

BONES AND OTHER SPECIAL MANURES.

A correspondent enquires of us about bone manures. We copy the following from the "Journal of the Irish Society." There are Mills in Montreal where bones are ground or crushed.

We have inquiries as to the best and cheapest method of preparing bones as a manure for green and grass crops, to which we now propose giving some explanation.

The Society's Journal, since its establishment in June, 1852, has devoted a great deal of space to the publication of chemical and practical information as the preparation and application of bone manure, phosphate, and superphosphate of lime.

The importance of various genuine and well-made superphosphates has been strongly pressed upon the farmer; and, by the republication of the Lockerby, or Annandale Farmers' Club tables, of inspected turnip crops during the last three years, a great amount of evidence has been afforded of the efficiency and value of applying bone-superphosphate, and guano, with common farm-yard manure. Of this, no manner of doubt can be entertained. It is chemically true, and practically proved. At the March Evening Meeting of Council, for discussion of agricultural subjects, we read a paper on "THE SEVERAL KINDS OF MANURES WHICH IT IS ADVANTAGES TO APPLY IN AGRICULTURE."

We beg now to refer inquiring friends and readers to that paper (No 10, Vol. 2nd. page 302), which condensed a great variety of experiments selected from the "English Agricultural Society's Journal," the "English Agricultural Journal," and other sources of an undoubted and very useful nature. These experiments show that, scientifically and prudently applied, especially in conjunction with farm-yard dung, they are of great value in farming and very productive both for green and white crops, and for top-dressing meadow ground. At present we confine ourselves to the latter branch of the subject—the bones and special manures beneficial to be applied to top-dressing as meadow ground.

I. BONES—DISSOLVED BY LIQUID AND SELF-FERMENTATION.

Here we have a sterling material for top-dressing meadow ground, especially when dissolved into bone earth, though not converted into superphosphate. It is twenty-five years ago since bones were self-fermented with water or liquid manure, and applied in making earth composts which grew excellent crops of potatoes, turnips, &c. We knew a Dumfriesshire farmer who regularly dissolved bones with liquid manure, and thus vastly economised the expensive ingredient of sulphuric acid. This he did ten or twelve years ago.

Latterly, Mr. Pusey, Editor of the "Journal of the Royal Agricultural Society of England," has brought his highly important

practice prominently forward (Vol. 8, p. 117), in an article entitled—"On a new mode of preparing bones for manure." That what Mr. Pusey calls a new mode—was an old method, not sufficiently put in general practice—signifies very little, provided the system is good and economical. We are satisfied that it is a good method of dissolving and applying bones, and we therefore recommended it long ago, more especially in our paper of March last, and again urge it for adoption. And to enable the farmer to carry it out we now give Mr. Pusey's explanation of the plan adopted to dissolve the bones:—He says

I procured three cart-loads of crushed bones, and, having wetted them, mixed one cart-load with two loads of peat ashes another with two loads of sterile white sand, dug up some depth, and quite unfit in itself to support vegetation. The three heaps were made as compactly as possible side by side. In a few days they all heated equally, becoming too hot in the middle to be borne by the naked hand; in a few more the bones had disappeared in each heap equally, being reduced in general to a blue mouldy substance. Some corroded fragments, indeed, remained in the centres; and the outsides, to the depth of five or six inches, were unchanged, because there the heat was insufficient.

The experiment having so far succeeded, the next step, of course, was to try the effects of the dissolved bones on the land, and in May, 1846, they were used upon half-acre lots of early turnips in equal proportions; the crops produced by each mixture were equally good. But as a single experiment does not, I think, justify one in putting forth the recommendation of a new practice, I waited for the result of another year's trial, which I will now lay before the Society.

It was made in July of the present year with common turnips. The object was to test the new preparation by comparing it, on the one hand, with unprepared bones, and on the other, with bones dissolved by sulphuric acid, called *superphosphate*.

The land is a hot stonebrash newly taken in hand and very much out of heart. Bones act upon it very strongly; for the trial lots are part of 70 acres of turnips and Swedes, a good crop produced by superphosphate notwithstanding the drought; but wherever that preparation was purposely missed, the yield was not more than four, or at most, five tons to the acre.

The trial was made on the supposition that certain quantities of each manure were likely to yield equal produce; and it was proposed to test the difference, not of produce from the same cost of manure, but of cost for nearly the same amount of produce. The mixture was made in this case by throwing together a waggon-load of crushed bones wetted, and by a mistake of the workmen, half the quantity only of sand. The heap, however, heated violently, and was in a few days fit for use. Three bushels of the

mixture are valued higher than two bushels of bones, because the heap sank during the process one foot in four, showing, as I had suspected, that, from the shrinking of the bones, there would be more than two bushels of bones in three of the mixture.

FIRST EXPERIMENT.

Bushels of manure per acre.	Cost of manure per acre.		Produce, per acre.	
	£	s. d.	£	s. d.
1. 17 bones ...	4	6 9	13	5
2. 4½ sulphated bones	1	2 9	14	5
3. 8½ heated bones and sand	1	0 9	13	5

The amount of produce was nearly equal, as I had hoped it might be, and both preparations show a large saving as against unprepared bones. In another experiment a larger quantity of each manure was applied with the following result:—

Bushels of manure per acre.	Cost of manure per acre.		Produce, per acre.	
	£	s. d.	£	s. d.
4. 25½ bones ...	3	10 0	14	5
5. 7½ sulphated bones	2	3 0	13	5
6. 12½ heated bones and sand	1	11 0	17	1

5. Nitrate of soda, &c. Make the following into a compost:—

The result of the whole seems to recommend decidedly the mode of preparing bones which I propose, and, but for the mistake of my men in mixing so small a proportion of sand, I believe the effect would have been stronger. Practically I think that the manuring virtue of bones is increased from three to four fold by this simple process, which cannot be said to cost anything. It is within reach of everyone to practice on a large scale and at a few day's notice. Though I mixed barren sand with the bones for the sake of experiment, any light loam would no doubt answer as well or better—the soil itself in fact, of any farm where bones themselves are likely to answer; and the labour is so trifling that it is not worth speaking of.

The quantity of bones applied should be between 5 bushels and 8 bushels per acre. Bones prepared in this way do not produce at first so lively an effect on the young plants as bones prepared with sulphuric acid. Thus, in this trial, lot 6 looked for many weeks worse than its neighbours, yet in solid food that lot has turned out the best of the whole.

This mode of preparation has been tried, at my suggestion, by a neighbour farmer, Mr. Edmonds, who mixed up 80 bushels of bones with sand in a single heap of a circular form, and, having applied them at the rate of eight bushels per acre, tells me that he shall henceforth use bones in no other manner. This, is no doubt, the right shape for a heap, because the exterior being coal will always remain unchanged, though this defect might be removed by a covering of earth. Some bulk of bones is necessary, I think, to produce the heat, and the bones, as well as the