

sooner or later, conquer the foreigners, and it will be your duty to postpone their victory to as distant an epoch as possible.

A lesson of great importance, as regards the permanent grasses, may be learned from the Rothamsted experiments: as long as, in a permanent pasture, the different species of grass are left to the guidance of nature alone, they live on good terms with one another, and all goes well; grasses and clovers, crow-foots and daisies, if uninterfered with, never quarrel. The plants that appear this year are pretty much the same as those that appeared last year, with this difference: certain seasons encourage the growth of certain species more than others.

But, let the hand of man once intermeddle with the peaceful scene, and the whole is changed like the changes wrought by the magic wand of a Harlequin. Daily is renewed the contest between the grasses and the other plants that occupy the pasture; one handful of nitrogenous manure will depress the scale of victory in favour of the grasses, while a little lime or potash will so nourish the clovers at the expense of the other plants, that the latter will be quickly driven from the field. In fact, the existence of the herbage under the rule of man is passed in a series of battles—grasses against clovers, and both against weeds—and it is your business, brother farmers, to guide these troubles to your own ultimate profit.

Here is something worth remembering: the success of your attempts to lay down land to grass depends rather on the preparation subsequent management of the pasture than on the most judicious selection of the seed. The Downs and the Heaths of Europe, the roadsides of this country, both tell the same tale. If the natural soil be rich, the herbage will include all the best species of the grasses and clovers; if, on the other hand, the plant-food be poor and scanty, the weeds will take possession of the turf, in spite of all the efforts of the better plants to keep them in subjection.

And here we have a generalisation of the greatest importance: Feed well your younglings, and you will soon find them fighting on your side against your enemies the weeds. We all know that, do you say? Possibly, but you do not, to judge from your practice, act in accordance with your knowledge. If you did, the pastures of the province would wear a very different face.

Much care is required in the preparation of the land for laying down to grass. The seed may be sown either with or without a grain-crop. I prefer the latter plan, and for this reason: each seedling will have the chance of profiting by every particle of suitable food it may find near it, without any risk of interference on the part of the grain-plants.

But here, some will say, it would be hazardous to sow down land for permanent grass without barley, oats, or wheat. Ilest, the grass failing, the whole profit of the year be lost. Only too true, but it is worth while trying it. One thing is certain: the turf will grow faster, and become close and thick sooner, if it is sown alone, than if it is sown with a grain-crop.

At all events, the first thing to be done is to thoroughly clear the land; and, for this purpose, there is nothing better than a root-crop. On heavy land, such as we usually find in this province, we should proceed something in this fashion:

The land will, probably, have just borne a crop of some sort of grain, the last of the rotation, and if it is infested with couch or other root-weeds, they must be got rid of. In my part of England we set about it thus: as soon as the grain-crop is carried—sometimes as soon as the shocks are set up—the grubber is passed along and across the stretches (lands, ridges), the harrows and the roller pulverise the grubbed surface, and the horse-rake collects the weeds into rows. With our feeble sun, we are compelled to burn them, but here, where the sun is so powerful during August and

September, two or three days of exposure to its rays will be sufficient to dry up the couch, and it will be useful hereafter as the base of the dung-heap for the future root-crop.

After having got rid of the weeds, the autumn furrow may be given. As to the depth advisable for this, it depends upon the condition of the soil. If it has been well farmed, and is not an absolute stranger to the dung-cart, there will be no danger of ploughing it too deep. As a rule, I do not care to bring up more than a couple of inches of the raw subsoil. Still, we must not forget the immense power of our Canadian winters over a well ploughed soil. The descent of some part of the former manurings into the subsoil will have mitigated its crudity, and made it less hostile to the penetrative force of the filamentous roots of the future crop, especially if we consider the heavy dose of manure which will be necessary if we look for a remunerative crop of roots.

Another rule: Always give a deep furrow in autumn to land intended for a manured root-crop. In spring-ploughing for grain, six inches are deep enough.

When the snow has gone and the land is dry, it may be either cross-ploughed or grabbed. I prefer harrowing, along and across, then a cross-furrow, finishing with the grubber. The cross-ploughing should be as deep as the autumn-furrow; it will bring up to the surface all the root-weeds left after the fall-ploughing, which, after a few days exposure to the sun, may be led to the mixen, or burnt.

When the swedes and mangels are up, do not forget to keep both hand- and horse-hoe going. The more frequently this is done, the more perfectly will the soil be prepared for the succeeding crops. The field cleared of roots, plough for the seed-furrow before winter. When the spring arrives, sow the barley—barley suits grass seeds better than wheat or oats—harrow, harrow, and harrow again, scatter the grass-seeds, cover with the chain- or bush-harrow, and finish with the roller.

Once more a rule:—Do not let any cattle or sheep feed on the young grass after harvest. Not only do they damage young seeds by nipping out the heart of the clover, but their feet on a frosty morning in early autumn tread the very life out of the grass. A slight coat of manure, laid on when the ground is hard and spread at once, will be most useful. Ten bushels of ashes and two of plaster per acre will be beneficial. Still, farmyard dung, acting both as a mulch and a plant-food, is to be preferred. Artificial manures, at present, are too absurdly dear in this country for me to recommend their use on grass.

The following, and every succeeding spring, pass the bush-harrow and the roller over the grass. The rolling should be done before the land becomes too dry.

And, now, we come to one of the most important points of all: how shall we make use of the pasture-grasses about which we have taken so much trouble? In my opinion, they should be fed off by young cattle, and for the first season neither horses nor sheep should be admitted to the fields. Cows are too heavy; they would injure the turf by treading it in wet weather. Horses and sheep bite too low, they would nibble out the heart of the clovers. Begin feeding off the grass sufficiently early in the spring, and send in enough beasts to eat the herbage off clear in ten or twelve days. The closer the grass is fed off, the more quickly and the thicker will it come again. If, on the contrary, some of the stalks are allowed to run to seed, it is but too probable that the roots, whence they spring, will die. Spread the droppings of the cattle carefully at least once a month, and if in the Autumn there are in some spots tufts of grass which the beasts will not eat, mow them: there is nothing more injurious to pastures than unequal grazing.

At the expiration of the ten days, turn your cattle into