

been predicted from its lateral tillering, the ears being just as level, and the stalks as equal in height, as in the generality of broadcast fields, though I had no difficulty in counting twenty ears from one root. Some of it stood very thick, undoubtedly exceeding five quarters per acre; but I did not average it above four, and shall be glad to learn that I was in the wrong—and still more so, that one farmer in ten could get four quarters out of such a soil. His barley quite covered the ground, promising an abundant crop; the oats otherwise, which disappointed me, as I thought the soil better suited for that grain.

The beans exceeded anything I have elsewhere seen, covering the land so as to hide the intermediate turnips, and running up 3 to 5 feet high, full podded from top to bottom, without a blossom remaining. The peas were in fine condition, and the clover equal to any.

Mr. Davis advocates, I think, the production of all the manure on the farm itself, to the exclusion of the artificial special dressings, from which I send you, in another communication, some reasons for differing, notwithstanding his eminent success. And am yours, Sir, &c.,

J. PRIDEAUX.

Plymouth, 23d July.

The following is the communication referred to in the above letter:—

SPECIAL MANURING, OR DUNG ALONE.

Some of our first farmers (amongst them, I think, Messrs. Morton and Hewitt Davis) have argued that the farm ought to supply itself with manure, that addition it may require being made in food for the stock, as oil-cake, &c., to forward them for the market, while it improves the dung; and they exemplify, by the high condition of their farms, the efficacy of their system. Nevertheless, it is subject to the objection of presenting the same food to all the different cultivated plants, and, consequently, of stimulating the green juicy vegetation, on corn crops, where it weakens the stalk, as well as in green crops where it is desirable; so that the fertility may require to be limited, to prevent over growth of the corn-straw, and consequent laying before harvest. This, though very rare, in our neighbourhood, is a practical as well as a theoretical objection, and indicates the propriety of taking special means for strengthening the straw and increasing the ear, by determining the formation of seed, rather than of leaf and stalk. The proportion, of ammoniacal compounds, in rich dung, when not at all too great for cabbages, Swedes, or mangold wurtzel, may be sufficient, if uncocked, to run up wheat, soft and juicy, to six or seven feet high; ready to fall with the first heavy weather, when the ear is full; whilst the proportion of such compounds, suited to wheat, will not give the utmost bearing of the root or green crops. To get from the land the utmost produce its breadth will admit, it should be enriched to the full extent of our means; and the

vigorous vegetation directed, by special dressings, to leaf, root, or seed, as required.

Ammonia is well known to produce green juicy growth; and when in excess, will run corn up rank and soft, without filling the ear. Salt has an opposite tendency; and the wheats on our sea-coast are distinguished for thin stiff straw, and heavy ear. Lime has somewhat the like effect as salt; but *quick* or *fresh* slaked lime, applied to richly-dunged land, will set free ammonia, and increase the rank growth. In such cases, the lime must be used mild. The phosphates again, tend to increase seed; and on over-growing, or winter proud wheat, the super-phosphate of lime would check the ammonia, by its acidity, whilst the phosphorous would promote the increase of grain. So that by top-dressing the young plant, at the suitable time, with salt, mild lime, or super-phosphate, (one or all, as required) we might probably direct its growth, however vigorous, to the production of heavy grain crops, without danger of laying, on the richest soil. Wheat will bear a good deal of salt; Johnson says 10 to 20 bushels per acre; but say 10, (or 5 to 6 cwt.) with twice as much mild lime upon an acre; or with 2 cwt. super-phosphate upon 2 acres would probably be enough, in the rankest cases.

On the contrary, when rapid green vegetation is the object, ammonia may be used as the dressing. Thus in the case of Italian rye-grass, we have instances in your columns, of its being cut six times in the year: liquid manuring it each time after cutting, and thus forcing it up on rich soil to the growth of an inch per day.

A variety of such facts have shown not only that plants thrive best upon the food which particularly suits them, but that their respective parts (as root, leaf, and seed) may be promoted or checked by appropriate dressings; and consequently, however high the authority, however successful the practice of using dung alone for every crop (except occasional liming), I venture to state my conviction, from facts as well as theory, that neither the greatest fertility, nor the most economical and profitable culture, can be attained, without special dressing to suit the different plants, direct the growth, to root, leaf, or seed, and even supply occasional deficiencies, on the richest soils. This is borne out by many of the Scotch experiments, and seems to open even more clearly upon us, in the elaborate prize essay on the analysis of the oat, just published by the Scotch Agricultural Society; which shows, by succession of analysis, carried on for 18 months, how the inorganic (mineral) contents of the different parts of the plant alter in quantity and quality, in its different stages of growth; and hold out a prospect that, as these essays on the different cultivated plants become completed, they may indicate means of promoting and controlling the growth of the respective parts, with still more certainty and effect.

Yours, &c., J. PRIDEAUX.

From the Farmers' Gazette.

TO THE YOUNG FARMERS OF IRELAND.

LETTER IV.

My friends—This week let us consider the nature and qualities of manure.

All vegetables receive a portion of their nourishment from the invisible elements of the atmosphere,\* in addition to the accidental elementary bodies mixed with them, as nitrogen and carbon, together with ammonia, which is a compound of nitrogen and hydrogen, and infinitely small particles of vegetable and animal substances.

But it is from the earth they derive their more substantial food, as is shown by the effects of rich soil in promoting their growth.

Though it is beyond our power to cause a single shower of rain to fall, or to impart heat, moisture, or refreshing coolness to the air, we can improve or injure the fertility of the soil by giving to, or withholding from it, certain substances placed in our hands by the Creator, who sends the rain in due season, and commands the earth to yield her increase.

It is by the sweat of his brow, by his industry and by the intelligence of man, that the earth is kept from becoming a wilderness; if neglected and unmanured it would return to its forest state, or to that of wild land covered with coarse and worthless herbage; it would bring forth the rns also and thistles, which would overpower the delicate and nutritious grasses, that now feed our most valued domestic animals. There is a natural tendency in the earth, when left to itself, to produce noxious or comparatively useless plants, which strive to dispossess those suited for man's use, and occupy the ground in their place. The fig tree in the parable but cumbered the earth, and was to be cut down as worthless, unless the dresser of the vineyard should succeed in rendering it fruitful by digging about and *dunging* it.

Plants worth cultivating can only be made to thrive by cultivation; we must supply *food*, too, as well as tillage to our crops, if we expect that they shall be productive, and this we cannot effectually do, except by making ourselves acquainted with the particular habits and wants of each order of plants under our management, and administering to them from our stores accordingly.

Let us consider what manures we have at our disposal, and how we may best apply them:—

Of mineral manures we have limestone, limestone gravel, marl, chalk, and sea-shells; all these calcareous substances are plentiful in different parts of Great Britain and Ireland, and are *carbonate* of lime—that is, they are compounds of lime and carbonic acid.

To test any substance supposed to be a carbonate of lime; it is a common practice to pour some sulphuric, muriatic,

\*By atmospheric air is meant a compound of oxygen and nitrogen.