

The Art of Applying Fertilizers.

Bringing Food to the Plant.

GREAT losses are often sustained by farmers because they do not apply their fertilizers properly. Plants take in through their roots food and water. These are essentials, and the degree to which they are available will determine largely the extent to which the roots will develop and penetrate into the soil.

Allow Roots to Penetrate Sub-Soil.—The fertilizer contains plant foods, and if it remains in the top layers of the soil or on a narrow strip near the surface, the roots of the plant will also remain there, near to the food supply, and will not penetrate into the lower layer or even distribute themselves properly through the surface soil. As long as moisture conditions are favourable, such plants will make vigorous growth, but should drought come they will be injured much more severely than if they had an extended root system which would then have drawn on the moisture stored lower down.

Rainfall and Method of Application.—The soluble parts of the fertilizer are washed into and distributed through the soil by rain water to an extent depending upon the rainfall. Insoluble material will remain where it was deposited until distributed by the plough or some other implement. Where the rainfall is good the plant food will naturally be thoroughly distributed, but in areas with a scanty rainfall, or in droughty years, this natural distribution frequently does not take place, so that if the fertilizers had been only applied to the surface or applied by means of planters and not ploughed in, the consequences may be serious.

How to Apply Fertilizers.—To avoid certain dangers and difficulties the farmer must assist the distributing forces.

It is always best and safest to broadcast any fertilizer and work it in by means of plough, disc, or harrow on any soil under any climate. In the drier areas the fertilizer must be broadcasted and not planted in any circumstances. Where rainfall is reasonably high and certain, planting may perhaps be resorted to, especially if fertilizers have been used on the soil for some time previously, but even in such areas broadcasting is more satisfactory and safer because :—

(1) There will then be no danger of poor distribution and consequent bad effects should a dry year eventuate.

(2) Fertilizer applied by means of the planter is concentrated in the vicinity of the young tender seedlings which are thus frequently injured by the soluble salts and acids, a danger greatly minimized by broadcasting.

When to Broadcast Fertilizers.—Broadcasting should be practised wherever possible, especially with all insoluble fertilizers such as bonemeal, manure and rock phosphates, because these substances are not distributed by rainwater.

Broadcasting can be done by hand or by implements specially made for the purpose. Fertilizers that contain their plant foods in the soluble form should be broadcasted shortly before the land is planted; or sown and then ploughed, disced, or harrowed in. Insoluble fertilizers as mentioned above, should always be applied and worked in as long as possible before the next crop is put in.

After the fertilizer has been broadcasted it can be worked in by any method: it can be put on before the land is ploughed and then ploughed under, or broadcasted on the ploughed land and then disced or harrowed in.—*The South African Sugar Journal*. Vol. II., No. 10, 1927.