

only to prove this, and we arrive at once at the foundation of Agricultural Chemistry, at the basis of those great principles which must ever guide the scientific farmer, in a judicious application of manures—the food of plants. A moment's reflection, too, will convince any one who thinks it worth while to consider the subject at all, that cause of failure, which we so often hear of in the application of manures, arises from the want of attention to these principles.

Let us take an example:—A Farmer is anxious to try a certain manure: we will say nitrate of soda or potash. He applies it to his land according to the prescribed rule of so much per acre.

Now the nitrate acts as a manure principally, if not entirely, by supplying the alkali, soda, or potash to the soil. The Cerealia (wheat, barley, &c.) exhaust the soil of alkali, because a union of it with silicic acid is necessary for the stiffness of the stalk; and this, I may observe, *en passant*, is the cause of the green, rank appearance of the grain crops to which the nitrates are applied.

But it may happen, and does frequently happen, that there is no deficiency of alkali in a soil. Now in such a case it is obvious that the nitrate must fail. Another farmer applies it where the alkali is deficient, and it succeeds: hence the discordance in experiments of which we hear so much.

I will take a second example:—A crop of turnips, or mangle-wortzel, or potatoes, is manured, in part, with guano and azotised manure, and the crop from the last named is the best. Another crop of wheat, barley, or beans, shall be manured in a similar way, and that from the guano succeeded best. Now in these cases the results are strictly in accordance with chemical facts; and yet the experimenter who fails on the turnip crop, rejects the guano as a useless expenditure.

There is another source of apparent failure and consequent disappointment in the use of guano and artificial manures, which cannot be too strongly dwelt upon: I mean the fallacy of judging the effect of manures by appearances. If what is manured with rotten stable manure and guano, or urine, the plants from the stable manure will have the freshest, greenest, and strongest appearance; but notwithstanding this, the grain from the guano will be the best sample, superior both in quality and quantity to that in the other experiment.

Experiment, sound co-operative experiment, is the means by which these principles can be proved true or false; but no good results will ever be obtained by putting a bushel of this or that manure at random upon the first crop that comes to hand, and judging of the result from mere appearances; on the contrary, much mischief may arise, and a certain retardation of one of the most interesting and important of sciences to Agriculture. Mr. Pusey was, to a certain extent, right when he stated that the experiment of the Duke of Richmond was the first real contribution of chemistry to agriculture. But this was not the fault of the science, but of those who have undertaken experiments. An experiment, as Leibniz has observed, is the expression of a thought; and whether this thought is that of the Chemist or the Farmer, it is quite impossible to prove its soundness unless the minutest details are attended to. C. R. BREE.

EARLY CUCUMBERS.—Take a herring or raisin box, cut a piece of turf the size of the box, then lengthways and crossways, to make eight pieces. Put it into the box inverted; put in rich soil half an inch deep, plant seed enough for a hill on each turf, cover them with rich soil half an inch deep, place

the box by a stove, sprinkle water on as occasion requires, set the box out the south side of the house in pleasant weather, carrying it in at nights; and at a proper time remove them to the garden. The benefits of this mode are, the little trouble and expense attending it, and the ease with which they are transplanted. By removing each piece of turf separately, they seem not to be stunted at all in growth.

FALL PLOWING.—The season is now at hand when this work should be performed, and I beg leave to state some of the advantages which are, in my opinion, to be derived from it. One important advantage to be derived from fall plowing is, a more thorough and complete pulverization of the soil intended for spring crops than could otherwise be obtained. This, particularly on stiff soils, is of the first importance. The action of the frost during the cold season has the effect to divide and pulverize the upturned furrows, so that in the spring a mellow tilth is found, which cannot fail to be beneficial to all crops we may desire to raise. Upon this point I am not aware that there is any difference of opinion. Another reason for fall plowing is that crops on all plowed land are generally better than on land plowed solely in the spring. I have known excellent crops grown on ground which was plowed in autumn, without any further preparation in the spring, except a thorough harrowing. Another advantage is, the advancing of spring work, by having, as far as possible, all the plowing done in the fall of the year. In those sections of the country where winter grain is not extensively grown, and where, consequently, the principal reliance must be on spring grain, the spring work is excessively fatiguing and laborious, especially for teams, and any method which will relieve this branch of farm labor, must be advantageous to the farmer's interest. It not unfrequently happens, too, that the land intended for spring crops is so much saturated with water in spring, as not to admit of plowing until just about the season of planting or sowing, so that when the land is to be plowed, the putting in the crop must inevitably be delayed beyond the proper season. Add to this the consideration that all crops can be got in in better season, and all the operations of the farm performed in a more proper manner, when sufficient time is allowed, than when all the labor of plowing and putting in crops, fencing, &c., is crowded in the short space of two months, and we have, I should think, sufficient reasons for practicing fall plowing to a much greater extent than is now prevalent in this country.

I will close by expressing the satisfaction which I have derived from agricultural reading, and urging upon farmers the propriety of sustaining agricultural journals.

A PLOWMAN.

[One argument in favor of fall plowing is not mentioned in the above—that is, the destruction of insects and their larvae, by exposing them to the action of frosts.]—*Central N. Y. Farmer.*

UTILITY OF GEESE TO FARMERS.—It has been long remarked that cattle of all kinds are never unhealthy where geese are kept in any quantity; but the reason assigned is simply this, that geese consume with complete impunity certain noxious weeds and grasses which taint more or less according to their abundance, the finest paddocks pastured by horses, bullocks and sheep. Most farmers are aware of this, and in many places where the beeves appear sickly, geese are let into the pastures, and the soil where they tread is converted for the time being into a sort of infirmary.