

laying of land down to grass, he thought that they would agree with him that it was necessary that the land should be clean and in good condition. With reference to fertilising power, it must be clean. If it were laid down when it was full of Couch, they would find that these pernicious weeds would overpower the grasses. Then, as to the time of year at which it was best to sow the seeds. The beginning of the year was the usual time, say April; but of late years, Messrs. Lawson had recommended that grass seeds should be sown in autumn. He was unable to give an opinion, but eminent seedsmen had held that August was a better time than the spring. Then there was a very important question which arose, viz., whether they should sow their grass seeds with a crop or without a crop. He had come to the conclusion that the plan of sowing grass seeds with a crop was the one which would be most wisely and generally followed. He thought this was the best plan on the score of economy. If they sowed land without a crop, they would have to go to great expense, and if it were done by a tenant he should be assisted by the landlord. But whether the landlord or the tenant undertook the work, he thought it was important that there should be a crop. The crop, he thought, would act as a shelter to the seed, and any exhaustion from the crop might be replaced by a dressing of manure. He thought that, theoretically, laying down with a crop was the most likely to reimburse the sower.

Now, with reference to the best methods of sowing grass seeds. He should assume, then, that they were sown in the month of April, and either upon Wheat or Barley. One point which they ought to remember was, the delicate nature of the seeds with which they had to do. Mr. Stirling, in experiments he made, had taken great pains to ascertain the depth at which these seeds would germinate. The experiments were made upon a fine mould, which was kept moist. It was found that the large majority of grass seeds germinated at a depth of one-quarter to half an inch; only half the seeds germinated when the depth was half an inch to an inch and one and a half inch; and if they examined the Tables giving the results of these experiments they would find that few, if any, of the seeds germinated when they were buried at a greater depth. When, therefore, they were sowing grass seeds it was necessary that they should see that the surface of the land was smooth and in good condition. He would suggest that the use of the Cambridge roller would be the best previous treatment in preparation for the sowing. Then they should sow with the broadcast barrow, and bush or chain harrow. If this course were taken the surface of the soil was rendered fine, and the

grass seeds were not buried at too great a depth. He should take it that a good mixture was sown.

In the next place they had to think of the after treatment of the young grass seeds when the crop had been removed from the land. This subject was one which demanded a great deal of attention. He thought it would be advisable, especially in the case of land intended for permanent pasture, that they could not stock the young seeds after the corn crop had been removed. They knew it had been much disputed whether Clover or Ryegrass should be stocked in the autumn; but without entering upon this question, he thought with regard to pastures that they would be wise to keep stock off them for first winter. It would be advisable to keep sheep out of the pastures for the first three or four years, and he would suggest that the grass should be mown rather than fed for the first season. He recommended that cattle should be kept off the young pastures, because it was important that the land should not be trodden down by the passage of animals upon it, and it was important that the grass should not be eaten, especially by sheep. The horned cattle were more advisable for the laid down land than sheep, because the latter would bite closer, and therefore, were more liable to destroy the young grass. After the third or fourth year they might be more careless as to the kind of stock which they placed in the field. One of the best supports to this theory was found in an article which was contributed by Mr. H. T. Thompson to the Agricultural Society some years ago. In laying down some land to pasture Mr. Thompson had been of opinion that sheep with the "golden" foot were the best animals to bring a young pasture into condition. The sheep were allowed to feed over the land with a liberal allowance of oilcake. This was carried on for two years, and then it was found that the land had deteriorated in quality, and Mr. Thompson came to the conclusion that sheep should be kept out, and that the land should be mown for the first and second years and manured to compensate for the loss. The reason of this was to allow for the development of leaf, stem, and roots, and to prevent the consolidation of the ground by the trampling of stock.

(To be continued.)

AGRICULTURAL INVENTIONS.

We have been favoured with the following description of two useful inventions recently made by Mr. Isaac Macnaughton. These inventions will be shown at the approaching Pictou Exhibition, when a good opportunity will be presented of judging of their merits:—

Mr. Isaac MacNaughton, of Hopewell,

Pictou county, on the 14th April last, obtained a patent for

"THE EXCEL CHURN,"

which we have much pleasure in recommending to the farmers of the Dominion. The "Excel Churn," No. 1, capacity fifteen gallons, is 17 inches square by 12 inches in height. The churning apparatus consists of a movable frame with two or more stationary arms; and a rotary shaft having arms that intervene, thus requiring only slow motion to produce quick work. The motion is imparted to the shaft, or dash, by means of an endless rack and pinion, so constructed as to obviate the common difficulty in crank motion by perfectly overcoming the "dead point." The rack is attached to a wooden rod joined to a lever which has its fulcrum at the base of the churn. The lever is about four feet long, a convenient height for the operator, who requires merely to move it to and fro horizontally about eighteen inches.

When churning is completely effected the sliding frame is withdrawn, giving free access to the cream chamber in all its parts.

The superiority of the Excel Churn to any other is evident from the convenient and easy posture of the operator, the slight power necessary in churning, the rapidity of the work, and the quantity as well as the quality of the butter.

The inventor, in order to place his great labour-saving machine within the reach of every farmer in the Dominion, sells No. 1 Churn (fifteen gallons) for five dollars (\$5); No. 2 (20 gallons), \$5.50. He also sells Provincial or County rights to manufacture for a stipulated sum, or a royalty of 50 cents per churn.

The subjoined letter from John B. Simpson, J. P., Manchester, Guysboro' county, is one of many testimonials already received:

MANCHESTER, July 22, 1871.

Dear Sir,—I have had your "Excel Churn" in my house for about six weeks, and like it very much. As it works very easy any person can use it. It makes an excellent quality of butter. We have churned cream in from 10 to 15 minutes, and milk and cream in from 20 to 30 minutes.

I am most happy, sir, to recommend your "Excel" and excellent churn. I would not be without it for twice five dollars, as it saves time and labor, and makes more butter out of the same quantity of milk than the old dash churn. I would, therefore, highly recommend it to every farmer and dairy woman in the Dominion. Send them along.

Yours very truly,

JOHN B. SIMPSON.

Mr. ISAAC MACNAUGHTON.

The same ingenious young farmer and