

SOIL PREPARATION

Soil without adequate plant cover, and especially newly-worked soil, is particularly subject to the hazard of erosion. In intensive vegetable cropping the soil needs to be prepared at comparatively short intervals for successional crops. During the early growth at least, plant cover is seldom sufficient to protect the soil adequately.

It is for this reason that the Department cannot advocate the production of vegetables on slopes in excess of 10%, ideally less than 5 % for intensive production where more than one crop is grown in one year. At the same time, heavy dressings of organic manures, on the wide range of crops responding to such applications, is very advantageous. The construction of suitable contourbanks and adequate waterways, planting on the contour, and generally following sound conservation practices, must all receive suitable attention.

Many vegetables have comparatively small seeds. The seedbed surface should, therefore, be level and relatively fine, without clods, to ensure a uniform sowing depth, and a good seed-to-soil contact. However, the soil should never be pulverized by over-working, because this could lead to surface crusting and similar problems, which may detrimentally affect plant emergence and subsequent growth.

For those crops in which transplanted seedlings are usually used, the production field need not be prepared quite as finely as the seedbed area, but should, nevertheless, still be fairly level and without large clods.

Any lime required should be ploughed down at least one month before planting, because lime requires some time to react, and to correct acidity problems. It should be well-mixed into the soil, and should be worked in deeply, because lime does not readily move in the soil, and it is usable only in the area in which it is placed.

Vegetable crops are generally shallow-rooted. The effective rooting depth varies from about 300 mm for shallow-rooted types such as lettuce, to about 600 mm or more for deeper-rooted crops like tomatoes. Periodic deep ripping to break up plough soles, or other compacted layers, is, nevertheless, advisable.

The moisture content of the soil is important, particularly those soils with a high clay content. Working a soil which is too wet causes smearing, while soil which is too dry will result in large clods, which are hard to break down because it is difficult to wet them adequately.

Adequate soil preparation should be completed in as few passes of tractor and implements as possible, because each passage across the field increases soil compaction. Ideally, the size of implements used should be in proportion to one another, so that the tractor wheels follow the same path each time a pass is made over the field. Fitting a ripper tine immediately behind the tractor wheels, for at least the last pass over the field, is sometimes beneficial in breaking up any compaction resulting from compression of the soil by the wheels.