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The Iowa Corn and Soybean Variety Test: New and Improved!

Jim Rouse, Program Manager, Iowa State University/Iowa Crop Improvement Association Crop Performance Tests – Corn and Soybeans

Introduction

The corn and soybean variety testing programs administered by Iowa State University and the Iowa Crop Improvement Association have now been merged into a single program. This presents a unique opportunity to make some procedural changes that will economize our testing efforts. At the same time, we are making modifications to the configuration of the testing program to increase awareness of and participation in the tests. Current and upcoming changes will be described, beginning with a description of our basic operation.

Seed companies from Iowa and surrounding states, who market seed in Iowa, are eligible to submit corn and soybean entries into our tests. Those who do so pay a nominal fee for our testing expenses. Public breeding programs from land grant institutions are eligible to submit entries at a reduced charge. Entries may be submitted for public or private testing. Data from public entries are published and made freely available in print and online, while data from private entries are returned to the applicant only. Our testing area is the entire state, subdivided into districts. All entries are tested at a minimum of three locations per district, with multiple replications per location.

Data provided for the corn entries include yield, moisture, stand, and root and stalk lodging. To better understand how a hybrid performed with the other entries in a test, yield and moisture are also reported as a “percent of mean” so users can immediately determine the relative performance of a hybrid. For soybeans, data include yield, yield percent of mean, maturity date, lodging, and protein and oil composition. For entries advertised as having soybean cyst nematode resistance or tolerance, we also provide an SCN reproductive index, which is an indicator of SCN survival on resistant/tolerant lines compared to a susceptible variety.

Our data are used by growers as a source of information when choosing which varieties to plant in their fields for the upcoming season. Seed companies use our data as a source of information for making advertising and marketing decisions.

Website

Our new website is undergoing continual information updates and content upgrades to provide users access to our data and related links. Of course, you can still get to the site from the Iowa Crop Improvement Association homepage, but now the corn and soybean testing homepage is housed with the ISU Agronomy Extension homepage. You can find us at <http://extension.agron.iastate.edu/varietytesting/index.aspx>.

2005 Changes

New for this year is the publication of single location data. This will allow users the ability to examine data from specific environments, like corn-following-corn, reduced tillage, or sandy or heavy soils. In the past, these particular data were only viewable after being averaged with data from the other locations within a district.

The corn variety test printed report has undergone some drastic formatting changes. In the past, there were seven individual reports, one for each district. Now there is a single report containing all information. As such, the corn report format is now very similar to the soybean reports of the past. Both the corn and soybean reports will have the entries listed alphabetically, making it easier for users to find a particular variety of interest, or to quickly scan all participating companies in a district and entries from a particular company. All information found in the printed reports will be available in a downloadable format from the website so users can view and sort data on the criterion of their choosing.

Contact information for all participants in our tests is now provided on the website as well.

Changes for 2006 and Beyond

Many of the changes in our testing procedures will be transparent to most users but will enhance the quality of our data. We are currently in the process of restructuring our corn and soybean testing districts. The result will be more testing locations per district, which gives us more statistical precision when making comparisons between entries. For the same reason the soybean test will change from three replications to four replications, matching the number used in the corn test.

Individual plot length has been 15' (13' planted) for soybeans and 18' (15.5' planted) for corn. Beginning in 2006, plot length will increase to 20' (17.5' planted) for both crops. The row spacing in the bean test will increase from 27" to 30" to match the corn test. Our planters will be updated from Almaco TP-1 units (early generation air planter) to new Almaco belt cones. The conversion means a simplification in the planter's components, reducing downtime from electrical glitches and computer vagaries. At the same time, all these changes mean we can easily switch from planting a corn test to planting a bean test without requiring lengthy and time-consuming trips to swap equipment.

Beginning in 2006 we will offer split-maturity tests for both corn and soybeans. For the beans, this will allow us to harvest early maturing varieties without the need to wait for all entries to mature. With corn, this means that late, high-moisture hybrids will not overshadow earlier hybrids with lower moisture content. The end result will be better comparisons among entries within smaller maturity ranges.

Web access to our data and information related to using our data will continue to be upgraded. In the near future, users will be able to search our database for a particular hybrid, or compare data from two hybrids in a head-to-head comparison. We'll include more information about our testing locations, including the normal crop rotation and tillage, fertilizer, and herbicide programs being used. Since data from individual locations will be available, we'll also give users to ability to examine data combined over the locations of their choice, even if they are located in different districts. In addition, an interactive feature may be added to allow users to estimate an adjusted gross value for entries which will include input costs in the calculation. Specifically, growers will be able to compare the AGV for entries with different seed costs.

Other website improvements will include links to other variety testing programs, like those for corn and soybeans in surrounding states, and small grains and alfalfa variety tests. Links to sites of agronomic importance or interest, including those of all participants in the tests, will be

included. There will also be a section devoted to FAQs about the testing program containing a complete description of our methods and our data analysis procedures.

Participants in the test can look forward to online applications, and the ability to pay entry fees electronically.

Summary

As you can tell, there are many changes being made to the ISU/ICIA Crop Performance Tests—Corn and Soybeans. If you are in the seed business you need to visit our website to see for yourself what we're up to. If you grow corn or soybeans, you could be losing potential profit if you're not examining the broad range of germplasm available to you. If you sell seed in Iowa you should seriously consider the exposure our testing program can provide. On the corn side alone, over the past 10 years we have had an average of 62 participating companies entering 531 different hybrids. Considering hybrids can be entered in multiple districts, we've tested on average over 1100 corn entries each year.

We provide direct, unbiased comparisons among a large number of corn hybrids and soybean varieties, in a number of different environments. Data will be posted online within 48 hours of harvest, giving you an early look at test results. There is no other way to get this type of high quality plot management, statistical integrity, and timely access to information which is backed by an 80-year history of testing, and the credibility of the Iowa Crop Improvement Association, ISU Extension, and Iowa State University.