

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 crop with ashes or salt, in the spring, to cause the plants to ripen early.

### CHIESS.

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 grain 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 frosts, excessive wet or dry weather, or other casualties.

It is wrong to form hasty conclusions upon matters that have either doubt or mystery involved in their solution; and, from this conviction, we made the following experiment, five summers since, which resulted in a clear demonstration, that the laws of nature, in this instance, as in all others, were uniform and stable:—

We selected two acres of the best wheat on the farm, from which, after bestowing much time and trouble, we carefully separated every plant other than wheat, at the period whilst the wheat plants were in flower. The produce from these two acres was thoroughly cleaned with a fanning machine, and afterwards passed through a hand sieve, and steeped in brine sufficiently strong to buoy up an egg, the whole of which process thoroughly cleansed the seed, which resulted in a crop the following year equally free from disease and impurity.

About three bushels of seed, which had undergone no preparation, were sown, however, for experiment, the produce from which had an abundance of both chess and smut.

To repeat what has been elsewhere stated, we have every confidence that both smut and chess may become comparatively unknown, unless it be as a matter of history; and that rust, in a majority of cases, may be obviated by the introduction of a rational system of cultivation. Such a system of cultivation will be found to consist in sowing good and properly-prepared seed, so far as the two former are concerned; and, as it regards the latter, the following will be found to have a considerable influence in lessening the chance of its baneful effects:—Manuring for the crop which immediately precedes the wheat crop; deep ploughing; early sowing; liberal seeding, and depositing the seed in rows; and horse hoeing, are, according to our judgment, necessary steps to insure a good wheat crop, upon much of the worn-out wheat lands of the country.

The confidence which we express upon these disputed points may, in some instances, beget ridicule from those of our readers who may have been more regardless in examining into causes and effects than we have been; but to such we would say, try for yourselves, and travel no longer the blind road of tradition, but recollect that only slove ly and improvident farmers are above adopting the improved methods that men of science and deep research have pointed out.

As the operations upon which we treat, as a journalist, will, under the present arrangement, be tested, and the results duly and honestly reported by the Editor, the readers of this Journal should have increased confidence in adopting, as far as practicable, the suggestions therein made.

### SMUT.

Various opinions are entertained regarding this disease, so common to the wheat crop. Some suppose it to be a fungous production; others, that it is the work of an insect; and others, that it is propagated by inoculation, in a similar manner that infectious diseases are communicated to the animal creation; but the real nature, origin, and habits of the disorder has hitherto eluded the researches of the most scientific inquirers of all nations; and, therefore, it would

be presumptuous in us to be positive upon a matter in which there appears so much mystery involved. On one point, however, we feel certain, namely, that the remedy is most easy, and if it were generally adopted, a single smut-ball would not be raised where there are bushels grown under the old slovenly system of preparing the seed. In every neighbourhood there are more or less careful farmers, who seldom, if ever, have their wheat crops infected with this disease; from such farmers seed should be procured; and, independent of its being good, and free from disease, it should be steeped in a solution of stale urine and water, or a brine made of salt and water, sufficiently strong to buoy up an egg. The liquid in the tub should be a few inches higher than the grain, so as to allow it to be stirred, in order to bring all the light grains to the surface, from whence they are to be skimmed off, so long as they continue to rise. If baskets with handles were used, to immerse the wheat in the tubs, it could be conveniently taken out and drained. The seed should be left in the steep about two hours, after which it should be drained, and spread thinly on the floor of the granary, which should be well sprinkled with sifted quick-lime, fresh from the kiln, and which had been recently slaked with a small portion of the liquor. About half a peck of lime is sufficient for a bushel of wheat, and it should be carefully mixed, in order that every grain may be completely coated. It may sometimes happen that seed entirely free from smut cannot be procured, but when instances of this kind occur, a solution of one pound of blue vitriol to eight quarts of water should be applied, when quite hot, to three bushels of wheat, and the whole should be frequently stirred, and dried with lime. Sulphate of copper, in the proportion of five pounds to three bushels of wheat, is frequently used with good success; it should be dissolved in a sufficient quantity of water to cover the seed. After being repeatedly stirred, and cleared of light grains, it should be suffered to remain in the liquid about four hours, and then dried in lime, as mentioned above.

Various other preparations of vitriol, nitre, sulphur, arsenic, &c., may be used, with a probable certainty of success; but, instead of trying needless preparations, it would be decidedly better to procure seed free from the disease, and steep it in stale urine or brine, and apply lime, as previously directed.