

ity by adding to the nitrogen content of the soil.

(5) A variety of feed is available for stock at all seasons of the year.

(6) The growing of root crops enables the land to be cleared of weeds periodically, while certain catch crops help to smother them.

The high rainfall experienced on the West Coast renders the district quite unfitted for the adoption on a large scale of arable farming. It is essentially a grassland country, but it is most important to realise that the plough is the foundation of good permanent pasture. Topdressing with lime and phosphates has brought about wonderful improvements on inferior pastures, but large areas are carrying such a poor sward that it is doubtful whether it is an economic proposition to topdress until good grasses which will respond to treatment in such a way as to give a profitable return on the money invested in lime and phosphates can be introduced.

There is a prejudice in some quarters against ploughing up and re-sowing, due chiefly to the failure in some cases to obtain a good "take" of grasses on newly-ploughed land.

Permanent Pasture

It should be obvious that good grass establishment could never be expected under such conditions. When virgin country is turned over for the first time and the ploughing, because of the nature of the country, is generally rather a rough job, a good "take" of grass is hardly to be expected by following this up with two cuts with the discs and then sowing down. Permanent pastures is the most important crop on the farm, and grass seed needs the cleanest, finest, and best-worked seed bed of all. One ploughing and a stroke with the discs is, as a general rule, a totally inadequate preparation.

The accompanying illustrations demonstrate this clearly. The whole paddock was ploughed, cultivated, and sown at the same time, but the half shown in Fig. 1 (now disfigured and reduced in carrying capacity by a dense growth of rushes) had only the one ploughing. The other half, shown in Fig. 2, and carrying a clean, dense sward, had also been ploughed and cultivated the previous year for turnips. The benefit of the extra cultivation is most outstanding.

Best Preparation

As a thorough working of the ground over a period of several years is the

best preparation for successful establishment of first-class pasture, it becomes necessary to consider what crop should occupy the ground over that period. A sound farming principle is that more feed can be produced on an acre of arable land than on an acre of grassland, enabling more stock to be carried, so that although in this district climatic and labour conditions render any large-scale adoption of arable farming impracticable, the farmer who can bring only a small area under the plough at one time is increasing his stock carrying capacity and at the same time bringing his land into a fit condition for sowing to a good permanent pasture.

In the first year the area decided on might be ploughed in the summer and worked down for autumn-sown oats and tares. On old run-out pasture, provided it were clear and level enough, it would be an added advantage if the paddock could be skim ploughed first to a depth of 1 in. and worked with the discs before ploughing. To have the surface partially worked before turning it under is very much better farming practice than to plough in a thick impervious mat of old grass roots, weeds, and moss. An autumn-sown crop of two bushels of oats and one bushel of tares should provide a great bulk of feed in the spring either for feeding off or for ensilage.

Four Crops

As soon as this crop is off the ground could be prepared for rape or turnips to provide autumn feed, sowing at the same time a seed mixture of Italian ryegrass and red clover to be left down for two years, and providing a good crop for hay and grazing. After the second hay cut or spring grazing the area should be ploughed and well

worked through the summer preparatory to sowing with a permanent grass seed mixture in the autumn on a fine, well-consolidated seed bed. It is not necessary to sow with a so-called nurse crop; in fact, in a grassland district such as this the cereal nurse crop is definitely undesirable, and in many cases is responsible for a high percentage of weeds in the young pasture.

Thus, in a period of three years the land has produced four crops if silage and hay are made, in addition to the aftermath grazing. Two objectives have been attained—increase of the stock carrying capacity of the farm, and favourable soil conditions for the establishment of a high-producing permanent pasture. Some such system as this can be applied to large or small areas, to one paddock at a time, or to three simultaneously, in which case they would each be at a different stage of the rotation in any given year. The rotation suggested is not necessarily the final word on the matter. It is put forward as a tentative plan open to modification and improvement according to individual requirements.

Important Point

The important point is that each farmer should decide for himself the acreage of arable ground that he can handle each year, bearing in mind the fact that it is better to do 10 acres thoroughly than to attempt 15 or 20 and scamp the job. A simple course of cropping must be decided on and developed into an ordered routine which will meet individual requirements in stock feed, prepare the land for permanent pasture, and be in accord with the principles of good husbandry.

A further article will deal with manuring and seeding.

Potato Crop Suffers from Grass Grub

On a light loam soil at Belfast a potato crop suffered severely from grass grub injury last season. The farmer in question rejected nearly 20 per cent. of his crop as pig potatoes on account of the damage done. Odd roots dug showed that a large number of these grubs were present in the soil, while on examination the pitted sur-

faces of affected tubers revealed the presence of grass grubs in the eaten-out cavities. Further evidence in support of the damage being due to grass-grub attack was obtained when some of these grubs were put in a tin containing potatoes. Some time later freshly-eaten patches on the surfaces of these tubers could be plainly seen.