

would be extracted by a crop of wheat; hence the advantages of leaving the produce from these crops on the ground, and in particular their foliage.

There are instances of arid soils in England and on the continent of Europe, and in the United States, which when first taken possession of by man, were not fit for agricultural purposes; but on their being planted with trees of various kinds that yearly shed their leaves, the ground has become highly enriched for many crops that require the alkalies and carbonaceous matters to build up their structure, the alkalies having been obtained from below by aid of the roots, and carbon supplied from the carbonic acid which is solvent in the air.

The green crops on a farm must be made in proportion to the corn crops that are to be consumed. High farming may be denominated such a system that the principal part of the produce is consumed on the land, the wheat being the only crop of grain sent to market. The hay, straw, and green crops are best sent to market on four legs, in the shape of reared or fattened animals: these, according to the late prices of animal produce, have answered the best purpose for those farmers who could adopt it, and in particular those who could breed and rear their own stock; and for the land, such practice will at all times make that in the best condition.

Experience has taught the farmer, whenever he can spare a green crop, (it not being wanted for his animal) if the crop is rolled down before it obtains its full growth, and ploughed into the soil, that it is a great enricher of the same for succeeding produce. By this act, not only are all the inorganic matters deposited, but also a mass of organic in the shape of the solidified ingredients of air and water. Vetches, buck-wheat, rape, &c., may, with great success, be often ploughed into the soil for a succeeding and more valuable crop. Mere casualties have often proved to farmers certain facts; for instance, turnips have been fed off by sheep on one part of a field, and in another part of the same field the like quantity of turnips have been rotted by winter frosts and then ploughed in for a succeeding crop of wheat: it has always been the best in that part where the rotting had taken place, for this obvious reason, viz., that no part of the crop had been carried away in the shape of bone, flesh, and blood, but all, organic and inorganic, had been buried for the service of the succeeding crop.

On referring to ancient works on agriculture, it could be proved that the Roman nation were well aware that a judicious succession of crops

was necessary, and that several grain crops ought not to succeed each other. Pliny informs us, that the Romans were conscious of the utility of alternating leguminous with farinaceous crops, the former acting as restoratives to the land, while the latter were exhausting ones. By burying vegetable matters in the soil, they give out their gases progressively as decomposition proceeds; thus the process acts as an aration of the soil, imparting warmth, and charging it with the gases obtainable from the air in the process of fallowing. A rotation of cropping may, therefore, be adopted, by means of which the practice of fallowing may be totally discarded.

In confirmation of the statement that the benefits to be derived from green crops, and of having one of these succeed between each of the cereals, we may quote the practice of Mr. Morton, on Lord Ducie's model farm, in Gloucestershire, where he is able to grow wheat with success every alternate year, half of all the arable land being occupied with that grain—this grain being chosen for the experiment, because it is the most remunerating one; and yet the land is not by any means exhausted, as is shewn by the increasing yearly produce, the average of the farm being often above five qrs. per acre.

The practice of Mr. Morton is to vary the green crops, so that clover, for instance, should not be repeated on the same spot oftener than every tenth year; and this he is enabled to do by having five varied green crops, taking their places in succession one after the other regularly. We are not quite sure of the order of this succession, but it is sometimes after the following with respect to the green crops.

The manuring is of course ordered in such a scientific manner, that it shall supply the exhausting matters that are abstracted from the land. The soil of the farm is of a varied rocky character, a part being on the mountain limestone, other portions on the magnesian limestone, and another on the grit of the old red sand, or Silurian district.

THE ORDER OF CROPPING IS:—

- 1st and 2nd... wheat succeeded by clover.
- 3rd and 4th... wheat succeeded by carrots or parsnips.
- 5th and 6th... wheat succeeded by vetches or peas.
- 7th and 8th... wheat succeeded by turnips or Swedes.
- 9th and 10th... wheat succeeded by beans.
- 11th and 12th... wheat succeeded by clover.

By the above order of succession, it will be seen that a tap-rooted crop succeeds a green crop, that has its nourishment more particularly from the surface soil. It will also be evident that for the above order, it is necessary there should be ten enclosures or plots of about equal sizes. The success of this culture may, in part,