

SAVING MANURES.

The effluvium or gas, arising from decomposing animal or vegetable substances, though exceedingly disagreeable to our olfactory senses, is the congenial food of growing plants.

Arthur Young said, not many years ago, "he who is within the scent of a dunghill, smells that of which his crops would have eaten if he would have permitted it." Sir Humphrey Davy demonstrated this. He placed a quantity of fermenting manure in a retort, and ascertained that it gave off a liquid containing a large proportion of salts of ammonia. Seeing this result, he introduced the boak of another retort filled with similar dung, under the roots of some grass in the garden, and, "in less than a fortnight, a very distinct effect was produced on the grass, upon the spot exposed to the influence of the latter disengaged in fermentation: it grew with much more luxuriance than the grass in any other part of the garden." It is hence obvious that by permitting the escape of the gas evolved during fermentation, the valuable portions of the manure are dissipated in the atmosphere.

"The loss of gaseous manure," says Mr. Hannam in his excellent essay on the Economy of Waste Manures, "arises from the escape of the carbonic acid and the ammonia, of the vegetable and animal matters in the manure heap, during the process of fermentation and putrefaction; both of which gases are essential in the nutrition of vegetables. * *

* When this evolution of ammonia and carbonic acid takes place under the root of a plant, it is what we want; but when it takes place, as is generally the case, months before the compost is used, the manure is robbed of its most valuable constituents."

"It is worthy of remark," continues Mr. Hannam, "that the richer manure is in nitrogen, the more serious the loss is; as the more nitrogen substance contains the more prone it is to ferment and throw off ammonia." The observation of every farmer will corroborate this; for all have noticed that the richer the manure the stronger the odour rises from it.

The most effectual means, probably, of preventing this waste of the gaseous portion of manures, would be to apply them to the soil before fermentation takes place. In this case the gaseous would be taken up by the growing crop. Stable or barn manure, is sometimes deposited in cellars, where, from the low temperature, and seclusion from the air, it undergoes little or no change. Thus kept, it retains its original strength, and is much more powerful and enduring in its effects, than that which has undergone decomposition in the open air. But there is often so large a portion of undecayed vegetable fibre, (litter, &c.,) in manures, they cannot conveniently be applied in a green state. Besides, for some crops, the action of green manures is not quick enough; and for other crops, as wheat and other small grains, they tend to promote too great a growth of straw, and increase the liability to rust.

It, becomes, then, necessary under certain circumstances that manures should pass through a state of fermentation before they are applied to

the soil, and the question is, how can this object be accomplished without loss?

Reason teaches, and experience proves, that substances must be mixed with manure, which will absorb the gaseous portions as they are generated. Earth is a good absorbent. If a dead animal be enveloped in the earth before putrefaction commences, and allowed to remain so until the carcass is decomposed, the earth will have absorbed the nauseous fumes occasioned by the decomposing animal matter, and will be found rich in those principles which constitute the food and growth of vegetables. This example teaches that mixing soil with manure, or covering the manure heap with a layer of soil while undergoing fermentation, will preserve much of its value which would be otherwise lost. There are other substances which are preferable to common soil—such as charcoal, (which will absorb ninety times its own bulk of ammoniacal gas, and thirty-five times its volume of carbonic acid gas,) and peat or swamp muck. The latter in many parts of the country, can be had in the greatest abundance, and it is, beyond doubt, one of the best means of augmenting the farmer's stock of valuable manures. In its composition and absorbing power, it much resembles charcoal—being principally the carbonaceous matter of decomposed vegetables. Every farmer who can conveniently obtain peat or muck, would do well to place a layer of it under all his manure heaps—to mix it with barn or stable manure in forming composts covering the piles with a coating of it to prevent the waste of the gases, and throwing it liberally into the stalls of horses and cattle, to absorb the urine. Results will show that the labor thus bestowed in the use of swamp muck, will be rewarded a hundred fold.

Other substances are used as *fixers* of ammonia, &c., which act somewhat differently from those above mentioned—such as gypsum, and various kinds of acid. The theory of their action is, the ammonia, being an alkaline gas, will by combination with any acid, form a neutral salt. Gypsum is a combination of lime and sulphuric acid. When this is applied to fermenting manure, the sulphuric acid of the gypsum leaves the lime and unites with the ammonia, the acid having a stronger affinity for the ammonia, than for the lime with which it was combined. Mr. Hannam in the essay before referred to recommends that the manure heap be covered with peat or some absorbent, and "this coating kept well saturated with sulphuric acid and water, say a weak mixture of ten gallons of water to one of acid." Mr. Hannam adds, that any other acid which may be obtained at a cheaper rate, will act as well, as the ammonia will combine with any acid. Either the application of gypsum, or the acid solutions mentioned, will soon affect such a *fixture* or combination, that little or no smell can be perceived.

In regard to the use of *salt*, which has been by some recommended as a *fixer* of ammonia, Mr. Hannam says—"My own observation teaches me to prefer acid to any salt, as it is equally cheap, more easily used, and is, therefore, likely to be more efficacious."—*Alb. Cult.*