The 1996 Iowa Corn Yield Test Report, District 1

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Abstract
Results of the Iowa Corn Yield Test are published to aid Iowa farmers in selecting corn hybrids. This is the seventy-seventh consecutive year for the test. These data are first released on Iowa State University Extension's electronic information delivery system (EXNET) and the Internet usually around the end of November. Anyone can access this information and receive the data as soon as they are released. This information can be accessed in three ways: by modem at (515) 294-8354 and logging in as "guest," through Internet using World Wide Web (WWW) at the URL: http://www.exnet.iastate.edu, or through Internet using Telnet to exnet.iastate.edu and logging in as "guest." For additional information, contact EXNET, IIO EES Bldg., Haber Rd., Iowa State University, Ames, Iowa 50011-3070. telephone number (515) 294-8658.
The 1996 Corn Yield Test Report
District 1

Results of the Iowa Corn Yield Test are published to aid Iowa farmers in selecting corn hybrids. This is the seventh-consecutive year for the test.

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The next released format of the data is on computer diskettes, which include a hybrid selection computer program described in another section of this report. These diskettes are usually available a week to 10 days after the data are released on EXNET and the Internet.

The final format is the printed version, which is being printed and distributed by Iowa Farmer Today on Dec. 14, 1996 issue. A few days later, the 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 and 2 are designated by brand name and variety.

Use of the Data in Advertisements
Iowa State University and the Iowa Crop Improvement Association desire to maintain the credibility of data from the Iowa Corn Yield Test. 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 those brands in a given ad 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 State University Extension Corn Yield Test Report, 1996-1996, for details,” should be included in the ad.

1996 Procedure
Producers of seed corn and Iowa State University were eligible to enter varieties in the Iowa Corn Yield Test. Each producer was allowed a maximum of six paid entries per district. All entries had to be available in a quantity of at least 10 bushels of seed.

In 1996, 169 entries were evaluated in this district. Ten of the entries determined to be check hybrids were entered by Iowa State University. In June, survey cards are mailed to a random sample of corn growers in Iowa. Based on the survey results, the 10 hybrids grown on the most acres in a district are classified as check hybrids for that district. The check hybrids (*) in this report were determined by the 1995 survey. Iowa State University entered a maximum of two check hybrids of any given brand. These entries were given priority over the remaining 159 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 gheenings or dropped ears were included in yield data. A moisture determination was made from each plot and yields were corrected to 15.0 percent moisture for shelled corn.

Since 1988, data for protein, oil, and stalk percentages have been included in the Iowa Corn Yield Test Reports. Protein, oil, and stalk 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 stalk data were corrected to 15.0 percent moisture.

How Information Is Presented
The agronomic data presented are averages of three locations in 1994, 1995, and 1996. Yield in bushels per acre and percentages of moisture, root lodging, stalk lodging, dropped ears, stand, protein, oil, and stalk are shown for all entries in 1996 and for those tested in 1994 and 1995 that were in the 1996 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 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.
Table 2. Averages of 1995-96 and 1994-96 of Varieties Tested in District 1. 94-96 Protein

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield Bu/A</th>
<th>Moisture Pct</th>
<th>Root Ldg Pct</th>
<th>stalk Ldg Pct</th>
<th>Drop Ear Pct</th>
<th>Stand Pct</th>
<th>Protein Pct</th>
<th>Oil Pct</th>
<th>Starch Pct</th>
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<tbody>
<tr>
<td>*Northrup King</td>
<td>32</td>
<td>115</td>
<td>18.6</td>
<td>82</td>
<td>11</td>
<td>6.2</td>
<td>6.3</td>
<td>11.1</td>
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<tr>
<td>DeKalb 5925</td>
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<td>115</td>
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<tr>
<td>*Cargill 6303</td>
<td>115</td>
<td>115</td>
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<td>115</td>
<td>115</td>
<td>115</td>
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<tr>
<td>*Pioneer 3563</td>
<td>115</td>
<td>115</td>
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<td>115</td>
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<td>115</td>
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<tr>
<td>*Golden Harvest</td>
<td>115</td>
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<tr>
<td>Hill Seed 9490</td>
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<td>115</td>
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</tr>
</tbody>
</table>

*Check Hybrid Entered by Iowa State University. SX = Single Cross. MXM = Modified Single Cross. 3X = 3-Way Cross. 4X = 4-Way Cross. SXB = Blend of Single Crosses.
### Table 1: Average Performance of Varieties Tested in District 1

- **Yearly Performance Ratings:** Years 1995-1998
- **Hybrid Performance:** Years 1994-1998

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yearly Per.</th>
<th>Hybrid Per.</th>
</tr>
</thead>
</table>

### District 1

**Designations Identifying Brands in the Yield Test**

- AOS: AG South Seed Co., Spencer, IA 51301
- AG: AG South Seed Co., Spencer, IA 51301
- AN: Ameri Best Hybrids, Ames, IA 50010
- ANAG: Ameri Best Hybrids, Ames, IA 50010
- ANG: Ameri Best Hybrids, Ames, IA 50010
- AR: Ameri Best Hybrids, Ames, IA 50010
- AST: Ameri Best Hybrids, Ames, IA 50010

**The 1996 Iowa Corn Yield Test**

**Computer Diskette Order Form**

- Iowa Corn Yield Test results are published each year to help farmers select corn hybrids. Since 1987 a computer version has been available that includes the information in the written report and a program to calculate an economic return value for each hybrid based on farmer supplied expected corn price, final moisture, and drying and harvest costs. These inputs can easily be changed and the computer will calculate new economic return values for all hybrids. These values provide information on whether full season hybrids produce enough extra income to compensate for drying costs. Please contact Iowa State University for more information.

For more information, call Extension Information Service at 515-294-8282. Or, if you want to order the program, please complete, cut out, and return the order form in this report.
Grain moistures shown in Tables 1 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 indicate stable performance. 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 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 an exploratory basis. In 1995, a network of 15 Iowa grain elevators acquired near-infrared equipment and are testing inbound corn at their facilities. 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 exploring segmentation (identity preservation) which is the production and marketing of certain hybrids for specific uses. This is an important change from the generic commodity approach now used.

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 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 Corn Yield Test 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 protein. 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.

**Order Form: Iowa Corn Yield Test Hybrid Selection Program**

Please send me computer diskettes of the following districts of the Iowa Corn Yield Test Results. Each district at $25/copy

- District 1
- District 2
- District 3
- District 4
- District 5
- District 6
- District 7
- Set of 7 districts

Each district at $25/copy

Complete set at $150/set

Total amount

IBM/compatible

Disk size 3.5" only

Make of computer

Do you have access to EXNET and/or the Internet? yes □ no □

Name

Address

Phone

Mail and make check payable to:

Extension Software Service

Iowa State University

110 EES Building

Haber Road

Ames, Iowa 50011-3070

1-515-294-8658

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1996 Field Data

The District 1 test was planted on farms operated by Daryl Roos near Sheldon in Sioux County, the Jones brothers near Rossie in Clay County, and Aaron Easton near Remsen in Plymouth County. Field data are presented in Table A.

At planting time, subsoil moisture for the district was generally adequate. Rainfall for the district was below normal in April, July, and September, near normal in May, and above normal in August. In June, the Plymouth County location received well above normal rainfall while the other two locations received near normal rainfall. Temperatures for the district were below normal in May and July, well below normal in April, near normal in June, and below normal in August and September. The average district yield was 14 bushels per acre above the mean of the five preceding years' averages. Average location yields are listed in Table A.

**Table A. Field Data**

<table>
<thead>
<tr>
<th></th>
<th>Roos Farm*</th>
<th>Jones Farm</th>
<th>Easton Farm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Marcus silky clay loam</td>
<td>Everyly clay loam</td>
<td>Galva silky clay loam</td>
</tr>
<tr>
<td>Fertilizer applied, lb.</td>
<td>N P O K</td>
<td>N P O K</td>
<td>N P O K</td>
</tr>
<tr>
<td>Plowdown</td>
<td>120 60 60</td>
<td>130 80 90</td>
<td>110 80 80</td>
</tr>
<tr>
<td>Preplant</td>
<td>120 60 60</td>
<td>130 80 90</td>
<td>110 80 80</td>
</tr>
<tr>
<td>Total</td>
<td>120 60 60</td>
<td>130 80 90</td>
<td>110 80 80</td>
</tr>
<tr>
<td>1995 crop</td>
<td>Soybeans</td>
<td>Soybeans</td>
<td>Soybeans</td>
</tr>
<tr>
<td>Row width</td>
<td>30 inches</td>
<td>30 inches</td>
<td>30 inches</td>
</tr>
<tr>
<td>Planting date</td>
<td>April 29</td>
<td>May 6</td>
<td>April 29</td>
</tr>
<tr>
<td>Harvest date</td>
<td>Oct. 21 &amp; 22</td>
<td>Oct. 23 &amp; 24</td>
<td>Oct. 16 &amp; 19</td>
</tr>
<tr>
<td>Average yield</td>
<td>185 bu/a</td>
<td>126 bu/a</td>
<td>115 bu/a</td>
</tr>
</tbody>
</table>

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

**Other Reports**

Separate reports for variety performance 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, Printing and Publications Building, Iowa State University, Ames, Iowa 50011. Also, an IBM compatible diskette containing these data along with a hybrid selection program is available from Extension Software Services, 110 EES Bldg., Haber Road, Iowa State University, Ames, Iowa 50011-3070. Along with all of the information as it appears in the written reports, the computer diskettes include computer programs that allow farmers to print reports as needed. 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. An IBM personal or compatible computer supporting MS-DOS 2.0 or higher, with at least 512K memory is required. The cost of this diskette is $25.

All seven districts can be purchased for $150. Order forms, Pm-660-OF-96, are available from county extension offices and included in the printed reports.

The 1996 Iowa Corn Yield Test Report:

Pm-660-1-96 District 1
Pm-660-2-96 District 2
Pm-660-3-96 District 3
Pm-660-4-96 District 4
Pm-660-5-96 District 5
Pm-660-6-96 District 6
Pm-660-7-96 District 7

File: Agronomy 2-2


**Cooperating Organizations**

Cooperative Extension Service

Agriculture & Home Economics Experiment Station

Iowa Crop Improvement Association

Iowa Corn Promotion Board

U.S. Department of Agriculture

And justice for all

The Iowa Cooperative Extension Service's programs and policies are consistent with pertinent federal and state laws and regulations on nondiscrimination. Many materials can be made available in alternative formats for ADA clients.