

ON COMMON SALT AS MANURE.

This salt has been used as a manure since the remotest antiquity; and although its value as a fertilizer has been generally put too high (especially in England,) it is nevertheless true that it merits attention, producing, on some soils, a most beneficial effect. This would be still greater if the rain-water did not annually carry off a good quantity from the soil, as it will not act but in cases where the soil is deficient in it.

Common salt (once erroneously called chlorate of soda) consists of 60.3 parts of chlorine and 39.7 of sodium, and belongs to the class of substances called chlorides. It is soluble in two parts of water, and thus is easily taken up by plants. On account of its great salubrity, it also soon disappears from the soil, being either absorbed by the plants or dissolved by rain-water. We have before said that it is one of the component parts of dung; it is to be found in all plants and in every spring-water; but the common salt afforded by the dung is not sufficient in quantity for plants, and therefore an application of it by itself is very beneficial. The effects, however, are seldom very striking, because it neither forces the plants, nor do they obtain after its use a dark green color, as is the case after the use of several other salts. Common salt will merely invigorate them, and (which is of the greatest importance) the plants manured with it are good food for cattle. In the soil it is only liable to decomposition if it remains long in contact with carbonate of lime, in which case carbonate of soda and chloride of calcium will be formed; both salts, however, will be again decomposed by the humic acid. It would, by-the-by, be worth while to make a series of experiments on the repeated exchange which takes place in the soil between acids and basis, as thereby many interesting results would be ascertained. On the humus or humic acid salt exercises no direct influence. A substance which, like common salt, consists only of two elements, does not so easily undergo any change, and as these are neither an oxide as base, nor an acid, it will not easily combine chemically either with an acid or a base of the soil, and consequently passes unchanged and undecomposed into the plants. In these, however, it is partly decomposed, because whilst the leaves evaporate the chlorine, we find the sodium changed into soda, in their sap; truly a remarkable process, showing that often what is beyond the reach of chemical powers, is at once accomplished by vital process. Those who do not consider mineral substances as food of plants, ascribe to common salt merely excitative properties.

To the manuring with common salt, many things are ascribed which do not really take place; still, it affords many advantages, which are so important that it ought to be resorted to oftener than is the case. We shall now state some experiments on that score, and consider what has been said in favor of this mineral manure.

It is said that the crops, after a manuring with common salt, are less liable to disease. This I

have not found to be the case, because, although I have often applied this manure both in small and large doses, I still saw that the plants were not free from the smut or blight. It is also said that plants grown with common salt are more relished by the cattle. I can assert that this is really the case. I had often occasion to see pastures where there were spots the herbage of which was not touched by the cattle except when in the greatest need, but as soon as they were manured with common salt the cattle preferred the very same plants which had previously been rejected. If potatoes, cabbages, &c., are manured with common salt, they will have a far better taste.

Common salts makes plants more wholesome for the cattle. That this is really the case may be learnt from the fact that spoiled fodder will injure cattle much less if much common salt is given to them at the same time. On the sea-coast the half putrid hay of the marshes (*Poa maritima*), which contains much common salt, is given to the cattle without the least injury; and sheep will never over-eat themselves on pastures where many salt plants are to be met with. Plants grown after common salt are also more nutritious, the reason of which has been already stated.

It is farther stated that the crops grown after common salt, suffer less from cold. I have not had any experience on that subject, and can, therefore, not decide it; as, however, cattle which get much common salt can better support cold than without it, we may suppose the same to be the case with plants.

Again, it is said that salt will destroy worms, insects, and other vermin. This, also, I have not experimented upon, but I believe, judging from the small quantity used per acre, that it cannot produce this effect. It requires a good quantity of common salt to kill one snail.

Another assertion is, that certain cultivated plants will succeed best, only if manured with common salt. To these, it is said, belongs flax, rape, hops, clover, peas, beans, carrots, potatoes, celery, horse-radish, mustard, and cabbage. I can vouch for this, partly from my own experience, and partly from the fact that much chlorine and sodium are required for the chemical constitution of these plants.

Finally, fruit trees are much benefitted by a manure of common salt. If only part of these statements were true, it would suffice to induce us to use common salt as a manure. The price, however, in many countries, is so high, that its use can only be very limited. (No such excuse is admissible in England.) The quantity of common salt to be employed on one Magdeburg acre of land is differently stated. It partly depends, as it is with all manures (especially those easily soluble in water,) on the quality of the soil; the clayey soil can bear, and in fact requires more than the loamy, and this again more than the sandy. The late worthy Mr. Schubler has found that Barley ought to receive, on loamy soils, only 75 lbs. per Magdeburg acre, as 5 lbs. more or less did not produce such a good result. It is