shipping duration grade losses. In this research, 14 days appeared to be the limit for maintenance of high quality plants under the simulated shipping conditions utilized.

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COMPUTER APPLICATIONS IN LANDSCAPE PLANT PROPAGATION[1]

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Additional index words. VAX minicomputer.

Abstract. **Computer applications have been developed**

ly prepared formulations are available but the concentrations available will not be the optimum for all plants.

IBA and NAA are marketed as reagent grade white powders or as potassium or sodium salts of these chemicals, respectively. The pure grade of these chemicals is relatively insoluble in water and must be dissolved in alcohol before adding water. Concentrations ranging from 100 to 8,000

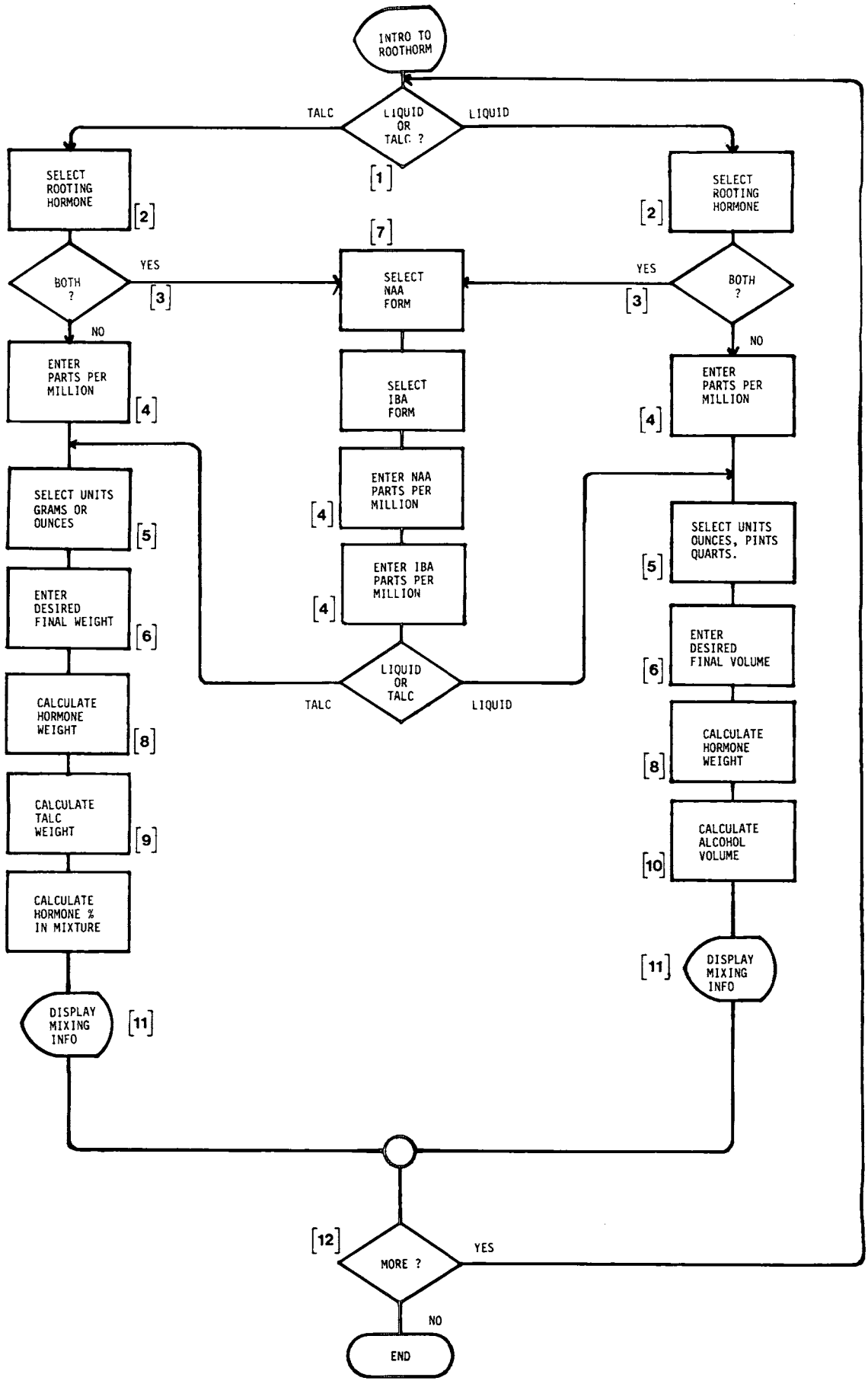

Fig. 1. Flow chart diagram for ROOTHORM, a computer program for calculating ingredients for rooting hormone formulations.

Program Operations

ROOTHORM, an interactive computer program, allows the user to input the desired hormone concentration and final volume or weight, measured in one of several optional units. The amount of ingredients needed are calculated and recommended procedures for liquid or talc formulation preparation are given. Formulating rooting hormone preparations of various concentrations involves cumbersome calculations and conversions and this program is designed to reduce errors in performing these calculations.

After a brief abstract has been displayed, the user is given the option of making necessary calculations for a liquid or talc formulation of rooting hormones [1]. The flow chart in Fig. 1 indicates the nodes in the program where input from the user is required and the points where calculation, conversions, and display of output are performed. IBA, NAA, K-IBA, Na-NAA, and a combination of any 2 of these can be selected in step [2] for the calculations. If the combination of these is selected, the program flow from [3] will be diverted through a series of statements [7] to allow the user to select the form of IBA and NAA to be used and the concentration of each.

The concentration of a hormone required in parts per million [4], the units of measurement of the final volume or weight [5], and the quantity of the preparation desired [6] are required inputs. If a liquid formulation is being calculated, the units of measurement from which to select include milliliters, liters, quarts, pints, and fluid ounces. Talc ingredients can be measured in grams or ounces. After these inputs have been provided, calculations are performed, [8, 9, 10] and the output is displayed on the screen or printing terminal [11]. The user can then elect to calculate the ingredients for other formulations or terminate the program [12].

LPPI is an interactive, menu-driven computer application developed for retrieval of propagation information on several hundred landscape plants. The user can list plants in the database and retrieve information on individual plants by specifying scientific or common name.

Propagation information was collected from scientific publications, plant propagation publications, and communication with experienced nursery operators. The data base contains general descriptive information on each plant, the primary and secondary means of propagation, and important techniques to consider in each suggested propagation. Possible propagation methods include cuttings, seed, layering, grafting, budding, and division. The information on each plant may not be complete but reflects information collected to date. The data base will be continually updated as additional information is obtained.

After LPPI has been accessed and the credits given, the user is presented the Main Menu. This menu presents the options of listing plants in the data base, retrieving information on a specific plant or exiting LPPI. The user has the choice of listing the plants in alphabetical order by common or scientific name. One screen of plants is displayed at a time and the user presses RETURN to proceed to the next screen or can exit the listing process and return to the MAIN Menu.

The other option given to the user in the MAIN Menu is to retrieve information on a specific plant. The user must indicate if the plant will be specified by common or scientific name then enter the name. The correct spelling can be ascertained through the listing of plants in the data base. The propagation information will be displayed on the screen one page at a time. The user presses RETURN to continue to the next page of information or has the option of returning to the LIST Menu or the MAIN Menu.

If the user is accessing LPPI or ROOTHORM from a microcomputer with printer, each screen display can be printed by using a print-screen command which is part of most communications software packages for microcomputers. The County Extension faculty accessing these programs can thus give propagators requesting information, a hard copy of results for their records.

Discussion

LPPI and ROOTHORM are interactive computer programs for the landscape plant propagator. This readily available information will assist plant propagators make decisions on what to propagate and cultural practices necessary for optimum production. Improved plant quality and a greater availability of less common and difficult-to-propagate plants will also result from these computer programs.

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