

so far as he can, not in one way, but in every way that is reasonable, if he is going to have a margin on the right side which is worthy of the name. This season, owing to the excessively dry weather in some localities, to realize a margin of profit will be impossible under any circumstances. He must not only economize in regard to labor and expenditure generally, but he must also economize in everything that relates to the modes of working his land. The greatest extravagance in which he indulges in this respect at the present time is probably the extent to which the bare fallow still forms part of his system of rotation. He still clings to it in many localities as being indispensable both to the cleanliness of the farm and the successful growing of certain crops. The farmers of Ontario will be loth to believe that they are expending needlessly in the bare fallow annually what would cost them more than \$1,000,000 by way of labor, of men and team, if all this had to be hired at current rates. It is my conviction, however, that such is the case, and that in all probability labor to the value of 2,000,000 annually is expended in this way rather than to the extent of \$1,000,000.

It is impossible to ascertain with accuracy the amount of land set aside annually as bare fallow, as no statistics are collected under this head by the bureau of industries. The amount of land devoted annually to fall wheat is about 800,000 acres. The estimate is probably a moderate one which would put one fourth of this acreage as grown upon the bare fallow. We have therefore, 200,000 acres as the quantity of land annually cultivated in this way. The further estimate is not an extravagant one, as every farmer knows very well, which puts the cost of labor expended on the bare fallow at \$8 per acre. If the assumption is correct that 200,000 acres are summer fallowed annually in this province, the cost of the operation to the farmers is, therefore, \$1,600,000 annually.

My contention is that the larger portion of this expenditure is unnecessary. It is always unwise to be extreme. I do not take the ground that summer-fallowing should never be resorted to but rather that it is seldom necessary where farming is properly carried on, and that the bare fallow pure and simple should at all times be avoided. Where summer-fallowing is a necessity some form of crop should invariably be grown upon it for ploughing under to enrich the land and to benefit it in other ways.

Summer-fallowing may be necessary in hard clay sections where hoed crops may not be grown with profit. It may also be necessary where land is both foul and poor. In the former instance rye may be sown upon the land the previous August, pastured the same autumn, and ploughed under the latter part of the following May, to the great advantage of the stiff soil, both mechanically and chemically. During the remaining portion of the season, the cultivation may be the same as is ordinarily adopted with the bare fallow. In the latter instance, rye may be sown in autumn and ploughed under in the end of May following. It may then be sown to buckwheat or rape, which will also be ploughed under when ready. Such land will then be capable of growing a crop. The amount of land requiring such treatment is not very large, especially where farming is carried on at all as it ought to be.

Where hoed crops can be grown, summer-fallowing is not a necessity. The ground can be effectually cleaned while growing these crops. When done in this way, no labor bill is incurred, as the crop grown almost invariably more than meets the cost of producing it. All forms of hoed crops are not equally well adapted to the cleaning of land. Potatoes are probably the least useful for this purpose. Corn is good and rape is excellent. To be successful, however attention should be given to weed destruction later in the season than this is generally done.

It is a prevalent idea among farmers that the bare fallow imparts fertility to the land. This idea is probably grounded upon the fact that improved crops are generally grown upon such land. This however, does not arise from any additional fertility imparted to the land by the bare fallowing process, but rather by the liberation of fertilizing substances, already in the land, through weathering agencies while the process of cultivation is going on. On the other hand, in wet seasons there is a serious loss of fertility, which to some extent arises from surface washing, but in a far greater degree from the leaching of nitrates out of the soil through the medium of the drainage water. This loss through leaching is almost entirely obviated in the season of vegetation by the growing crop upon the land, as has been demonstrated by experiments conducted upon this farm and elsewhere.

I hope, therefore, that our farmers will give their serious attention to the reduction of this form of outly to the lowest possible limit. Our farms can be kept clean without resorting to the bare fallow, pure and simple. Why then, should we not govern ourselves accordingly. This farm is being cleaned in three years throughout its whole extent without the bare fallow, and without missing a single crop. On the other hand, we often get two crops a year while the cleaning process is going on, and what is being done here can be done elsewhere when the conditions of soil are at all similar.

When the bread-winner of a home is constantly employed he has no serious difficulty usually in providing abundantly for the wants of his family, but let him have alternations of work and idleness and the supplies soon diminish. So it is with our lands. Let us keep them constantly at work and our returns will be continuous. By so doing it will be better for our lands and better for us, providing we manage them on the improved principles of a progressive agriculture. We cannot afford to let our lands lie idle in this time of small profits, even where the management is in other respects wise and prudent.

SAINFOIN.

Quebec, 18 June 1891.

Dear Jenner Fust,

Many thanks for your pains *in re sainfoin*. You have made an ocular demonstration of the value of *sainfoin* of great importance.

I had ordered the seed from France—but could not trust the season so far, as seed which I got in 1887 and sowed at Three Rivers was completely ruined by the drought. I shall have this fresh seed (from Vilmorin's) sown as soon as rain comes.

Mr Joly was highly pleased with the *sainfoin* of which he got very fine seed from the Pacific Coast this year.

You will no doubt publish further notes of the *sainfoin* besides what I read in the proofs for July?

Yours very truly,

ED. A. BARNARD.

In compliance with the above letter, I proceed to relate all I know about *sainfoin*, both in England and in this country.

Like Lucerne, *sainfoin* imperatively demands a soil free from stagnant water. In places like Sorel and Joliette, where the water stands within two or three feet of the top-soil; it would be waste of money, time, and labour to sow it. The seed is expensive, the preparation of the land must, if success is hoped for, be thorough, and, in every way, the only proper soil is a dry one. Chalk or limestone is the most favourable subsoil; in fact, in England and in the western part of France, *sainfoin* is rarely seen on any other formation than the chalk. Still, it will do fairly on any dry soil except heavy clay.