

CULTURAL OPERATIONS AND IMPLEMENTS.

The following notes on cultural operations and implements will probably serve to supplement the preceding paragraphs.

Ploughing.—Ploughing is admittedly the foundation operation in all crop production effort. Ploughing has been performed with many different kinds of plough and in many different styles. No definite rule can be laid down as to the best method of ploughing. A safe rule, however, is to plough only when the soil is in shape, that is when not too wet; this rule, of course, applying to heavy soils only. Ploughing deeply in autumn, turning an up-standing furrow, and ploughing shallow in spring, turning a low-lying or flat furrow, is another general rule, and is applicable to a greater variety of soils than the first. Ploughing should, in my opinion, be done whenever possible with the two-furrow gang plough, using four, or at least three horses. In this way, the cost of the operation is materially reduced.

Disc ploughs recently put on the market afford a means of performing this operation at times and under conditions where it would probably be impossible for the common mould-board plough to operate, as for instance, ploughing heavy clay lands when hard and dry. They are also useful in burying manure, grass or weeds and in exposing heavy soils to the action of the frost, since they leave a very rough surface exposed to the air.

Subsoil ploughing is a cultural operation very seldom practised, and one that should be more frequently performed by the farmer, and serves, as indicated in preceding paragraphs, to open up the upper subsoil and so increase the water-containing capacity of the root-holding soil strata. The subsoil plough may to a certain extent be replaced by what is known as the subsoil hook, a cheap, light affair, that can be readily attached to the beam of any plough and passing over between the handles do a good job in the way of stirring to a depth of three or four inches the upper subsoil.

Harrowing.—Many implements have been devised and put on the market wherewith to perform the operation commonly known as harrowing. Of all these implements, the disc harrow is probably the most generally useful and the most effective in the work of preparing soil for seed after it has been ploughed. The larger the disc and the more acute the angle at which it is set in operation, the more effectively will it work. To insure good work, however, with a large sharp-set disc, rolling is necessary in order to crush the soil down that it may remain in place when being carved by the disc.

A new disc harrow, known as the Double Cutaway, has recently made its appearance, and has proven to be a most excellent implement. It consists of two disc harrows, one in front of the other, cutting, the one with an inthrow and the other with an outthrow; the discs are so placed as to prevent their running in the same track, hence a much more thorough cutting up of the surface soil is insured. Considerably more power is necessary to operate this disc than in the case of a single disc. It is, however, an implement capable of materially reducing the cost of preparing the soil for seed after the land is ploughed.

The spring tooth harrow is an implement that cannot be too strongly condemned, where used, as is commonly the case, on sod land or on rough hard land. This implement tears up the sods, exposes the grass and leaves an exceedingly rough surface, very certain to give poor results in crop production.

Harrowing is an operation usually very badly performed, and an operation that is almost always ended up sometime before it should be on any given area. Good ploughing is a necessary condition of the best crop results, but thorough harrowing is an indispensable condition of profitable crop returns from any field. Thorough harrowing does not necessarily mean three or four or ten different harrowings, but it means such treatment as leaves the surface of the seed bed smooth and friable, and leaves the bottom of the seed bed firm and solid. Until these two conditions are fulfilled the harrow should not stop.

Where sod land is being prepared for any crop, possibly the best treatment would be about as follows: Roll with a heavy roller, disc harrow lengthwise and crosswise or on the bias; roll again, disc harrow once more, and then smooth harrow with a common spike-toothed