

Mr. ARMSTRONG. Does the hon. gentleman say they do not eat hay or grain?

Mr. MILLER. Not the hay or grain that is exported.

Mr. ARMSTRONG. That is a very clever statement on the part of the hon. member for South Grey (Mr. Miller). I wrote to Dr. Wm. Saunders, Director of the Experimental Farm in Ottawa, asking him about the fertility taken from the soil by certain crops, and received the following reply:

Ottawa, Ont., March 9, 1911.

J. E. Armstrong, Esq., M.P.,
House of Commons,
Ottawa.

Dear Sir,—On receipt of your letter of the 6th inst., in reference to the fertility taken from the soil by certain grain crops, &c., I referred the matter to the chemist, Mr. Shutt, who has prepared the attached memorandum. I inclose herewith Bulletins Nos. 31 and 40 of our series, which are referred to in Mr. Shutt's memorandum.

Yours very truly,
WM. SAUNDERS,
Director.

March 9, 1911.

Memorandum for Mr. J. E. Armstrong, M.P.,
re Soil Fertility.

1. The approximate amounts of plant food taken out of the soil by the more common farm crops and lost to the farm when the produce is sold, are given in tabular form on page 6 of Bulletin No. 40, a copy of which accompanies this memorandum. It should be noted that the pounds of nitrogen, phosphoric acid and potash there given are those contained in and would be removed by ten crops. It should further be borne in mind that these amounts are to be regarded as approximately only (there being many factors that might very considerably affect them). The figures, however, I believe represent fair averages and are more or less comparative for the crops cited when grown under similar conditions.

2. When the crops are fed on the farm and reasonable care is taken of the manure—that is, a sufficiency of litter is used to absorb the urine and there is no excessive fermentation or leaching before the manure is put on the soil, we may conclude that from 75 per cent to 90 per cent of the plant food in those crops might be returned to the soil. In ordinary farm practice, however, very considerable losses in plant food are sustained between the production of the manure and its application to the land.

3. Dairy cattle in milk make a greater demand on their food, or put otherwise, extract larger amounts of the elements of fertility from it, than do fattening stock. Thus, in fattening steers and sheep, from 90 per cent to 95 per cent of the nitrogen of their food may be recovered in their manure, but in the manure (solid or liquid) of milking cattle there would not probably be more than 75 per cent. The differences between say, 75 per cent and 90 per cent, of course, appears in the milk. If butter only is sold, the loss to the farmer in the elements of plant food is practically negligible.

Young and growing stock utilize more of the elements of fertility in their food than do mature and fattened stock. Thus, in the manure (solid or liquid) from calves there may be present from 30 per cent to 50 per cent only of the nitrogen of their food.

FRANK T. SHUTT,
Dominion chemist.

* P.S.—A copy of our bulletin on Barnyard Manure is also sent as it contains information bearing on the factors that affect the composition of manures, the return of plant food to the soil and other closely related subjects.

Great injury to the fertility of our lands occurs from a system of farming which consists merely in the growing and selling of hay and grain, and still further losses of plant food of very considerable magnitude follow the careless management of such manure as is produced.

Now, in this bulletin, No. 40, at page 6, I find the following statement.

Mr. DEPUTY SPEAKER. I do not find that the hon. gentleman (Mr. Armstrong) is applying his argument in any way to the health of animals. It will be necessary to do so if he wishes to speak on the item before the Chair.

Mr. ARMSTRONG. I was referring to the food given to the animals, which would naturally pertain to their health, and, at the same time, to the advisability or otherwise of taking away from the farm such crops as hay and grain—

Mr. DEPUTY SPEAKER. The argument I found the hon. gentleman was delivering was with regard to the latter portion. I was quite willing to hear him if the argument is to be turned in some way, with reasonable haste, to the argument before the Chair. But it appeared to be rather a prolonged argument with regard to the effect on land of certain crops rather than on the health of animals.

Mr. ARMSTRONG. I have no intention of making a long statement. These figures are here, and if you will accept them as read—

Mr. FISHER. Hear, hear.

Mr. ARMSTRONG. I would be very glad to have them placed on 'Hansard,' because they are very important and of deep interest to the farming industry.

Mr. FISHER. Hear, hear.

Mr. ARMSTRONG: (reading)—

SOIL EXHAUSTION BY GROWING CROPS.

The extent or rate of soil exhaustion from cropping is indicated by the particulars in the following table, which gives the approximate amounts of the essential elements of fertility removed in ten years from an acre of land by ordinary farm crops, where the yields mentioned are obtained: