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Annual Report of the Sub-Committee on Avocado Root-Stocks, June, 1948

CARTER BARRETT
Chairman of the Sub-Committee
Members: Marvin Rounds, E. R. Eggers, Howard Jackson and Paul Sloop

Activities of the Committee

The committee held one meeting during the year in the Propagation House of the Division of Sub-Tropical Horticulture of the University of California at Los Angeles.

This meeting was attended by Dean Hodgson, Dr. Cameron, Dr. Schroeder, Mr. Froelich, Mr. Griswold, Mr. E. T. McFadden, Mr. Walter West and the following members of the committee: Mr. Hazzard, Mr. Jackson, Mr. Rounds and Mr. Trask, with the chairman presiding. Other material incorporated in this report consists of observations by the chairman and other members of the committee. A form for registration of seedlings for root-stock purposes is being prepared and should be available at the same time as this report is presented.

Report of the Westwood Meeting

The meeting with the staff of the Division of Sub-Tropical Horticulture was held in Westwood Friday afternoon, February 27. The reasons for holding it in this location and with the staff were to enable the committee to review the work of the university on these problems and to determine what can be done to correlate the investigations and work of the committee with the work done and contemplated by the university.

The chairman asked Dean Hodgson, Dr. Cameron and Mr. Froelich to outline the experimental work which has been carried on by the division in its investigation of root-stock problems in the Avocado and its general plans for the future. As the Division of Sub-Tropical Horticulture has already reported the details of its progress in this matter, such details will not be gone into in this report. Suffice it to say that 16 parent trees for seed purposes were selected out of an original number of 65 thin skinned type trees, which were chosen to exhibit the widest range of characters. Two complete sets of these trees, which were all budded to the Fuerte variety, with the exception of some Nabal, were planted in 1937, one on the D. W. Wilt place at Fallbrook, and the other on the Campus at Westwood. Very detailed records were kept over a period of years on these trees. Later on most of this root problem work was turned over to Prof. Halma, because of his work on root problems in connection with avocado tree decline. There are a great amount of data available awaiting detailed analysis. Prof. Hodgson summarized their conclusions in which he was sustained by Dr. Cameron and Mr.

Froelich, by stating that without a detailed analysis there have been no obvious differences amongst the various root stocks used in these experiments.

As to the future of their work, it was stated that plantings made for this purpose in Santa Barbara County are progressing favorably. They also stated that avocado cuttings made from Fuertes or Guatemalans were very difficult to root and rather wobbly in growth.

Dr. Colt's letter, in which he suggested for discussion the matter of trying West Indian root-stocks, was taken up and given considerable attention. It seems that the University has been working with this matter to some extent, but had suffered a severe set-back during the recent cold winter. Mr. Trask also stated that he was growing some West Indian type seedlings to experiment with. The present interest in this matter is due to the possibility of a solution in warmer areas of the tip-burn and related problems. Dr. Colt, in his letter, observed the trees grown on West Indian roots in the Rio Grande Valley of Texas showed little or no tip-burn where rather saline water was used. On the other hand, trees grown on Mexican roots were in seriously tip-burned condition.

A bulletin of the experiment station at Behovot, Palestine, showed that they had independently made the same observations and had come to the same conclusion. Seeds mostly used for this purpose in Florida are from the Walden variety, and so far it is mostly seeds of this variety which have been imported into California. This variety matures in Florida in late summer. On the recent pilgrimage to Mexico, Mrs. W. J. Krome of Homestead confirmed this matter. The grave difficulties of using this type of root-stock in most California locations is due to its great susceptibility to cold damage. Along these same lines it was stated that Mr. Eggers had used some Mayapan and some Taft seed for root-stock in his nursery, and that these Guatemalan root-stocks seemed to cause less tip-burn on the buds than those on Mexican roots. Here again the matter of susceptibility to cold would be a factor in most districts. In concluding his remarks on the root-stock situation, Dean Hodgson stressed two things: the need for segregation of seeds as to source in the nurseries, and the need for records in detail from the parent seedling tree on through years of bearing of the nursery trees after set out in the orchard. Without absolute knowledge as to the source of seed and seedlings and detailed records kept throughout the life of the trees in large quantities, it will be next to impossible to arrive at any intelligent conclusions concerning the values of stocks or the solution of certain general problems in the industry. Without segregation of stocks and without records, it is impossible to trace the origin or incidence of the virus disease, sun-blotch.

Observations of the Chairman

Practical experience in recording the behavior of root-stocks segregated as to sources over a period of 8 or 9 years, has convinced him that very considerable differences occur in the behavior of various seedlings which may be selected as root-stocks, especially from the nurseryman's standpoint. In what follows, it is not to be taken for granted that what seems beneficial from a nurseryman's standpoint, may be the most profitable thing from the standpoint of the ultimate producer. In other words, stocks that produce vigorous budded trees very rapidly and continue on to produce exceptionally large trees in the orchard may pose problems for the ultimate producer which less

vigorous and slower growing stock would obviate.

Just a few of many situations observed will be detailed here in order to point the way for investigation rather than to prove any point. First, two plantings, between 1,000 and 1,500 seeds, were made in the seed bed from two very large fine seedlings growing on the same property. Seed from Number One tree sprouted practically 90 per cent, went into the field quite early in the season, took the buds with a very high percentage of success and have been used as stock for three seasons, with great satisfaction. Less than 1 per cent of the seed from Number Two tree ever germinated.

The second case involves 2,000 to 3,000 seed of the Northrop type, which were the first to germinate in the seed bed for two seasons, and the past season were the first to be lined out in the nursery by more than six weeks. They were budded six weeks earlier than seedlings from a large Ganter type seedling. The Northrop type seed were medium in size; the Ganter type seed were quite large. Today the buds on the Ganter type seedling, which were budded six weeks later than the Northrop type seedlings, are practically the same size. The Northrop type trees have produced a large crop every other year, and very little in the off-year. The source of the Ganter type seeds is an enormous tree, which in one season produced 6,000 fruit, but for the last three or four years has not produced over a few hundred. Consistency of bearing would be a very serious item for nurserymen to consider.

Another large tree, which produces medium size seed in a black fruit, has shown considerable alternation, but on such a scale that it would be a reliable source of seed for nurserymen in any year. For instance, two years ago, the tree produced 8,000 seeds, this year about 13,000. The records over several seasons show that both germination percentages and budding qualities of the trees have been amongst top ranking performers. One of the observations has to do, particularly, with the sun-blotch situation. Nobody in the industry, at the present time, is able to determine by examination of a large Mexican type seedling whether it has sun-blotch or not, for it has been fairly well confirmed that budded trees affected with sun-blotch, which are frozen below the buds and come back from the root will have lost all visual symptoms of the disease. Usually the young seedlings in the nursery rarely show visual symptoms of the disease until the seedling is a year old or the young tree is about ready to be balled for sale. Therefore, in determining whether any given source of seed is free from the disease, it is necessary for the nurseryman to use it through approximately two seasons. All that an examiner of the committee can say in the beginning, after inspection of a seed source, is that it appears clean. Proof has to be supplied by segregated trial over a period of not less than two or three years, where the exact parentage of budded sources is also definitely known.

In conclusion it should be said that one of the most valuable contributions which nurserymen and producers alike can make to the industry, would be to keep exact records from beginning to end, of the source, behavior and production of their trees. This entails more book work and more attention to detail than many nurserymen and growers have been willing to give up to this time. But, if we are to succeed in raising the general level of quality and production in our orchards, we must have such records on a volume basis and we must start at the very foundation, which is the root-stock on which we grow our trees.

The committee will be glad to examine and register trees submitted to it for root-stock purposes. Forms are being provided for the purpose and there will be a registration fee of $1.00, to cover incidental expenses.

All correspondence is to be directed to the Chairman of the Committee, Carter Barrett, Box 285, Whittier, California.

The committee thanks these who have provided information and encouragement in the past and bespeaks the earnest cooperation of the whole field in the effort to raise the general level of the industry to greater well-being and higher profits.

Application for Registration—For Root Stock Purposes

Name .....

Address .....

Kind of tree (Seedling or budded tree of named Mexican type) If seedling, has tree ever been budded or grafted or is it a formerly budded tree which froze below surface and came up from root?.....

Age of tree (at least approximate) .....

At what age did it begin bearing? .....

How many years has it borne?.....

Have the crops been consistent? .....

If not, state type of variation .....

Color, size and quantity of fruit .....

Size and other characteristics of seed (smooth or rough) ...

Has seed been used by nurserymen?.....

Any reports? .....

Rating by Committee — (Do not write here) .....

Sunblotch, consistency, nursery reports, etc.....

Location of tree in orchard or garden

(1) (2) (3)

Designation (official) by Committee — (Do not write here)....

Annual information required by Committee — (Do not write here)

Address all communications to:

Carter Barrett

Chairman, Sub-Committee on Root Stocks

P.O. Box 285

Whittier, California