

know how difficult it is for the latter to make both ends meet after paying for food, clothing, rent, fuel, education, etc. However, as the farmer is supposed to be the perfection of economy, we will suppose that he can support himself and his family on \$300 a year, so that he has still \$1,200 left to deposit in the bank, make improvements, or pay off mortgages. After many years of practical experience on the farm, and nearly a quarter of a century of close observation amongst farmers in all parts of our Dominion and other countries, we stake our reputation on the assertion that the average farmer makes no such sum. A large majority of them would now be contented with one-fourth of this income; and yet we know for a positive fact that Ontario farmers are the most prosperous agriculturists on this continent. Government officials and others have endeavored to prove by Government reports that our farmers are actually rolling in wealth. It never occurs to them to dispute the accuracy of these reports. The fact that the information comes from "the farmers themselves" counts for nothing until we know the class of farmers which furnish the information. How many facts and figures emanate from the average farmers or those below them in the scale of progress? How many of them are boomers?

As will be seen from the list of questions which we put to our readers, we are endeavoring to solve the question from a more scientific standpoint. As will be seen in our last issue, we have shown that it takes an intelligent farmer to draw more than an ordinary laborer's pay and six percent interest on invested capital in dairying and beef-growing, and in a previous issue we pointed out wheat to be unprofitable to the average grower. What then must be said with reference to the profits of the poorest and least progressive farmers? The amount of wealth destroyed by reckless farming is appalling to contemplate, and every man, woman, and child in the whole community suffers therefrom. We have already pointed out a few of the remedies; but if we had the effrontery to tell the whole truth, we fear we could not bear the consequences. At any rate, we shall await the results of our scientific investigation.

We hope our method of investigation will commend itself to all our readers. We simply want figures—no opinions required—which will enable us to make accurate calculations as to the cost of production of all farm products. We sincerely trust that each of our subscribers will help us, and help himself, by filling out as many blanks as possible in the accompanying sheet.

#### Stock-Raising and Grain-Growing in Relation to Soil Fertility and Exhaustion.

No. V.

Having now shown that the exhaustion of fertility does not depend upon the system of farming—stock-raising, dairying, or grain-growing—that the market scales are the supreme court of appeal, that under ordinary methods of farming grain-growing is the most exhaustive method, but under the system advocated by the manure theorists, stock-raising and dairying would be more exhaustive than grain-growing, instead of maintaining or increasing the fertility, as they assert, we pass on to the next point in the issue.

The argument which the professors use against our position is that when two cows are pastured on one acre, instead of one cow on two acres,

they get more manure. We shall depend upon our balance sheet to settle this question, but meanwhile we shall here make an appeal to the common sense of our readers. Granting that two cows on one acre will produce more manure than one cow on two acres, we are still confronted by the fact that if all the manure be returned, and, in addition to this, if all the milk from the cows be also poured on the pasture, there will be no gain in fertility, for nothing has been returned that has not first come out of the soil. Even if the carcasses of the animals be also returned, if the pasture produced them, there would be no gain in fertility. If therefore more milk be sold off the permanent pasture than off the ordinary pasture, the exhaustion is going on more rapidly; and the same rule works in winter as in summer management. You all heard of the boy who wanted to sell his cake and at the same time to eat it. The boy of the theory school has completely outwitted the boy of fabled renown; having sold his fertility cake, he still has it left (1) to maintain the fertility of his soil, and (2) to restore the fertility lost at a previous period. He sells his cake, eats it, and has it left for his larder. Truth is stranger than fiction.

Fortunately, we have means for ascertaining the confidence which the manure hobbyists have in their own theories. In the Experimental Farm report for 1886, page 161, we find the following paragraph:

At end of next year the Ontario Experimental Farm should be able to say something more upon the maintenance of different kinds of grasses and clovers, and how much diminution there may be in the dairy product per acre. Meantime the oldest plots have been top-dressed with ten loads of first-class F. Y. manure, to be followed with 200 lbs. of bone meal per acre in spring.

Here we have an agricultural professor, who is paid a large salary out of the pockets of the Ontario farmers, proclaiming from the stump that large herds should be kept in order to maintain the fertility of the soil, and yet, after raising four or five times as many animals per acre as the ordinary farmer, is forced to apply not only barnyard manure but also commercial fertilizers. In a recent bulletin, he values his barnyard manure at \$3.50 per ton, and the 200 lbs. of bone dust at \$40 per ton will cost \$4, making a total of \$39 per acre, or nearly 2½ times the value of the fertility removed by the milk in one season. Perhaps the learned professor will say that he did not apply this manure to maintain the fertility, but merely to get rid of the huge heap which accumulated in the barnyard. We ask the professor if he could maintain the fertility by pasturing four cows per acre.

In a previous statement we doubted whether these wild theories of the scientific professors were attributable to their ignorance or to their desire to fraudulently perpetuate our live-stock boom; but more recent investigations have convinced us that the ignorance is there—with or without the fraudulent intent. We arrived at this conclusion after perusing the reports of other agricultural professors. For example, in a report recently issued by the Agricultural Experiment Station of Wisconsin, the director, Prof. W. A. Henry, says (page 47):

In attempting to discuss an experiment like this (stock feeding), one meets with the difficulty of assuming prices for the food consumed. Some persons insist that the prices charged for the feed should be just what it cost for the farmer to raise. It would seem, however, since few can definitely set that price, the common market price should be the one assumed.

Now, Prof. Henry is acknowledged to be as honorable as he is scientific, and nobody can accuse him of fraudulent intentions. We admire his abilities and learning as a scientific professor, and yet the ignorance which he displays as an accountant is astounding. When our farmers disagree on any technical point pertaining to their calling, we undertake to settle the matter to the satisfaction of all who are not blinded by prejudice, ignorance, or partyism; if we could not do so, we would consign our business into the hands of wiser men. On page 28 of the same report, Prof. Henry says:

While selling off any agricultural product means parting with some of the fertility of the farm, which has been locked up in that product and carried off with it, there is in this operation, as in all others, a wise and a foolish method of procedure. Observation has already taught the farmers of Wisconsin that growing grain and selling it from the farm is an exhaustive process, while to feed the grain and sell live-stock—or better yet, live-stock products, such as butter, cheese, or wool—is a practice much to be encouraged, because under such a system the soil maintains its fertility longer.

The inference to be drawn from the above statement, considered in connection with the statements and general tone of other agricultural writers, is that all these authorities adhere more or less tenaciously to the false theories which we have exposed. Their error arises from their inference that the same crops are grown under all systems of husbandry; whereas in practice each branch has a rotation peculiar to itself, so that the market scales, in connection with the analysis of the products sold, forms the basis of the soil exhaustion of the farm, and honest professors would mention this fact if they understood the science of debits and credits. We have shown that the system of farming in itself does not decide the soil exhaustion, and the remarks of Prof. Henry in the above quoted paragraph infer unconditionally that the system of farming by sales of only the stock or stock products produces the least exhaustion.

Another fallacy which those learned professors of agriculture fall into is that they fail to distinguish between manure and plant food, and it is only the latter which the farmer need consider in questions pertaining to soil fertility and exhaustion. By their method of thinking they adopt the motto: "The more manure, the more plant food," whereas, in the more intensified systems, "The more manure, the less plant food" (except, of course, when feeding stuffs are purchased), because the quantity of the manure produced is in exact proportion to the pressure on the market scales, so that the size of the manure heap, as well as the market scales, is a standard of the soil exhaustion. In practice, however, there is also another factor which still further increases the soil exhaustion in dairy or beef farming, viz., the larger the manure heap, the greater is the waste by leakage, evaporation, etc.

(To be continued).

Glanders is as yet an incurable disease, and as it is highly contagious and fatal when appearing in man, all afflicted horses should be killed at once.

Professor E. W. Stewart, close student of animal nutrition, having calculated that skim milk to wet cut feed before mixing in bran and oil meal is worth 25 cents per 100 lbs. for cows, "Hoard's Dairymen" asks: "If that be true, what does a butter-making farmer want hogs to eat his skim milk for?"