NURSERY MANAGEMENT INFORMATION SYSTEM[1]

Thomas E. Williams[2]

ABSTRACT

In 1978 a committee was established to prepare a proposal for automating and standardizing current nursery recordkeeping and report preparation procedures. The system is designed to generate reports and document the history of seedling and their treatments from seed to established seedlings. Based on the committee work over the past three years and the pilot testing conducted at the Fort Collins Computer Center (FCCC) we propose to implement this system on microprocessor equipment located at each nursery handling a significant volume of business.

The paper presented at last year's Intermountain Nurseryman's Association Meeting summarized the initial steps toward developing a national Nursery Management information System. This paper will outline the activities which have taken place since that time.

The current nursery volume of business plus predicted increases in the future demonstrate that efficient nursery management is contingent on developing a automated system of managing data, generating report and providing historical records.

The initial efforts toward achieving this objective began in 1978 when a committee composed of representatives from Regions 2, 3, 5, 6, 9 and WO-TM met at Fort Collins to prepare a proposal for developing a Servicewide Nursery Management Information System. This proposal was sent to all Regions for their assessment of compatibility with their operations. After evaluating the Regional responses our committee prepared a feasibility report which designated Medford and Wind River Nurseries to participate in a pilot test of the system. To demonstrate the need for an automated system all Regions supporting nurseries were contacted regarding their present and expected volume of business in 1985. Their responses indicated that by 1985 we can expect a 250% increase in number of seed lots grown and a 175°; increase in the number of shipping transactions per year.

To further assess the need for an automated Nursery Management System the objectives listed below were addressed during the pilot test.

1. Accurately storing and retrieving large amounts of information.

2. Personnel saving (more efficient use of people).

[1] Paper presented at the Intermountain Nurseryman's Association Meeting, Boise, Idaho, August 11-14, 1980.

[2] Nursery Manager Assistant, USDA Forest Service, Region 6, Rogue River National Forest, Medford Forest Nursery, Central Point, OR. 97502

3. Timely response to reporting requirements and special queries.

4. Historical records for evaluation of past practices and to "track" stock problems.

5. Establish more effective communications between nurseries.

6. Tie seed and tree performance to land treatments and nursery practices.

7. Refinement and improvement of nursery sowing factors.

Coincident with the pilot test at the two nurseries, FCCC personnel have been working with Medford Nursery personnel in developing draft Field Data Forms. One of these - the Seedling Request Form - has been sent to the field for use in ordering seedlings this year.

Seedling history data from Medford and Wind River nurseries have been entered, edited and loaded into a S2K Data Base which allows us to gain experience with the capabilities of the system.

Most of our recent activities have been with the seed analysis portion of the NMIS. The number of required input and output records have been defined and the logical data structure completed for the seed. This logical data structure will be used in the development of the seed Field Input Forms.

FCCC personnel have analyzed the results of the pilot test conducted at Medford and Wind River nurseries using the Fort Collins computer and the consensus is that a microprocessor located at individual nurseries would best satisfy our needs. This decision was arrived at primarily because of the following concerns:

1. Nursery personnel were, and still are, required to come to work before normal working hours or to remain after normal working hours in order to gain access to FCCC.

2. Due to poor communication facilities at the nurseries, nursery personnel found it difficult to stay connected to the Fort Collins computer for long periods of time.

3. There is no easy method of generating and/or receiving formatted reports (5 to 50 pages) at the nursery.

Two additional factors were considered in arriving at this decision to use microprocessor equipment.

1. The system is a recordkeeping and reporting system and does not require sophisticated analytical tools.

2. No one except nursery personnel need access to the nursery data except in the form of reports.

Our initial assessment of costs comparing the manual system, use of FCCC and using a microprocessor indicate the most efficient system to be the microprocessor.

The decision to go with a microprocessor was followed by another cost comparison between two brands of equipment, the TRS80 Model II by Radio Shack and the DS990 Model I by Texas Instruments. The NMIS could be implemented on either microprocessor. A significant cost differential exists between the two types of systems, however, we propose to go with the DS990 System at an initial cost of almost double the TRS80 Model II System, for the following reasons:

1. Procurement under the current Departmental Contract gives a better foundation to work from if any vendor related problems occur.

2. Purchase of Texas Instrument hardware will allow us to participate in and benefit from standardization of equipment and training within the Forest Service.

3. Texas Instrument has more experience in the development of production oriented hardware than Radio Shack - Tandy Corporation.

4. Procurement time is faster under existing Department Contract.

5. A formal training package for operation and programming on the Texas Instrument equipment will be available.

6. A good Data Entry Language exists for the DS990 equipment.

7. The DS990 system allows for index sequential files.

Where do we go from here? Prior to the system becoming operational the following activities need to be addressed.

1. Acquisition of hardware.

2. Preparation of software.

3. Preparation of final field input forms.

4. Provide training for personnel using the microprocessors.

5. Conduct meeting with Regional and Nursery personnel to demonstrate and explain the system.

6. Prepare implementation schedule to determine order in which other nurseries will acquire the system.

Our target date for system implementation mentioned at last year's meeting has been delayed somewhat due to accessibility of hardware and software, however, we hope to have the entire system with documentation operational by 1/1/81.