Apple Tree
No fertilizer.

avoid sprinkling it on the leaves, as burning may result.

Phosphoric acid aids particularly in the formation of the fruit, and, it is thought, tends to produce earliness also. If phosphoric acid is deficient in the soil, any fruit or grain crop will invariably be found to be poor and light. For the market gardener looking for rapid returns a soluble form of phosphoric acid, as superphosphate, is the best to apply, at the rate of about 200 lbs. an acre, harrowed in about two weeks before seeding. For the fruit-grower, where growth is continuous and the results looked for not immediate, a cheaper and less soluble form may be applied, as ground bone, or basic slag, at the rate of about 500-600 lbs. an acre. Cultivation will then tend to slowly bring it into solution.

POTASH AIDS FRUIT PRODUCTION

Potash, though less apt to be deficient in a soil than either nitrogen or phosphoric acid, plays a more important part in plant growth. It aids in the formation of sugar and starch particularly, and thus in the production of fruit. It is also important in the building up of new tissues and wood. By some it is claimed to have some influence in the coloring of fruits, but this is doubtful . However, it has been shown conclusively that heavy applications of wood ashes have given excellent returns in the orchard and are one of the best forms in which to apply potash to the soil. The commercial form is muriate of potash, which is usually applied at the rate of about 200 lbs. an acre before seeding, and harrowed in.

It must be remembered that maximum crops can never be raised unless the three fertilizing substances, nitrogen, phosphoric acid and potash, are all present in sufficient quantities for healthy and normal plant growth. If any one of these be wanting, growth is checked. Therefore, to land which is poor and unproductive, the application of all three will usually give good returns, no matter whether the crop be grown for leaf or fruit. But if the land is rich and productive then production can be pushed to its maximum limit, by applying the one which the particular crop grown stands most in need of, and the foregoing suggestions have been offered as a guide.

DEMANDS ON SOIL DIFFERENT

In the fertilizing of orchards it must be remembered, also, that the relation of fruit growing to soil exhaustion is very different from that in general crop farming, because in the orchard there is an annual demand for specific kinds and definite proportions of plant food. It is really a continuous cropping of the same kind, and there is no opportunity, as in the case of ordinary farm crops, to correct the tendency to exhaustion by a frequent change of crops, or the frequent growth of those which require different kinds and amounts to plant constituents. By the sale of fruit, large quantities of potash and phosphoric acid are annually being sold off the orchard, and in most cases no return of these constituents is made to the soil.

In the matter of berries, which are crops especially well adapted to light soils, soils, however, which are not naturally supplied with sufficient amounts of the essential plant constituents, proper fertilizing becomes even more important than for the tree fruits, which are usually grown on heavier land richer in plant food. They are, as a rule, crops which require a shorter preparatory season, and have a shorter period of bearing life, and therefore the more quickly available materials should be applied, as nitrate of soda, or dried blood, superphosphate and muriate of potash.

Apple Tree
Complete Fertilizer: Potash, Phosphoric Acid, Nitrogen.

In the case of vegetables, the soil must always be kept up to its highest productive capacity by the liberal use of farmyard manure, supplemented with fertilizers. With the high cost of labor, clearly the most profitable results should be obtained by placing the soil in the best possible condition to raise large amounts from small areas. A small market-garden, well cultivated and liberally manured, here, as in Europe, should yield better returns than a larger acreage carelessly handled through lack of help.

Cover Crops in the Orchard.

Grant S. Peart, Burlington, Ont.

Sowing cover crops in orchards, where clean cultivation is practised, is one of the essentials of successful fruit growing. Not the apple orchard alone is benefited by it, but all the tree fruits, including the vineyard. We have practised growing different sorts of cover crops in orchards with excellent results. Our experience indicates that leguminous crops are preferable, especially where growth of wood is required; in other words, where soils are poor in nitrogen. The field pea is admirably adapted for this purpose. It possesses the power of growing quickly, thus producing a rank growth, and is not confined to any particular climatic change.

The hairy vetch and crimson clover may be used with satisfactory results also, but the vetch is difficult to eradicate. The crimson clover is grown with success in Southern Ontario, but is confined to that district. Red and alsike clover do not make sufficient growth. When cereals are sown, rye and winter wheat are better qualified than barley or oats as cover crops, on account of their hardiness.

DATE OF SOWING

The time of sowing and quantity of seed required depends on the crop. A heavy seeding should be applied. Two bushels per acre of cereals and peas or twenty pounds of crimson clover seed is an accurate estimate. It is well to harrow and roll the land after sowing the clover. The crimson clover should be sown during the latter part of July; oats, peas, and wheat the last week of August; and rye the first week of September.

All orchards with cover crops should be ploughed early in the spring. It will