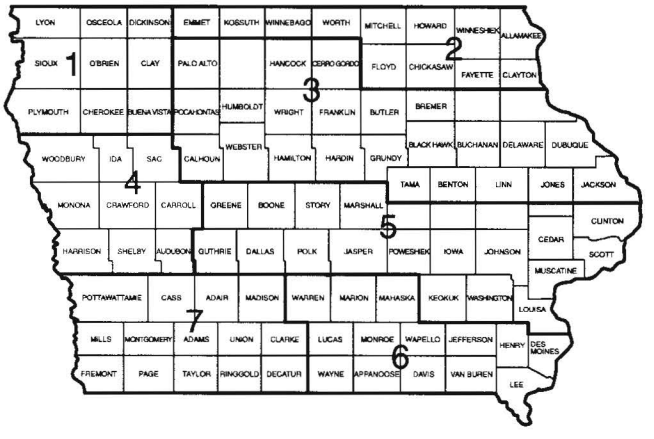
Producers of seed corn and Iowa State University were eligible to enter hybrids in the Iowa Crop Performance Test—Corn. Each producer was allowed a maximum of 12 paid entries per district. All commercial entries had to be available in a quantity of at least 10 bushels of seed.

In 2003, data are reported on 125 entries in this district. Nine of the entries determined to be check hybrids were entered by the Iowa Crop Improvement Association. In June, survey cards were mailed to a random sample of corn growers in Iowa. Based on the survey results, the 9 hybrids grown on the most acres in the district were classified as check hybrids for the district. The check hybrids ($ and !) in this report were determined by the 2002 survey. The Iowa Crop Improvement Association entered a maximum of three check hybrids of any given brand. These entries were given priority over the remaining 116 entries made by seed producers.

Each entry was replicated four times in four-row plots at a planting rate of 29,000 kernels per acre at each location. All locations were machine planted. The center two rows of each plot were harvested with a corn combine. No gleanings or dropped ears were included in yield data. A moisture determination was made from each plot and yields were corrected to 15.5 percent moisture for shelled corn.

Since 1988, data for protein, oil, and starch percentages have been included in the *Iowa Crop Performance Test—Corn* reports. Protein, oil, and starch were measured on an Infratec 1225 near-infrared transmittance analyzer calibrated against accepted chemical methods as done by Woodson-Tenant Labs, Des Moines, Iowa. Dr. Charles R. Hurburgh, Jr. of the ISU Department of Agricultural and Biosystems Engineering was responsible for analyzing the samples.

Samples for nutrient analysis were collected from one field in each district. Data presented are averages of the four replicated plots in that field. To be consistent with the yield data, the protein, oil, and starch data were corrected to 15.5 percent moisture.



Iowa Crop Improvement Association

IOWA STATE UNIVERSITY
University Extension

PM 660 4 03 December 2003

How Information Is Presented

The agronomic data presented are averages of three locations in 2001, 2002, and 2003. Yield in bushels per acre and percentages of moisture, root lodging, stalk lodging, dropped ears, stand, protein, oil, and starch are shown for all entries in 2003 and for those tested in 2001 and 2002 that were in the 2003 test.

Interpretation of Results

Yield differences due to variation in soil, fertility, moisture availability, insect infestation, and diseases, plus any variation due to planting and harvesting techniques, are identified through statistical analysis. The LSD values for yield shown in Tables 1, 1A, and 2 represent, in bushels per acre, the amount of yield variation that could be due to variations in the factors just mentioned. In comparing varieties, yield differences greater than the LSD value can be attributed to genetic differences in the yield potential of these varieties; yield differences less than the LSD value are not statistically different and could have been due to other factors.

Grain moistures shown in Tables 1, 1A, and 2 are indications of maturity and natural drying rate. Maturity of varieties entered generally ranged from short to full season. Yield comparisons should be made among varieties of similar maturity.

It is important to select varieties having stable performance over a range of environmental conditions. High yields for two or more consecutive years, Table 2, indicate stable performance. Also, starting in 2002, to increase the range of environmental conditions reported on in one year, 18 additional tables are provided electronically on the Iowa Crop Improvement Web page that merge data across districts. These tables double, and in some cases even triple, the number of locations reported on for hybrids entered in several districts. Supplemental yield and agronomic information about specific varieties may be obtained from seed corn dealers, crop consultants, and from neighbors who have grown these varieties.

The protein, oil, and starch percentage data (Tables 1, 1A, and 2) are quality traits important to different end-users of corn. For feed, protein is of primary interest; for wet-mill processing (ethanol and sweeteners), oil and starch content are important. Several firms have begun testing these characteristics on a routine basis. There are now more than 50 Iowa grain elevators with this testing capability.

Whole-grain near-infrared equipment measures composition of unground corn kernels in 1 to 1.5 minutes per sample. The equipment measures moisture simultaneously with composition. Using these instruments, country elevators can test and segregate grain as it is received. Obviously, all compositional factors cannot be high in the same hybrid. The grain market is expanding the production and marketing of certain hybrids for specific uses. This is an important change from the generic commodity approach widely used now.

The economic impact of compositional factors can be significant. Corn protein trades off with other protein sources in many feed rations. At $200 per ton for 44 percent protein soybean meal, the value of a 1 percent increase (e.g., from 8 percent to 9 percent) in corn protein is about 12 cents per bushel of corn. Likewise, an additional percent of oil yields about 10 to 14 cents per bushel in increased oil output in a wet processing plant or when substituted for white grease in feed rations. The additional ethanol or sweetener from an extra percent of starch provides 8 to 10 cents per bushel more revenue. Producers feeding livestock are in the best position to capture immediate benefits from these composition data. Country elevators with feed mills also have the ability to capitalize on increased protein in corn. The Iowa Corn Growers Association has prepared a publication to aid growers in using the nutrient data in the *Iowa Crop Performance Test—Corn* reports: *Nutrient Content and Feeding Value of Iowa Corn,* Iowa Corn Growers Association, Des Moines, Iowa 50265.

Hybrids with similar yields and agronomic characteristics may not be identical in corn composition. Therefore, feed costs can be reduced by selecting higher protein hybrids from a group with similar yield potential. Weather and soil conditions affect composition, but the relative ranking of hybrids does not change greatly. A higher protein hybrid will be higher than average regardless of environmental conditions that raise or lower the averages. The protein percentages reported are measures of crude protein and may not give an accurate indication of feed value if feed rations are balanced on individual amino acids rather than crude protein content.

2003 Field Data

The District 4 test was planted on farms operated by Maurice Wilt near Salix in Woodbury County, Rod Backhaus near Westside in Crawford County, and the McIntosh brothers near Missouri Valley in Harrison County. Field data are presented in Table A.

Table A. Field Data

	Wilt Farm Salix silty clay			Backhaus Farm Marshall silty clay loam			McIntosh Farm* McPaul silt loam		
Fertilizer applied, lb.	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
Preplant	—	—	—	21	54	102	165	—	—
Preemerge	120	—	—	30	—	—	—	—	—
Starter	3	6	3	—	—	—	—	—	—
Sidedress	—	—	—	133	—	—	—	—	—
Total	123	6	3	184	54	102	165	—	—
2002 crop	Soybeans			No Till Soybeans			Soybeans		
Row width	30 inches			30 inches			30 inches		
Planting date	May 22			April 29			April 22		
Harvest date	Oct. 21 & 22			Oct. 22 & 23			Sept. 26		
Average yield	150 bu/a			198 bu/a			196 bu/a		

*Field sampled for protein, oil, and starch percentage data.

Other Reports

Separate reports are available for each district shown in Figure 1. A limited supply of these publications is available at your county extension office or from Extension Distribution Center, 119 Printing and Publications Building, Iowa State University, Ames, Iowa 50011. Also, these data are available along with a hybrid selection program as a part of the Iowa Crop Management Database program. Along with all of the information as it appears in these written reports, the section of the Iowa Crop Management Database program that uses these data allows farmers to insert their own drying and shrink costs, expected price of corn, and final moisture percentage after drying. Using these specific criteria, the program calculates an adjusted economic value for each hybrid in the test. Farmers can then determine which hybrids might best fit their own production practices and provide the most profit. The computer program also can sort the hybrids by yield, moisture, adjusted value, root lodging, stalk lodging, dropped ears, protein, oil, starch, or brand and then print the data as sorted. It will also allow the user to tag selected hybrids and then list those selected hybrids as a new table for ease of viewing. A Pentium 1 computer or higher running Windows 95 or newer with a CD ROM drive and 30 megabytes of hard disk space are required to run the program. The cost of the program is a onetime purchase of $100. Future years' data can be downloaded from the Web at no charge. If the user cannot access the Web to download the new data, the price will be $25 for all seven districts' data. Order forms and a description of the program are available from Agribusiness Education Programs, telephone 515-294-6429 and on the Web at http://extension.agron.iastate.edu/CMD/.

The *2003 Iowa Crop Performance Test—Corn:*

PM 660 1 03 District 1
PM 660 2 03 District 2
PM 660 3 03 District 3
PM 660 4 03 District 4
PM 660 5 03 District 5
PM 660 6 03 District 6
PM 660 7 03 District 7

File: Agronomy 2-2

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Cooperating Organizations
Iowa Crop Improvement Association
Agriculture & Home Economics Experiment Station
Iowa State University Extension
Iowa Corn Promotion Board
U.S. Department of Agriculture

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Table 1A. 25 Top Yielding Hybrids Sorted by Moisture—District 4. 29,000 Planting Rate. LSD for 2003 Yield in Bushels is 9, for 2002 is 9 and for 2001 is 8. 2003 Protein Pct LSD = 0.2. 2003 Oil Pct LSD = 0.1. 2003 Starch Pct LSD = 0.4.

			Yield Bu/A			Moisture Pct			Root Ldg Pct			Stalk Ldg Pct			Drop Ear Pct			Stand Pct			Protein Pct			Oil Pct			Starch Pct				
Brand	>Variety	Cross	2001	2002	2003	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	>Variety	Brand
Renk	>RK870YGCB	SX			198	15.7			17			1			0			93			7.4			3.3			60.9			>RK870YGCB	Renk
Fontanelle	>5234	SX			188	15.8			7			3			0			88			7.5			3.4			60.6			>5234	Fontanelle
KSC/Challenger	>9212YGPLUS	SX			199	15.8			4			1			0			92			7.5			3.4			60.9			>9212YGPLUS	KSC/Challenger
Crows	>4911Bt	SX			189	15.9			5			1			0			91			7.5			3.4			60.8			>4911Bt	Crows
Mark	>MRK03Bt109	SX			187	16.0			2			1			0			89			7.5			3.7			60.3			>MRK03Bt109	Mark
Ag Source	>6163YGCB	SX			188	16.0			11			0			0			89			7.4			3.4			60.9			>6163YGCB	Ag Source
Ag Source	>5713YGCB	SX			189	16.1			6			0			0			92			8.1			3.4			60.4			>5713YGCB	Ag Source
KSC/Challenger	>9111YGCB	SX			190	16.1			5			0			0			90			7.5			3.5			60.4			>9111YGCB	KSC/Challenger
Kruger	>9212YGCB	SX			196	16.2			11			0			0			90			7.2			3.4			61.0			>9212YGCB	Kruger
Renze	>9363YGCB/RR	SX			191	16.3			11			2			0			93			7.3			3.4			61.0			>9363YGCB/RR	Renze
Four Star	>6572RRBt	SX			191	16.4			10			1			0			89			7.5			3.4			60.6			>6572RRBt	Four Star
Mark	>MRKRR02Bt108	SX			188	16.4			13			1			0			90			7.3			3.4			60.9			>MRKRR02Bt108	Mark
$Pioneer	>34M95	SX			194	16.5			9			0			0			85			8.0			3.3			60.7			>34M95	$Pioneer
Wilson	>1566Bt	SX			187	16.6			7			0			0			88			7.5			3.5			60.9			>1566Bt	Wilson
KSC/Challenger	>9212RR/YGCB	SX			190	16.7			10			2			0			90			7.4			3.4			60.9			>9212RR/YGCB	KSC/Challenger
DEKALB	>DKC60-19RRYG	SX		217	194	17.0	17.8		8	0		0	0		0	0		93	97		7.1	7.7		3.2	3.3		61.3	61.1		>DKC60-19RRYG	DEKALB
$Pioneer	>34B24	SX		199	189	17.1	18.3		7	2		1	0		0	0		90	97		7.9	8.2		3.3	3.6		60.9	60.3		>34B24	$Pioneer
Keystar	>KX-8908t	SX		195	187	17.4	18.2		15	8		2	1		0	0		90	96		7.2	7.4		3.3	3.7		61.1	60.9		>KX-8908t	Keystar
M/W Genetics	>G8079Bt	SX			187	17.8			16			0			0			88			7.9			3.2			60.8			>G8079Bt	M/W Genetics
Four Star	>5738Bt	SX		202	187	18.0	19.5		11	0		1	1		0	0		91	97		7.6	7.9		3.2	3.5		60.9	60.9		>5738Bt	Four Star
Renze	>8454YGCB	SX			191	18.1			9			2			0			91			7.4			3.3			61.1			>8454YGCB	Renze
Kruger	>9114+YGCB	SX			191	18.2			15			3			0			85			7.2			3.4			61.2			>9114+YGCB	Kruger
Four Star	>5758Bt	SX			188	18.2			9			0			0			84			7.5			3.3			61.1			>5758Bt	Four Star
Kruger	>9115YGCB	SX			188	18.3			8			1			0			86			7.7			3.3			60.9			>9115YGCB	Kruger
$Pioneer	>33B51	SX		189	194	18.3	20.1		10	0		0	0		0	0		91	96		7.6	7.7		3.4	3.5		60.7	61.0		>33B51	$Pioneer
Jacobsen	>JS4757Bt	SX			195	18.6			16			1			0			88			7.3			3.3			61.3			>JS4757Bt	Jacobsen
Crows	>5366Bt	SX			188	18.7			8			0			0			85			7.1			3.3			61.4			>5366Bt	Crows
M/W Genetics	>G8125Bt	SX			196	18.9			10			0			0			86			7.1			3.3			61.4			>G8125Bt	M/W Genetics
Average of All Entries			175.6	189.9	181.4	16.9	18.0	16.9	7.6	0.5	0.0	1.2	0.9	1.7	0.0	0.2	0.4	89.9	95.4	91.6	7.6	7.8	8.1	3.4	3.7	3.8	60.7	60.6	60.0	Average of All Entries	
Average of All Check Hybrids			175.5	191.2	183.3	16.3	19.0	17.9	6.7	0.7	0.1	1.2	0.3	0.7	0.0	0.1	0.1	90.7	96.7	92.1	7.7	7.8	8.1	3.4	3.7	3.9	60.7	60.6	59.9	Average of All Check Hybrids	

SX = Single Cross. MSX = Modified Single Cross. 3X = 3-Way Cross. 4X = 4-Way Cross. SXB = Blend of Single Crosses.
$ = Check Hybrid Entered by the Iowa Crop Improvement Association.
! = Short Check Hybrid Grown in Short Blocks.
= Hybrid Entered as a Short Hybrid and Grown in Short Blocks.
> = One of the Top 25 Yielding Hybrids.

Table 1. Average Performance of Varieties Tested in District 4. 29,000 Planting Rate. LSD for 2003 Yield in Bushels is 9, for 2002 is 9, and for 2001 is 8. 2003 Protein Pct LSD = 0.2. 2003 Oil Pct LSD = 0.1. 2003 Starch Pct LSD = 0.4.

			Yield Bu/A			Moisture Pct			Root Ldg Pct			Stalk Ldg Pct			Drop Ear Pct			Stand Pct			Protein Pct			Oil Pct			Starch Pct				
Brand	>Variety	Cross	2001	2002	2003	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	2003	2002	2001	>Variety	Brand
$Mycogen	5328Bt	SX			168	14.1			7			1			0			93			6.8			3.6			60.0			5328Bt	$Mycogen
Middlekoop	1207	SX		180	164	14.1	16.1		1	0		1	0		0	0		88	95		6.8	8.6		3.4	3.6		60.2	58.7		1207	Middlekoop
Renze	8244YGCB	SX			176	14.6			0			0			0			81			8.5			3.4			58.7			8244YGCB	Renze
KSC/Challenger	EX108YGCB	SX			164	14.6			1			1			0			94			7.9			3.6			60.3			EX108YGCB	KSC/Challenger
Kruger	9306YGCB	SX		196	169	14.7	15.7		3	0		0	0		0	0		93	96		7.8	8.3		3.6	3.8		60.4	59.9		9306YGCB	Kruger
Jacobsen	JS4442	SX			163	14.8			2			1			0			91			6.3			3.4			59.7			JS4442	Jacobsen
$DEKALB	DKC53-32	SX			176	14.9			0			2			0			93			7.7			3.6			60.4			DKC53-32	$DEKALB
SDI	9182	SX	171	169	173	15.2	16.9	15.4	3	0	0	1	2	2	0	0	2	91	88	93	8.1	8.4	8.5	3.7	3.9	3.9	60.6	58.8	58.6	9182	SDI
Middlekoop	3306Bt	SX			173	15.2			2			0			0			92			7.6			3.5			60.5			3306Bt	Middlekoop
DEKALB	DKC57-84YGCB	SX			175	15.3			3			2			0			93			6.0			3.6			60.2			DKC57-84YGCB	DEKALB
Cornelius	C635	SX	170	185	180	15.3	17.8	16.1	10	1	0	2	3	3	0	0	0	93	95	90	7.3	7.5	7.9	3.4	3.7	3.8	60.9	60.7	60.3	C635	Cornelius
KSC/Challenger	9310AYGCB	SX		196	185	15.4	16.7		1	0		1	0		0	0		87	92		7.7	7.6		3.5	3.7		60.4	60.4		9310AYGCB	KSC/Challenger
Epley	E3223	SX	169	178	186	15.5	18.1	16.3	16	0	0	2	2	3	0	1	0	91	84	91	7.5	7.4	8.1	3.4	3.7	3.8	60.3	61.0	60.0	E3223	Epley
Cornelius	C599	SX			178	15.5			2			1			0			88			7.5			3.4			60.8			C599	Cornelius
Keystar	KX-766	SX			180	15.6			16			2			0			89			7.5			3.4			60.4			KX-766	Keystar
$NK Brand	N58-D1	SX			183	15.6			6			1			0			92			7.4			3.2			61.2			N58-D1	$NK Brand
Mark	MRK02108CRW	SX			178	15.6			5			2			0			87			7.3			3.4			60.8			MRK02108CRW	Mark
Renk	RK789YGCB	SX			183	15.6			3			1			0			90			7.5			3.6			60.5			RK789YGCB	Renk
Four Star	5756RW	SX			182	15.6			4			3			0			88			7.4			3.4			60.8			5756RW	Four Star
Mark	MRKEX108HBt	SX			180	15.7			1			0			0			91			8.1			3.4			59.8			MRKEX108HBt	Mark
Epley	E2480Bt	SX	177	164	183	15.7	16.5	15.3	5	0	0	1	0	0	0	0	0	92	95	94	8.0	8.2	8.3	3.4	3.7	3.8	60.5	60.2	58.9	E2480Bt	Epley
Pfister	2326Bt	SX			181	15.7			6			0			0			93			8.0			3.4			60.6			2326Bt	Pfister
Renze	8261Bt	SX		187	182	15.7	16.7		8	0		1	0		0	0		89	96		7.9	8.1		3.4	3.7		60.5	60.3		8261Bt	Renze
Renk	>RK870YGCB	SX			198	15.7			17			1			0			93			7.4			3.3			60.9			>RK870YGCB	Renk
NK Brand	N65-M7	SX		178	181	15.8	17.9		10	2		3	3		0	1		90	93		7.4	7.5		3.5	3.8		60.8	60.7		N65-M7	NK Brand
Fontanelle	>5234	SX			188	15.8			7			3			0			88			7.5			3.4			60.6			>5234	Fontanelle
Jacobsen	JS4440Bt	SX			171	15.8			1			0			0			89			8.1			3.5			60.0			JS4440Bt	Jacobsen
KSC/Challenger	9308YGCB	SX			179	15.8			8			0			0			94			8.1			3.6			60.3			9308YGCB	KSC/Challenger
KSC/Challenger	>9212YGPLUS	SX			199	15.8			4			1			0			92			7.3			3.4			60.9			>9212YGPLUS	KSC/Challenger
Cornelius	C598YG	SX	172	185	182	15.9	16.4	15.2	8	0	0	1	0	1	0	0	0	92	97	92	8.0	8.3	8.4	3.5	3.8	3.8	60.5	60.0	59.7	C598YG	Cornelius
Crows	>4811Bt	SX			186	15.9			5			1			0			91			7.6			3.4			60.8			>4811Bt	Crows
Mark	>MRK03Bt109	SX			187	16.0			2			1			0			88			7.5			3.7			60.3			>MRK03Bt109	Mark
DEKALB	DKC58-78(YG)	SX		186	191	16.0	16.3		6	0		0	0		0	0		90	97		8.1	8.5		3.6	3.7		60.1	60.0		DKC58-78(YG)	DEKALB
Ag Source	>6163YGCB	SX			188	16.0			11			0			0			89			7.4			3.4			60.9			>6163YGCB	Ag Source
Middlekoop	3311Bt	SX			177	16.0			1			0			0			91			7.4			3.5			60.8			3311Bt	Middlekoop
Wyffels	W6570	SX			179	16.1			2			1			0			87			7.3			3.4			61.0			W6570	Wyffels
Ag Source	>5713YGCB	SX			189	16.1			6			0			0			92			8.1			3.4			60.4			>5713YGCB	Ag Source
Keystar	KX-855	SX		178	184	16.1	18.1		14	0		2	2		0	0		90	92		7.4	7.5		3.5	3.7		60.9	60.9		KX-855	Keystar
KSC/Challenger	>9111YGCB	SX			190	16.1			5			0			0			90			7.5			3.5			60.4			>9111YGCB	KSC/Challenger
Kruger	>9212YGCB	SX			196	16.2			11			0			0			90			7.2			3.4			61.0			>9212YGCB	Kruger
Renk	RK845RRYGCB	SX			185	16.2			6			1			0			90			7.6			3.2			61.0			RK845RRYGCB	Renk
$NK Brand	N67-T4	SX	174	183	183	16.2	19.0	17.3	7	1	0	2	0	0	0	0	0	92	100	93	7.4	7.7	8.0	3.4	3.7	3.9	60.9	60.8	60.6	N67-T4	$NK Brand
Cornelius	C637YG	SX		186	181	16.2	16.8		8	0		0	0		0	0		92	95		7.4	8.0		3.6	3.7		60.7	60.3		C637YG	Cornelius
M/W Genetics	G7716Bt	SX			184	16.3			12			1			0			91			7.4			3.4			60.9			G7716Bt	M/W Genetics
Renze	>9363YGCB/RR	SX			181	16.3			11			2			0			93			7.3			3.4			61.0			>9363YGCB/RR	Renze
Wyffels	W7273	SX		185	186	16.3	18.0		9	0		1	0		0	0		93	97		7.6	8.0		3.9	4.0		60.0	60.0		W7273	Wyffels
Pfister	2656Bt	SX			184	16.3			12			0			0			87			7.5			3.5			60.7			2656Bt	Pfister
Stine	9619YGCB	SX			166	16.3			8			1			0			87			7.8			3.4			60.6			9619YGCB	Stine
$Mycogen	6888	SX			195	16.4			11			3			0			92			7.5			3.4			60.7			6888	$Mycogen
Four Star	>6572RRBt	SX			191	16.4			10			1			0			89			7.5			3.4			60.6			>6572RRBt	Four Star
Mark	>MRKRR02Bt108	SX			188	16.4			13			1			0			90			7.3			3.4			60.9			>MRKRR02Bt108	Mark
Kruger	9411YGCB	SX			183	16.5			2			0			0			85			7.7			3.7			60.0			9411YGCB	Kruger
Renze	8364YGCB	SX			183	16.5			12			0			0			84			7.4			3.3			61.0			8364YGCB	Renze
$Pioneer	>34M95	SX			194	16.5			9			0			0			85			8.0			3.3			60.7			>34M95	$Pioneer
Asgrow	RX702YG	SX			183	16.6			7			0			0			80			8.2			3.6			58.8			RX702YG	Asgrow
Cornelius	C588YG	SX			176	16.6			4			6			0			83			7.6			3.4			60.9			C588YG	Cornelius
Ottilie	4653Bt	SX		189	183	16.6	16.9		2	0		0	0		0	0		82	95		7.4	8.1		3.5	3.6		60.7	60.3		4653Bt	Ottilie
Wilson	>1566Bt	SX			187	16.6			7			0			0			88			7.5			3.5			60.9			>1566Bt	Wilson
Rainbow	3125	SX		170	181	16.7	16.9		3	0		2	1		0	1		92	99		7.3	7.8		3.5	3.8		60.8	60.5		3125	Rainbow
KSC/Challenger	>9212RR/YGCB	SX			190	16.7			10			2			0			90			7.4			3.4			60.9			>9212RR/YGCB	KSC/Challenger
DEKALB	>DKC60-19RRYG	SX		217	194	17.0	17.8		8	0		0	0		0	0		93	97		7.1	7.7		3.2	3.3		61.3	61.1		>DKC60-19RRYG	DEKALB
Asgrow	RX752YG	SX			184	17.0			6			1			0			90			7.5			3.3			60.8			RX752YG	Asgrow
Epley	E3641	SX		168	171	17.0	17.3		5	1		2	2		0	0		88	95		7.2	7.5		3.1	3.2		61.7	61.4		E3641	Epley
$Pioneer	>34B24	SX		199	189	17.1	18.3		7	2		1	0		0	0		90	97		7.9	8.2		3.3	3.6		60.9	60.3		>34B24	$Pioneer
Stine	6023-28	SX			172	17.1			8			0			0			86			7.8			3.4			60.5			6023-28	Stine
Ag Source	6183YGCB	SX		209	180	17.1	18.2		12	1		1	0		0	0		87	93		7.2	7.7		3.4	3.8		61.1	60.6		6183YGCB	Ag Source
Fontanelle	5591	SX			183	17.2			6			3			0			92			7.1			3.5			60.9			5591	Fontanelle
Renk	RK864YGCB	SX			179	17.2			4			1			0			91			7.4			3.5			60.8			RK864YGCB	Renk
Jacobsen	JS4645Bt	SX	182	188	171	17.3	19.2	18.3	17	0	0	1	1	2	0	0	1	88	88	92	7.5	7.8	8.3	3.4	3.7	3.9	60.8	60.5	60.6	JS4645Bt	Jacobsen
Stine	9716	SX			174	17.4			4			4			0			91			7.4			3.3			61.8			9716	Stine
Pfister	2760	SX			176	17.4			7			1			0			90			7.7			3.5			61.0			2760	Pfister
Keystar	>KX-8908t	SX		195	187	17.4	18.2		15	8		2	1		0	0		90	96		7.2	7.4		3.3	3.7		61.1	60.9		>KX-8908t	Keystar
Ottilie	5267Bt	SX	184	195	181	17.4	19.4	18.1	15	0	0	3	0	1	0	0	0	90	97	91	7.6	7.8	8.2	3.4	3.6	3.9	60.8	60.6	59.9	5267Bt	Ottilie
Garst	8454YG1	SX			178	17.4			10			0			0			88			7.6			3.4			60.7			8454YG1	Garst
KSC/Challenger	9814CL/YGCB	SX			174	17.5			4			0			0			87			7.5			3.4			60.8			9814CL/YGCB	KSC/Challenger
NK Brand	N70-T9	SX			183	17.5			9			1			0			82			7.3			3.5			60.8			N70-T9	NK Brand
Fontanelle	5333	SX			174	17.5			4			1			0			91			7.2			3.4			61.0			5333	Fontanelle
KSC/Challenger	9115	SX		192	183	17.6	19.1		12	1		2	3		0	0		90	91		7.4	7.2		3.3	3.6		61.0	61.3		9115	KSC/Challenger
Rainbow	3100YG	SX		190	185	17.6	19.0		9	0		0	0		0	0		84	94		7.6	7.8		3.4	3.6		60.8	60.6		3100YG	Rainbow
KSC/Challenger	9412YGCB	SX			184	17.6			11			3			0			88			8.0			3.6			60.8			9412YGCB	KSC/Challenger
Renze	8383Bt	SX		191	179	17.6	18.4		10	0		2	1		0	0		91	93		7.8	7.8		3.2	3.4		60.9	61.0		8383Bt	Renze
KSC/Challenger	8314A	SX			182	17.6			0			2			0			81			7.7			3.3			60.5			8314A	KSC/Challenger
Renk	RK896YGCB	SX			188	17.6			13			2			0			91			7.8			3.2			61.0			RK896YGCB	Renk
Wyffels	W7633	SX			186	17.8			11			1			0			83			7.4			3.3			61.2			W7633	Wyffels
Epley	E3630Bt	SX	183	191	185	17.8	19.0	18.0	8	0	0	2	0	1	0	0	0	83	96	91	7.5	7.8	8.0	3.3	3.7	3.7	61.1	60.6	60.2	E3630Bt	Epley
NK Brand	N70-F1	SX			174	17.8			2			0			0			88			7.9			3.5			60.3			N70-F1	NK Brand
DEKALB	DKC63-78YGCB	SX			188	17.8			7			1			0			84			8.4			4.0			58.8			DKC63-78YGCB	DEKALB
M/W Genetics	>G8079Bt	SX			187	17.8			16			0			0			88			7.9			3.2			60.8			>G8079Bt	M/W Genetics
KSC/Challenger	EX412YGCB	SX			178	17.9			3			0			0			86			8.1			3.6			59.9			EX412YGCB	KSC/Challenger
Ag Source	6203YGCB	SX		192	184	17.9	19.2		9	0		1	1		0	0		87	95		7.8	7.8		3.2	3.5		60.9	60.9		6203YGCB	Ag Source
Kruger	EX314YGCB	SX			178	17.9			2			0			0			89			6.9			3.6			61.0			EX314YGCB	Kruger
Rainbow	3135	MSX			175	17.9			5			2			0			81			7.1			3.4			61.4			3135	Rainbow
Renze	Ex32111Bt	SX			180	17.9			6			1			0			82			7.4			3.4			60.8			Ex32111Bt	Renze
Crows	5202Bt	SX			181	17.9			15			1			0			92			7.8			3.3			60.8			5202Bt	Crows
$Golden Harvest	H9164Bt	SX	177	194	179	17.9	18.6	18.4	3	0	0	1	1	1	0	0	0	93	95	91	7.6	7.6	8.1	3.5	3.9	4.0	60.5	60.5	59.8	H9164Bt	$Golden Harvest
Pfister	2750Bt	SX			184	17.9			12			1			0			92			6.9			3.5			61.1			2750Bt	Pfister
Stine	9803YGCB	SX			173	17.9			4			1			0			88			7.3			3.3			61.3			9803YGCB	Stine
Four Star	5758	SX	178	183	182	17.9	18.2	17.5	5	0	0	1	3	4	0	0	0	88	85	90	7.1	7.3	7.6	3.3	3.5	3.5	61.4	61.4	60.8	5758	Four Star
Wilson	1785Bt	SX			185	18.0			12			2			0			96			7.7			3.2			60.8			1785Bt	Wilson
Wilson	1775Bt	SX			185	18.0			7			0			0			86			7.4			3.4			61.1			1775Bt	Wilson
Four Star	>5738Bt	SX		202	187	18.0	19.5		11	0		1	1		0	0		91	97		7.6	7.9		3.2	3.5		60.9	60.9		>5738Bt	Four Star
Renze	9364YGCB/RR	SX			185	18.0			15			1			0			91			7.7			3.2			60.6			9364YGCB/RR	Renze
High Cycle	HC7888YGCB	SX			170	18.0			17			10			0			90			7.7			3.4			60.8			HC7888YGCB	High Cycle
Epley	E3670Bt	SX			185	18.0			8			1			0			87			7.4			3.3			61.3			E3670Bt	Epley
Kruger	EX414YGCB	SX			182	18.1			6			0			0			88			7.2			3.4			61.0			EX414YGCB	Kruger
Renze	>8454YGCB	SX			191	18.1			9			2			0			91			7.4			3.3			61.1			>8454YGCB	Renze
Kruger	>9114+YGCB	SX			191	18.2			15			3			0			85			7.2			3.4			61.2			>9114+YGCB	Kruger
Kruger	9414	SX			180	18.2			4			2			0			91			7.1			3.4			61.1			9414	Kruger
Four Star	>5758Bt	SX			188	18.2			9			0			0			84			7.5			3.3			61.1			>5758Bt	Four Star
Kruger	9415	SX			183	18.3			8			2			0			81			7.1			3.4			61.1			9415	Kruger
Kruger	>9115YGCB	SX			188	18.3			8			1			0			86			7.7			3.3			60.9			>9115YGCB	Kruger
$Pioneer	>33B51	SX		189	194	18.3	20.1		10	0		0	0		0	0		91	96		7.6	7.7		3.4	3.5		60.7	61.0		>33B51	$Pioneer
Rainbow	3115YG	SX			172	18.3			0			1			0			93			7.3			3.6			60.8			3115YG	Rainbow
Kruger	EX215YGCB	SX			180	18.3			6			1			0			90			8.4			3.6			59.8			EX215YGCB	Kruger
Kruger	9315YGCB	SX		201	185	18.4	19.3		14	0		0	1		0	0		90	97		7.7	7.9		3.2	3.6		61.1	60.7		9315YGCB	Kruger
Four Star	6573RRBt	SX			184	18.4			14			2			0			80			7.3			3.3			61.1			6573RRBt	Four Star
Hawkeye Hybrid	ExpSX658t	SX			181	18.4			5			1			0			83			7.3			3.5			60.8			ExpSX658t	Hawkeye Hybrid
Renze	9454YGCB/RR	SX			185	18.5			13			0			0			88			7.3			3.3			61.3			9454YGCB/RR	Renze
Hawkeye Hybrid	314Bt	SX			183	18.5			16			1			0			92			7.6			3.3			61.1			314Bt	Hawkeye Hybrid
Epley	E36R65Bt	SX			173	18.6			11			3			0			88			7.5			3.4			60.8			E36R65Bt	Epley
Jacobsen	>JS4757Bt	SX			195	18.6			16			1			0			88			7.3			3.3			61.3			>JS4757Bt	Jacobsen
Crows	>5366Bt	SX			188	18.7			8			0			0			85			7.1			3.3			61.4			>5366Bt	Crows
Cornelius	C707RRYG	SX			172	18.7			15			3			0			90			7.5			3.5			60.7			C707RRYG	Cornelius
M/W Genetics	>G8125Bt	SX			196	18.9			10			0			0			86			7.1			3.3			61.4			>G8125Bt	M/W Genetics
Kruger	EX215	SX			174	19.4			2			3			0			89			8.0			3.1			61.1			EX215	Kruger
Average of All Entries			175.6	189.9	181.4	16.9	18.0	16.9	7.6	0.5	0.0	1.2	0.9	1.7	0.0	0.2	0.4	89.9	95.4	91.6	7.6	7.8	8.1	3.4	3.7	3.8	60.7	60.6	60.0	Average of All Entries	
Average of Check Hybrids			175.5	191.2	183.3	16.3	19.0	17.9	6.7	0.7	0.1	1.2	0.3	0.7	0.0	0.1	0.1	90.7	96.7	92.1	7.7	7.8	8.1	3.4	3.7	3.9	60.7	60.6	59.9	Average of Check Hybrids	

SX = Single Cross. MSX = Modified Single Cross. 3X = 3-Way Cross. 4X = 4-Way Cross. SXB = Blend of Single Crosses.
$ = Check Hybrid Entered by the Iowa Crop Improvement Association.
! = Short Check Hybrid Grown in Short Blocks.
= Hybrid Entered as a Short Hybrid and Grown in Short Blocks.
> = One of the Top 25 Yielding Hybrids.

With the quick development of new hybrids today, it is becoming more difficult for growers to view several years of data on each hybrid to help them decide which hybrids to select for planting the following year. The next best thing is to look at hybrids' performances across several locations in one year. So, data from additional location groupings along with the standard district groupings are provided on the Iowa Crop Improvement Association's Web page at http://www.agron.iastate.edu/icia/. These additional tables, summarizing data across districts, make it possible to look at hybrids' performances averaged across more locations than in the past to help predict which hybrids may have the best relative performance potential under next year's growing conditions. These 18 new tables double or triple the number of locations reflected in each hybrid's performance data.

Table 2. Averages of 2002-03 (2-Year) and 2001-03 (3-Year) of Varieties Tested in District 4.
LSD for Yields Are 5 Bushels for 01-03 (3-Year) and 6 Bushels for 02-03 (2-Year).

3-Year Protein LSD = 0.1. 3-Year Oil LSD = 0.1. 3-Year Starch LSD = 0.2.
2-Year Protein LSD = 0.1. 2-Year Oil LSD = 0.1. 2-Year Starch LSD = 0.2.

			Yield bu/a		Moisture Pct		Root Ldg Pct		Stalk Ldg Pct		Drop Ear Pct		Stand Pct		Protein Pct		Oil Pct		Starch Pct			
Brand	Variety	Cross	3 Year	2 Year	2 Year	3 Year	3 Year	2 Year	3 Year	2 Year	3 Year	2 Year	3 Year	2 Year	3 Year	2 Year	3 Year	2 Year	3 Year	2 Year	Variety	Brand
Middlekoop	1207	SX		172	15.1			1		1		0		92		8.3		3.5		60.0	1207	Middlekoop
Kruger	9306YGCB	SX		182	15.2			1		0		0		95		8.1		3.7		60.1	9306YGCB	Kruger
KSC/Challenger	9310AYGCB	SX		191	16.1			0		1		0		90		7.7		3.6		60.4	9310AYGCB	KSC/Challenger
SOI	9102	SX	171	171	16.1	15.8	1	1	2	2	1	0	93	93	8.3	8.3	3.8	3.8	59.8	59.9	9102	SOI
Epley	E2490Bt	SX	181	183	16.1	15.8	2	3	0	0	0	0	94	94	8.2	8.1	3.6	3.6	60.2	60.3	E2490Bt	Epley
Cornelius	C590YG	SX	180	183	16.1	15.8	3	4	1	1	0	0	94	94	8.2	8.1	3.7	3.7	60.1	60.3	C590YG	Cornelius
DEKALB	DKC58-78(YG)	SX		183	16.1			3		0		0		94		8.3		3.6		60.1	DKC58-78(YG)	DEKALB
Renze	8261Bt	SX		185	16.2			4		0		0		93		8.0		3.6		60.4	8261Bt	Renze
Cornelius	C637YG	SX		188	16.6			0		0		0		93		7.7		3.6		60.5	C637YG	Cornelius
Cornelius	C635	SX	178	182	16.6	16.4	4	6	3	3	0	0	93	94	7.6	7.4	3.6	3.6	60.6	60.8	C635	Cornelius
Ottilie	4953Bt	SX		186	16.8			1		0		0		93		7.7		3.5		60.5	4953Bt	Ottilie
Rainbow	3125	SX		176	16.8			1		2		0		95		7.6		3.6		60.7	3125	Rainbow
Epley	E3223	SX	177	182	16.8	16.6	3	5	2	2	1	1	92	93	7.7	7.4	3.7	3.5	60.4	60.7	E3223	Epley
NK Brand	N65-M7	SX		179	16.8			6		3		0		92		7.4		3.6		60.7	N65-M7	NK Brand
Kaystar	KX-855	SX		181	17.1			7		2		0		91		7.4		3.6		60.9	KX-855	Kaystar
Wyffels	W7273	SX		185	17.1			4		1		0		95		7.8		3.9		60.0	W7273	Wyffels
Epley	E3641	SX		180	17.2			3		2		0		92		7.4		3.1		61.5	E3641	Epley
DEKALB	DKC60-19RRYG	SX		205	17.4			4		0		0		95		7.4		3.2		61.2	DKC60-19RRYG	DEKALB
$NK Brand	N67-T4	SX	180	183	17.6	17.5	3	4	1	1	0	0	95	96	7.7	7.5	3.7	3.6	60.6	60.8	N67-T4	$NK Brand
Ag Source	6183YGCB	SX		194	17.6			7		1		0		90		7.4		3.6		60.9	6183YGCB	Ag Source
$Pioneer	34B24	SX		194	17.7			4		1		0		94		8.0		3.4		60.6	34B24	$Pioneer
Kaystar	KX-890Bt	SX		191	17.8			12		1		0		93		7.3		3.5		61.0	KX-890Bt	Kaystar
$Golden Harvest	H9164Bt	SX	183	186	18.2	18.3	1	2	1	1	0	0	90	89	7.8	7.6	3.8	3.7	60.3	60.5	H9164Bt	$Golden Harvest
Jacobsen	JS4645Bt	SX	184	185	18.3	18.3	6	8	1	1	0	0	92	91	7.9	7.7	3.7	3.6	60.4	60.7	JS4645Bt	Jacobsen
Rainbow	3100YG	SX		187	18.3			4		0		0		90		7.7		3.5		60.7	3100YG	Rainbow
KSC/Challenger	9115	SX		188	18.4			6		2		0		91		7.3		3.4		61.2	9115	KSC/Challenger
Ottilie	5267Bt	SX	187	188	18.4	18.3	5	7	1	1	0	0	93	93	7.8	7.7	3.6	3.5	60.4	60.7	5267Bt	Ottilie
Epley	E3630Bt	SX	186	188	18.4	18.3	3	4	1	1	0	0	93	94	7.8	7.7	3.6	3.5	60.6	60.8	E3630Bt	Epley
Renze	8383Bt	SX		185	18.5			5		1		0		92		7.8		3.3		60.9	8383Bt	Renze
Ag Source	6203YGCB	SX		188	18.5			5		1		0		91		7.8		3.4		60.9	6203YGCB	Ag Source
Four Star	5758	SX	183	188	18.6	18.2	2	2	3	2	0	0	92	93	7.3	7.2	3.4	3.4	61.2	61.4	5758	Four Star
Four Star	5738Bt	SX		194	18.7			6		1		0		94		7.8		3.4		60.9	5738Bt	Four Star
Kruger	9315YGCB	SX		193	18.8			9		1		0		93		7.8		3.4		60.9	9315YGCB	Kruger
$Pioneer	33B51	SX		191	19.2			5		0		0		93		7.6		3.5		60.8	33B51	$Pioneer
Average of All Entries			180.9	185.8	17.3	17.2	2.9	4.3	1.4	1.0	0.2	0.1	92.6	92.7	7.8	7.7	3.7	3.5	60.4	60.7	Average of All Entries	
Average of Check Hybrids			181.7	188.7	18.2	17.9	2.0	3.8	0.8	0.6	0.1	0.0	92.3	92.9	7.7	7.7	3.7	3.5	60.4	60.7	Average of Check Hybrids	

SX = Single Cross. MSX = Modified Single Cross. 3X = 3-Way Cross. 4X = 4-Way Cross. SXB = Blend of Single Crosses.
$ = Check Hybrid Entered by the Iowa Crop Improvement Association.
! = Short Check Hybrid Grown in Short Blocks.
= Hybrid Entered as a Short Hybrid and Grown in Short Blocks.