AGRONOMIC INFORMATION SYSTEM: A PROGRAM FOR MANAGING COTTON VARIETY TRIALS

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Abstract

Managing data from cotton and soybean performance trials quickly grows to be an overwhelming task for any large seed company. To aid in the process, Delta and Pine Land Company (D&PL) is developing a crop performance data management system known as the "Agronomic Information System" (AIS). The system evolved from a centralized database developed using an IBM AS400, through an interim Excel spreadsheet system on personal computers, to a combination Access and Oracle bases system using a client-server model.

Introduction

The clients (the field agronomic services staffs of the various divisions of Delta and Pine Land Co.) are in the process of receiving their Access database sections of the larger Oracle database. Each division can see only data developed by that division, yet corporate coordination of the database administration can be maintained.

The overall structure of D&PL crop databases are relatively simple but complex in the details of each database management system. A basic outline of the system is:

AIS Administration → AIS → Approval Process → Performance DB

This paper discusses only the AIS portion of the system. There are four major components to the AIS: Planting, In-season, Harvest and Reports. The first three follow a chronological pattern whereas the Reports section has utility throughout a crop testing cycle. Within the Planting Section, four subareas are available: 1) Cooperator/Field - a section for creating, modifying, and deleting information about farmer - cooperators and their field where test plots are established, 2) Field Model - the plot plan enter section, 3) AST (Agronomic Services Trial) - where treatments are assigned to any or all of the plots within a field model, and 4) Agronomic - where information relative to the agronomic and pest management inputs are recorded. The Agronomic section includes data entry fields for items such as: planting date, planter type, insect, weed, disease and nematode pressure at five different times through out the season, fertilizer usage, pesticide and PGR usage and a number of others.

In the In-Season major component there are also four sub components: 1) In-Season plant mapping data entry, 2) Final plant mapping data entry, 3) Agronomic (same as planting section) and 4) Field Information. The plant mapping data entry sections utilize a spreadsheet-like template that stores individual plant data and can be retrieved and edited at anytime. The Field Information sub-section stores information on plant population, stand rating, vigor, lodging and shatter.

The Harvest major section includes data entry sections for Plot Harvest, Ginning, Quality, Agronomic, Other Trials, and Approval. The Quality sub-section reads in data files produced by the USDA HVI classing offices or other HVI data files. The "Other Trials" sub-section allows for entry of state Official Variety Trial data, as well as county agent trials and others where limited information is available. The Approval sub-section displays all relevant information needed by the users to "approve" the trial. This approval occurs at three to four levels: 1) the district agronomist, 2) the regional agronomist, 3) the project manager for agronomic services from the various divisions, and 4) the corporate data head. Upon approval by the data head, information is moved from the AIS into the performance database.

The Report section produces listings of cooperators, trials, and plot plans for any trial entered into the system. In-Season and Final plant mapping reports are available, as well as Harvest reports for cotton and soybeans. Also included in the Reports section is a customizable data export tool that produces delimited text files based on SQL queries that are easy to enter and modify.

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