



The Home Garden in September

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WITH the sowing and planting of vegetable crops rapidly increasing as gardening conditions improve, gardeners no doubt will be wondering what results their efforts in soil improvement will bring forth later in the season. Liberal applications of organic matter are necessary if desirable growth is to be maintained. Besides improving the structure of soil, organic matter provides in varying amounts certain foods essential to plant health. However, because of its variable plant-food content, organic matter often requires to be supplemented with inorganic fertilisers.

FERTILISERS are applied to the soil for many reasons, the main one of which is to increase the yield of the crops grown. A second important reason is to encourage early maturity of crops. With commercial crops this would be an advantage if the crops could be marketed early. Coupled with this is the hastening of maturity either in early or main crops. With leafy crops particularly, quick maturity is essential if tenderness and good quality are expected. Other reasons are to increase the resistance of a crop to fungous diseases and to provide any mineral element known to be deficient and causing a nutritional disease of the crop concerned.

Fertilisers are manufactured or are natural materials containing certain plant foods in varying quantities. To be effective, plant foods should be available to various vegetable crops in certain ratios. Unfortunately, however, the optimum ratios are not known for all crops, and every type of soil can give different results even if the same amount of fertiliser is applied to each type. It is this last fact which makes it most difficult to give specific recommendations for New

Zealand as a whole or even for one particular district.

Major Plant Foods

Nitrogen, phosphorus, and potassium are the major mineral elements necessary for plant growth; the remaining 60 or so are required in varying minor degrees. The majority of these are termed trace elements. The only other important element is calcium (lime), which also acts as a soil improver.

Nitrogen

Nitrogen is contained in manufactured fertilisers such as nitrate of soda, sulphate of ammonia, dried blood, and blood and bone. It is also contained in animal manures and in the nitrogen nodules on roots of legumes such as peas. Nitrogen is essential for vegetative growth and is therefore valuable for leafy crops such as spinach, lettuce, silver beet, and cabbage.

Because nitrogen generally becomes available fairly quickly, it should not be applied very long before it is required. This is particularly so with nitrate of soda and to a less extent with sulphate of ammonia, both of which are best applied when plants

are growing. Sulphate of ammonia can, however, be applied immediately before sowing, as it remains in the soil for a period.

Phosphorus

Phosphorus is contained in bone fertilisers, the bone of blood and bone, superphosphate, and basic slag. Phosphorus tends to encourage early root development and is also valuable for seed, fruit, and flower development. As most New Zealand soils are low in phosphates, general application of them can usually be made with safety. As phosphates are not readily lost from most soils, they can be applied before growth begins and are therefore best applied as a base dressing at the time of soil preparation and before sowing and planting. Bone fertilisers, blood and bone, and superphosphate are the best phosphatic fertilisers for home garden use.

Potash

Potash, which is available in commercial preparations such as sulphate and muriate of potash and in wood ash, increases quality rather than quantity and produces sturdy growth as well as firm stems and flower stalks. It assists in improving weight, colour, and texture. Like phosphates, potash is not readily lost from normal soils and therefore can be applied early in the season. However, it does leach fairly readily from light, sandy soils. As it appears to be chiefly taken up early in the life of the plant, it is

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