COMPUTER METHOD OF ESTABLISHING INVENTORY SAMPLES

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After growing a crop of seedlings it is necessary to know the number of seedlings grown. This information is needed to determine the number of orders that can be taken, to prepare for lifting, and to plan shipping schedules.

It is not feasible to count all seedlings; therefore, some system has to be devised whereby we can get accurate samples from the bed area for computing the inventory. For a number of years we have used what might be called a modification of Philip C. Wakeley's system, outlined in "Planting the Southern Pines." We have not been satisfied with some of our inventory figures. We came very close, so far as the total number of seedlings was concerned, but the inventory number and the actual number lifted from small lots differed widely.

We feel that much of this difference was due to the human factor. There is possibly a tendency for a person who is taking an inventory to "eyeball" his nursery beds and, therefore, select sample locations. In order to eliminate the possibility of human error in determining the number of samples needed for an accurate inventory, we designed a program for the 1130 IBM computer for this purpose.

First, the nurseryman made a preliminary determination of inventory unit locations and their boundaries. Although one unit may contain the total seedling crop, more often a given species will have to be subdivided into dissimilar units. After the nurseryman determined these units, the nursery supervisor in the company of the nursery-man reviewed the units and made a final decision as to locations; then from random sample tables, preliminary 1-foot x 4-foot samples were established across the 4-foot seedling beds. These preliminary samples consisted of 10, 12, and 15 samples per unit, depending on the density and uniformity of the seedlings. The number of seed-lings in each sample was punched into IBM cards and fed into the 1130 computer. It was programmed to furnish the actual number of ran-dom samples necessary to provide an accurate 4 percent, with the probability that 67 percent of the inventories would fall within this limit of error.

We found this system to be of value, for we had in many cases taken more counts than necessary; whereas, in other cases, particularly in some units of uneven stands, we had not taken sufficient counts. In addition to the advantage of eliminating the human factor in-volved in choosing locations, the use of the computer reduces the amount of paper work. If any of you would like to have a copy of our program, we will be glad to furnish it.

Although we have been successful in setting up a program for getting the number of samples needed, we have had some difficulty in setting up a program for locating these samples at random. We would appreciate any suggestions or information that you might have for setting up a program of this type which will enable the computer to furnish information for locating seedling samples at random.