

Nitrogen is mainly concerned in the vegetative growth of the plant. It promotes larger leafage, the rapid extension of growth, and the setting of fruit. It is usually in shortest supply in early spring, when it is needed in greatest supply by the plant. If present in excess it tends to promote rank, coarse, sappy growth, a weak constitution, and susceptibility to disease attack, and it also has a detrimental effect on the keeping quality of fruit. Nitrogen deficiency is associated with a stunting of growth, yellowish-green leaves, early defoliation, and poor fruit setting.

Phosphates greatly stimulate root activity, which hastens plant growth, particularly in the early stages. They assist fruit bud and grain formation. Phosphate deficiency is associated with stunting of the root shoots, dull green leaves with a bronze effect, and often imperfectly-developed blossom.

Potash is needed for the efficiency of the leaf and to assist in carbohydrate formation. It counteracts the ill effects of nitrogen excess and produces a sturdier plant better able to resist disease. It also produces a finer texture in fruit, promotes the development of colour, and improves its keeping quality. A deficiency is associated with leaves of a dull colour. Fruit trees suffering from potash deficiency show leaf scorch and early defoliation.

It is sound practice to use complete fertilisers—that is those containing nitrogen, phosphorus, and potassium—in preference to a fertiliser containing but one of the elements.

It is not possible to make manurial recommendations which will be applicable under all circumstances, but the following may be taken as a guide for the average tree:—

	RICH SOILS	AVERAGE SOILS	POOR SOILS
	lb.	lb.	lb.
Apples, Pears, Apricots			
Sulphate of ammonia	—	1	1 1/2
Superphosphate	2	2	2 1/2
Blood and bone	2	2	2 1/2
Sulphate of potash	1	1	1/2
Total	5	6	7
Peaches, Plums, and Sub-tropical Fruits			
Sulphate of ammonia	1/2	1 1/2	2
Superphosphate	1 1/2	1 1/2	2
Blood and bone	2	2	2 1/2
Sulphate of potash	1	1	1/2
Total	5	6	7
Citrus			
Sulphate of ammonia	1	1 1/2	2
Superphosphate	1 1/2	1 1/2	2
Blood and bone	1 1/2	2	2 1/2
Sulphate of potash	1	1	1/2
Total	5	6	7

Applications of the mixtures recommended may be increased up to 15lb. a tree according to size and cropping capacity. For berry fruits the rate of application should range between 4 and 8oz. a bush, with the same amount to each yard of strawberry row.

Only one fertiliser in each group has been quoted, but they may be replaced by others from the same group.

It has been fairly well established that the majority of plants take up the greater portion of their food requirements, or nutritional elements, from the soil during the early part of the growing season. It is considered that the most active period of nutrient uptake in fruit trees occurs between early root activity and the setting of the crop. That rapid uptake, especially of phosphates and potash, necessitates the application of these elements sufficiently early to enable them to become available at the required time in spring. As they do not readily leach from the soil they may be applied before spring, and as they tend to become fixed in the soil at point of distribution they should be placed as near the root area as possible. It is good practice to apply and turn under fertilisers containing phosphates and potash during the late autumn ploughing or digging.

The period of nitrogen application is governed to some extent by the form in which it is used, but generally it should not be applied until growth is active because of the likelihood of loss in drainage. As it is soluble and quickly permeates the soil it may be spread as a topdressing and lightly harrowed or hoed in.

Lime

Calcium, the main element found in lime, is an important plant food. Applications of lime decrease the loss of available potash from the soil and assist in the liberation of unavailable potash. Lime has been found of advantage in preserving the availability of phosphates. It is also a corrective of soil acidity and prevents the loss of nitrates.

Agricultural ground limestone (calcium carbonate) may be applied annually in late autumn at the rate of 8oz. a square yard. Hydrated lime (calcium hydroxide) is quicker acting and more satisfactory for small home orchards and may be applied at the rate of 6oz. a square yard. Burnt lime (calcium oxide) may be used on heavy soils at the rate of 4oz. a square yard in the spring, but it is not recommended for light soils.

Pruning

Pruning is the art of modifying the natural habit of the fruit tree to improve its commercial value as a cropping unit by securing more regular and prolific crops of good-quality fruit. The main objects of the pruner may be stated as:—

1. The treatment of the young tree in a manner which will build up a vigorous, mechanically-strong framework capable of carrying

PRUNING A YOUNG TREE

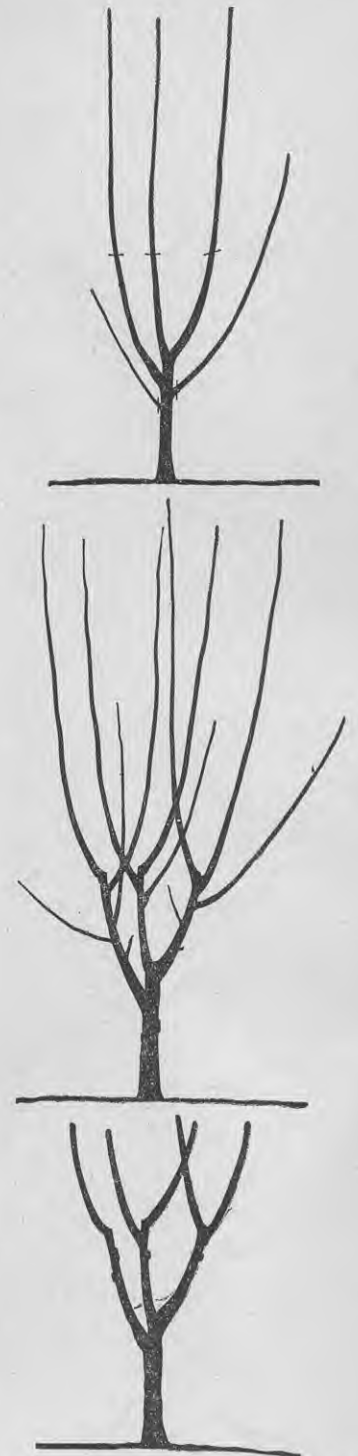


Fig. 22—Top, a young tree at the time of planting, with the suggested positions of pruning cuts marked. Centre, before being pruned at its second winter. Bottom, after being pruned at its second winter.