

when in a matured state. By table B 4 it would appear that a crop of turnips of 20 tons to the acre would extract, according to Lawes, 260 lbs. for the bulb, and 132 lbs. for the tops, or about 500 lbs. for the whole crop or say 75 lbs. more than a heavy crop of oats of 56 bushels to the acre including the grain. So that chemical analysis clearly shows that crops when green extract at least as much from the soil as crops that have been allowed to mature their seed, less of course the seed itself, and that the idea of their deriving the principal portion of their nourishment from the air is without foundation.

In these remarks I do not of course refer in any way to the organic portion of the crops as that does not affect the question now under discussion, viz.: the relative exhausting powers of green and matured crop so far as the soil is concerned. (1)

I think the fact of a turnip crop extracting more from the soil than a grain crop is the very reason why this crop was found to have such a beneficial effect on the light Norfolk soils, for the crop being eaten off the land where it was grown by sheep, the whole of these mineral constituents that had been extracted from the soil by the turnip crop were at once returned to the soil in such a shape that they were ready to be assimilated by the succeeding crop, and consequently the turnip might be considered as merely a manufacturer of manure and the greater the quantity extracted from the soil by this crop the greater would be the benefit derived by the subsequent crop. The same course of reasoning also shows clearly to my mind why the culture of turnip or other root crops can never be profitably carried out on a large scale in this country where our climate will not admit of their being eaten off by sheep, for the more the crop robbed the soil, if not consumed on the land, the poorer the land would be for the succeeding crop, unless the whole of the manure made from the turnips was restored to the land in the spring, and this the expense of carting and the shortness of our spring season would not admit of on a large scale. (2)

If then my premises are correct I think you will admit that your original remark was somewhat too broad and might be misleading to the practical farmer. At the same time I am free to confess that since I have been in this country, some 37 years, other avocations have prevented me from paying the same close attention to this very interesting subject, and it may be that you have authority for your assertion, although I must say that I should feel surprised to find such to be the case, for the old saying *ex nihilo nihil fit* will I think apply equally to agricultural crops as to other matters, and therefore I should say that a farmer could not expect to out say 50 tons of green corn from an acre for ensilage without drawing on his soil to an extent equivalent to the largeness of his crop, and to a far greater extent than for an ordinary corn crop planted for the seed. (3)

I trust you will excuse the length of this letter, for I found that I could not condense it more, if I wished to give

(1) There I differ entirely from Mr. Hemming. It was of the amount of nitrogen in the matured grain compared with that in the green growth I was thinking; when I wrote the passage Mr. Hemming refers to: the difference, according to the chemist Wolff, is as ten to one!

A. R. J. F.

(2) Rape can be fed off in this country from the 20th July to the 6th December. I have proved it.

A. R. J. F.

(3) But the crop of which I speak is a thick-sown crop of corn intended for ensilage, and my contention is that if one half of the piece is cut green—i. e. before the ears form, and the other half be allowed to form ears and nearly to ripen them, the latter will take more out of the ground than the former. Mr. Hemming cannot possibly intend to generalize on the matter from the single practical instance he gives! I have been a practical farmer for more years than I like to mention, and I have never yet heard a doubt expressed on the matter before!

A. R. J. F.

my reasoning in such a manner that it could be followed by your readers.

Yours truly, E. J. HEMMING.

Drummondville, P. Q., 11 May, 1888.

OUR ENGRAVINGS.

English Hatching yard.—v. p. 89.

Black Tartar Oats.—v. p. 88.

Georgeville, P. Q., 16th March 1888.

ARTHUR R. JENNER FUST, Esq.,

Box 109, Upper Lachine.

Dear Sir,—I have received your note containing the article on green meats to which I have given careful attention. As regards the first three months (1) pasturing we have no difficulty in keeping our cows in good flow of milk, although of course there would be a considerable increase if we were to supplement the pastures with rye or lucerne as you suggest. Our trying time is after the middle of July, and I hope to provide against this with your mixture of oats, pease, tares, corn and rape. (2) The general plan in this neighbourhood, and I suppose throughout the greater part of the province of Quebec, is to turn the cows into the hay-field shortly after haying is over and the meadows are consequently left with hardly an inch of grass to protect them from the winter frosts. (3)

I look forward to the time when I shall be able to adopt as thorough a system of green summer food as that you suggest in these notes, but I fear I shall not be in a position to do so for a few years.

Mr. Barnard, of Three Rivers, has written me on the subject of creameries to which I shall reply.

Please accept my best thanks for the useful information you have given me.

Yours respectfully,

BICKFORD WEST.

SUPERPHOSPHATE.

Below, will be found a letter from Messrs. Downes, artificial manure brokers, Liverpool, accompanied by an analysis of their superphosphate. This is, of course, a mineral superphosphate, containing nothing of any consequence as a manure except phosphate of lime rendered soluble, and the sulphate of lime—land-plaster—which is one of the results of dissolving the *apatite* by sulphuric acid.

The expense of transit, the bags, and the duty will amount to about \$6.00 a ton, laid down on the wharf at Montreal, which will make the gross price equal to \$16.00 the ton of 2,240 lbs. = \$14.00 the ton 2,000 lbs. Now, to this add 20% for importer's profit, and it is clear the retail price should not exceed \$16.80. At all events there is a very large margin left between \$14.00 a ton, and the usual price for such superphosphate as is sold here, viz., \$26.00.

With such a price for superphosphate of ammonia at 3½ per lb to 3¼ per lb., the question of the advisability of using artificial manure I consider to be solved.

A. R. J. F.

Montreal, April 11, 1888.

ARTHUR R. JENNER FUST, Esq.,

Box 109, Upper Lachine.

Dear Sir,—I am obliged by your kind reply to mine in

(1) Mr. West means two months as his bad time begins in the middle of July. The rye would be ready almost before the grass.

A. R. J. F.

(2) Messrs. Dawes have sown it.

(3) And the timothy must be very much injured by cattle tearing the bulbous roots out. When I was in the Townships, some 15 years ago, none of the better class of farmers allowed cattle to enter their mowing lands.

A. R. J. F.