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The Field.

Depth of Grain Sowing.

Notwithstanding all that has been said and written on this subject, farmers are apt to give it but little attention, yet it has much to do with the success of crops.

In a state of nature, seeds are dropped on the surface of the ground. But nature is profuse in providing for reproduction both of animal and vegetable life. Wild seeds are intended for the sustenance of wild animals; and while picking up and devouring the larger portion of the yield, a small quantity is pressed into the soil, there to germinate. To follow nature in this respect, is to tempt birds and other creatures to the grain field, and in this case, the sowing must be on the liberal system set forth in the ditty on corn planting—

Two for the woodchuck,
Two for the crow,
Two for the cut worm,
And two left to grow.

Seed must be covered when fields are to be cropped. But how deep, is the question. Careful experiments have settled this point. It has been ascertained that wheat must not be covered more than two inches at most, and an inch and a half is better than two inches. Seed sown to the depth of one inch germinated and appeared above ground in twelve days, while that sown two inches deep took eighteen, and only seven-eighths of it came up then. Some thing depends on the kind of soil. In a stiff loam or clay, an inch is plenty, while in a light sand, two inches would not be too much.

The importance of sowing at a uniform depth, has led to the use of the drill. Broadcast sowing and harrowing deposits and covers grain unevenly. Here it is too thick, and there too thin. Here it is a-top, and there it is buried too deeply for germination. With the drill these inequalities are avoided, and uniformity both of distribution and depth secured. The drill has other advantages. It effects a great saving of labor and seed. It leaves the soil mellowed up after the horses have passed over it. Besides all this, in drilling the driver rides, while in harrowing he walks, a most important difference. With the drill, the work is done far better and far easier than on the old fashioned plan. It is therefore wise economy to purchase and use this implement. In a very short time it pays the first cost, and is always a source of satisfaction in its method of performing most important branch of farm work.

After Harvest Leisure.

The Ohio Farmer of August 15th speaks rather generally of the period just after haying and harvesting as a time when farmers begin to breathe more freely and obtain a little leisure. It says:—"There

is no warm month of the year that furnishes us so much time for rest and recreation as August, and if there is any class of men that know how to appreciate a little leisure time after the long, hot days of July, it is the farmer." There is a short interval of comparative slackness just after the small grains are gathered in, but it can hardly be called a "leisure time." Threshing demands attention, the fall wheat is ready, meadows require to be mowed, grass seeds sown; composting a variety of things are clamorous for attention until the stock is housed. Leisure cannot be calculated on. Yet even amid all this press of business, nothing is lost by taking an odd day now and again for recreation. A visit among friends, a picnic, a fishing excursion, a holiday of some kind, will do both the old folks and the young, as a world of good. They will feel enlivened; will work more cheerfully, and with less wear and tear to the machinery of life; new ideas will be obtained which will interest the mind while the hands are busily engaged in the routine of daily toil; and so labor will be lightened and sweetened. However numerous may be the things there are to do, all work and no play tends to dullness, not only with the boy, "Jack," but with the father, mother, and entire family.

Fall or Spring Manuring.

It is one of the peculiarities of agriculture that nothing is settled. It is full of vexed questions. Its processes are subject to so many varying conditions that scarcely any two effects are similar. Thus we have the unsettled questions as to draining, ploughing, manuring, and sowing, all of them problems of the first importance, but yet impossible of solution by any fixed rule. The practice of farming, therefore, is one that cannot be learned solely by experience on the one hand, or by theory on the other. Both are needed to make an accomplished farmer. The solely practical but unlearned farmer cannot adapt his experience to changed circumstances without falling into error and fatal mistakes. It is this sort of farmer who obstinately insists that because he farms a heavy clay soil that holds water and needs draining, draining is a necessity for every kind of soil and for all places. It also holds that because he farms a rich, warm, thin soil, resting upon an infertile subsoil, that deep ploughing is a useless and destructive practice; just as under opposite circumstances, he holds the shallow ploughing to be a heresy and a folly. Just so, too, in regard to manuring. There are those who believe in top-dressing only; others believe in fall manuring, and ploughing under the manure; others, again, believe in spreading fresh manure, and others in composting and decomposing it thoroughly before it is applied to the soil. The advantage of education is chiefly that it

enables a person to adapt his plans and methods to whatever circumstances he may be placed in. The educated farmer is one who thoroughly understands the principles upon which his art is founded—the science of agriculture, in fact—and has sufficient practical experience to apply his knowledge infallibly to the condition or character of the soil he has to work and to the other accidental circumstances of his position.

There is no question which interests the farmer more than the proper methods of using manure. At this season, when he is busy preparing to sow his wheat, or is looking forward toward his next year's corn or root crop, it is a very reasonable subject for consideration.

The principles which should guide the farmer in the use of manure may be epitomized as follows: First—Plants absorb their nutriment by means of the surfaces of their roots; not, as has been supposed by some, by means of spongioles at the end of the rootlets, but by means of the delicate skin or surface of the newer portions of the roots, or by means of microscopic filaments called "root-hairs," which spring from the tender surfaces of the fibrous roots. Second—The medium in which the roots grow has a great influence upon their extension. In fertile soil they are numerous and branched and spread thickly in every direction, and are abundantly furnished with the machinery for absorption of nutriment. On the contrary, in fertile soil the roots are few, attenuated, and are sparsely supplied with fibrous rootlets. Third—We cannot form any adequate idea of the quantity of roots possessed by a plant by roughly tearing it from the soil. If we wish to discover the whole mass of the roots of a plant, it must be done by carefully washing away the earth from the plant by means of a stream of water. Then we may find that in a rich soil the roots in a field of wheat, peas, corn, or clover will form a nest of fibres, which fill the ground to a depth of three or four feet, or from that down to seven or nine feet in depth in a suitable soil. Fourth—It is upon the abundance of roots that the growth of the plant above the surface depends. Fifth—Plants absorb nothing that is not soluble in water, nor do they absorb anything at all except by their roots, nor except it is in the state of a watery solution. Sixth—Before any organic matter can become food for plants it must be decomposed. Thus, we cannot feed a starch-producing plant upon starch, nor an albuminous plant upon albumen; but when starch is decomposed into its original carbon, and albumen into its original nitrogen, then and then only can plants feed upon those substances. Seventh—The fertilizing matter existing in the soil must be in a state of fine division and be intimately mixed with the soil to be readily reached by the roots of plants. We might enlarge this recapitulation greatly, but there is enough for our present purpose. From the consideration of the foregoing we conclude that the manure should be applied before the crop is sown or planted; that it should be in a thoroughly decomposed condition, or at least should be put into the soil in such a condition and at such a period that it shall be decomposed by the time it is needed for the nourishment of the young plant; that it should be spread upon the surface, and should be mixed with the soil as intimately as possible by means of the plough and the harrow; that it should be kept as near the surface as possible, and to do this it should be covered by a first ploughing, and then by means of a second ploughing across the first one it should be brought to the surface again and mingled with the soil, the ultimate and complete intermingling being done by harrowing.