

Some Facts in Soil Culture.

A fact not generally understood is that soil in a finely pulverized state holds more moisture—hydroscopic water—than when in a solid state. A single experiment will show this. A field plowed in the fall will retain a larger amount of moisture in the spring than if it were unplowed.

Finely pulverized soil, when in a dry state, takes up moisture equally from the air, and with it large quantities of nitrogen compounds. Thus porous soils, because cool, are constantly condensing water during the droughts, and hold the constituents it contains, to be taken up by the rootlets and assimilated by plants.

Soils thoroughly underdrained, when allowed to rest, become honey-combed by insects to the water line occupied by the drains, and hence these serve as channels to conduct the rain which falls immediately away. This, however, is not what is wanted, for thus the fertilizing properties in the rain water do not come intimately in contact with the soil, and are lost; thus the error into which certain superficial experimenters have been led in supposing that drained lands would not stand drought. If the surface soil were pulverized to a depth of from six to ten inches or more, the case would be very different. It would then act as a filter, passing the water off more slowly, but still fast enough, and in addition, the elements of fertility would be retained, and the whole area of the soil uniformly moistened.

Again, underdrained soils liable to become water soaked, become hard and impacted. Insects do not penetrate to any considerable depth, and the soil holds water like a dish, to be slowly evaporated by the sun, rendering it, by this process, cold, sour and unfertile. So also tilth and drainage prevents the washing away of fertilizing properties during continued rains, the moisture is absorbed and passed down through the soil, instead of running along the surface, and thence into the nearest stream, carrying with it not only its own fertilization, but also the soil itself, which it mechanically acquires and holds until the water again becomes quiescent.

There is a wide field for thought and investigation here, and one that will well repay the study bestowed upon it. We do not believe in the theory that soils run out. They more often become impoverished and unfertile from gross mismanagement than from actual wearing out. For, the conditions being right, they have the power to constantly re-acquire what was lost.—*Western Farm Journal*.

Grain Growing and Superphosphates

In his "Walks and Talks on the Farm" in the *American Agriculturist*, Mr. Harris discusses the statements of Mr. Geddes in regard to his last year's crop of wheat, and in the course of his remarks shows that without we make the land fit to produce grain crops, we must be content with inferior returns. He says that Mr. Lawes, in his 20 years' experiments in the growing of barley, realized the largest profits when he laid out the most for manures, as the following figures, showing the results on three plots differently treated, go to prove:—

1.—NO MANURE.	
23½ bushels of barley, at \$1.25.....	\$29 37
11½ cwt. of straw, at 25c.....	2 93
	\$32 30
Expenses.....	25 00
Profit per acre.....	\$ 7 30
2.—SUPERPHOSPHATE.	
30 bushels barley, at \$1.25.....	\$37 50
13 3-8 cwt. of straw, at 25c.....	3 50
	\$41 00
Expenses—about.....	30 00
Profit per acre.....	\$11 00
3.—SUPERPHOSPHATE AND NITRATE OF SODA.	
58½ bushels of barley, at \$1.25.....	\$72 81
30½ cwt. of straw, at 25c.....	7 62
	\$80 43

Mr. Harris says still further:—"These are average results, extending over a period of 20 years. By selecting single years I could make out a still stronger case. One year the yield of the plot quoted above as averaging 58½ bushels per acre, gave over 74½ bushels per acre, and three years later 77 bushels per acre.

"I do not say that we can raise 77 bushels of barley per acre here; but I do say that we should furnish sufficient available plant food to approximate very closely to the limit of climatic productiveness. I have several times grown over 50 bushels of barley per acre, and have never yet had my land too rich. Had it been richer, I think I should have had a heavier crop.

"By referring to the *American Agriculturist* of January last, page 14, it will be seen that Mr. Geddes got 34 bushels of barley, and 27½ bushels of Clawson wheat afterwards. His wheat on the summer fallow, part Diehl and part Clawson, he thought, had it been all Clawson, would have been 50 bushels per acre. And he thinks this shows that it is better to grow barley than to summer-fallow. Perhaps it is, but it should be understood that I am not arguing in favor of summer-fallowing for wheat. I am simply desirous of showing that it is better to raise fewer grain crops until we get our land rich enough to produce a higher yield per acre. I have sown 15 acres of barley this spring on land manured last year for mangels. It would be very likely to grow 27½ bushels of Clawson wheat after the barley. But this does not satisfy me. And so, instead of sowing wheat after the barley, I have seeded it down with clover. I have another field of 17 acres, a clover sod, plowed last fall, and sown to barley this spring. This I have also seeded down with clover. My object is to get the land richer. I am practicing what I preach. I do not want, as a rule, to sow land to wheat that I do not think rich enough to produce, in a favorable season, 40 bushels of Diehl wheat per acre."

Green Manuring

It is rather surprising that in localities where manure is scarce, more attention is not given to green manuring. It is eminently a practical remedy. Those who teach but do not themselves hold the plow, nor ever did, make a point to deride it, and time and again we have had to read humorous essays on the use of "acidulated water," as green manures are termed. The value of green manure, indeed, is known chiefly to those who have tried it, and to no one else. That it is not as common as it might be, arises from the extra labor involved, as well as the loss of use in the land while the green manure is growing. All these are objections where manure is to be had tolerably easy, but it is not in these places that anyone would recommend the practice. Still the labor question is a serious one, though less so in light than in heavy soil. New Jersey, Maryland, Virginia and Delaware have many sandy tracts just suited to this way of manuring. The land is easily plowed, and indeed it is on the sandier soils that plowing under a green crop as a fertilizer has been found to have the best effect. At this season of the year there are many that have had a summer crop taken off that might very well be sown with buckwheat, or any other plant that would sprout at once, and make a rapid and thick growth before frost sets in, and just before this plowed down to remain all winter. Broken up again for spring sowing, it would be found that no other manure was necessary to a fair crop.

There would be a temptation, perhaps, to let the buckwheat remain for seed, but there is no crop that so robs the ground of its fertilizing qualities. Unless manure is put in before or after a crop of buckwheat, the ground is reduced to a miserable condition. Perhaps it is this fact which makes buckwheat so good as a green manure. It has the power of reducing the mineral constituents, and these returned to the soil by the plowing down process, gives back the elements in a form which other plants can take up better than if drawn from the earth direct by themselves.

Clover is often used for a green manure crop, but it seems to us too slow a grower to be very profitable. The best things are those which make a dense growth in a short time, and for this purpose there are many rough things, even weeds, that no doubt would be found much better than many things now commonly employed.

Oh, Spare the Birds!

From an article under the above heading in the *Monitor*, Bridgetown, N. S., we extract the following:—

We turn from the contemplation of the birds as objects of beauty and sources of pleasures, and consider them in the light of utility. In farming districts they are vastly useful. No sooner do buds swell and seeds vegetate, than they are assailed by innumerable insects, worms and grubs.

Every species of the farmer's growing crops, whether in gardens or fields, are exposed to the ravages of insects and the smaller kinds of reptiles. These noxious animals are the natural food of many of the feathered tribes; and it is inconceivable what numbers of these pests to vegetation are daily devoured by hungry birds. We see the swallow darting through the air in all directions, and some may suppose that he is only flying about in mere sportiveness; but he is in eager pursuit of insects. In a similar way most other birds are on the wing, or hopping about the fields, in search of animal food, which they voraciously devour. In a well-birded area of country, countless myriads of flying insects, crawling worms and burrowing bugs, all of which are destructive to vegetation, are thus greedily captured for food in a single day.

Birds cannot be too highly prized by farmers. It is admitted that they, in this part of the country, are far less numerous than they were a few years ago. The swallow families have greatly decreased in numbers, and the same may be said of robins. The cause of this diminution is, no doubt, in no small measure, attributable to their wanton destruction by boys, who rob their nests and kill them with stones or other missiles. It is no unusual sight to see some do-nothing member of the community, with a gun in hand, rambling about the fields to shoot robins, or even smaller kinds of the feathered families. This wanton destruction of birds is not only a perpetration of cruelty, but it is an outrage against the interests of whole communities. The law should stamp it as a grievous public wrong. It should be punishable by fine or imprisonment.

If anything can be done to retain the birds, or multiply their number, it should be attempted. As already intimated, they are valuable (though unconsciously) agents in the economy of nature, to aid the farmer in his warfare with the insects, grubs, worms and bugs innumerable, which infest his fields and prey upon his crops. Oh, spare the birds!

The More Grass the More Profit.

How shall the fertility of the soil be restored? is the great problem which it is our duty to solve. It can be solved by introducing a proper system of rotation of crops, and by growing more grass and less grain. Our salvation consists in the practical recognition of the old Belgian proverb: No grass, no cattle; no cattle, no manure; no manure, no crops. A district of country which is exclusively or mainly a natural grass growing section, has within itself all the elements of successful agriculture, provided its operations are conducted with system and economy. A country having a soil naturally adapted to grass, is, in a great measure, able to live within itself, and not be dependent upon a change of commodities with other districts. Upon such a soil as this the farmer has at hand the means to secure whatever he desires; or, to apply the proverb already quoted, he has corn, cattle and manure. In fact, grass and stock husbandry is almost the only branch of farming which seems to render man more independent.

The preservation of the fertility of our soils, and the profitable and increased production of our cereals, can be best secured by growing grass extensively. The question has been asked, why is it that France, which has three acres to one under cultivation when compared with England, produces in the aggregate no more than the latter? It is accounted for in this way: Every acre of English grain land receives the manure from three acres of grass, while in France the manure from each acre of grass must be diffused over two and a half acres of grain. Such a system as is adopted in England is in accordance with nature's laws, and it is the one which must eventually be adopted by intelligent American farmers. Such a system constitutes good tillage, and there is no more limit to the capability of the rich prairie lands that stretch away in almost endless perspective, than there is to the atoms which exist in the atmosphere, in the ocean, and in the solid earth. It does require, however, both study and applied science to change a pound of air into a pound of wheat, corn, cotton, meat or wool to the best advantage.—*Col. Farmer*.

The "Lord Palmerston" peach is the largest variety known in England.

Mr. Vick says in his invaluable Floral Guide, that ten drops of carbolic acid, to be obtained from any of our druggists, put in a pint of water and poured on the earth in flower pots, will destroy all earth worms, which do so much damage to the plants. A trial will satisfy all of its beneficial effects.