

ON MANURES.

Of the various operations on a well organized farm, there are none so difficult to be properly understood as that of knowing how manure should be applied to the soil, with the greatest advantage to the crops. Notwithstanding much has been said and written upon the subject, still, until very recently, the aid of *science* was not to any extent brought into requisition, by which the farmer could judge correctly as to the certain effects that different kinds of manure would have upon the various kinds of vegetables and crops grown for the use of man. By the application of chemistry to agriculture, the farmer may judge pretty correctly as to any deficiency there may be in his soil, for the particular crops that he may wish to grow; and by the aid of this science he can also judge correctly as to the proper quality and character of the manure that should be applied to the soil, to make up any deficiency in its natural quality. By this means, the enlightened husbandman may calculate with a considerable certainty as to the average products he will be able to obtain from his land, as a reward for his toil and investment. Although agriculture is the most ancient among the professions, and is held in favour by all classes, still it is singularly true that it is among the most *modern sciences*; and until very recently has it been thought practicable to so manage agricultural practice that anything like certainty could be looked forward to, as the result of an operation. A Davy, Low, Johnston, and a Leibig, have so completely illustrated the principles that govern an improved scientific practice, that those desirous of obtaining an acquaintance with the natural and unerring laws that govern the vegetable kingdom, may do so with a very trifling effort and expense. The more thought we have given this very important subject, the more interesting has it become; and we are quite satisfied that the system of education taught in our schools, in the rural districts, should have a direct reference to the great principles that govern vegetation, as well as those practical sciences, that would in an eminent degree fit our young men to become enlightened and highly useful and eminent citizens.

The following extracts, from the pen of Mr. Spooner, very pointedly illustrate the importance of the farmer paying strict attention in adapting his manure to the soil and the particular crop he cultivates:

A Treatise on Manures; their Comparative and Economical Qualities, &c. By W. C. Spooner, author of an "Essay on Superphosphate of Lime, &c."

We cordially recommend this pamphlet to our readers, as a simple statement on the theory and practice of manuring, by an experienced man. The following quotations illustrate the character of the work:—"The art of manuring consists in supplying those elements to plants which they cannot obtain in sufficient abundance from the atmosphere or the soil. To furnish in the manure all the food that a plant requires, would be a very wasteful and unprofitable practice; and to supply on the other hand, only those elements which cannot possibly be procured elsewhere, would be a mistaken and ruinous economy. The true and proper medium is to supply in *abundance* those constituents which cannot be otherwise obtained, and with *moderation* those elements which may be furnished by other sources. Thus the first object should be, to furnish the inorganic elements; the second requisite, to assist in supplying those materials which the atmosphere and the soil likewise furnish; and the third to avoid as much as possible adding those constituents, by means of the manure, with which the land already abounds." The following is a useful passage on the management of farm manure:—"Whatever new manures may be introduced, they will never have the effect of displacing this old fashioned though necessary agent. In connection, however, with its sterling quality, that of affording every ingredient required by plants, it usually possesses two grand faults; viz, its bulk and its poverty, or rather its poverty in proportion to its bulk. The quantity requisite for properly manuring an acre is so great, that its cartage approximates its value to its original cost. It possesses, in fact, too little of the more valuable combinations of the phosphates and of ammonia, or rather to large a proportion of carbonaceous and siliceous compounds, and particularly of water. It is quite necessary for the whole of the straw to be returned to the land; but it should be the vehicle of more valuable articles than is usually possessed. How, then, is this evil to be remedied? It may be obviated in two ways: one by rendering the manure itself of more intrinsic value; and the other, by adding to it or to the land, then or at another period, those