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The Field.

Need of Good Judgment in Farming.

The farmer must be a reflective, reasoning man. He must not jump at conclusions, nor blindly follow precedents, nor meekly believe all he reads or hears about practical agriculture. Valuable as are the researches, facts and opinions collected by farm journals, they need to be winnowed in the fanning-mill of common-sense. Allowance must often be made for diversities of soil, climate, and circumstances. Too many farmers are guided by tradition, and wedded to long-established usages. Even these, although in many cases the result of careful and often repeated experiment, need to be re-investigated and reconsidered. It is not well to be hasty in abandoning what has been tested and proved time and again. Nor is it wise to be tied to any particular course of action, however much it may be in vogue. There are certain great principles which underlie all successful farming. These must be thoroughly understood and vigorously applied, all arguments to the contrary notwithstanding.

One of these foundation principles is that whatever is taken from the soil in the form of crops, must be returned to it in the way of manure of some kind. Either farm-yard dung, artificial fertilizers, or the volatile gases aloft in the air absorbed by the following process, must be given to the land robbed and exhausted by cropping. Another great principle is that the toil and cost of tillage may be lessened, or at any rate, more evenly distributed by a rotation of crops. These and similar principles must be kept in view, and farm practice made to conform to them, or the results will be disastrous.

Certain statements now aloft in the agricultural papers render these observations timely and important. A couple of prominent farmers in England have recently had remunerative sales of standing crops raised on farms not stocked with flocks and herds. These estates have for several years past been devoted to the culture of grain and grass, and the products have been sold off and consumed elsewhere without being returned to the land in the form of manure. The wonderful yields and high prices obtained are being trumpeted abroad, as though at last a method of profitable farming without manure had been discovered. But it must not be forgotten that the farms in question have been liberally dosed with chemicals. On one of these farms, in regard to which we have the details of management, artificial manure is applied to the value of £2 or £3 sterling per acre, the principal applications consisting of bone-dust, superphosphate, and guano. During the season just reported an aggregate outlay of £1326 was made for these artificial manures. Out of the total proceeds of the year's produce, which amounted to the gross sum of £4628, the expenses

came to £3185. There was a handsome balance to the good of more than £1100, but it is no better than the average profits of equally good farming on the usual system of mixed husbandry. Let it not be supposed from a superficial perusal of these narrations, that a plan has been found by means of which nature can be cajoled into a yield of plenty, without the ordinary investment of capital and labor. It is but a choice of methods. Most farmers keep stock and provide a supply of manure by the consumption of crops on the premises where they are grown. It is of course possible to dispense with the stock, and substitute artificial for natural manure, but manure of some kind there must be, if a high standard of cropping is to be maintained.

A French chemist, M. Ville, published a little work some years ago, entitled "High Farming without Manure," in which he advocated the system which has been actually carried out by the two English farmers to whom we have referred. As a matter of experiment, these modes of farming are interesting and useful; whether it is well to substitute such a style of procedure for that which generally prevails, is another question. There may be farms on which it may be wise and profitable to pursue such a course, at least for a time, but it can hardly be regarded as farming for the million. In the study and imitation of these examples, there is large room and imperative call for that exercise of independent judgment and strong common sense which it is the object of this article to inculcate.

It must be borne in mind also that thorough tillage and clean culture have much to do in securing the results under consideration. Long ago agricultural practice coined and made current the maxim, that "tillage is manure," and few have any idea how high a standard of fertility may be reached and maintained by thoroughly stirring the soil and keeping it perfectly clean. Mr. Lawes, of Rothamstead, England, has for many years raised an average of wheat on land simply well and cleanly tilled, which exceeds the average yield of that grain on Canadian farms. There can be no doubt that a large proportion of the strength of land is worse than wasted in the maintenance of an enormous production of weeds. Just to get rid of them without any increased use of manure, would largely augment the yield of grain and grass. But nature is inexorable and cannot be fooled by any ignoring or violation of those laws which the Creator has ordained; and while much may be done by thorough and clean tillage without manure, it still holds good, that high fertility can only be gained by the liberal use of manure, either natural or artificial.

As a further illustration of the subject in hand, reference may be made to an article now "going the rounds," entitled "Rotation not a necessity," and credited to a leading agricultural journal. It has always been maintained by intelligent writers on the

topic, that the same crop may be raised on the same land year after year, if enough fertilizing matter is given back to the soil. The difficulty of doing this, in view of the general scarcity of manure, makes it advisable to have a rotation. We know that market gardeners grow the same vegetables in the same ground for many years in succession, and often with increasingly profitable returns. But they put an amount of manure into the soil which quite staggers and astounds the ordinary farmer. What can be done under special circumstances is one thing, and what it is advisable to do under ordinary circumstances is another. In cases where manure is cheap and super-abundant, it may be well enough to dispense with the rotation which the best authorities have so long and so strenuously urged; but we confess we do not know of any such cases. Market gardeners are paid for their large outlay for manure, by early crops and succession of crops in one season. Confined in their operations to a limited area, they can afford to do that which is often inadvisable if not impracticable in a narrower field. It would be abstractly preferable, perhaps, if adopting the motto, "a little farm well tilled," land in general were brought up to the pitch of productiveness attained in the best market gardens, but this implies a vast revolution, only to be attained, if ever, in course of time, meanwhile, such manuring as is found practicable, conjoined with a judicious rotation of crops, will prepare the agricultural world for "the good time coming," when farms shall be quartered as to size and quadrupled as to crops. There are some good old-fashioned ways which it is as well to persevere in with constantly improving persistency, and among them we are inclined to rank manuring and rotating. At any rate innovations on them had better be introduced with caution, and with constant deference to principles which are unchangeable as the everlasting hills, and even more so.

Reading agricultural journals is like listening to preaching. No man's *us dixit* is to be received as all-sufficient. There must be reflection, judgment, and common-sense in the practical use and application of all teaching. The standards must be consulted, great principles must be kept in view, and conclusions reached according to the grand old prescription of Infinite Wisdom:—"Prove all things, hold fast that which is good."

HOW DRAINS ACT.—The water which runs into drains dug in tough clay soil, enters from the sides and the bottom, and not from immediately above the drains. The toughest clay is sufficiently permeable to water to allow it to pass through readily, and after the drains have been in operation some time, regular and permanent water channels become established in the soil leading from above to the bottoms of the drains. In digging drains in tough, compact clay, numerous small veins of water are cut, which show very clearly how readily the water will pass through such soil as soon as outlets are provided. The advantage of the deeper drains is thus explained, and it is readily seen that their influence extends further in proportion to their depth.