

These turnips are still at the office of the Secretary for inspection, where can also be seen some very fine Barley, grown near Loch Lomond.—*Courier.*

From the British American Cultivator
WHEAT.

RUST.—The great bane of successful wheat growing is rust; and although it is now pretty generally admitted that the disease is caused by the bursting of the sap-vessels of the plants, while the sap is in a state of rapid circulation, being produced from a close, warm, or humid state of atmosphere; or by showers of rain, followed in close succession by hot sunshiny weather; still the mode of cultivating the land, to prevent the ravages of this enemy to the farmer, is not so generally well understood as it ought to be. In treating upon this, as upon all other agricultural topics, it is quite impracticable to lay down any set of rules that could be applicably carried out in every instance; but we would wish to be understood to assert, that, in the great majority of cases where rust is most frequent upon the wheat plant, it might almost, if not solely, be prevented by a judicious system of management.

The best wheat land in the world is that description of soil where calcereous matter constitutes the principal proportion. On a farm in one of the southern counties of England, where seventy-five per cent. of soil was composed of carbonate of lime or marl, and only a small proportion of the remaining 25 vegetable matter, an average crop of wheat, equalling forty bushels per acre, has been harvested for the past twenty years, on the four-shift system, without any perceptible deterioration of the fertilizing quality of the soil. It does not necessarily follow, because a soil containing such a large proportion of lime, scarcely ever fails of yielding a good return of wheat crops, that a soil containing a less quantity, with skillful and scientific management, might not be equally productive. The exact amount of lime in the soil, to constitute it good wheat land, depends greatly upon circumstances. A soil containing equal parts of carbonate of lime, clay, sand, and vegetable matter, is, probably, when all things are considered, the most productive and profitable land cultivated. Any farmer when once acquainted with the true science and practice of husbandry may, in a few years, change the texture of his soil, be its original qualities what they may; and thus, in process of time, convert the most barren into the most productive soils.

A soil, naturally deep with vegetable matter, to produce a crop of winter wheat, of a superior quality, should be ploughed deep, in order to give a proper consistency to the soil; and, unless the land is previously made very sterile indeed by constant cropping, a dressing of barn-yard manure would be likely to be prejudicial to the crop. As evidence of this opinion, the circumstance is worthy of notice, that, on all soils where there is the least vegetable substance, the crops, although comparatively short in the straw, are seldom, if ever, injured by rust. It is also a notorious fact, that, on all deep black soils, winter wheat seldom comes to perfection; the rust is almost sure to catch it; and the owner of such a crop is almost sure to calculate largely upon the yield, if only it escapes the rust. Much of the land that is sown with autumn wheat, is not at all adapted to this crop, inasmuch as it contains too great an amount of vegetable or putrescent, and too small an amount of mineral matter. A soil of the quality just mentioned, averaging the depth of six inches, would, if sown with

fall wheat, in nine cases out of ten, prove to be a failure, if ploughed only to the depth of the surface mould; but if it were practicable to mix about six inches of the sub-soil with the surface soil, the two would become so closely blended together, that it would be most easily managed, and become a part of the most profitable land under cultivation.

On soils composed of nearly pure clay, or sand, the application of a liberal dressing of raw unfermented barn-yard manure would be of great advantage to the wheat crop; but when vegetable matter is the principal ingredient, in order to insure a good return, the addition of barn-yard manure is not only necessary, but the sub-soil should be liberally mixed with the surface soil, as a means of imparting the proper food to the plant, to produce a hard outer coat to the straw, and also to lessen the chance of being removed and destroyed by the freezing and thawing which takes place at the opening of the spring.

As the bursting of the sap-vessels of the plant is clearly the cause of rust, any operation that would have for its object the effect of hardening the straw, would lessen the chance of the wheat crop being attacked by the direful enemy to the successful and profitable cultivation of wheat. Depositing the seed in rows, either by a drill or ribbing plough, would have a tendency to impart this result, inasmuch as the air would have a free circulation among the plants.

Deep ploughing, where the sub-soil contains any considerable amount of lime and potash would also have a favorable influence upon the crop, as both lime and alkali will dissolve and separate the sand in the soil, even so minutely that the small particles may be conveyed to the stem of the plant, and thus form a harder outer surface to the straw than if putrescent manures alone were used.

There are so many influences that have a bearing upon rust, that it would occupy a whole number of this journal to enter minutely into all the details; but suffice it to say, for the present, that no opportunity will be lost, or trouble spared, in placing this subject before the entire agricultural public, in such a light as to cause the remedy for this destructive disease to the wheat plant to be much less difficult than very many at present suppose it to be.

To sum up the matter, in conclusion, we would say, plough deep; apply the manure to the crop which immediately precedes the wheat crop; drain the land, either by the plough or spade, in such an efficient manner that the plants would not be apt to receive injury from excessively hot weather; sow early, and let it be done deep and in rows, when practicable, and top-dress the top with ashes or salt, in the spring, to cause the plants to ripen early.

CHESS.—Without the desire of a show of vanity on our part, we venture the assertion, that but few Canadian farmers have had a better opportunity of correctly informing their minds in relation to the doctrine of transmutation of grains than ourselves; and, without hastily forming our opinion, we have come to the conclusion, that just in proportion to the amount of chess sown with the wheat, or otherwise conveyed to the soil, will be the amount of this grain grown with the wheat crop. We hold that chess is a distinct species of grain, and, from the circumstance of its being similar in size, it is with much difficulty that it is separated from wheat. It is also a much harder plant than wheat, and, therefore, is seldom injured by winter and spring