

was only by the use of those manures that they would be able to make it produce the largest crops at the least possible expence. After some observations as to the capabilities of every kind of land to produce, with proper management a profitable crop, and to the propriety of manure being applied only where it was wanted, he referred to an experiment made by the Rev. Mr. Huxtable of Dorsetshire, in raising a crop of turnips on a soil composed almost entirely of chalk. He made a mixture of the mineral substances, which went to the composition of turnips, but instead of sowing it broadcast, or placing it along the top of the whole drill, he got children to go along with bags of this substance, and to place a little of it at the distance of every twelve inches, on which three or four seeds were placed, and the result was, that he got a crop of twenty tons an acre of most magnificent turnips. In this experiment a curious circumstance was to be observed, namely, that wherever the seeds were put in where there was no manure put, the turnips got to the size of an egg, but no more. With such skillful treatment as this he believed their most barren soils might be made to pay all the expence of cultivation and leave a profit besides.

OBSERVATIONS ON THE USE AND BENEFITS OF STRAW AS FOOD FOR CATTLE.

When cattle are fed with straw it should not be given to them too long or entire, it being more agreeable, as well as more easily digested, when cut very short. In Spain, the horses which are fed upon straw bruised and cut very short, mixed with barley, would not keep in full vigour were it not much divided. It is also an excellent food when mixed with pounded seeds, meal or flour, roots, &c., such as boiled carrots; turnips, or potatoes, hashed oak-leaves, hay, or any other kind of fodder, especially in its natural state, when the season permits. Straw, in its natural condition, containing less nutritious matter than hay, it is necessary to make up its deficiency in this respect by artificial means, or by the addition of other substances containing an excess of nutrition. Experience apprises us that almost all other vegetable substances are capable of receiving modifications and combinations, creating or developing in them nutritious qualities which, without such preparations, exist only in a feeble degree. These substances are more or less developed, according to the degree of elaboration which they receive. It is for this purpose that nature has multiplied the stomachs in the herbivorous animals, that, by means of successive elaborations; the vegetables they eat, whether fresh or in the dry state, may, in being decomposed, undergo elementary combinations, fitting them for digestion and nutrition. In the usual order of the natural functions, the animal assimilates but a small part of the alimen-

tary matters which really exist in the food which it takes. This fact is proved by the circumstance, that the excrements of animals using succulent food, or which are put to fatten, produce a more fertilising manure, on account of their containing a larger quantity of substantial parts. Bruised or pounded seeds are more nutritious than when left whole; bread more than flour; fermented legumes more than those unfermented; boiled roots, or rather substances, more than those which are raw; and if we push our trials further, we shall find that old linen, wood, or straw, when submitted to certain chemical preparations, are capable of producing sugar, or at least syrup, incomparably more nutritious than the matter of which it is formed. All the organic substances from the vegetable kingdom, however juiceless they may appear to us, are capable of being converted into food; and a day will no doubt arrive, when chemistry will solve this great problem. But in our present state of knowledge, what is the preparation that straw should be made to undergo, to render it more nutritious? It consists of softening and modifying its organisation, by subjecting it to boiling, and thus making it pass, as it were, the process of a first digestion. The operation is neither difficult nor expensive. All that is necessary, is to construct cisterns or reservoirs of mason work, lined with good cement. A trap-door is made in the upper part for introducing the chopped straw, and in the lower part another by which it may be withdrawn. A furnace, placed beside it is furnished with a kettle, which, by means of a tube, causes the steam to be conveyed into the reservoir. The straw, thus prepared, is distributed warm to the cattle, after being mixed with various other substances. Some of these may even be prepared with the straw. This apparatus will also serve for boiling potatoes, beet-root, &c., intended for the food of hogs and poultry. It may perhaps be asked, what are the kinds of straw that afford most nourishment to cattle? Oat straw appears to be the best of the cereal kinds; then that of barley, wheat, and rye; but pea straw, and that of the leguminous plants in general, is more substantial. It is also of importance to take into consideration the greatest relative produce of each kind of straw. The same piece of ground will yield about the following proportions:—Wheat straw, 16; pea straw, 13; oat straw and barley straw, 10. We have next to determine what are the other alimentary substances which ought to be mixed with straw, especially when it is to be given to working animals, or for the purpose of producing milk. One of the most nutritious preparations is the mixture of straw with cakes of oleaginous seeds reduced to powder. An American farmer obtained an excellent fattening substance for his oxen, by mixing a decoction of lint-flower, straw heated in boiling water, calca powder, and oatmeal, the whole seasoned with a little salt. In this coun-

try, a jelly used for the same purpose has been made of linseed boiled for two hours, after being left to macerate in water for four hours. It is mixed with straw or wheat chaff. Several experiments of this kind, repeated in America, have afforded successful results in the fattening of cattle. Linseed has been boiled in a quantity of water sufficient to form a jelly of moderate consistence: the boiling should be continued one hour and a half, and it is necessary to stir the mass frequently, that the seed be not burned. To two measures of linseed there are added three of bruised barley; and when the whole is well boiled, it is mixed with four measures of chopped straw, and given warm to the animals that are to be fattened. Should they refuse this food, from not being accustomed to it, they are readily habituated to it by mixing a little molasses with it, and giving them but a small quantity at first. Cattle may also be fattened by mixing straw, while still moist and warm, with meal or flour, such as barley, wheat, peas, oats, maize, &c., or with bruised seeds. It is proved that seed given entire produces the loss of one-tenth part in nutrition, for a tenth is voided by the animals without undergoing any change.

From the Scottish Farmer.

DISEASE OF THE POTATO.

Stradbally Hall, Sept. 1, 1840.

Sir,—The disease of the potato, so much to be regretted, is now too well known to admit of any hope of renovation by any of the former methods of cultivation; and if it be thought prudent ever to try them as a main crop again, I consider it behoves every man to exert his skill to try, by every means in his power, to preserve at least as much for seed as not to lose them altogether. I am therefore induced to submit the following plan, if you consider it worth a place in your truly-valuable paper:—

I have been a good many years acquainted with the greening or sun-burning of the potatoes that I intended for early seed; a practice which may infallibly be relied upon as a sure preventative against any failure in their vegetation, however immature when first exposed to the action of the weather. As far as I can see or learn this season, immaturity in the crop is every where to be met with, even in the earliest planted portions. From my long experience in the above for early planting, I am now induced to try it more extensively; and I am at present taking the mould away with turnip-hoes; of course there may be quicker methods by means of the plough. This plan I am adopting previous to exposing them altogether. I think they may be dug out early this month.

The practicability of this method may be questioned by many; however, as the malady is fast progressing, and public attention in a great measure turned from the hope of success in their future cultivation, it would be advisable for every man