Nursery Crop Management Computer System[1]

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Abstract: This paper discusses a computer inventory system Weyerhaeuser uses in all its nursery and greenhouse facilities in the West, South and Canada. It is called the Nursery Crop Management computer system. It provides automated support for many of the crop inventory procedures used to manage our crops. The computer system provides management with control and information relating to the quantity and characteristics of nursery and greenhouse stock.

SYSTEM STRUCTURE

The Nursery Crop Management computer system runs on Wayerhaeuser's Honeywell 6600 computer in Tacoma, Washington. At this time it is being converted to an IBM mainframe and bringing as much as possible down to the IBM PC level. Access to the computer and to the Nursery Crop Management computer system is made by using terminals or IBM PCs. The computer system is comprised of six major components, each designed to support a specific set of functions. These components are:

Time-Share Executive (TS EXEC) allows the operators to interface with all aspects of the computer system. The TS EXEC accepts, edits and interprets all requests and data entered into the system and engages the other components at the request of the operator.

Update component is used to apply (or post) transactions passed to it by the TS EXEC against the database. The Update component also maintains a log of all transactions submitted to the system.

Report component is used to service requests for reports available from the system. Report requests are passed to the Report component to select data from the database and format the desired report.

Fieldsheets component is used to request the creation of inventory field-sheets.

Inventory component is used to load data onto the sample data files and to run the inventory calculation program.

Data Maintenance component is used to perform a variety of tasks pertaining to technical operation of the system.

Through these components the Nursery Crop Management computer system is capable of many different functions.

FUNCTIONS

Functions available on the Nursery Crop Management System are:

Data Entry function is used to create transactions to be used by the update component.

Report Request function is used to request production reports.

Inventory function is used to enter estimated inventories into the system.

Fieldsheets function is used to request fieldsheets on which to record inventory sample data.

Maintenance function is used to perform various functions that are part of the normal realm of the system.

Reload function is used to reload and restore the update transactions to the database from the history file.

Site function may be used to specify any site or nursery location.

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List function is used to allow the operator to list the contents of the various transaction, edit table and request files.

Help function is used to list the available options to the last question issued.

Delete function is used to delete update transactions from the update transaction file.

Run function is used to enter a job into the computer for processing.

Print function is used to print the errors or the reports.

JSTS function is used to check the status of a particular job that has been entered into the system.

Done function is used when the operator has completed a session.

Another important part of the Nursery Crop Management computer system is Tables.

TABLES

Tables are used by the system to cross check the operators input to see if the input is valid. They are lists of valid codes used within the Nursery Crop Management computer system.

Customer is a list of the current customer codes and names.

Gcustomer is a list of the group customer codes and names.

Facility is a list of valid facility codes and names.

Gfacility is a list of valid group facility codes.

Storage is a list of storage facility codes and names.

Gstorage is a list of group storage facility codes.

Zone is a list of valid zone codes.

Species is a list of species codes and names.

Treatment is a list of treatment codes and charges.

Class is a list of valid class codes.

Ncustomer is a list of customer names and addresses.

When Ncustomer table is listed, the operator will have the option of creating mailing labels for those customers on the file.

Components, functions and tables are the inner workings of Nursery Crop Management computer system. To utilize these the system must be updated.

UPDATING DATABASE

The update process is logically divided into three steps which must occur in sequence for each update.

Data Entry (DATA) - The first step in updating the database is to enter the transactions to perform the activities desired. This is done by answering the queries and entering data for the appropriate transactions. These transaction types are:

Bareroot Bed Description - add, modify, delete

Plug Bed Description - add, modify, delete

Reference Number - add, modify, delete

Order Revision - surplus, release, modify, transfer

Current Order Modify - class, outplant, amount

Sowing / Transplant - bare, plug, delete

Inventory - user, modify, delete

Stock Order - add, modify, delete

Lifting - add, modify, delete

Storage / Packing - add, modify, delete

Stock Transfer - add, modify, delete

Shipping - add, modify, delete Crop Book

Comments - add, delete Destroy Stock - in-storage, in-ground, add, modify

Transplant - add, modify, delete

Depending on what you want to achieve, you can add, modify, or delete with any of these transactions.

This simply records the transactions on a file. They are not actually loaded to the database until the update program is RUN.

Program Execution (RUN) - Once all transactions have been entered, the update program must be run. This program will check the transactions for errors and post the good ones to the database.

Error Checking (PRINT) - To determine if the transactions entered were accepted by the system, the Error and Control Report must be listed. This report lists the transactions in which an error was found during processing.

The report will then list all transactions, wrong and right, and a summary total.

Operators must be certain that all three steps, data entry, program execution and error checking, are performed when

updating the database. Failure to do so may mean lost or incorrect data stored on the database.

Whenever the update component is correct and has the data you want, you may request any report you need.

REQUESTING REPORTS

The report process is also logically divided into three parts which must be done in sequence.

Report Request (REPORT) - The first step in obtaining reports is to enter the information to select the reports desired. This is done by answering the queries and entering requests for the appropriate reports. This procedure simply records the requests on a file. Many report types available are:

Block/Bay - facility, block, crop Crop Book - lifting/sowing, facility, crop, reference 11, date
Production Summary - many assorted options
Customer Inventory - facility, customer, type of stock (transplant, outplant, both)
Stock Order Status - facility, customer, status, type, sort sequence
Storage Facility Inventory - facility
Customer (Region) Seedling Inventory - facility, customer, outplant year
Shipment Summary Report - facility, customer, from date, to date, sort sequence

Depending on what you want to see, there are many different ways to sort these reports. Most can be sorted by facility, crop, customer or reference number.

Program Execution (RUN) - Once all requests have been entered, the report program must be run. This program will check the requests for errors and compile the required reports.

Report Printing (PRINT) - Once the report program is complete, the reports are available to be printed.

DIRECTING OUTPUT

When a job has been completed there are two options of where to print, at the facility or at Tacoma.

Another feature of Nursery Crop Management computer system is the seedling inventory component.

SEEDLING INVENTORY

Nursery Crop Management seedling inventory process consists of two major components, Inventory Fieldsheet Creation and Inventory Calculation.

An inventory begins with the request for creation of the inventory fieldsheets. These fieldsheets are produced by the computer and specify the location of each sample point. The inventory crews use the fieldsheets to locate the sample plots and to record the seedling counts. As the inventory progresses, the operator enters the sample data from the completed fieldsheets onto a data file. When all the data has been entered, the inventory calculation program is run. This program calculates the seedling numbers and stores the information on the database.

SYSTEM MAINTENANCE

The system maintenance process is to aid the maintenance and operations staff in performing functions that are not done during normal field processing. Within the systems maintenance component are the functions of History File Update, File Reorganization, Database Listing, Locking/Unlocking System and Database Recovery.

CONCLUSION

With Nursery Crop Management computer system Weyerhaeuser has been able to keep track of hundreds of millions of seedlings at a dozen different locations. All information is easily accessible to the facility or management at any time.

LITERATURE CITED

Hoffard, G. J. 1980. Nursery Crop Management Computer System. Computer Systems User's Manual. (Tacoma, WA Revised 1983.)