

Superphosphates.

The use of superphosphates by our farmers is not so general as their merits as a manure demand. Indeed, we might lay it down as a rule that not one farmer in ten, to-day, knows their value. The enquiries which are so frequently made upon this point, and the absence of knowledge found in conversation with our farmers, fully prove this. In visiting Toronto, lately, we called upon Mr. Lamb, of the superphosphate works of that place, and he informed us that there were tons of good refuse manure around the premises, which would be highly beneficial to farmers, but he could not prevail upon them to draw it away as a gift, so little store was placed upon it, and so negligent were they of their own interests. This is also borne out by some of the witnesses who gave evidence before the Ontario Agricultural Commission. Mr. D. Lamb, of Toronto, stated that Canada was the only country in the world that exports bones. The bone that would be available as a fertilizer of our soil is sent to the U. S., where it is manufactured for the use of the crops of the American farmer. Mr. Lamb, who is a manufacturer of bone superphosphate, says: "Of all the material we handle that can be turned into superphosphates, we export ninety-five per cent, and only manufacture five per cent, for use in Canada. We export of over 2,000 tons of bone annually from Canada, and only manufacture 100 tons for use here, and, consequently, the use of superphosphate is very limited at the present time."

Why such a lack of interest is taken in the use of this manure, we are at a loss to know, and certainly it does not appear to reflect much credit on the advanced ideas of the present age. We need hardly say that superphosphate of lime, when pure, is one of the best manurial agents we have, and meets the wants of the greater part of our worn out soils, especially such as have been drained of their phosphoric acid, by continual cropping and pasturing. One of the great virtues of these superphosphates is that they become immediately available as plant food to crops, and have not to go through the long process of rotting, as has barn-yard manure; and hence for root-crops on land not enriched by a plentiful supply of dung, they become invaluable. A few experiments on any kind of crops, especially root, is sufficient to convince the most incredulous of their intrinsic value.

Mr. Whitelaw, of Guelph, details an experiment which he made with bone superphosphate on a field of turnip as follows:

Lot without manure of any kind produced at the rate of	360 bush. per acre.
Lot with 600 lbs. bone dust per acre, cost \$7.50	534 " "
Lot with 350 lbs. superphosphate of lime per acre, cost \$7.50	625 " "

Thus we see for an outlay of \$7.50 there was a return of 265 bushels per acre over the unmanured ground, and nearly one hundred bushels over the lot manured with bone dust. At the rate of 350 lbs. to the acre, which is ample, the cost would be \$5.25 per acre; and the return would be \$26.50, with turnips at 10 cents per bushel. We need only add similar results have been obtained on various crops by different experimenters, which we have not space to give.

The importance of phosphate of lime as a manure may be seen from the fact that it is one of the principal elements in the bones of animals, in the hair, and even in the milk. Besides the animal superphosphate, of which thousands of tons more could be manufactured and utilized by our farmers, we have an inexhaustible store of mineral superphosphate, or apatite, in Ontario and Quebec;

but, as in the case of our bones, the principal portion of this valuable manure is carted away to enrich the soils of the U. S. When attending the agricultural convention we visited Kingston, and Brockville some time previous, and found a keen demand for the raw apatite for foreign shipment, so much so that it had risen from \$15 to \$18 per ton. The Brockville Chemical and Superphosphate Co. manufacture the apatite, and also make their own chemicals for the conversion into superphosphate. They have immense retorts for the manufacture of the sulphuric acid. Indeed, they have everything within themselves employed in making superphosphate, except pouquette to mix with the ground rock to prevent inaction. This is imported from the slaughter houses of Chicago, at a cost of \$30 per ton, whilst there is abundant material for its production in any of our large cities here. Manufacturers have been trying for a long time to bring this apatite in general use amongst our farmers, but hitherto it has been uphill work. The demand has been so limited that manufacturers were compelled to set it at a high price in order to make any profit. And we are fully persuaded were there a keen demand for this mineral superphosphate, so that the works could be run constantly, and turn out a large quantity of the manufactured article, it could be sold cheaper than now. The conversion of this native rock—apatite—into a valuable manure, is simple, and consists in grinding the stone to a fine powder, and then treating with sulphuric acid, so as to render the phosphoric acid in it soluble, so that it may be available to plants and become assimilated.

Those who have used the mineral superphosphate, speak in the highest terms of its value as a fertilizer; indeed, a Mr. Neil Campbell, of Halton county, who was examined before the Commissioners of Agriculture, found the results of the application of apatite equal to that of barn-yard manure, but the cost of the former was less than that of the latter, for he says:—"The superphosphate cost \$40 a ton; the 250 pounds (the quantity applied to the acre) would therefore be \$5. Barn-yard manure, before it is put on the land, is generally sold at about 50 cents a load, so that what we used would be worth about \$10 in the heap. The cost of drawing it, and putting it on the land, is very nearly equal to the cost of the superphosphate altogether, and is therefore much more expensive. At that rate the barn-yard manure put on the land was worth \$15, and the superphosphate was worth \$5, and in the first year the results were the same."

Other experiments made by Mr. Campbell showed that he got 20 bushels of wheat additional to the acre, by using 375 pounds of superphosphate. This should satisfy any of our farmers of its value as a fertilizer.

However, it is generally conceded by experiments that superphosphates are not so marked in their effects upon wheat or grain of any kind as upon turnips, potatoes, roots of any kind, and grass. A barrel of superphosphate will increase a hay crop by as much as a ton to the acre, and a spoonful applied to potato hills will increase the yield fully one-third.

But, in conclusion, it may be stated that whilst superphosphates are amongst the most valuable of manures, should not be concluded that their application will always be attended with equally good results, as it is only when the soil is deficient in phosphates that they are beneficial. Our farmers require to regard two essential points for their guidance in the application of all manures. First, what proportion of particular ingredients of plant-life his several crops require; and secondly, what proportion of such particular ingredients are to be found in the various manures at his com-

mand. However, in nine cases out of ten, phosphatic manures will produce good results, as the majority of our cultivated soils are deficient in phosphoric acid. It may be further stated that the permanent effects of superphosphates depend greatly on the nature of the soil upon which it is applied. On strong calcareous soil, the lime is apt to absorb the sulphuric acid contained in the manufactured phosphates, and cause it to revert back, or to be changed to its original state of an insoluble phosphate. Owing to this action the raw bone dust is certainly preferable for land having a limestone foundation.

We would commend our farmers who have poor land, to try superphosphate for a year, upon their root crops especially, and mark the results, and thus not allow such a valuable fertilizer, which is in such abundance amongst us, to be sent away to other countries to enrich their soils.

Explanation.

The exalted position to which the FARMER'S ADVOCATE has attained has been gained by its continued persistency in supporting the farmer's interest, and not being subservient, or using the name of the journal for other purposes. The ADVOCATE has condemned in strong terms any measures that have been taken detrimental to the farmers' interest. It has also supported any steps taken for their advancement.

There have been and perhaps still exist some parties who have endeavored to subvert the real interest of the farmers, and use agricultural names and influences against their real interest, and make them subservient to other ends. We have condemned such, and from acting fearlessly for your interest, we have at times aroused great and strong feelings against this journal by strong party men, and attempts have in various ways been made to check the influence of your ADVOCATE. Still, despite this, and large sums expended to oppose this paper, every year has increased its circulation and power.

One of the greatest opposing powers has been the Board of Agriculture and Arts. Every year this body has been gradually weakening. The ADVOCATE has for years condemned the most injurious management of this institution; and to such an extent have these injurious measures been exposed through us, that the total annihilation of the body is seriously threatened; in fact, we may say the old body is literally dead, as the sweeping alteration of the Act governing it has so changed it that its position is changed to that extent that the Provincial Exhibition, the very purpose for which the body was established to carry out, may now be abandoned by it, according to the last alteration in the Act.

For many years we absented ourselves from the meetings of the Board, but at the last meeting of the old Board we put in our appearance merely as an observer or reporter; and when this Board evinced a stronger desire than we had previously seen to act in conformity with the wishes of the farmers, we greatly appreciated the apparent change, and being inclined, as we always have been, to aid them when such is the case, and now believing that there is influence enough on the Board to carry out measures that may be for the interest of the farmer, we shall be inclined to help them as long as such is the case.

Although we have said much against the old Board of Agriculture and Arts, and we believe that much injury has been done by it, still we have never been of the opinion that it should be entirely overlooked, as much good had in previous years been done by it. Our object has been and still is to improve it. It should be a useful institution,