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DO FERTILIZERS PAY IN NEW YORK APPLE ORCHARDS?

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DO FERTILIZERS PAY IN NEW YORK APPLE ORCHARDS?

One answer to the question

Fruit growers and experiment station men alike thruout the country have endeavored for years to solve this question. There are many conflicting opinions, but horticulturists at this Station after 25 years of testing fertilizers in a Rome Beauty orchard on the Station grounds offer the same answer that they have advanced many times before, namely, that

In the average Western New York apple orchard that is well cultivated, properly drained, and sufficiently supplied with organic matter and humus by means of a cover crop, commercial fertilizers are not needed. In sod orchards it has been shown repeatedly that nitrogen-carrying fertilizers are beneficial and that the results are measurable in hundreds of per cent instead of in tenths of one per cent. Whether orchards on land that is sandy, gravelly, low in fertility, drouthy, or shallow may respond to fertilizer applications cannot be answered by this experiment. The point is that in this orchard, which is representative of dozens of others in western New York, the application of commercial fertilizers has been a waste of both time and money.

No benefit observed

An orchard of Rome Beauty trees budded on Ben Davis was selected 28 years ago for a fertilizer experiment and the first application of fertilizer was made in 1899. The orchard is clean cultivated until late summer, when a non-leguminous cover crop is sown.

The fertilizer treatments include applications of stable manure; acid phosphate; acid phosphate and potash; and acid phosphate,

*Summarized from Bulletin No. 516 entitled Twenty-five Years of Fertilizers in a New York Apple Orchard, by U. P. Hedrick and H. B. Tukey. A copy of the complete bulletin may be had free of charge upon request.

potash, nitrate of soda, and dried blood combined. Several plats have received no fertilizer treatment and serve as checks.

Every possible means of measuring the effect of the fertilizers has been used. Records have been kept of the growth, size, and yield of fruit; of the color of foliage; of the quality, maturity, keeping quality, and color of fruit; and of increases in trunk diameter.

In not a single instance has there been any appreciable effect which could be attributed directly to the various fertilizer treatments. In fact, where recent measurements of growth and yield can be compared directly with the behavior of the same trees at the beginning of the experiment, it is clearly evident that the fertilizers have failed to alter the individual differences of the trees thruout the years.

Private tests needed

So many things affect an apple tree, however, and orchard conditions may vary so widely that the results obtained in the Station experiments may not hold in other orchards. A simple plan for a fertilizer test by the individual fruit grower is therefore outlined below in order that any who are in doubt as to whether their apple trees would respond to fertilizers or not may answer the question for themselves.

Orchards that are growing vigorously and yielding well do not need fertilizers. Where the trees are making only a few inches of growth annually and where the yield is not what it should be, the grower might well give attention first to drainage, cultivation, and general care of the orchard. Often attention to these details will suffice to bring the orchard into good bearing condition, for vigorously growing orchards give good yields. If these remedies fail, the grower may find it worth while to give fertilizers a trial.

Plan for fruit grower's test

For all practical purposes three or four fertilizer treatments and an untreated check will be sufficient. Four or five trees should be used in each treatment, and each lot of treated trees should be separated from the next lot by a row of untreated trees so that the fertilizers applied to one lot will not affect the other. The soil should be as uniform as possible in fertility, texture, drainage, and slope. A good plan of treatment is as follows:

Plat 1. Complete fertilizer, comprising 7½ pounds of nitrate of soda, 10 pounds of acid phosphate, and 5 pounds of potassium sulfate per tree, assuming that the trees are set 40 by 40 feet.

Plat 2. Acid phosphate and potash as above.

Plat 3. Check, no treatment.

Plat 4. Potash as above.

Plat 5. Stable manure, if available, at the rate of 260 pounds per tree.

The total yield of fruit in pounds and the yield of the different grades should be kept for each treatment. Also, the growth of the trees should be recorded by measuring the trunk with a tape line before the fertilizers are applied and after the fruit is harvested. It is well to make two measurements, one at 1 foot and one at 3 feet above the ground, and average the two. The trunk measurements should always be made at the same height above the ground.

Records for one season are not sufficient to use as a basis for fertilizer practices, but records kept over a period of from three to five years should show clearly whether or not fertilizers are needed in the orchard under test.