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Report of the Subcommittee on Root-Stocks of the Variety Committee

The members:

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Information submitted in the 1945 report of the Variety Committee led the Board of Directors to appoint a new Subcommittee of the Variety Committee for the particular study of avocado root-stocks and their relationship to the welfare of the Industry. This Subcommittee has held two meetings of its own during the past year. At these meetings a general program and objectives have been studied and formulated. The Subcommittee is not prepared at this time to make any specific recommendations in regard to stocks to be used by the Industry but wishes to set forth the general basis of its agreed-upon program and the objectives to be attained over a period of years through the activities of the Subcommittee.

The Avocado Industry has already learned the great value to its future of the intensive and coordinated study of variety problems by the Committee which has done a notable piece of work. Certain factors which have come to light in the last four or five years make it very convincing that a study should be entered into as to the value of root-stocks in this general picture. During the past five years particularly, certain well-defined instances of apparent carriage of sun-blotch through seeds have come to the attention of members of the Subcommittee; and within the last year, at least five of these instances, where heavy percentages of infection have occurred, have been tabulated and studied with the conclusion that this is one of the serious problems meriting intensive study which confronts the Industry.

In this connection the work of this Subcommittee on root-stocks will go hand in hand with the sun-blotch investigations being conducted by Drs. Wallace and Zentmyer of the Experiment Station. This is only one, but perhaps the most important phase of the study and work of this Subcommittee. Other items on its program consist of the following: the need of gathering and coordinating all existing knowledge on the relative values of seed stocks from growers and nurserymen, encouraging systematic records of segregated seed bed plantings to be followed through to matured trees in order that intelligent studies may be made, registration of parent trees for seed purposes—a fee for this service to be charged. This service will in no wise in the beginning be inferred to be a guarantee against sun-blotch but will give the means of identification of the source of seed which will form the foundation of the Industry.

As experiments proceed, it is possible that information may become available which will allow us to so guarantee such seed sources, but the attainment of that objective seems to be a matter of several years in the future. At the present time all that can be done is to make an inspection of such trees and to gather as much of their past history as possible in order that the studies proceeding from this point may have reasonable

foundation rather than no starting point at all.

During the past year two well-defined instances of sun-blotch apparently being transmitted through the seed occurred with very high percentages of transmissal, in one case practically 100%. I wish to emphasize the word "apparently" because, while to the layman this seems to be an undeniable fact, certain factors involved have not yet been eliminated to the satisfaction of the scientists in charge of this investigation.

In one case, that you may understand the significance of the facts which have come to light, the seedling tree is one of the oldest, finest and heaviest producers of seed for root-stock purposes which we have in the Industry. The tree has no visual symptoms of the disease; and to the best knowledge of its owner, has never been budded or grafted and was planted in 1910 and under such circumstances that it is entirely possible the original seed may have come directly from Mexico. In two separate plantings of seed from this tree practically all of the seedlings or trees which were budded on these seedlings show an extremely high percentage of infected trees — in one case apparently a total infection.

The same buds used in this nursery project have been used repeatedly elsewhere without any signs of infection, over a considerable period of years. This instance is closely correlated with three other cases in the files of the Subcommittee which have the same basic pattern. The seed tree, a Mexican in each case, shows no visual symptoms of the disease. Nursery trees, grown on these root-stocks, have shown very considerable percentages of infection and the buds used in each of these cases have produced clean trees when propagated on other stocks. It occurs to the Chairman of the Subcommittee that inasmuch as no well-defined case of the occurrence of sun-blotch outside of California has been registered with the exception of those places which have imported stock from California, that it still remains possible that sun-blotch may exist in Mexico and have come in with the original importations of seed prior to 1911 without any chance of the disease being recognized.

If Mexican type seedlings are capable of transmitting sun-blotch through their seeds and yet show no signs of the infection themselves, then it is entirely possible that there may be trees in Mexico which apparently do not have the disease but which are capable of transmitting it through their progeny. On that basis of conjecture the Chairman of the Subcommittee suggests that the most valuable research work which could be done in Mexico or Central America would be to conduct a series of propagation experiments with a somewhat wide selection of Mexican seedlings and extending over several years because very often the visual symptoms of the disease do not appear before the third season and particularly after such buds as may have been inserted reach at least one year's growth.

Further studies of the Subcommittee will have to do with stock and scion compatibility; to encourage and cooperate with all the basic root-stock studies of the University; to study blocks and gather information which may be correlated in regard to resistance to decline, to dwarfing effects and as to the relative merits of Mexican and Guatemalan type root stocks; the dissemination of information which will educate the public to the vital need of better root-stocks and particularly to the desirability of freedom from sun-blotch.

The Subcommittee has recommended to the Board of Directors that the records be handled and information sent to its Chairman in Whittier where they will be kept in conjunction with the records of the Variety Committee which are handled by Mr. Rounds. The Subcommittee will distribute blanks to nurserymen and producers of seed some time during the summer prior to the beginning of the Mexican type harvest in hopes of receiving full cooperation in the acquiring of such information as may be available in the field in regard to these matters. It will also have available for all persons desiring to do so blanks upon which they may register trees from which they sell seeds. The Subcommittee will give these trees a number which will be stamped upon the tree and which, we hope, will enable us to gradually build up a file of substantial information. It will be the purpose of the Subcommittee to inspect such trees and get as complete detail of their history as it is possible for the owner to supply; and when requests for information concerning these individual trees are made, we will supply such detailed information to the buyer and give the present status of the tree.

It is expected that where records can be kept up to three to five years of the performance of stock grown from such trees, that we will have a reasonable basis upon which to give a partial assurance of the health of that tree. In beginning this work, which is fundamentally vital to the welfare of the whole Industry, we respectfully solicit the earnest cooperation and support of all those persons who are engaged in this phase of the Industry. The information obtained and the investigational work to be done should not only assure the Industry in the future of a sounder, cleaner foundation stock, but should reduce the great losses now suffered by both nurserymen and growers from poor or infected trees.

In closing I would like to quote Dr. Fawcett to the effect that if the knowledge they now have in regard to Psorosis in oranges and the directed work which they have done in these later years had been available forty years ago, it would have saved the citrus industry millions of dollars. The Avocado Industry has profited again and again by some of the lessons which the citrus industry has found very costly and has taken years to learn; and we feel that with this example of the difficulties caused by a virus disease in citrus that we should leave no stone unturned to eliminate the possibility of serious damage to the Avocado Industry through either infected or poor stock.