

ORGANIC MANURES.

[The subjoined paper on manure is copied from the *Northern Whig*, chiefly because it supplies plain and intelligible information on a subject of great practical importance.]

Farmyard manure is composed of ingredients from the mineral as well as from the animal and vegetable kingdoms. In the vicinity of large towns the dunghill is usually made up from the stable, the cow-house, and the street; and as there is a very material difference in manure from these different sources, it seems better to consider them separately—by which method it will be easy to determine whether, in any particular case, they had better be used singly or conjoined. For ordinary purposes, there is no doubt about the propriety of mingling intimately all these kinds, though, at the same time, it is well to be aware of the peculiar advantages of each, that they may be used separately, if desirable. Besides, near large towns, where a choice of manure may be had, the farmer should purchase that kind which best suits his soil, and the crop to which it is intended to be applied.

Stable Manure, moderately rotted, contains a large quantity of organic matter, soluble in water, and, consequently, fit to yield immediate nutriment to plants. It also contains a large proportion of organic matter, of ready solubility, which would therefore, in a short time, be capable of furnishing nutriment. It contains, besides, in small quantity salts of ammonia, potash, soda, and lime, all valuable fertilizers. The organic matter being regularly dispersed through the mass, renders it uniform in its effects. It is also easily incorporated with the soil. These qualities render stable manure very valuable. As it contains organic matter already soluble, it does not require much fermentation; indeed, that process, if allowed to proceed too far, renders it nearly inert, in consequence of the conversion into gas, and evaporation, of some of its most valuable ingredients. It continues to afford food to plants gradually, for a considerable time, in consequence of its containing a large quantity of organic matter that readily becomes soluble. From its great tendency to decomposition, it is much better suited to heavy than to light soils; for in consequence of the easy access of air and moisture to lands of the latter description, manures ferment much more rapidly, and are more quickly exhausted, in them, than in what are called strong or clay soils.

Dairy Manure contains less soluble matter than that from the stable. It putrefies much less quickly; for, though it contains rather more organic matter, it has not the same tendency to become soluble. It was, on this account, said to be colder than stable dung, by the old agricultural writers, who, knowing little of chemistry, looked to the effects produced, without knowing anything of the causes. The salts in this are pretty nearly the same as in stable dung; at least in effect. It also is easily incorporated with the soil. From the condition of its organic matter, it will not be so forcing at first, but will be more permanent in its effects; for, in consequence of its slower solution, it will continue to supply nutritious matter for a long time. For the same reason, it is less likely to be injured by excessive fermentation. This, indeed, ought not to be allowed to occur in any case; for, it should always be remembered that the chemical changes in manures, that render most service to plants, take place during the earlier periods of putrefaction. Besides, most green crops, especially turnips, if forced forward vigorously in the early period of

their growth, will take pretty good care of themselves afterwards.

Street Manure is very variable in its composition. It usually contains a large quantity of silicious matter; coal cinders and ashes form another large portion, with lime from walls, &c. It owes its chief fertilizing powers, however, to the night-soil it contains, from which is produced a large supply of nitrogen. The proportion of organic matter in it is very variable. Sulphur and peroxide of iron are generally found in it, both of which, especially, the latter, are dangerous ingredients, except there be a large portion of lime in the manure or in the soil. The salts and organic matter are not regularly mixed in the mass; in consequence of which it will be partial in its effects. From these observations, we may infer, that dairy manure is best for light, and stable manure for cold heavy lands; and that street manure is commonly much inferior to either, especially for potatoes; though, from the night-soil it contains, it might produce good turnips. Stable manure is good for turnips, but that from the cow-house is the best of all for potatoes, which, containing 32 per cent. of nitrogen in the leaves, and 37 per cent. in the tubers, require a large supply of nourishment, especially at the advanced period of their growth, when the tubers are formed. The turnip contains only 17 per cent. of nitrogen. As however, these and other manures are commonly combined in the same heap by the farmer, it is of importance that they be carefully mixed, else the crop will be irregular. Sir H. Davy has shown, by direct experiment, the great loss sustained by manures undergoing putrefaction. Mr. Blackie, in his valuable essay on farm yard manure, says, that stable dung often loses from 50 to 75 per cent. of its value by excessive fermentation. The loss of ammonia, which, from its great volatility, escapes first, may be easily demonstrated, by holding a feather, previously dipped in vinegar or muriatic acid (spirits of salt) over the fermenting manure. The ammonia combines with the acid, forming a white cloud. This ammonia, which is the chief source of nitrogen, is brought back to the earth by rain, though seldom to the place it left, so that the careful man keeps all his own, and at the same time gets a share of what belonged to his indolent neighbours. To prevent this waste, the manure heap should be consolidated, by drawing the carts over it, or by allowing cattle to trample it. What is made in spring might be thrown loosely together, that it might be ready in shorter time; but manures for potatoes are generally quite too much decomposed. Many substances have been recommended, to be added to the dunghill, for the purpose of fixing the ammonia. Among the best is sulphate of lime (gypsum), in fine powder, by which means we obtain carbonate of lime (chalk,) and sulphate of ammonia, a valuable manure, and much less volatile than the carbonate of ammonia. Besides, should any gypsum remain undecomposed, it also has its uses. Common salt (muriate of soda) is recommended by some. By using it, we get muriate of ammonia (sal ammoniac), an excellent fertilizer and carbonate of soda, also very valuable. Sulphuric acid, diluted with nine or ten times its weight of water, has been brought forward, under high auspices, as a fixer of ammonia, and indeed it is highly probable that it may succeed admirably. The few trials, hitherto made, are said to have been successful; but further experiments are required. The better the food of cattle, the richer is the manure. About 30 tons of tolerably fermented dung is the ordinary allowance for a Scotch acre of potatoes. More is required for sandy, less for clay