

phate of potash, all by weight, incorporated in the plant rows at the rate of ½ lb. to 4 ft. of row, should suffice. Artificial manures should be spread evenly along the plant rows and worked in or covered with sufficient soil so that the plant root does not come into contact with a too-heavy concentration, which is liable to cause a check to its growth.

Plants should be spaced 15 in. apart in the rows, which should be 30 in. apart. At this time of the year it is not necessary unless the ground is of a heavy nature to plant on a ridge. If the plants are set out on the flat, they should have the soil moulded up to them as they grow, care being taken not to cover any portion of the leaves or leaf stems.

Preparation of Soil

Provided that the seasonal gardening programme has been adhered to, there should now be several areas that were dug over earlier and sown in cover crops or left rough for exposure to the weather.

Building up Humus Content

If farmyard manure or compost is not available, blue lupins are perhaps the best means of building up humus content. As they are a legume, they also increase the nitrogen supply provided they have been left long enough for the nodules to develop on the roots. These nodules are caused by nitrogen-fixing bacteria which live in partnership (symbiosis) with leguminous plants; each nodule is the home of millions of bacteria, which enter the roots from the soil. The plant supplies carbohydrates and in return the bacteria supply nitrogen in the form of compounds which the plants can use. As heavy green crops take a fairly long time to decompose, they should be incorporated in the soil several weeks before the ground is required for planting.

Plants usually suffer from nitrogen starvation if they are planted in land where thorough decomposition of organic material has not taken place, as the bacteria which break the material down use up the readily available forms of nitrates, depriving the plants of them. Temporary acidity may also develop, especially during the early stages of decay, which may retard the growth of plants or result in failure of seed to germinate.

Lime and Fertilisers

Lime is best applied to the surface of the soil and allowed to be washed in by rains. If it has not already been applied, a dressing should be given now. Carbonate of lime generally is used and an application of ½ lb. to the square yard will greatly benefit most soils.

With a few exceptions artificial fertilisers should consist of a complete plant food, principally nitrogen, phosphoric acid, and potash. These three are necessary for most soils and usually they should supply all plant requirements. The quantities to be used depend on soil conditions and what kind of vegetable it is intended to grow. For instance, cabbage and lettuce being leafy plants require more nitrogen than root crops such as carrots or beetroot, which require a larger percentage of phosphates. Vegetables require only small quantities of potash, and although it should not be used to excess, it should not be omitted.

Breaking up Ground

Where the ground has been left rough over winter the top spit can be forked over and well broken down. This forking allows the air to penetrate the soil particles and encourages the escape of excess soil moisture, resulting in a better tilth and providing a good opportunity for the working in of artificial fertilisers or well-made compost; stable or farmyard manures are best dug into the ground some time before it is to be planted so that they are well rotted when cropping begins.

Light soils require only a shallow forking, as they break down well and readily crumble to a fine tilth if the soil condition is favourable. Heavy soils should be cultivated when they are only slightly moist and the sods can be broken down with the back of the fork. The gardener should work backward so that he does not consolidate the loosened soil.

Firming and Raking

The ideal seed-bed is one on which only shallow impressions are made when it is walked on. Soils that are of a heavy nature are liable to pack if care is not taken in firming; raking the soil is generally sufficient, but lighter soils can easily be firming by walking over them with a shuffling motion. It is important to remember that the object of firming is to consolidate the soil particles sufficiently to increase capillary action, thus forming better soil conditions for seed germination.

The final work in the preparation of the seed-bed is done with the ordinary garden rake, the teeth of which should not penetrate the soil to a depth greater than that at which seed is to be sown. When soil preparation is complete all rubbish, loose stones, and lumps of soil should have been removed and the bed should be level and have a fine tilth. Care should be taken with heavy soils to see that they are not sticky, as if they are in this condition, it is impossible to obtain the desired results.

Soil Improvers

Heavy soils that are inclined to be of a sticky nature and therefore more difficult to work can be improved by the addition of a fairly liberal dressing of sand. This should be spread over the area and mixed with the surface soil to a depth of about 3 in. Light, open-textured soils in which the soil particles require binding will benefit by an application of a humus-building material such as compost or stable or farmyard manure.

Raising Seedlings

Although the average home gardener prefers to purchase his seedlings, he can find much interest in propagating them. It involves only a small outlay and a minimum of time if simple methods are used. Several methods, however, will have to be adopted, depending on the time of year, climatic conditions, and the kind of vegetable it is desired to grow.

When climatic conditions are favourable and the soil is fairly warm the outdoor seedling bed is satisfactory. This should be made in a sheltered position and should comprise good, well-drained, light, loamy soil. The

soil in the seed-bed must be thoroughly and deeply worked and the surface brought to a fine tilth. If the ground is of a clayey nature, the addition of sand, wood ashes, or decayed vegetable matter will considerably improve it.

When the soil has been thoroughly prepared level the surface with a rake and gently pat it with the back of a spade to make it firm, after which it is ready to receive the seed. The seed should be broadcast thinly and evenly on the surface of the bed or sown not too thickly in shallow drills and covered lightly with fine soil. When the seed has been sown cover the surface soil with some finely broken-up, well-decayed manure. This mulch reduces evaporation, keeps the roots of the tiny plants cool, and promotes vigorous growth. While in the seed-bed seedlings should be kept supplied with moisture when necessary by watering them with a watering can fitted with a fine rose.

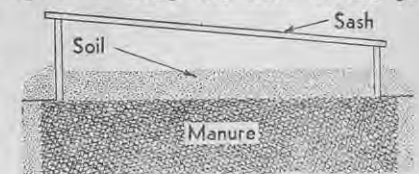
Cold Frame

Every home gardener should possess a cold frame, which is very useful not only for hardening plants started in a hotbed, but, in mild climates, for raising early seedlings. The most convenient size is a box-like structure 4 ft. 6 in. wide by 9 ft. long (18 in. high at back and 12 in. at front) with 3 neatly fitting, sliding sashes on top supported by 4 rafters placed across the frame from back to front. To avoid any danger of sashes being lifted off by strong winds it is a good practice to place wooden buttons in the middle of each rafter, allowing the sash to be drawn freely backward or forward for ventilation.

The cold frame should be placed in a sheltered position at the best angle to secure maximum sunshine. Fill the interior to a depth of 3 in. with good potting soil and pile a little earth against the outside of the frame to keep out draughts. If the frame is required for hardening off or for raising plants in seed boxes only, the floor of the frame may be covered with small cinders or fine scoria. In localities where frosts occur plants in cold frames must be protected by covering the glass at night with straw or sacks.

Hotbed

A temporary hotbed, which is very handy in colder localities for raising early seedlings, can be made of strawy stable manure, brewers' hops and straw, or a mixture of green vegetable matter and straw. Select a perfectly dry position sheltered from southerly and westerly winds and well drained, for if water is permitted to lie around the base of the bed, a good even temperature cannot be kept. Dig a pit 12 to 18 in. deep on the site intended for the bed and slightly larger than the frame that is to be placed upon it. Keep the sides of the pit



Showing how a hotbed should be made.