

One-seventh in roots or other hood-crops.
Two-sevenths in grain.
Two-sevenths in hay.
Two-sevenths in pasturo.

And the six-sevenths in grain, hay, and pasturo, would certainly benefit greatly by the cultivation received by the land in the first division. Deducting, then, one-third of the actual cost of cultivation and of spreading the manure, we find that the crop of roots has cost the farmer just \$20.05 an acre. I cannot put the average produce of an acre of roots, well cultivated, at less than 20 gross tons an acre. At Sorel, my friends and pupils have grown double that weight. But allowing 20 tons to be a fair crop; the cost of a ton of swedes appears to be \$1.00. Now a bushel of swedes will weigh about 45 lbs.; there will, then, be in a gross ton 50 bushels, the cost of which will amount to 2 cents a bushel; a cow eating half-a-bushel a day will consume in the winter half-year, say, 105 bushels, the cost of which will be \$2.10. Can any thing cheaper be found? Belgian carrots will cost a little more, as the singling and the seed will be more costly.

As to the value of the dung which, it will be noticed, I have said nothing about, I would observe that if it were charged for, I should be entitled to value the straw, hay, roots, &c., eaten by the beasts that made it at market price, and this would add very much to the cost of the subsequent grain and grass crops. The fairest plan seems to me to be to value roots, &c., at *consuming price* on the farm and say nothing about the dung. Not that I have any objection, as regards my contention as to the cost of the root-crop, to charge it at market-price: that would only add to the strength of my position. For instance: swedes, in Montreal sell freely at 30c a bushel: that would make them worth \$15 00 a ton = \$300.00 an acre! (1)

As to the mode of growing roots, I would strongly advise all *heavy land* farmers to autumn-clean their stubbles, and plough in the manure in the fall. In the spring, the grubber, the harrows, and the roller, will prepare the land for sowing on the flat. Roll, whether you sow on the flat or in drills, both before and after sowing. If mineral superphosphate could be had for a reasonable price, I should strongly recommend the addition of 2 cwt. of it to the dung; that is, for swedes. For mangels, 125 lbs. to 175 lbs. of sulphate of ammonia will make a wonderful difference in the yield. The sulphate of ammonia can be had at 3½ dollars a hundred pounds at Vasey's, Hochelaga; and Messrs. Lömer, of Montreal, imported mineral superphosphate from my friends the Messrs. Downes, of Liverpool, this winter; they should be able to sell it here for a moderate price—\$20.00 a ton ought to leave them a fair profit. (2) If artificial manures are ever to be freely used in this country, prices must be lowered considerably. (3)

I am told that an Agricultural Station will probably be established shortly in this province. If so, I trust one of its duties will be to determine whether sheep folding off green-crops during the summer and autumn is not as profitable here as it is in Britain. I have proved it to be profitable by my own experience at Sorel, where sheep were folded on tares and rape, from July to the 5th of December, leaving the fold on that day for the slaughter-house, *ripe-fat*. As to the crop of oats and barley that succeeded the fold the following year, I can only say what my successor in the farm

told me: 48 bushels of barley and 70 bushels of Black Tartar oats to the imperial acre! All the manure used for the tares and rape was 300 lbs. an acre of an inferior ammoniated superphosphate. The sheep had each a pint of oats and pease, mixed, a day while in the fold. Neither tares nor rape require hoeing—simply sowing and harrowing, with a rolling to finish with. The cultivation is as follows:

For *tares*, a good sound fall-ploughing; 2 bushels of tares and one of oats per acre sown on the stale furrow, well harrowed in, and rolled.

For *rape*, the fall-ploughing grubbed, harrowed, and rolled, until a good tilth is secured; 8 pounds of seed sown broadcast and covered by a light set of harrows—chain-harrows preferentially—, at all events the seed should not be buried more than half-an-inch deep; and a light rolling to finish with.

Where the land is of good heart, rape will do fairly without manure; but, as a general rule, a few bushels of raw bones, with a little hard-wood ashes, will not fail to produce a crop.

Four pounds of rape and 1½ bushels of tares, per acre, make good sheep-feed. In fact, we, in England, always begin the season with the mixture. In all cases, a little grain or a mixture of both, will profit the sheep and the land. As soon as the sharp autumn mornings make their influence felt, the flock will eat straw-chaff: during mild weather, that is, when the temperature is above 50° F., they will not look at it. The perfect food for sheep, when feeding off rape, is: ½ a pound of pease, ½ a pound of linseed cake, and a little clover-chaff, per head, per day.

You see, with this system properly carried out, the dung-cart is never required; consequently, the outlying parts of the farm, which, in the majority of cases, bear comparatively nothing, can be brought to yield fully as much as the rest of the farm, and that at a very trifling expenditure of time and labour:

One ploughing.....	\$1.10
4 harrowings.....	0.40
2 grubblings.....	0.40
Bone-dust &c.....	3.50
8 lbs. rape seed.....	1.00
Rent, interest, &c.....	4.00

\$10.40

Lastly, on the average of years, we may suppose some of the land on every farm to be cleared of its grain-crop by the 15th August. Why not break up some of this and sow a few acres of fall-rye, with 3 bushels of seed to the acre? This would give an early cut of green-meet for cows in May, and would prepare them for their change of food from dry hay, &c., to grass. Rape might follow the rye, or rape and tares, as before mentioned. Another part might be sown with rape alone, which, if got in by the 25th August, would give a nice bite for sheep by the 10th October, by which time the sheep-pasture is generally pretty bare. There is no end of ways by which this most valuable plant might be made subservient to the great want of the country, the doing away with the notion that there are no means of restoring the worn-out lands of the province without the use of the cumbersome tumbril.

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(1) M. Séraphin Guévremont, in his lecture at L'Assomption, asserted that he cleared \$95 an arpent by his root-crop.

(2) Unfortunately, the price of superphosphate has gone up \$3 a ton in England.

(3) See Mr. Nichols letter, above.

The above was written for the Dairymen's Association of the county of Huntingdon, but, owing to the Secretary's absence in England, it was not read. A. R. J. F.