

## Fall Preparation of Land.

As the autumn has arrived, and the hurry and pressure of haying and grain harvest is easing away, it may be well to take into consideration the preparation of land with a view of abridging the work of the coming spring, and putting the soil in a forward condition for next year's crops. We shall not aim to be very systematic in our present suggestions, but rather to start the current of thought in others, and let them "govern themselves accordingly," as their desires and means of accomplishment may or will permit.

1. *Preserving what Fertility there is.*—It is a custom with many to feed off the second crop of their mowing fields with cattle. This is called "turning into the fall feed." Many believe that this practice does no damage to mowing fields—that the hay crop will be just as large during the next year as if the cattle had not fed it off—that it is the same in effect as cutting the "rowen," or aftermath, and carrying it into the barn. A little experience and observation will soon convince one that this is not in fact the case. If the cattle, in their mode of gathering the second crop nipped no closer than the scythe, or tramped it no harder than the man who mows and gathers it indoors, perhaps there would be little difference in the two, but the fact is, that cattle not only nip close and tramp hard, but they are generally allowed to follow it up until snow falls and covers the ground up. By that time the soil is pretty well stripped of herbage, and has no clothing for winter and but a little fund to start upon next spring.

Now, if the grass had been suffered to grow after all the haying from it had been closed, there would be not only a good coating of grass to serve as a protective mulch to roots during the winter, but the heads or collars of the roots would be stored with food for the early nourishment of the starting blades of the coming season. Therefore we advise to keep your cattle off your mowing lands in the fall, if you can get along without doing it, and let the fall growth act as a mulch.

2. *Preparations for next year's crop.*—If we could plough and put into proper condition the land we intended to sow and plant in the spring, all within one hour of the time of sowing or planting, we would not meddle with it until then, for we should thus avoid all the exhausting influence of winds, and heats, and colds. But as this would be impossible, we must suffer the losses, more or less, which may arise from such exposure, and prepare them when best we can. Experience has now pretty well demonstrated the wisdom of getting in our spring grains as early as we can stir the ground deep enough with the harrow to cover them. The same is true in regard to grass seed.

To effect this we must do our ploughing and our preparations in the fall, and the farmer must consult his programme of arrangements so as to use his team and ploughs when they will least interfere with harvesting his autumnal crops. Some think that early fall ploughing is better than later, for although the surface will be longer exposed to the drying effects of the winds, and early depleting and exsiccative causes, they will bring a more succulent soil, which, by its easier decomposition will be as much more available as a fertilizer as the other will be exhaustive.

In England they keep the plough going at all times of the year, but that is a milder, moister and more equable climate than ours, and the exposures cannot therefore be fraught with much, if any, exhaustion of the soil, as it would be if under similar exposure in our climate, where we have the extremes of heat and cold, wet and dry.

The spring and fall are therefore the most appropriate times for us to plough, and as our springs are short and rapid, and work always driving, we should equalize it as much as possible, by ploughing a good part of what we need to do, during the autumn. So speed the plough. *Maine Farmer*

**TOP DRESSING WHEAT LAND.**—The following important suggestions on this subject are from the *Illustrated Annual Register of Rural Affairs*:—"In most of our best wheat regions, unless the soil is already quite rich, the most effective use of manure is a top-dressing after the land has been ploughed. It has often increased the crop eight or ten bushels per acre, and sometimes given a good yield of the Mediterranean variety where the winter has nearly destroyed undressed fields. The manure for this purpose should be fine or well-rotted and well broken by harrowing. To prevent the manure waggons from hardening the ploughed soil, it is a good way to plough and then dress a strip on the further side of the field, and then repeat the process on successive strips till the whole is completed. If the soil is very dry, bring the moist portions up by deep ploughing, and drill in immediately."

## The Fall Ploughing.

The ploughs are in motion in swarth and stubble. The soil is dry. There is a good hard track for the team. And this hardness and dryness prevents the depth of tillage which ought to obtain on fields preparing for the autumn seeding of wheat. We do not see the ploughs in beam deep. Indeed, as a rule it is not the best policy. But we do see the subsoil following the surface plough. This is what ought to be seen in every field that is being ploughed for fall wheat and rye.

For some reason these subsoil ploughs are not used. Why? Is it the scarcity of labour that prevents? Or is it established that it does not pay? Have any of our readers data which go to establish this fact? If so, it is new to us. We have seen the matter repeatedly tested, and we know it will pay, on most soils, to incur this extra expense especially on heavy soils where there is no system of underdraining.

Where are your best crops, gentlemen, this season? On your stiffest and shallowest ploughed land? What crops have withstood the effects of the drouth best? Those where the plough ran lightest? We should like to know if there is such an instance known in the entire Rural parish.

What is going to be done? How are we to obviate the disastrous effects of drouth? How much has this drouth cost you? that is, what would the difference between your crop the present season and that of a favourable season amount to? Would not the difference go far toward paying the expense of properly draining, ploughing, and sifting the land? And the time has long since passed when any argument was needed to establish the fact that draining, deep ploughing, and other thorough culture were insurance against the vicissitudes of seasons—against damage to crops resulting from too much or too little water.

Then we urge—modestly, as an Editor should—that the teams in the plough-fields be just doubled in number, or that the acres ploughed be diminished one-half, and the depth of soil stirred be doubled or tripled—quadrupled if possible. So shall the good old harvest of the early time come again. So shall the long dry weather be regarded a blessing to the crop, developing in its greatest perfection the seed and the vegetable, the fibre and the plant. So shall the plant receive all the advantage which God designed it should derive from His sunlight acting upon the elements of productiveness contained in the soil. And insects shall be powerless to effect its vigorous growth; no diseased condition of the plant shall invite their ravages nor contribute to the propagation. Stir a less area and stir deeper this fall, gentlemen! It will pay.—*Rural New Yorker*.

## Airing, Draining, and Irrigating the Subsoil.

Can any one doubt the advantage of airing the subsoil? and, above all, of draining it and irrigating it? Dig below the five inches of ploughed soil in undrained clays, and you bring up a lump of dense putty as heavy as lead, and as impervious. Place it on the surface, it dries almost as hard as cast-iron; it shrinks and then cracks by contraction; by-and-by down comes a shower, and your once stubborn and unmanageable mass disappears in a circle of friable crumbs. To a reflecting mind at all acquainted with chemistry, what a volume this disintegrated clod opens up! and how its elements seem to reprove neglectful man for so long preventing their development and utilization by the thousand and one affinities of sunshine, dews, frosts, and other arcalities (to coin a word.)

We can now understand why the old man on his death-bed bid his sons dig for the imaginary treasure which he told them had been deposited in his field. They searched, but not in vain; for deep and frequent cultivation brought them money's worth by greedily increased crops. So it will to the British farmer, and so it does to me; and as I look at my seeming corn crops, nearly six feet high, throwing up their heads thickly and evenly till they look like a serrated floor, I know that in that great last effort of nature, their roots now find in what was once the unwholesome and unacrated subsoil, the elements of a completed growth. They do not exhibit the too common appearance of an ill-assorted regiment, where lank grenadiers and little riflemen intermix in incongruous proximity. How sagaciously and profitably has that excellent man, the Rev. Mr. Smith, of Los-Weedon, carried out deep cultivation. He does not poison his plants by placing them on the raw subsoil, but by ploughing back the top soil, on that on which they grow; whilst the naked uncovered subsoil is dug, manured, acrated, and prepared to

form an improved subsoil when the top soil shall be turned back upon it. I am more and more confirmed in my conviction that the general cultivation of this kingdom is under five inches—more shallow, in fact, than the depth of a common wine-glass—that depth must be measured in the solid earth. When broken up, and set on edge by the plough, it appears deeper. How does that five inches accord with the requirements of my friend Dickson's parsnip, whose roots ran down 13 feet 6 inches in one season! My bailiff was examining the drainage on my neighbour's field (a wheat stubble, on a stiff clay), and found abundant roots of the wheat crop five feet below the surface. So it is with many of our crops. Surely, then, the roots would thrive all the better by finding down below manure, air, and circulating water.—*J. J. Mechi, June, 1864.*

## Twenty-two Years' Experience in Draining.

In 1842 I drained most of my farm. On the stiff clay side (plastic yellow clay, like bird-lime in winter and cast iron in summer; too strong to make bricks, free from lime but abundantly supplied with iron rust), I drained 32 inches deep and 12 feet between the drains—the lower part of the drain filled with small stones to the depth of ten inches, and above or rather over the stones a 2-inch pipe, which, binding against the sides of the drain, prevented any surface soil falling in among the stones. Well, it seemed an odd fancy, and just as it was finished Mr. Josiah Parkes's able paper and the 4 feet drainage made me think I had committed a folly, and so, after having drained about 75 acres in this way, my further drainage was done at wider intervals and deeper, with pipes alone. Twenty odd years have rolled away, and year by year my labourers and myself, have watched closely every field and every drain, and we have noticed that the closely drained land with tile and stone is always forwarder and more quickly dried than the wider and more deeply drained; that it harrows more freely and friably, and requires less harrowing than the wide drained, and every drain works as perfectly as it did 20 odd years since.

Now, do not for a moment let it be supposed that I am condemning the modern system of deep draining with pipes alone, which I know to be efficient, especially in soils having any friability; but I am convinced of this—that on our very stiff clays, especially in wet climates, it is most desirable to have the drains near to each other, say 18 feet or less, and also to have ample sized pipes, not merely for the purpose of draining the land, but for ventilating the subsoil. It is on this principle that I consider my close stone and tile drain so effective, and it is on this principle that I advocate, where opportunity offers, to fill the drain with porous material, or stones—the "area of porosity" in the drain, which I once pronounced as a theory, has still a strong hold on my mind and on those of my more practical labourers, who say, "Ah, sir, there is nothing like your first drainage; see how regularly the corn dies or ripens in color, even in the furrows, and see how well it works after winter."

A great deal of draining work is being done by Messrs. Eddington, of Chelmsford, by a powerful engine working a mole plough 3 feet deep and 16½ feet intervals. No pipes are put in, but a tunnel larger than a tumbler is formed by the mole forcing its way and compressing tightly the earth or walls of the tunnel. Although I had considerable doubt about its success, especially in our collapsing and uncertain clays, I have seen and know of so many instances of its success that there can be no mistake about it. A good deal has been done in my own neighbourhood. It is a cheap, quick and effective way of getting rid of surplus water by a tenant farmer, who has no compensation for drainage—from four to seven acres can be done in a day. The cost, including horse and manual labour, coals, hire of engine, &c., is under £2 per acre. I believe, out of this £2, to 18s. per acre is for the hire of engine, with drivers, &c. The drains are, I believe, one rod (16½ feet) apart. The compression must be intense, for on cleaving through the soil, the upper surface is moved and shaken like a small earthquake, and, no doubt, this breaking or lifting in addition to the cutting knife above the mole must admit water freely to the conduit.

The Messrs. Eddington let out many engines for this purpose, and for ploughing, thrashing, &c. I again commend my friends, who farm very stiff, unctuous clays in cold, wet, elevated districts, to have their drains near to each other. In our cereal southern districts we have the advantage of many wide cracks in the soil.—*J. J. Mechi.*