

AUTUMN PLOUGHING.

Autumn Ploughing may be practised with much advantage on clay soils, or those of a retentive nature; but on light and sandy soils the effect produced is loss in the extreme to all who practise it. A very shrewd and experienced man in husbandry once remarked, that the science of agriculture is nothing more than an endeavour to discover and cure nature's defects; and the grand outlines of it are—*how to make heavy lands lighter, and light lands heavier, cold lands hotter, and hot lands colder.* He that knows these secrets is a farmer, and he that does not know them is no farmer." Many false notions have been propagated, by not attending to these general ideas, and in no instance more than in ploughing land. We see in some portions of our country where the principal features of the soil is a yellow or grey drifting sand, large fields undergoing what is termed the summer following operation, whereas such a practice is radically wrong, one good ploughing, if the land be clean from weeds and wild grasses, is better than a hundred for such soils. In no instance should such land be exposed in a naked state to the heavy winds, rains, and frosts which occur during the autumn and early spring months.—While we would deprecate the principle of stirring sandy land too much,—we would wish to be distinctly understood, that there are few instances where strong heavy land can be pulverized too much.

The proper depth for ploughing must necessarily depend upon the nature of the soils. In discussing the propriety of the extent to which the operation may be safely carried, it should be borne in mind, that there is a wide difference between the effects of ploughing deeply into land the stratum of subsoil of which is nearly as fertile as the surface soil, and that of augmenting a shallow surface of fertile soil by mixing it up with a subsoil of inferior quality. In such portions of the country where the land was originally covered with maple, beech, elm, basswood, and most other descriptions of hard wood, the subsoil is most generally porous, or of a crumbly nature, and the surface soil much deeper than those lands which had been originally covered with evergreen timber. The deeper the former description of soils are ploughed, the less liable will the wheat plant be apt to receive injury from blight or mildew. The intelligent British and Flemish husbandmen are aware of the superiority of deep ploughing over shallow, they have studied the wants of nature and have supplied those wants by artificial means. We read of the Flemish husbandmen stirring his ground to the depth of eighteen inches; and the English farmers have lately adopted the use of the subsoil plough, which although it does not bring any of the subsoil directly to the surface, it prepares it gradually for the surface by the action of the frost and air. We would not be surprised to hear of the English farmers very soon having their ploughs so constructed that they can plough from fifteen to eighteen inches deep, on soils of calcareous or permeable nature. Large tracts of fertile lands abound in Western Canada, which are generally too rich, or have too great a depth of vegetable mould for the proper maturity of the wheat plants. The stratum of subsoil, which lies directly under the surface soil, being of a rich chocolate colour, and composed of marly lime, gypsum, and potash, and which varies in depth from one to three feet, is the best possible description of land for the growth of wheat, or in fact any other crop which is suited to the climate

of the country. Strange as it might appear to those who have thought much on this subject, still it is not more strange than true, the very best lands in the country are now condemned as being unsuitable for the growth of wheat. The cause of the defect of the soil is obvious. The salts of ammonia and potash have been extracted from the soil by constant cropping,—besides much of the best food for maturing the plants have settled down in the subsoil, below the reach of the common depth of ploughing. By repeatedly ploughing land to a certain depth, a hard pan is thus created on the surface of the subsoil, which forms an impenetrable barrier to the roots of the plants.

It is obvious that this hard pan must be broken up—and the best season for doing so is the autumn. Although in many cases the subsoil would prove extremely fertile, and be very efficacious for the proper maturity of the wheat plant, still it would not be generally expedient to bring up a greater quantity than two inches at one ploughing, and the depth might be increased even on very heavy lands perhaps once in five or six years. Thus in the course of time a deep soil might be formed which would almost equal the celebrated Flemish husbandry.

When the farmer has a soil of the quality mentioned as likely to be benefited from deep ploughing, we would suggest that a single experiment would be worthy of trial. To perform the operation, it requires a strong pair of horses, a heavy plough and an expert ploughman. About three inches of the subsoil might, with advantage, be exposed with the first ploughing, and the whole surface of which should be covered with a heavy dressing of manure, as soon as ploughed. This layer of new earth, will thus imbibe its juices during the whole of the wet season of autumn and spring, and notwithstanding all the objections which might be urged against the evaporation of the dung, this process will not fail to produce a most striking effect on its amelioration. By repeating this plan a deep vegetable stratum of soil might be formed which would prove a very sensible improvement in the crops.

In the autumn of 1839, we dug a cellar, and as a subject for experiment, we exposed a quantity of subsoil to the action of the winter frosts, which was taken from the cellar, about two feet from the surface soil. In the following spring we planted a few potato sets, on this new made soil which gave an astonishing crop of haulm, and a fair average yield of potatoes.

One of the most remarkable instances that ever came under our notice, of the advantages of deep ploughing, took place about eighteen years since, on a farm lying near Newmarket, in the Township of Whitchurch. The farm in question had been let on a twenty-one years lease, on condition that the tenant would properly clear two-thirds of it,—he being an active man, soon cleared the proportion allotted him, and at once commenced a course of cropping, which quite exhausted the soil by the time that fourteen years of his lease had expired. Instead of resorting to the plan of making naked summer fallows, by cultivating alternate green and white crops, and carefully applying all the manure made on the premises, he chose rather to sell the remaining period of his lease, which enabled him readily to clear up another brush farm. The person who purchased his lease took possession of the farm in the autumn, and ploughed late in the fall, about forty acres, which averaged the depth of nine inches. The following summer, the whole of

the ground that was thus ploughed deep in the autumn, was properly summer-fallowed, and sown with winter wheat, the crop from which was carefully housed or stacked, which yielded sixteen hundred bushels of the best description of wheat. We have seen but one instance, on record, in the history of Canadian agriculture, which yielded the above given number of bushels from the same breadth of land. It appears that the above extraordinary result, created, or excited no curiosity among the inhabitants of the vicinity in question, as it was generally supposed that the season was more propitious than usual, for the maturing and ripening of the wheat crops. The profits arising from this large crop of wheat enabled its owner to purchase a bush farm, possessing the advantage of a mill privilege, and consequently, as is too common in this country, he fancied that he would shortly grow rich, by the profits of speculating in wild lands, &c., and, unfortunately for the country, his successful experiment was not carried farther than the one in question. To contrast the difference between shallow and deep ploughing, a very striking instance occurred only a few years since on the very farm in question, on which the above forty acres of wheat was raised. About eight years since, a number of Norfolk emigrants settled in the above mentioned neighbourhood, most of whom were considered most excellent ploughmen. A young man, rather clever in the management of horses and ploughing, was employed by the present holder of the property in question, at ploughing, during the season for that work, for four years in succession; and, as was usual on the light sandy and gravelly lands of Norfolk, set his plough to run about four inches and a half in depth. The last two years that he was employed the crops were much injured with blight and mildew, and a crust of moss would accumulate on the land sown with winter wheat, by the time that the crops would be secured, sufficient to allow of being removed in flakes of a foot in diameter. Since that period a deeper furrow has been ploughed, but the plan which produced the forty bushels per acre is quite forgotten.

In no country can a greater variety of soils be found than this, and, therefore, much injury might follow from the adoption of a system which is unsuitable to the particular soils, to be cultivated.—We would, consequently, beg to offer an apology to such of our readers, who are already proficient in this department of farming, if we should happen to be prolix in our remarks, before we close this subject,—the only object that we have in view, in dwelling on the details of this branch of farming, is to instruct such of our readers, who require instruction.

There are many deep soils, naturally of equal good quality, which rests upon a mixture of clay, sand, and gravel, devoid of vegetable matter, and impervious to water, subsoils of this nature should not be brought to the surface, as it would require a heavy dressing of both lime and dung, accompanied with a thorough summer fallowing, before it would be in a fit state for cropping. Soils of the latter description may be found in almost every district of the Province, and such are best adapted for grazing, and almost unsuited for fall sown wheat, unless they be thoroughly drained.

We noticed, while making a tour through the Talbot District, large tracts of land which had an average vegetable mould, equal to about four inches, which rested upon a porous or drifting sand. The cultivators of the land in question, were rather