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IMPROVEMENT OF CITRUS ORCHARDS BY BUD SELECTION

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In every citrus orchard one runs across trees that are either unproductive or bear fruit of an inferior quality. Many orchards are in such a bad state of condition that the majority of trees are merely boarders and are not adding to the income of the orchard. Methods of cultivation and irrigation may improve some orchards that are not too far gone but the only remedy for the majority is to top-work the trees or remove them en-

First, there are those called modifications. These are caused by environmental factors, such as amount of moisture, humidity, dry winds, temperature changes etc. The fruit may be split, sunburnt or frost-bitten. This class of abnormal fruit can not have its characteristics handed down to subsequent generations by heredity and are for the most part controllable by the orchardist.

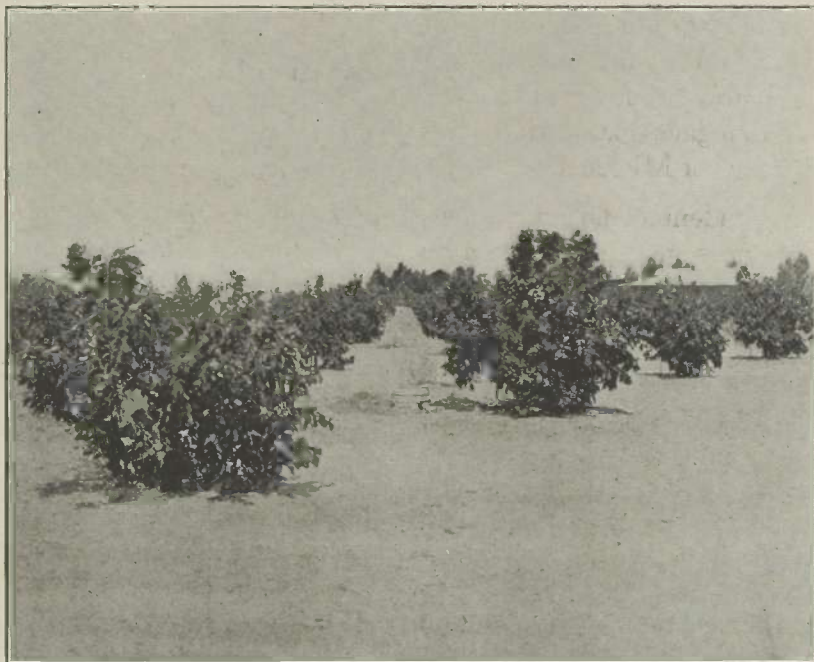
The other class of variations are called mutations. They are due to a

unable to develop new and more desirable strains.

Shamel states that there are 13 strains of the Washington Navel, 12 of the Valencia, 6 of the Marsh Seedless Grapefruit, 8 of the Eureka lemon and 5 of the Lisbon lemon.

The major differences among the strains are color, size, shape, flavor, abnormalities (such as protruding navel), seeds and flavor.

The first step in improving an orchard is to know which trees are



A Good, Uniform Orchard, the Result of Bud Selection.

tirely. If the trees are vigorous although lacking in fruit, they may be top-worked. However, if the roots are in poor condition it is better to take the tree out entirely.

One of the primary causes for poor orchards is the careless manner in which bud-wood is selected. Along this line, A. D. Shamel of the United States Department of Agriculture has carried on extensive experimental work and is the foremost authority on bud selection. His results are being put to a practical test in many parts of the citrus regions.

There are two distinct classes of variations which occur in orchards,

change of the germinal factors in the plant cell itself. Mutations are inherited from generation to generation and by propagation the new tree will bear similar fruit to the parent tree. By using only cion wood from a tree with fruit of a superior strain, the young trees will bear fruit of a high quality.

The amount of variation depends upon the frequency of occurrence of mutations. On the citrus tree mutations occur quite often but when a strain is well established it will remain more or less fixed. However, if mutations did not occur, we would be

paying and which are boarders. By observation some of the worst trees can be eliminated but the most efficient method is keeping a tree record.

Tree records are valuable for three purposes. 1st, to locate drones and poor quality trees; 2nd, to locate superior trees which can be used for procuring bud wood from; 3rd, to aid in giving individual care to trees by writing down any outstanding neglects, such as insufficient pruning, etc.

In keeping tree records it is necessary to run them for three or four years in order to get the best result.

For convenience in keeping a record

of your trees it is desirable to have the block, row and tree number painted on each tree, preferably on one side. This enables the orchardist to locate a tree without any loss of time.

For the actual tree record itself, cards, the size of trunk checks, are printed, giving spaces for the location of the tree, date of picking, amount of fruit, quality of fruit and special remarks. Just before picking of the fruit begins, these cards are tied on each tree. It is preferable to have them all on one side.

Boxes are distributed to the individual trees. Each picker gathers the fruit from one tree and the boxes are kept separate until they are counted

ing and high quality trees in the orchard, he will not have to get his bud wood from some outside source.

Only fruit-bearing bud wood is cut from the parent tree. It is best to have sticks that have a typical fruit on it before removing it from the parent tree. The fruit on the bud stick is an indication of the inherent characteristics of the bud wood.

An average tree will furnish during a season about 500 good buds.

The bud sticks from each tree should be kept in separate bundles with a tag attached giving the number of the tree.

The leaves of each bud stick are trimmed off immediately after cutting. The bud sticks are tied in a

branch is cut off even and the cion with 2 to 3 buds on it is inserted between the bark and wood. This is tied securely and the whole thing is covered with paraffin.

Care must be taken to prevent the original wood from smothering out the new wood. The tree should be pruned for the first two or three years like a young tree. All suckers and water sprouts should be removed promptly.

COWS AND CIGARETTES

The complexity of modern life is always a matter of absorbing interest. Have you ever considered the achievements of the lowly cow? The general notion is that she produces only milk, cream, cheese and butter. She is also the producer of casein, a substance used in the manufacture of numerous commodities such as insecticides, buttons, cold water paints, soap, shoe polish, imitation ivory, insulation material, and lastly, casein glue is used in making cigarettes.

DON'T OVER-RATE PUMPKINS

Comparison of analysis will show that ordinary field pumpkins, including seeds, have a feeding value approximately one-third that of corn silage. Stockmen should take into consideration the relatively low feeding value of the pumpkins and supplement them with concentrates or alfalfa. The succulence of pumpkins, however, is conceded to be an important attribute, especially where no silage or green pasture is available.

SALT POISONS CHICKENS

Many chicken raisers report having lost birds by salt poisoning. A hen requires only a quarter of a pound of salt a year and, since many mashes contain salt, it very seldom is necessary to add more.

In case salt is fed it may be dissolved in drinking water or milk or sprinkled in feed. No lumps should be given as chickens are apt to eat too much and die of salt poisoning.

FAKE LICE REMEDIES

Co-operative tests conducted by the State Department of Agriculture proved conclusively that liquids, tablets and powders mixed with drinking water or food of poultry are of no practical value for the control of lice and mites.



A Top Worked Lemon Tree Bearing a Remarkably Heavy Crop.

and the number and quality is written on the tag. This will require one extra man to do this. The cards are removed and stored in a safe place for the following season.

After several years the orchardist will know the actual condition of his trees. He may find a few trees which will prove valuable for bud wood and will be the basis of building up his orchard. He will know whether to put in all young trees or top-work his trees.

If it is necessary to replant the whole orchard, the orchardist can either buy new trees from a reliable nursery or grow his own nursery stock. If the orchardist decides to grow his own trees the selection of bud wood will be of the utmost importance. If according to the tree record there are a few high produc-

bundle, tagged and packed in moist spagnum moss. Several bundles of bud wood are usually packed tightly together and covered with burlap. These packages are kept in a cool temperature, about 70 degrees, until the bud wood is used. Bud wood can be kept for several weeks this way.

Top-Working of Trees

In selecting trees to be top-worked it is desirable to select them before the fruit is picked.

From three to four limbs of the tree to be top-worked are selected. They may be either budded or grafted. In budding the usual procedure is followed. After the bud has united with the wood, the limb is cut off obliquely and covered with paraffin to prevent drying. Usually two buds are inserted to a limb.

When grafting is done, the selected