

support this Society, and any defect or imperfection in its constitution or management, it will be in their power to amend, so as to make it work more advantageously for the country. The present Society will rejoice at the assistance and co-operation of all who will unite with them. They do not desire to have all the good work to themselves of improving the agriculture of Lower Canada. The work is too good and too great, not to be worthy of the participation of all true lovers of their country, and therefore they invite general union and hearty co-operation.

ON THE MEANS OF IMPROVING THE QUALITY AND INCREASING THE QUANTITY OF THE DIFFERENT VARIETIES OF BARLEY.

BY M. M. M.

Within a recent period the cultivation of barley has become a staple branch of the employment of the farmer. When wheat was the leading product, and when the process of wheat-growing upon clays was the principal object of attention, the barley was neglected as a secondary and inferior object. The adoption of the alternate system of husbandry gave a considerable impetus to the growth of barley; while the extension of the comforts of life amongst all classes of the community, has produced a greater demand for it, and especially for the finer qualities, and thus given an impetus to the production of that grain.

In districts where the soil admits of the alternate or four-course rotation, the invariable preparation for the barley is the turnip crop fed off: and convenience, as well as success, alike indicate that this in the proper place in the rotation for the growth of the barley.

As civilization extends and population increases, the cultivation of barley becomes a more decided object of profitable employment, and the quantity malted annually exceeds twenty-nine millions of bushels. The peculiar circumstances attending malting of a legal character, improper to specify here, render economical the malting of those samples only which yield a large quantity of saccharine matter. Experience has decided that those samples of barley which, when broken, exhibit a free, mealy surface, are those which attain these objects the most completely; while those, on the other hand, which exhibit, when crushed, a solid, entire, and brittle mass, are denominated "flinty," and are found deficient in those principles which the malster finds necessary to the production of that article which answers his purpose.

The object of the barley grower is essentially different from that of the wheat grower. The

last effort of the plant after the seed is matured, and before it is shed from its parent stem, is the formation of the outer coat—the bran—to shield it from the action of the elements, and to protect its vital principle from their agency in its new circumstances. Hence fully ripe wheat obtains a thick, dull-coloured coat of bran, at the expense, in some degree, of the starch-cells of the grain; but if the connexion between the ear and the root be broken before the entire maturation of the seed, the formation of the outer coat is arrested—it is thin, plump, and shining, and this is, *ceteris paribus*, always preferred by the miller. He has the bran to separate, and sell at a lower price, and hence he wants as small a proportion of this as possible to the ratio of the more valuable flour. Whatever effects this may have on the germination, it is quite certain that the malster requires a state of the grain different from the miller's; and a shrivelled coat, a state indicative of its germinating freely, and being productive of saccharine matter in a great degree, is an object sought for by the practical malt-maker. On the other hand, if the skin of the barley is smooth and stretched over the grain, it is equally indicative of a brittle, solid, interior, fit only to be remuneratively employed for grinding purposes. Different kinds of barley as well as soils possess this capability irrespective of the degree of maturity of the grain, and the well-known technical terms of "flinty" are applied to the character of the barley unfit for malting, and "sloamy" in its look: while the term "free" is applied to the best malting description, and "curly" in the same way describes its appearance.

1. Soil and adaptation to different varieties.

The varieties of barley, though very numerous, are restricted, as far as extensive cultivation is concerned, to a comparatively few, and these are severally adapted to a small class of soils.

The tendency of plants to throw out new varieties, is very remarkable, and has the appearance of being accidental. In an ordinary barley field, some ears will be found far superior to the rest; these, if selected and sown, and the best of their produce again carefully chosen, the same effects may be produced upon them as cultivation produces on our garden vegetables; but this will not constitute a distinct variety. They do not, however, originate in chance, unseen, and often untraceable in field cultivation: a process of hybridization is carried on by hundreds of natural operations. If the microscope were used by an observing person, varieties and sub-varieties might be collected of greater or less value. Thus, Mr. Chevalier obtained his variety from an ear of peculiar size and plumpness. This he preserved and cultivated, and it has spread over the whole of the country on the class of soils to which it is suitable, and for which it possesses a degree of adaptation which is very remarkable. The natural soil for the growth of barley is that which is neither too light nor too heavy, which is sufficiently