

of scour. The pigs will be glad of the remains; it is worth noticing how these crafty animals, when the vetches are a little old and tough, chew them and reject the fibre that nature teaches them is indigestible.

Nitrogen in manure—The proportion of nitrogen in the food that will reappear in the solid excrement depends upon what scientists call "the digestion coefficient" of the nitrogenous constituents, that is, the proportion of each constituent digested for 100 supplied in the food. For instance: while wheat straw is digestible to the extent of only 1% of the quantity of nitrogenous matter contained in the food, bean straw contains 10%—almost half—of the digestible nitrogenous are administered. It is a pity we do not grow more horse beans on our heavy land. Some of the lower "terraces" at Compton would turn out great crops of them and the dairy-farmers would soon see the beneficial effects they would have on their cows. The straw looks queer, but, if cut a little before the pods turn black, and given plenty of field-room, the cows will grind them up without waste: this by the way.

Now, we find that, by Wolff's tables, the digestion coefficient of nitrogenous matter in barley-meal given to a hog was 78; so, out of a 100 lbs. of nitrogen consumed 22 will be voided in solid excrement, and 78 will pass into the blood; and as 500 lbs. of barley-meal contains about 53 lbs of nitrogenous matter, which is probably able to produce 100 lbs. of pig-meat, containing 7.8 lbs. of albuminoids, it follows from these data that for 100 lbs. of nitrogen consumed, 14.7 are stored up as carcase, 22 reappear in the solid excrement, and 63.3 pass off as urea, &c., in the urine: but the annexed table will show you this much more clearly than our clumsy phraseology can.

NITROGEN IN ANIMAL PRODUCE, AND VOIDED, FOR 100 CONSUMED AS FOOD.

	Stored up as increase of milk	Voided as solid excrement	Voided as liquid excrement	Total excrement
Oxen, fattening.....	3.9	22.6	73.5	96.1
Sheep.....	4.0	16.0	80.0	100.0
Pigs.....	11.7	21.0	67.3	100.0
Milking cow.....	24.5	18.1	57.4	75.5

The relation of food to manure in the case of milking cows is taken from the Rothamsted experiments, in which the cows were liberally but not extravagantly fed, and gave about 27 lbs. of milk a day a piece.

Observe how important a part of the food finds its way into the manure! Of food administered to the fattening ox, only 3.9 lbs. of the nitrogen is recovered in the animal's body while 96.1 lbs. is ejected in the liquid and solid excrements. And, yet, people will not take care of the liquid when they have got it. Why? Because they cannot see its value. Farmers take pretty good care of the solids, but there is not much sense in allowing the liquid to be washed out of the dung-heap under the unspotted eaves of the stable, though the nitrogen—the most costly of all manurial constituents to buy—contained in it is generally three or four times as much as is contained in the solids.

Value of nitrogenous constituents of food in manure.—The average amount of nitrogen in some of our usual cattle-foods is as follows:

NITROGEN IN 100 PARTS;

Cotton cake decorticated.....	7.04
Flax seed.....	3.28
Horse beans.....	4.08
Bean.....	2.32
Oats.....	2.06
Wheat.....	1.87
Barley.....	1.70
Indian-corn.....	1.66
Brewers' grains.....	.78
Potatoes.....	.31
Swedes.....	.22
Carrots.....	.21
Mangels.....	.18
White turnips.....	.16
Bean straw.....	1.30
Oat.....	.64
Barley.....	.56
Wheat.....	.48

Thus, one ton of decorticated cotton seed-cake or meal contains about four times as much nitrogen as a ton of wheat, barley, or corn, and thirty-nine times as much as a ton of mangel; and, as we said before, bean and pease-straw are much more valuable than the straw of the cereals.

Pease-straw is generally so badly harvested in this country, by being allowed to stand too long before cutting, and then having to endure the rains of September, that it loses a good deal of its value. But, after all, one need only see the avidity with which a ewe pitches into it, in winter, to see how suited to the palate of the sheep this "haulm" is.

Now, the nitrogen of the solid excrements is not in a shape suitable for plant food—it has to be nitrified in the soil first. Hence, we see how very erroneous the usual calculation of pseudo-scientists is, when they value farmyard dung by the number of pounds of manurial constituents contained in it multiplied by the market-price of those constituents in nitrate of soda, sulphate of ammonia, phosphates, kainit, &c. Taking into consideration the losses during preparation, cartage, turning, &c., and the slowness of action of dung, Lawes and Gilbert estimate that the manure actually obtained from food has not more than half the value of the manurial constituents voided by the animal, if these are reckoned at the prices given for nitrogen, &c., in the usual artificial manures. The following extract, from the Eng. Ag. Gazette, will give some idea of the opinion of English valuers as to the lasting properties of the manure of milch-cows:

Allowance for bean meal.—What proportion is allowed at valuation for bean meal (purchased) consumed by dairy cows, according to the Agricultural Holdings Act, 1883?—H. [The usual allowance under the Agricultural Holdings Act, 1883, for purchased corn or meal used on the farm is one-eighth of the amount, as shown by certified vouchers, consumed on the farm during the last two years of the tenancy.—(Concluded.)

COMPETITION OF AGRICULTURAL MERIT 1895.

REPORT OF THE JUDGES.

(Continued.)

SYSTEM OF CROPPING OF MR. NICHOLS, STAYNEVILLE, ARGENTUIL.

Heavy land, farmed with a view to breeding and dairying: 2 good siloes.
1st year.—After pasture, maize, oats and pease, manured.
2nd year.—Oats after the maize, with 10 lbs. of clover and 2 gals. of timothy to the arpent.

After the oats and pease, cold, green fodder, carrots, horse-beans, turnips, sunflowers, manured.

The land is then mown two or three years and fed two years.

Mr Nichols spares no pains in working his land, which is very heavy, and to pulverise it properly he makes great use of the disk harrow, an implement whose value is not sufficiently appreciated.

There are 177 arpents of this farm, 30 of which are in permanent pasture.

Stock.—70 head of cattle, 4 horses, 80 fine registered Shropshires, 30 Berkshire pigs, 6 of which are boars—registered: 1 head of cattle to 2½ arpents of land.

Crops.—10 arpents of silo maize; 4 arpents of green fodder; 1 arpent silo-horse-beans; 1 arpent silo-sunflowers; 1 arpent carrots; 1 arpent swedes.

Like the good farmer he is, Mr. Nichols treats his land well by growing lots of root-crops and clover, although the soil is heavy. The maize-rows are 3 feet apart, and the crop is the finest we saw in the five counties we visited. Only enough potatoes are grown for the family.

Poor when he started, with no other support but his pluck, Mr. Nichols is now out of debt, and is probably the best model we can offer to the imitation of our young men.

ANOTHER STYLE OF FARMING ON VERY LIGHT SANDY LAND.

On our road to New Glasgow, we stopped at Mr. Lloyd's, St-Lin. Although Mr. Lloyd is not farming in the district we are visiting, he is near it enough to excuse our describing to the public the admirable system of cultivation pursued by him on an ungrateful soil, i. e., a very sandy one; a system that renders him an example to be followed by all the farmers of the district.

1st year.—After pasture, hoed crops: first of all, in the fall, he ploughs in a coat of rotted dung, with a shallow furrow. In spring, he grubs twice, along and across, and uses the spring-tooth harrow; then, the seed of the root-crop is sown and properly cultivated.

2nd year.—Oats, barley, or buckwheat, with 8 lbs. of mixed clovers, and 1 gallon of timothy to the arpent. 3rd and 4th year.—Meadow.

On this soil he pastures 5 years.
Stock.—30 head of cattle, very fine; 22 Chester-whites, Berkshires, and Yorkshires, almost all registered; 200 head of poultry and lots of chickens; all this on 120 arpents (101 acres) of very light land. Useless to say that all the manure is preserved most carefully.

M. MAXIMIN MERCIER'S SYSTEM, ST-MARTIN

1st year.—After 3 to 5 years' pasture, oats, gabourage, and maize, without dung.

2nd year.—Buckwheat, ploughed in at the end of June, and resown for seed.

3rd year.—Oats, or maslin, with 8 lbs. of clover and 1½ gallon of timothy to the arpent.

Meadows 2 or 3 years, and pastures 3 to 5 years.

M. Mercier dungs the meadows when the plant is not good, ploughing it down in the fall, with a deep furrow, and sows hoed-crops; next year grain with grass-seeds.

A good plan. (1)

(1) We cannot approve of hoed crops after grass. Oats after grass, hoed crops to follow oats.—Ed.

MR. ARCHIBALD OSWALD'S FARMING, ST-AUGUSTIN.

Pretty much the style that suits the generality of farmers in this province.

1st year.—After pasture, oats or maslin.

2nd year.—Hoed-crops with manure.

3rd year.—Barley or other grain, with 8 to 10 pounds of clover and 2 gallons of timothy to the arpent.

Two to three years in meadow and 2 years fed off (1)

(From the French).

(To be continued.)

THE FARMER'S CLUBS OF ROUVILLE COUNTY.

DR. W. GRIGNON'S REPORT.

Successful campaign.—Apples and the Bouillie-Bordelaise.—Orchards.—Honey.—Pease.—Potatoes and the Bouillie-Bordelaise.—Lucerne.—Ashes as manure.—The pupils at Oka.—Hoed-crops.—Clover-seed exported to England.—Liquid-manure-tanks.—Orchards on heavy land.—Women attending the lectures.—Growing maize.—Fattening hogs for bacon.—Winter creamery, autumn calving of cows.—Summary.

ST-HILAIRE FARMERS' CLUB.

In this parish there is a large production of honey, and of maple-sugar and syrup. There are two well supplied cheeseries, and 100 families of farmers, of whom 50 are members of the Club.

Thanks to the *Journal d'Agriculture* and the Club, according to M. Authier, the Notary, a great improvement is visible in the condition of the farming community.

The reading of the Journal and the discussions in the Club have convinced the farmers that great advantages are to be derived from spraying fruit-trees with Bouillie-Bordelaise.

The following have thoroughly succeeded in this mode of dressing the trees:

MM. Herm. Leduc, Galipeau, Dery, Marsan, Brouillot, Noisoux, Gayot, Denis, les Sœurs de la Miséricorde, Provost, Larivée, Veuve Brodeur, O. Leduc, Côté, fils, Ludger Côté, Alida Noisoux.

M. Olivier l'Oseille was the first man in St-Hilaire to spray fruit-trees; M. Jo. Hanault cures *mildew* in his vines by that process.

M. Misael Larivée sprayed one row of trees twice, and found a good deal of benefit by it, both as to the leaves and fruit, over the other rows.

M. Pierre Denis found his sprayed trees much better than the unsprayed trees of his neighbour, the leaves of which were squinny and the fruit spotted.

So much are the farmers now convinced of the advantages of spraying, that next year there will not be a single unsprayed orchard in the parish. It is found to be as indispensable as Paris-greening for potatoes.

A sprayer has been imported from France, as a model, by M. Chanteloup, of Montreal, who sells like pumps for \$10.00. I saw, at M. J. Blanchard's, a Lewis sprayer, which only costs \$6.00: its work is perfectly satisfactory.

At the end of my report will be found the way to spray trees and how to make the Bouillie. This is the plan

(1) What we should call a perfect rotation.—Ed.