

ON THE RIGHT USE OF MANURES.

After all the conflicting opinions about the depth to which manures should be buried, if covered at all; and after all the conflicting opinions about the *time* when manure should be buried, permit me to say that, according to my experience, the depth to which manures are covered, and the degree of rottenness which manures should attain before they are used, should be varied according to a number of different circumstances, as—

1st, The difference in the component part of the manures.

2d,—The difference in the kind of soil and subsoil to which they are applied.

3d,—The difference in the kinds of crops which it is designed should be benefited by the manure; and 4th,—The difference in the time when it is designed that the manure should give forth its powers for the benefit of the crop.

First. There is a very considerable difference in the component parts of manures. Some are volatile, some are fixed. All volatile manures should either be composted, or else, if it be practicable, they should be covered as soon as they are spread, in order to prevent them from evaporating and flying into the atmosphere when used. But if the volatile parts of the manure are composted with peat, or other substances which are retentive of moisture; or, if, according to the views of Leibeg, the volatile parts are fixed by strong acids, or by the sulphate of lime, they will not then require so deep a covering as if they were not thus composted, or deprived of their volatility. Composted manures do not require to be ploughed in as deep as those which are not composted. And when farmers cultivate damp soils and compost their stable and barn-yard manures with peat or swamp mud, we are assured that they sometimes succeed pretty well in the cultivation of grass, corn, wheat and rye, by leaving the composted manure on or near the surface of the soil.

Again: manures which are not volatile, but which are disposed to sink into the soil, such as lime, ashes, marl, clay, sand, &c., should be left on, or near the surface of the ground. And those manures which naturally collect moisture, may be left nearer the surface than others.

Second. Manures should be differently applied on different kinds of soil and subsoil. Long manures ploughed into a stiff soil tend to loosen it so as to admit more air and make it lighter. Manures should be covered deeper on a dry gravelly soil, than they should on a damp one. On a soil which is decidedly wet, the soluble and volatile parts of the manure would be likely to mix with the water, and go off with it; while on a very dry or gravelly soil, there would be more danger of losing the volatile parts of the manure by rapid evaporation, unless the volatile parts of the manure were fixed, or carefully covered. Volatile manures should be composted with peat or swamp mud before being applied to dry gravelly soils.

Third. Manures require to be buried deep or otherwise, according to the shape of the roots of the plants which it is designed should be benefited by them. For those plants which send down long tap roots, the manure should be mixed with the soil, not only on the surface, but to a considerable depth below it. A number of years ago, I took an exhausted spot of ground, with a good, healthy, but exhausted subsoil, but after ploughing it deep I gave it a good dressing of compost, which was left near the surface, and then I planted it with carrots. They came up and grew, and promised to make a very fine crop; the upper end of

the roots were large, but when taken from the ground, the roots proved to be very much shorter than the same kind of carrots usually were, when they grew in place where the soil was more deeply manured. But when crops are to be cultivated which send out their roots horizontally, as rye, wheat, corn, &c. and do not send them deep, the manure will produce more speedy effects if it lies on or near the surface.

On a spot which I designed for corn, near my dwelling, I ploughed in a liberal dressing of fish offal, and lest they should smell bad, I ploughed them in, with deep furrows; then manured the ground with barn-yard and stable manure, and planted corn, and my crop was only about the rate of 40 bushels of corn to the acre, which was not more than I should have expected without the fish. The fish offal was too low to be fed upon much by the roots of the corn. The next year, however, I ploughed the same spot over again, with other deep furrows; this brought the remains of the fish again near the surface, and where I then planted corn, it yielded a luxuriant crop. In some places the corn yielded as much as 15 ears to the hill.

Fourth. Long manures which are covered in the soil, decompose, and frequently give out their strength to promote the growth of corn just at the time when the corn is making seed, and needs it most. In this case a little well rotted manure in the hill, to give the corn an early start, proves beneficial. But long and coarse manures do not suit parsnips, beets, and carrots, and according to my experience, where parsnips, beets, and carrots, are planted among coarse manures, instead of their growing smooth and handsome, their roots almost invariably grow prongy, and the crop is never large. Beets, carrots and parsnips require manure which is well rotted, and ready to give immediate nourishment to these crops.

Where volatile manures are used with a view of materially benefiting crops which are to grow a number of years after the manures are applied, the manures should be worked in deep. A garden which has been well manured and well dug, so as to work the manure in deep, retains a portion of its fertility for a number of years after the application of manure is suspended; while a soil manured with volatile manures which are left on the surface is soon exhausted.

A number of years ago I buried a dead cat in a mowing field, to the depth perhaps of 12 to 18 inches. The first year no increased fertility was observed about the spot, but for several years after the grass grew with increased luxuriance over the grave of the cat.

This encouraged me to make another experiment. I therefore took an exhausted piece of land, which had lain in corn hills and sweet ferns, and without manure, for very many years. Into this we then ploughed white fish, with good deep furrows, at the rate of 25,000 to 30,000 to the acre and then planted potatoes. The next year we sowed it to oats and grass, and then mowed the ground for six successive seasons next following. During all these eight years the crops were improved, and during the first seven years they were very considerably improved by this one manuring. And these eight crops, after deducting all expenses for rent and for cultivation, (except the expense of removing the stones from the ground,) gave a net profit at the rate of about \$100 per acre. This net gain was in consequence of applying the manure in such a manner as to need but a small proportional expense for the after cultivation. For,