The 1994 Iowa Corn Yield Test Report, District 6

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The 1994 Iowa Corn Yield Test Report, District 6

Abstract
Results of the Iowa Corn Yield Test are published to aid Iowa farmers in selecting corn hybrids. This report commemorates the seventy-fifth consecutive year for the test. The Iowa State Corn Yield Test has been, and continues to be, a cooperative project between Iowa State University, the Iowa Crop Improvement Association, the U.S. Department of Agriculture, and their predecessors since 1920. The first bulletin in 1920 reported yield from a Benton County test that included data from 12 open pollinated entries, 11 named Reid's Yellow Dent and the 12th Iowa 203. These 12 open pollinated varieties averaged 63 bu/acre (ear-corn basis). Data also were included from a 1918 test in Floyd County and a 1915 Henry County test. The 1921 test, which reflected the first official growing year, included 128 open pollinated varieties. In the early years of the test, yields were not given. The data were reported as percentages of the highest yielding entry. These 1994 commemorative reports provide data for 715 hybrids, with an average state yield of 164 bu/acre (shelled-com basis).

Disciplines
Agriculture

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A supplement to the December 17, 1994 issue of Iowa Farmer Today

The 1994 Corn Yield Test Report
District 6

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In his book, The Hybrid Corn-Makers, Richard Crabb mentions in several places the positive role the Iowa State Corn Yield Test played in the development of the hybrid corn industry as it is known today. Also, Chapter 8 in a book entitled The Iowa Crop Improvement Association, by Joe Robinson and Oliver Knott, discusses the first 44 years of the Iowa State Corn Yield Test. The Parks Library on the Iowa State University campus maintains a complete set of the corn yield reports.

Many changes in the state corn yield testing program have occurred in the past 75 years in the areas of corn production practices, data collection techniques, statistical analysis procedures, and publishing and distribution of the data. The one thing that has not changed is the overall objective: To provide Iowa corn growers unbiased, impartial information about corn varieties and hybrids available for them to grow.

For many years these reports were not released until mid-February of the following year. Today, data from the Iowa Corn Yield Test are available in three different formats. The data are first released on Iowa State University Extension’s electronic information delivery system (EXNET), usually around the end of November. Anyone can access the information on EXNET and receive the data as soon as they are released. Information provided on EXNET 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 URL: http://www.exnet.iastate.edu, or through Internet using telnet to exnet.iastate.edu and logging in as “guest.” For additional information about EXNET, contact EXNET, 110 EES Bldg., Haber Rd., Iowa State University, Ames, Iowa 50011-3070, telephone number (515) 294-8658, e-mail: exne@exnet.iastate.edu.

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.

The final format is the printed version, which is being printed and distributed by Iowa Farmer Today in its Dec. 17, 1994 newspaper. A few days later, the reports are also 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.

IOWA CROP IMPROVEMENT ASSOCIATION
Ames, Iowa

IOWA STATE UNIVERSITY
University Extension
Ames, Iowa

Use of the Data in Advertisements
Iowa State University desires 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 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 State University Extension Corn Yield Test Report. Pm-660-1(1)-94, for details,” should be included in the ad.

1994 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 1994, 210 entries were evaluated in this district. Fifteen of the entries determined to be widely grown 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 15 hybrids grown on the most acres in a district are classified as widely grown for that district. The widely grown hybrids (*) in this report were determined by the 1993 survey. Iowa State University entered a maximum of three widely grown hybrids of any given brand. These entries were given priority over the remaining 195 entries made by seed producers.

Each entry was replicated four times in four-row plots at a planting rate of 28,000 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 15.0 percent moisture for shelled corn.

Starting with the 1988 report, data for protein, oil, and starch percentage are included in the Iowa Corn Yield Test Report. Protein, oil, and starch were measured on a near-infrared reflectance analyzer that was calibrated against accepted chemical methods. Charles R. Hurburgh, Jr., ISU Department of Agricultural and Biosystems Engineering, is 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 15.0 percent moisture.
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Average of all entries: 147.5
Average of widely grown entries: 148.9

* = Widely grown variety entered by Iowa State University.
SX = Single Cross.
MSX = Modified Single Cross.
3X = 3-Way Cross.
4X = 4-Way Cross.
SX = Blend of Single Crosses.
|--------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
How Information is Presented
The agronomic data presented are averages of one location in 1992, 1993, and 1994. 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 1994 and for those tested in 1992 and 1993 that were in the 1994 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.

Grain moisture levels 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 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. These factors are under development as additions to the U.S. standards as optional criteria. Several firms have begun testing these characteristics on an exploratory basis.

Since 1988, new test equipment has been developed to measure composition of unground corn kernels. These instruments take 1-1.5 minutes per sample, and measure moisture simultaneously with composition. Using these instruments, country elevators could 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)—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. The additional ethanol or sweetener from an extra percent of starch provides 8-10 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.

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.

Year: 
District 1 □ District 2 □ District 3 □ District 4 □ District 5 □ District 6 □ District 7 □ Set of 7 districts □

Each diskette at $20/copy

Complete set at $125/set

Total amount

IBM/compatible Disk size 5.25" □ 3-1/2" □

Make of computer ___________ 

Do you have a hard disk (20MB, 40MB, etc.) 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

Other Reports
Separate reports for variety performance are available for each district shown in the map on the front. 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 the information it contains, the diskette computer diskettes include computer programs that allow 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 sorts the hybrids by yield, moisture, adjusted value, root lodging, stalk lodging, dropped ears, protein, oil, starch, or brand and then prints 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 $20. All seven districts can be purchased for $125. When ordering, along with the payment, indicate diskette size, 3-1/2" or 5-1/4", and district(s) wanted. Order forms, Pm-660-OF-94, are available from county extension offices and included in the printed reports.

The 1994 Iowa Corn Yield Test Report:
Pm-660-1-94 District 1 Pm-660-2-94 District 2 Pm-660-3-94 District 3 Pm-660-4-94 District 4


Cooperating Organizations
Iowa Crop Improvement Association
Cooperative Extension Service
Agriculture & Home Economics Experiment Station
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 regarding race, color, national origin, religion, sex, age, and disability.