plying the elements that may be wanting in it. This shows the importance of encouraging as much as possible the business of dairying, as one of the most efficacious means of maintaining the fertility of the soil and increasing its productiveness, thanks to the numerous cattle this business requires to be kept, and the quantities of dung they produce.

GREEN MANURES.—A very interesting experiment was made this year, showing the value of clover as a green-manure. A number of plots, half an acre each, were sown separately with wheat, barley, oats, and pease. Thin seeding was practised. On the half of each of the plots, "mammoth red clover" was sown at the rate of ten pounds to the acre. Every plot that had clover sown on it gave as much grain as, if not more than, the plots that bore no clover, and, in the fall, the clover will [illegible] as green-manure.

Mr. Fixter attaches a great deal of importance to this system, and strongly recommends farmers "always" to sow clover with their grain-crops. Mr. Buchanan one of the judges of Agricultural Merit has practised this plan, and has mentioned it as being successful. His notice of it will be found in the Journal, April number, 1896, p. 325.

Mr. Shutt weighed and analysed the stems, leaves, and roots of a year's crop of clover. He found that it gave, to the acre, 172.3 pounds of nitrogen, which at 10 cents a pound, would be equal to $17.23.

By this will be seen how very valuable this crop is; especially when we consider that the greater part of the nitrogen is derived from the atmosphere.

Another advantage which this crop affords is that it hinders the loss of the nitrogen that is contained in the soil. M. Dehérain as well as Lawes and Gilbert, at Rothamsted, have proved that when land is left bare after harvest, it loses a considerable part of the nitrogen it contained, by the rain washing it into the ditches; but clover, grown as we have described, not only enriches the soil by means of the free nitrogen of the air, but enables the land to retain the nitrogen it previously held. Moreover, it adds a good deal of humus to the land, the presence of which is indispensable to nitrification.

Mr. Shutt estimates the value of the manurial elements in a year's crop of clover as equal to the value of from 10 to 15 tons of farmyard dung.

After the grain-crop is carried, clover hinders the growth of weeds, which are always present in great numbers in those grain-crops that have had no clover sown with them.

All these good results can be obtained at a cost of, at most, 80cts to $1.00 an acre: the cost of the clover-seed.

Before sowing the clover, Mr. Shutt recommends spreading over the piece either wood-ashes, lime, or plaster.

At the Experiment-farm, the stubbles, where there are no grass-seeds, are always cleaned after harvest.

EARLY SOWING.—After experimenting on early, middling, and late sowing, it is taken as proved that early sowing yields much heavier crops that late sowing.

OATS.—Experiments show that the best kinds of oats are the following:

Banner,
Golden-Beauty,
American Beauty,
Columbus,
Johannette (black)

LUCERNE.—This does well here; last spring's sowing has already deeply penetrating roots. It must be cut before blooming, as afterwards it is too woody. Crimson-clover (t. incarnatum) has been tried here, sown at the rate of 24 lbs an acre, but it is not a favourite with Mr. Fixter. (1)

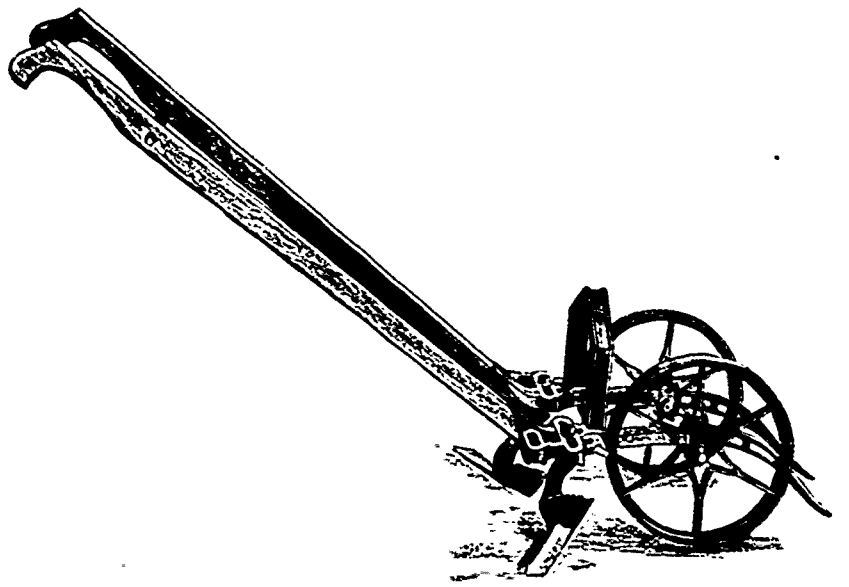
(1) We should like to know if it has been tried on a stubble, simply well harrowed, then sown, and rolled afterward as a finish.—Ed. J. of A.

PASTURES.—For pastures, the foreman recommends 6 lbs. of alsike clover and 14 lbs. of orchard grass to the acre. The crop to be cut for hay the year after seeding, and then fed.

HOED-CROPS.—There are on the farm large fields of corn, carrots, and mangels. It is calculated that a ton of ensiled corn costs $1.42, and a ton of mangels, in the cellar, $1.75, this comprises both labour and the rent of the land.

Corn is sown in rows three feet apart, mangels 2 feet apart, singled to from 8 to 12 inches in the rows: carrots 2 feet apart, singled to from 4 to 6 inches.

According to the reports from several experiment-stations, green maize contain about 1 p. c., of digestible protein.



But it must not be forgotten that it contains a good deal of carbo-hydrates and other matters. A hundred pounds of fodder-corn, dried on the field where it grew, contains at least four times as much albuminoids as the same quantity ensiled.

Speaking of this, I told Mr. Shutt that many farmers dried their Canadian corn in shocks, with the ears on, and then placed the sheaves in the barn, one on the other, with the feet of the stalks outside and the heads together in the middle of the pile. Those who do this say that it does not heat when treated thus.

After having allowed it to get well "won", it is chaffed and mixed with clover or timothy hay and straw, at the rate of one-third of corn to two-thirds of the hay and straw. This mixed chaff they leave in the bays of the barn until it is given to the cattle who devour it greedily and do not waste a morsel of it. Mr. Shutt appeared to be interested in this account, but he thinks the corn treated thus would be likely to heat.

Should this way of dealing with fodder-corn turn out to be successful, its reputation should be spread abroad, especially among those farmers who object to going to the expense of a silo. Mr. Shutt is an earnest partisan of both fodder and silage-corn, but not to the neglect of growing roots. On the contrary, he advises that they should always form part of the ration of milch-cows.

Sun-flowers and horse-beans are ensiled with corn at the Experiment-farm. Only the heads of the sun-flowers are used.

In preparing the land for the hoed-crop, Mr. Fixter approves highly of the process of subsoiling, because deep-ploughing is indispensable for such crops. The subsoil plough he uses resembles the one engraved in the September number of the Journal, 1895, pp. 175, 176. He finds it very useful, too, in getting up carrots. (1)

Hoeing crops in rows, Mr. Fixter advises to be done with a wheelhoe with two knives; the row passes, so to say, between the knives and the latter cut the weeds on each side of it.

(Something like the accompanying engraving?—Ed.)

With such a tool, an industrious workman can get over a couple of acres a day.

Potatoes are earthed up with the double mould board plough. Hoeing carrots and mangels should be begun as soon as the plants show themselves, and the more freely the hoe is used, particularly in droughts, the heavier will be the crop.

BOUILLIE BORDELAISE.—This has proved here a very successful dressing against the potato-disease. From experiments it has been found that potatoes treated with it are free from rot, and yield more abundantly. The leaves and stems keep green till late in the autumn, and the tubers keep on increasing in size until the leaves die away.

HORTICULTURE AND ARBORICULTURE.—In this department, we find an apple-orchard, many varieties of tomatoes, cabbages, onions, and egg-plants. There has been lately despatched to England a lot of tomatoes in their natural state, to see if they will reach that country in good order. They were packed in various ways; one box was sent in a refrigerator, while another went as freight in the ordinary routine. This has been already mentioned in the "Journal d'Agriculture."

Pyrethrum-powder, mixed with lime, is used to kill the cabbage caterpillar.

Common salt is sometimes used for onions and cabbage crops. The former are grown in several distinct ways; one set grown in a hot bed and transplanted is preferred by the gardener, as giving the greatest yield of all.

According to the gardener, raspberries pay better than strawberries, as they require less labour.

The orchardist says we do not grow enough winter-apples.

APIARY.—Great attention is paid to this business, it being considered of vast importance. Mr. Fixter thinks it ought to be carried on much more largely in Quebec, as the improved apparatus render its pursuit very easy.

FOREST-TREES.—Many kinds of forest trees are grown, among others the black-walnut, which Mr. Fixter says should be planted in pastures. It will afford shade, and, afterwards, give most superb wood, to say nothing of its yearly product of fruit.

A small quantity of flax is grown. For the fibre, 80 pounds of seed are sown, for the grain, 40 lbs (1).

THE PIGGERY.—Experiments are continued on the fattening of pigs. They are chiefly fed on skim-milk, oats, barley, and pease. Mr. Fixter is in favour of using clover for hogs.

CREAMERY.—The maker has been experimenting on ferments, and he arrives at the conclusion that they are unnecessary if the maturation of the cream is conducted after a rational manner. He holds that it is better to work butter at twice, provided that, between the two workings, the butter is kept at a low temperature in a place free from all bad smells.

DISHORNING COWS.—Mr. Fixter is in favour of the operation; many cows on the farm have been dishorned.

THE POULTRY-YARD.—The hen-house is always kept in the most perfect order, and Mr. Gilbert has already described his proceedings in the Journal. In his opinion, the grand secret of success with poultry is to give them food in winter as nearly as possible like the food they pick up for themselves in summer.

COWHOUSE.—When housed, the cows always have a lump of rock-salt in a small trough by the side of each manger.

Respectfully submitted,
J. A. GIGAULT,
Asst. Commissioner of Agriculture.

(1) White Belgian carrots come out of well worked land without any trouble.—Ed.

(1) In Flanders, etc., as much as 160 lbs., when the fibre is intended for lace.—Ed.

CULTIVATION OF MANGELS.

Mangels make a paying crop in almost any sort of soil that is rich, but do best in heavy loam or rich clay land. To have a good crop you must work the land thoroughly well and use plenty of manure, say 20 to 25 tons per acre. The land should be manured and well plowed in the fall, when new dung can be used; but if manured in spring, it should be well rotted. Would recommend sowing after a crop of grain, because you can clean the land so easily then by harrowing after the grain has been taken off, and letting all the annual seeds sprout, and then these are plowed down with the manure and make no more trouble. Like all root crops, mangels should be sown in clean ground as it costs too much to keep the crop clean in weedy land, and