

Prof. Wilson on Bone as a Fertilizer.

Each plant requires for its full and complete development not only a proper preparation of the soil for the seed, but the presence of the mineral or earthy matter, which enters into its structure in sufficient quantity, otherwise the agriculturist has no reward for his labor, time and capital.

From every spear of grass, from every grain of corn, the animal derives the mineral portion of its structure; the excess necessary for continuance of life is again voided and returns to the soil, or, when the final dissolution takes place, each, through the process of decay, is resolved into its elementary or simplest form to be again re-assimilated in the other.

Experience has taught you all that by the continuous cropping of your soils without the application of the excrement of animals in some form, they become rapidly exhausted and cease to yield, yet the land may apparently have the same appearance as when in its most fertile condition.

These remarks are particularly applicable to the agriculturist of this country. Vast tracts of land but sparsely inhabited, in comparison with European countries, are kept in the highest cultivation; large crops are harvested far beyond home consumption; they are transported to our seaports, and sent in ships to foreign countries to feed millions of the old world. Each crop removes a certain per centage of fertility from the soil, and if this fertility, as it were, was not replenished, our land would be a barren waste. Every bushel of wheat, of corn, of oats, each ton of hay the farmer sells contains a certain amount of mineral wealth of his land; he is actually selling his land in another form—its fertility. The country containing people or cattle consuming this grain and hay are not only sustaining life but replenishing the fertility of their soils.

The mineral constituents or plant food proper is generally distributed over the surface of the earth, although in limited quantities. Two important ones—the phosphate and potash—are rapidly exhausted. These must necessarily be returned after each crop is grown, or the land soon becomes barren; less so, however, in grass producing districts, from the fact that grass roots penetrate to a great depth, absorbing their food ten or fifteen feet below the surface, and by the fine capillary tubes or sap cells is brought to the surface, held in solution in the sap, there to develop the weed. Hence, very poor lands are, in a great measure, regenerated if allowed to remain in grass during many seasons. On the other hand cereals and roots grow and mature rapidly, and must have their food on or near the surface, properly prepared, and in sufficient quantities for their complete development. This character of food being immovable, has to be returned to the soil by the agriculturist, while the movable carbonic acid, nitrogen and ammonia compounds are being returned through the medium of the atmosphere, according to the immutable laws of reproduction, for the continuance of life in both the animal vegetable kingdom.

Phosphoric acid is an important constituent of all plants. England imports annually from 250,000 to 3,000,000 tons of raw material, at the cost of millions of dollars, besides taking care to save and return to the soil all the excrements, human and animal, produced not only from the food she cultivates, but added to it, the large quantities of grain imported from the United States and other countries. Not one atom of material, valuable as a manure, is allowed to go to waste there. A contrast to husbandry here.

Bones are the most available source of phosphoric acid. Every farmer has it within his power to save this valuable fertilizer, provided he exercises a little care, and has the importance of doing so impressed upon his mind. As it is, thousands of tons go to waste in this country, while our lands are becoming rapidly exhausted. Manufacturers of fertilizers have to resort to insoluble minerals and fossils for their source of supply, and to convert them into an assimilable condition as plant food, through the agency of chemicals and expensive machinery.

It would be well at this point to notice the difference in the physical properties of substances having the same chemical composition. For instance, the mineral apatite, the Charleston phosphate rock and bones have the same combination of phosphoric acid and lime; the first two are insoluble in the soil; even if ground to an impalpable powder, and applied to the land, would remain inert for two years, while the bone placed under the same condition would be immediately available as plant food. Why this state of cohesion no one has been able to solve, yet you have no more familiar illustrations of the difference in physical structure before you every day. Take, for instance, chalk and marble, they have the same chemical composition; the one is hard and compact, the other soft, and disintegrated by the slightest touch.

Farmers, individually and collectively, should give the strictest attention to the use of bone manure—an important source of wealth to them—for the improvement and continuance of the fertility of the land. To this end the strictest care should be given to having them properly and finely ground under their immediate supervision, as a guarantee of obtaining them free from adulteration. In the indiscriminate collection of bones, especially those obtained directly from slaughter houses and butchers in our large cities, quantities of fat still adhere to them. This should be previously removed, the fat having no agricultural value, and, unless extracted, the bones are deteriorated, being so completely impregnated that, no matter how finely ground, they will resist the disintegrating action of the moisture and saline compounds found in the soil, for a number of years.

Bones contain, on an average, 45 per cent. phosphoric acid, and one per cent. of ammonia.

Abridged from the Michigan Farmer.

Seed Per Acre and Seasons for Sowing.

The table annexed, as amended by us, with time for sowing and quantity per acre, will be found valuable for reference. The letter "a" signifies the month when they may be sown:

SEED	March	April	May	June	July	August	September	October	Quantity per acre.
60 Red Clover.....	a	a	a	a	a	a	a	a	8 to 10 lb.
45 Timothy.....	a	a	a	a	a	a	a	a	1 to 2 bushels
14 Red Top.....	a	a	a	a	a	a	a	a	1 to 2 bushels
14 Kentucky Bl. Grass.....	a	a	a	a	a	a	a	a	1 to 2 bushels
50 Hy. garian Grass.....	a	a	a	a	a	a	a	a	1 to 2 bushels
50 Millet.....	a	a	a	a	a	a	a	a	1 to 2 bushels
45 Sorghum.....	a	a	a	a	a	a	a	a	2 qts.
56 Flax Seed.....	a	a	a	a	a	a	a	a	1 to 3 bushels
56 Corn.....	a	a	a	a	a	a	a	a	4 to 6 qts.
56 Rye.....	a	a	a	a	a	a	a	a	1 to 2 bushels
60 Wheat.....	a	a	a	a	a	a	a	a	1 to 2 bush.
45 Barley.....	a	a	a	a	a	a	a	a	2 to 3 bushels
32 Oats.....	a	a	a	a	a	a	a	a	3 to 4 bushels
52 Buckwheat.....	a	a	a	a	a	a	a	a	10 to 15 bush.
60 Potatoes.....	a	a	a	a	a	a	a	a	1 to 1 bush.
60 White Beans.....	a	a	a	a	a	a	a	a	1 to 2 bush
60 Peas.....	a	a	a	a	a	a	a	a	1 to 2 bush

Below we give the weights per bushel of other seeds and products, which will be found convenient for reference:

Weight per bush.	Weight per bush.
Bran.....20	Fine Salt.....55
Castor Beans.....46	Hemp Seed.....44
Coarse Salt.....50	Malt.....38
Corn Meal.....48	Onions.....57
Dried Apples.....24	Plastering Hair.....8
Dried Peaches.....33	Stone Coal.....80
Ear Corn.....70	Unslacked Lime.....80

It should be remarked here that in forming a table such as this the range of season for sowing can only be given. Thus the larger quantity of flax should be sown on very rich land; and, also, where the lint for fine weaving is wanted. If a crop of seed is wanted, the smaller quantity of Hungarian and millet should be sown on clean land; or, better, drilled in. So, potatoes should not be planted in June, except very early maturing sorts; and our experience is that these are sown planted in March or April. So, also, the quantity of peas given is for sowing broadcast; if drilled from one to one and a half bushels only will be required.

Again, the greater number of pounds or bushels per acre are used only upon very rich land. And the earlier all spring crops not affected by frost are sown, the better as a rule will be the yield. This rule will apply to any crop in the West, for the earlier we seasonably sow any given crop here, the better will be the return; for instance, it is better to plant any variety of potato in March or April than in May, but with turnips and buckwheat, the later they are sown—so they will mature—the better, for both of these require cool weather to mature.—W. Farm Journal.

Plaster and Salt.

A farmer was applying a little plaster of Paris to corn in the hill after the plants were up, but before he had finished he was driven from the field by a shower of rain. After the shower he returned and finished the piece, but those rows which received the dressing before the shower were very much benefited by the application, while the others were not.

Is salt manure? If the testimony of distinguished agriculturists, both English and American, is of any weight, then common salt used as a manure is not sufficiently appreciated.

Sir John Sinclair, whose practical knowledge and sound judgment are well known, wrote at the commencement of the present century as follows:

"It is proved by a variety of experiments that sea salt properly applied acts as a manure." "It is particularly useful when mixed with a dung hill or strewed over farmyard manures, at the time when they are carried out into the field." It increases the crop of mangolds two or three tons per acre.

Mr. John Johnston, the celebrated Scotch farmer of western New York, says, in regard to an experiment with salt: "The line of demarcation between the salted and the unsalted portion is very distinct throughout the whole length of the field; it is some four or five days earlier."

Other instances might be given to prove the benefit of using salt, either on mowing or pasture lots, and it is the testimony of others that it is especially adapted to wheat crops, giving a brighter and stiffer straw and heavier grain. The quantity recommended to the acre, both in England and this country, varies from three to twenty bushels.

CLOVER-SICK SOIL.—In treating of "clover-sick soil," Mr. Bruce, an Aberdeenshire farmer, states that in some districts of Scotland the clover plant dies out after taking root. Having noticed in several fields where this occurred that there was a good growth of plants near the gate, and head, and end ridges, which was much trodden upon, Mr. Bruce procured a heavy roller and rolled the field twice before putting in the grass seeds. The experiment was perfectly successful, a full plant of clover being the result, although the field had for years before shown signs of sickness. The farmer got a roller which weighed fifteen cwt., and rolled his fields, leaving in one field a ridge which was not rolled, in order to prove the efficacy of the operation. The result was that, while there is abundance of clover where the soil was rolled, on the ridge that was left unrolled scarcely a plant is to be seen.

REMOVING STUMPS.—A friend asks us what can be done to get rid of stumps in fields—whether crude oil would not cause the stumps to burn readily. In our experience we have found it preferable, to remove stumps with machines made for that purpose, and burn them afterwards, if desired. It is slow work burning isolated stumps in a field, and the same amount of time spent in uprooting them will be much more effective. A good team—horses or oxen—with a stump machine, will clear quite a space of ground in a day, and if the ground be stoney, the work may be further progressed by filling the holes where the stumps came from with stones to within eighteen inches or two feet of the surface. Crude oil is not very inflammable, and, unless used in large quantities, its only effect is to clear the surface of the stump and make it last longer than it otherwise would.—Rural New Yorker.

FALL OAT THRESHING.—Last week Mr. Alex. Graham threshed for John Campbell, lot 22, con. 8, Caradoc, 3,300 bushels of oats in 24 hours' work. The machine was fed by D. McKellar, "Pompey." The work is so well done that the oats are sufficiently clean for marketing. The oats are of the Norway variety, and are for sale for seed.

"A proposal is now before the Prussian Minister of Agriculture to award prizes for well-managed small farms, as is the custom in East Flanders, as a means of encouraging high farming among small proprietors." This is just what ought to be proposed here, among our country societies, and we hope that it will, with other reforms that are indispensably necessary to make these societies valuable to the general interests of agriculture.

I have seen the application of a liberal dressing of muck give that part of a field on which it was applied a decided appearance of fertility over the rest of it thirty years after the application was made.—N. E. Farmer.