5. Obtaining maximum distribution, both in domestic and foreign markets;
6. Promote sales through improved relationships with all of the trade;
7. Developing brands which are meaningful to consumers and advertising such brands in the face of increased competition.

8. Influence prices which will reflect equitable returns to producers based upon a parity of income.

Please accept my very best wishes for continued success of the Florida State Horticultural Society.

A GROVE RECORD MAP—WHAT IT CAN TELL

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ABSTRACT

A brief description of a basic grove record map and inventory statement have been given, together with a description of a replant record map. The usefulness of computer techniques in preparation of the inventory statement has been discussed. Several uses of a grove record map are suggested.

INTRODUCTION

A grove record map is the most useful yet most neglected tool in citrus grove management. It illustrates graphically where the production costs are spent and where the profits originate. It serves as a record of the physical condition of the producing units, the trees, and also as a basis for decision-making when “culling” the non-producing units in much the same manner as the herd book or flock record are used by the dairyman and poultry farmer. One has only to examine a grove, tree by tree, to become aware of what is really there. A tree here and a tree there in poor condition does not mean much to a grower as he rides through his holdings. (It is generally agreed that a grove is at its best during a “windshield” survey.) But if a grower totals the snags, decline trees and vacant spaces, he would soon realize that he also possesses acres of unproductive grove.

A grove map will cause the grower to think more of what his grove is composed. He should soon realize that each tree space is a potential producing unit basic to the whole grove and if it does not measure up to the standards set for the grove, then he must make a decision about its future.

The grove map is something to be studied and correlated with production cost records, yield records and income records so that long-range plans can be formulated to exploit the full potential of the grove. Rejuvenation, rehabilitation or grove renewal plans, replanting programs and other operations should not be based on “spur of the moment” decisions. Studied with the same diligence as a racing form, stock performance report or legal opinion, a grove map can provide extremely useful information for decision-making.

This paper describes a set of grove maps that show the physical condition of the trees or producing units, together with a tree inventory statement. A separate reset map is also illustrated and discussed. A method of map preparation that permits tabulation of field data for the inventory statement by computer techniques is presented.

THE GROVE MAP AND INVENTORY STATEMENT

The grove record map illustrated in Figure 1 shows all physical features of the grove from the location and condition of each tree or tree space to the location of stand-pipes, irrigation risers, drive middles and other features. The map is essentially a 2-dimensional diagrammatic representation of the grove.

The grove inventory statement is a balance sheet of all trees and tree spaces in the grove. An inventory is an essential part of any business dealing in goods; it is also a part of most agricultural operations concerned with perennial producers. The dairyman has a herd inventory, the poultryman an inventory of his flock, and beekeeper an inventory of his hives. Few citrus growers, however, though business men, can give an accurate inventory of their producing units.
Fig. 1.—Detailed symbolic map of a citrus grove which shows the condition of all trees and tree spaces in the grove in addition to location of stand-pipes, irrigation risers, adjacent groves and other features.
In preparing the grove map, the grower can devise any system of notation suitable to his needs. In preparing the maps illustrated and for tabulation of field data by a computer, a 2-digit numerical system of notation has been very satisfactory. The trees are examined individually and placed in one of 5 major categories: productive tree, reset tree, young tree, decline tree, or undesirable tree. Subdivisions within each of these categories allow for further classification of each tree for minor disease symptoms noted in productive trees. Specific cause of disease is assigned for decline trees. The conditions of resets and young trees is also recorded because of their potential value to the grove. It is not uncommon to classify these trees as undesirable because of disease; they should be replaced by a tree that has a greater potential of becoming a producing unit in the grove.

Notations are made for rootstocks and varieties on a block basis. Individuals of different varieties or rootstock encountered in mapping are appropriately marked on the field map so they are conspicuous to the computer technician who enters the proper information in the computer.

Information for each tree is recorded as collected to produce a map such as the one illustrated in Figure 2. Two photocopies of this map are prepared. One is marked in appropriate units and the information in each unit is put into the computer. The second copy of the field map is given to the draftsman, who prepares a symbolic map similar to the one illustrated in Figure 1. A brief study of the key to the symbols makes the map very easy to read.

Preparation of the inventory statement has, in the past, been tedious because of the problem of counting the various classifications of trees and arriving at a figure that balances with the
Fig. 3.—Reset overlay map of grove illustrated in Figure 1 showing the existing location of all young and reset trees. Blank spaces represent existing mature trees in various categories or vacant tree spaces. When a reset is planted in one of these spaces, the source of the tree and date of planting is recorded in the appropriate space.
number of tree spaces in the block or grove. This task is simplified by using the numerical code and the computer. A flick of a switch will produce the information in Table 1. Once the original inventory is prepared, changes in the map and inventory can be made by the grower on a yearly basis with little difficulty.

The Reset Map

This map is a second and separate map of the block or grove and is prepared from the original field map, but it shows only the location of the existing resets and young trees (Figure 3). The remainder of the tree spaces are blank and remain so until an existing tree is removed and the space reset or an existing vacant tree space is reset. Only then is the specific tree space on the map marked with the source of the replant and the date planted. Initiation of this record will allow a grower to locate any reset should the need arise. It will also provide an accurate record of resets that are often reset a second or even a third time before one becomes an established part of the grove.

What a Grove Map Tells

Use of a grove map is limited only by the imagination of the grower and his willingness to spend a little time thinking about his grove. A grove map allows the grower to look at his whole grove from a single vantage point. The map is there to be referred to at any time. He should soon begin to see ways for making more efficient use of his labor and equipment. For example, a copy of a map with all young trees circled in red should reduce the time (and thus the cost) required to water these trees over the present “hunt and search” method. A map should be a valuable aid to the grower in deciding which trees are to be removed and replanted. Maps marked with irrigation set-ups could greatly increase the efficiency of inexperienced irrigation crews in laying pipes and finding risers.

The greatest single use of the map, however, would seem to be as an aid in bringing the grove to its full production potential. As crop sizes increase and the spread between production costs and returns becomes smaller, it will become more necessary to maintain the grove at or near the maximum production potential if a profit is to be realized. Correlation of production cost figures with the inventory statement and the grove map will indicate where the tree spaces are that do not produce enough fruit to pay for their upkeep. Inspection of the grove before harvest will give the grower, with map in hand, an idea of which trees should be replaced. With this information the grower can plan his use of labor and also arrange to purchase reset trees according to a definite plan. The map will also give the grower an idea of his production costs per tree or producing unit. Cost of production per tree space is the same whether it is occupied and producing or not; the space is still fertilized, disked, sprayed, irrigated and heated. If it produces nothing, its share of the production costs must be borne by the other units in the grove. This affects the net return of the remaining units in the grove. It is not uncommon to find that 10 to 30% of the producing units in a grove do not produce enough fruit or income to pay for their upkeep. This is exclusive of resets and young trees which, though they are a cost factor for a time, represent a production potential that is important to the future of the grove.

An accurate grove map and inventory statement together with diligent planning and careful management will make it possible for many growers to achieve the full production of which their groves are capable.