The 1998 Iowa Corn Yield Test Report, District 6

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The 1998 Iowa Corn Yield Test Report, District 6

Abstract
Results of the Iowa Crop Performance Test-Com are published to aid Iowa farmers in selecting corn hybrids. This is the 79th 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. For additional information about electronic distribution, contact Extension Software Service, 110 EES Bldg., Haber Rd., Iowa State University, Ames, Iowa 50011-3070, telephone number (515) 294-8658.

Disciplines
Agriculture

This report is available at Iowa State University Digital Repository: https://lib.dr.iastate.edu/cornyield/192
Results of the Iowa Crop Performance Test—Corn are published to aid Iowa farmers in selecting corn hybrids. This is the 79th 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. For additional information about electronic distribution, contact Extension Software Service, 110 EES Bldg., Haber Rd., Iowa State University, Ames, Iowa 50011-3070, telephone number (515) 294-8638.

The next released format of these 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 the World Wide Web.

The final format is the printed version, which is printed and distributed by Iowa Farmer Today in its December 12, 1998 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 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 those brands in a given 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)-98, for details,” should be included in the ad.

1998 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 nine paid entries per district. All commercial entries had to be available in a quantity of at least 10 bushels of seed.

In 1998, data are reported on 137 entries in this district. Ten 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 10 hybrids grown on the most acres in a district are classified as check hybrids for that district. The check hybrids ( * and ! ) in this report were determined by the 1997 survey. The Iowa Crop Improvement Association entered a maximum of two check hybrids of any given brand. These entries were given priority over the remaining 127 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 gleaning 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.

How Information Is Presented

The agronomic data presented are averages of two locations in 1996 and three locations in 1997 and 1998. 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 1998 and for those tested in 1996 and 1997 that were in the 1998 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 be due to other factors.

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.
<table>
<thead>
<tr>
<th>Variety Brand</th>
<th>Cross</th>
<th>Variety</th>
<th>Yield BuK</th>
<th>Moisture Pct</th>
<th>Root Lg Pct</th>
<th>Stalk Lg 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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<td>131</td>
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<td>61.7</td>
<td>62.0</td>
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</table>

**Average of All Entries**: 147.7 145.6 18.7 20.5 2.8 2.9 4.4 6.1 0.8 0.8 87.2 85.6 7.3 7.2 3.4 3.5 61.5 61.9

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**LSD for Yields Are 6 Baskets for 96-98 and 7 Baskets for 96-97.**

- **DEKALB**: MSD - Single Cross
- **Middletown**: MSX - Single Cross
- **Pioneer**: MSX - Single Cross
- **Cornell**: MSX - Single Cross
- **Renze**: MSX - Single Cross
- **Agriland**: CBX - Blend of Single Crosses
- **L.S. Seeds**: CBX - Blend of Single Crosses
### Table 1: Average Performance of Variety Tested in District 6

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<td>70</td>
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<td>80</td>
<td>85</td>
<td>90</td>
<td>95</td>
<td>10</td>
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</table>

### The 1998 Iowa Crop Performance Test—Corn Computer Diskette Order Form

The Iowa Crop Performance Test—Corn 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 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 shrink 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 corn yield to compensate for drying costs. The computer program also can sort the hybrids by yield, moisture, adjusted economic value, root lodging, stalk lodging, dropped ears, percent, oil, starch, or hybrid.

For more information, call Extension Software Service at 515-294-6358.

Or, if you want to order the program, please complete, cut out, and return the order form in this report.
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 a routine basis. There are now over 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 published a report on their composition data from 1997, which can be accessed [here](#).

The Iowa Gold Catalog is a valuable resource for farmers looking to improve the profitability of their corn crop. The catalog contains detailed information on the performance of different corn hybrids tested in Iowa during the 1998 growing season. It is available for purchase at the Extension Distribution Center, 119 Printing and Publications Building, Iowa State University, Ames, Iowa 50011-3070. The cost of this diskette is $25. All seven districts can be evaluated on a routine basis. The average district yield was 11 bushels per acre above the mean of the five preceding years' averages. Average location yields are listed in Table A.

**Greensnap**

Greensnap happens when severe windstorms occur while corn plants are growing rapidly, usually before pollination. Corn stalks snap off at about a foot or two above the ground. This year, many areas of the state experienced some greensnap. Greensnap was so severe at the Pocahontas County and Mills County locations that these locations were not harvested. At other locations that experienced some greensnap, yields reported this year reflect the reduction in yields caused by greensnap. Also, the actual plants that greensnapped were counted as broken stalks and included in the stalk lodging percent columns in the reports.

**Order Form: Iowa Crop Performance Test—Corn Hybrid Selection Program**

Please send me computer diskettes of the following districts of the Iowa Crop Performance Test—Corn reports.

<table>
<thead>
<tr>
<th>District</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Each district at $25/copy

Complete set at $150/set

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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**1998 Field Data**

The District 6 test was planted on farms operated by Larry Linsley near Cedar in Mahaska County, Jerry Friese near Mt. Union in Henry County, and Mike Hunter near Clariton in Lucas County. Field data are presented in Table A.

At planting time, subsoil moisture for the district was excessive. Rainfall varied considerably in the district. For the months April, May, June, July, August, and September, the Mahaska County location received normal, normal, well above normal, normal, above normal, and below normal rainfall respectively. For the same months, the Henry County location received above normal, normal, above normal, normal, above normal, and normal rainfall respectively. The Lucas County location for the same months received normal, well above normal, normal, above normal, well below normal, and below normal rainfall respectively. Temperatures for the district were well above normal in May and September and normal in July. In April, the Henry County location received above normal temperatures while the other two locations received below normal temperatures. In June, the Henry County location received normal temperatures while the other two locations received below normal temperatures. In August, temperatures at the Mahaska County location were normal while the other two locations received above normal temperatures. The average district yield was 11 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>District</th>
<th>Linsley Farm* Tainter silty clay loam</th>
<th>Frische Farm Tainter silty clay loam</th>
<th>Hunter Farm Pershing silt loam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Soybeans</td>
<td>Soybeans</td>
<td>Soybeans</td>
</tr>
<tr>
<td></td>
<td>Row width</td>
<td>30 inches</td>
<td>30 inches</td>
</tr>
<tr>
<td></td>
<td>Planting date</td>
<td>April 28</td>
<td>May 13</td>
</tr>
<tr>
<td></td>
<td>Harvest date</td>
<td>Sept. 28 &amp; 29</td>
<td>Oct. 26 &amp; 27</td>
</tr>
<tr>
<td></td>
<td>Average yield</td>
<td>166 bu/a</td>
<td>136 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, 119 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 insert their own growing and yield data, 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 hybrid 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, drooped ears, protein, oil, starch, or brand and print the data as sorted. An IBM personal or compatible computer supporting MS-DOS 2.0 or higher, 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-98, are available from county extension offices and included in the printed reports.

The 1998 Iowa Crop Performance Test—Corn:

Pm-660-1-98 District 1  Pm-660-5-98 District 5
Pm-660-2-98 District 2  Pm-660-6-98 District 6
Pm-660-3-98 District 3  Pm-660-7-98 District 7
Pm-660-4-98 District 4


**Cooperating Organizations**

Iowa Crop Improvement Association
Agriculture & Home Economics Experiment Station
Cooperative Extension Service
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.