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# Nitrogen Fertilization of Avocados

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In connection with fertilization of any kind, the basic fact must be kept in mind that our California soils and conditions differ to an extent that necessitates varying treatments in order to obtain the best results.

The conditions in Mt. Helix Calavo Gardens are: Soil, decomposed granite. Elevation, 600' to 900'. Distance from ocean 15 miles.

It is well to keep in mind that no variety or amount of fertilization will produce desired results unless backed by efficient irrigation.

California soils, generally speaking, are conceded to be deficient in nitrogen. We do not consider our soils to be an exception to this rule.

The avocado tree is a heavy consumer of nitrogen. It is evergreen—in other words, more or less at work all the time. Its tremendous tonnage of leaves, plus its prodigal production of blossoms, both of which analyses show to be rich in nitrogen, clearly indicate that a sufficient supply of nitrogen must be available to the tree if it is to perform at its best.

The volume of nitrogen to be applied, as well as the method of application, depends on local conditions, age and size of trees, etc. Our trees are now from 12 to 14 years old and of good size for their age. We intend to apply, this year, 12 Ibs. of 20% nitrate per tree, in the form of sulphate of ammonia, or its equivalent. The applications will be 3 Ibs. per tree at intervals of about 60 days.

We believe it best to apply smaller quanties more often, than large amounts in fewer applications, for the reason that a larger percentage of the nitrogen will be absorbed by the tree before the nitrogen penetrates beyond the main tree root strata. If light sandy soil composed our lands we would be inclined to use even smaller applications more often for the above mentioned reason.

While we consider liberal applications of nitrogen vital to successful avocado production, we do not consider nitrogen by itself sufficient. Phosphate and potash are also absolutely essential to plant life and growth.

Our soils are believed to contain these two latter elements in considerable quantities, yet their availability as plant food is questionable. Therefore, we believe that it is good business and cheap insurance to apply both phosphate and potash. We favor two applications per year, one in the fall and one in the spring, each application consisting of 2 Ibs. 40% phosphate and 2 Ibs. 48% potash.

That the above fertilization program can be varied, with excellent results, is best proven

by the experience of some of our immediate neighbors, whose production problems are the same as our own.

Here is the record of Mr. Walter Averett: He has a total of about 400 Fuerte trees:

208—11 years old

117— 7 years old

85—Topworked from Itzamnas—5 years old

**Production record:**

1940-41 marketable flats 2,104

1941-42 marketable flats 2,860

1942-43 marketable flats 3,820

or a yield per tree for the past season of 121½ lbs.

Mr. Averett has used nitrogen only, applying same at the rate of 1 lb. per tree for each year of the tree's age, in other words, a ten year tree received 10 lbs. of 20% nitrogen per year. Five pounds were applied in January and the other five in June after the new crop was set.

A very interesting fact about this grove is that the heaviest producers are the worked over Itzamnas. These trees have this past season produced 160 lbs. of fine fruit per tree.

The following is the record of Mr. Edward Biery's grove:

Number of Trees—93 Fuertes

**Fertilizer Program**

Feb. 15—1½ lbs. Uramon (42% nitrogen)
May 1—4 lbs.—10-5-5
July 1—4 lbs.—10-5-5
Sept. 1—4 lbs.—10-5-5
Nov. 1—4 lbs.—10-5-5

**Production Record**

1941— 858 flats—11,157 lbs.
1942— 909 flats—11,815 lbs.
1943—1130 flats—14,700 lbs.

or 158 lbs. per tree during the past season.

Another very interesting record is made by Mr. Harry J. Munster. Mr. Munster has 201 Fuerte trees – 14 years old.

**Production Record**

1939-1940—1227 flats
1940-1941—1947 flats
1942-1942—2746 flats
1942-1943—3070 flats (approximate)

or 198½ lbs. per tree for the past season. His fertilizer program has been the application of 3½lbs. of Uramon (42% nitrate) in the spring and the same quantity of the same material in the fall. However, he is this season changing his fertilizer program to the same formula as is used by Mr. Edward Biery, mentioned above.

The above results we believe to be excellent evidence that the avocado tree will and does respond to liberal application of fertilizer, nitrogen in particular.

Experiments have conclusively proven that the non-application of nitrogen on our trees results in obvious deterioration of the tree and a decided lowering of fruit production volume.