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means of leaves that the Great Husbandman mainly top-dresses and enriches the earth, and it is wonderful to notice how rapidly a worn out soil planted with forest trees is restored to a virgin fertility. Of course there is a great difference in the manurial value of leaves from different varieties of trees. Thus the dry leaves of the birch and oak furnish only five per cent. of inorganic matter, while the beech gives seven and the elm eleven. All leaves are rich in saline matter, and whoever has tried the manure made from them in raising potatoes and root crops of all kinds, must be satisfied that it pays well to gather them. They should be housed when dry and before they become mouldy, as in this condition they make a healthy as well as comfortable bedding, having a tonic influence on the appetite of animals.

LEAVES OF VEGETABLES.

Another fragment which is apt to be lost at this season of the year is the tops of turnips and other roots and the loose leaves of cabbage-heads. If left to perish on the ground where they have grown they may not be utterly lost, but the organic constituents vanish into thin air. The tops of roots and the leaves of cabbages have not been sufficiently appreciated as food. By carefully conducted experiments at the Albert Institution in Ireland, it was found that forty pounds of milk produced from rye grass alone, gave three pounds and five ounces of butter; produced from mangold leaves and common grazing, the same amount of milk gave three pounds fourteen ounces of butter, and from mangold leaves alone the yield of butter was four pounds. By Boussingault's analysis of the roots and leaves of mangolds, we learn that weight for weight the leaves furnish nearly three times as much muscle-forming matter. This accounts for the large size, bony frames and muscular strength of the animals that formerly roamed through our forests and browsed for a living. Gather up, therefore, the turnip tops and cabbage leaves, and by piling them up with alternate layers of straw they can be preserved for feeding till quite late in the Winter.

Many fragments of wood, the shed limbs of trees and broken boards and rails are apt to lie around the farm. They are unsightly when lying around loose, and will well pay the labor of collecting for firewood and ashes. No people were ever blessed with such a profusion of fuel as the Americans, and no nation was ever so lavish in its use and so wasteful of its fragments. We are rebuked in our prodigality in this direction when we see Irish and German women carrying bundles of sticks wherewith to boil their tea-kettle and keep themselves warm as they return home after a day of toil. It is by their frugality in this and other respects that these women manage to bring up large families and to deposit surplus earnings in the savings banks. An Irish woman once said to us, "It makes me ache to go through the woods around here and see so many branches of trees and nice chips lying around and rotting. They make me covetous and tempt me to steal." If farmers do not want their fragments for themselves they should give their poor neighbors a chance for gleaming them.

FERTILIZING MATERIALS.

There are fragments of fertilizing materials around on every farm that should be gathered at this season of the year and made to subserve the improvement of the soil. Muck is lying useless in the swamps that should be in the barnyard or the pig-pen, leaf-mould abounds in the forest that is rich with fertility, and should be in the compost-heap; the ditches should be cleaned out and the cleanings, full of vegetable and saline matter, be piled up for decomposition. The henery and the cess-pool also need cleaning and to be restrewn with some absorbent.

FRAGMENTS OF TIME.

Lastly, the fragments of time, that increase as the length of the evening increases, should be gathered up. Material improvement is good—mental improvement is better. These long evenings should not be wasted in mental inactivity. Books, newspapers, and social intercourse can make Winter evenings as profitable to the farmer as the Summer days. A full purse is a poor compensation for an empty head and a collapsed heart. "Time is the warp of life; oh, weave it well."—*N. Y. Times.*

Providing Grass Seed.

Every farmer uses more or less seeds of the different grasses and forage plants. Most of these seeds are purchased from dealers or growers, few farmers being so situated as to grow all the grass

seeds needed for stocking down pastures and meadows in the spring. The season is coming on when these seeds must be sown, if ever. It is time to look around and see where these can be procured to the best advantage, or at the cheapest rate. Both these requirements are, or must be, kept in view; it will not do to buy seeds with either object in view alone. Seeds bought at the best advantage are always cheap. They may cost a little more money at the outset, yet may be the cheapest. As an instance, the experience of a man in Western New York may be adduced. Wishing to sow a little Alsike clover seed, he consulted the catalogues and advertisements of all the regular and transient dealers. Prices ranged from seventy-five cents to one dollar and twenty-five cents per pound—the difference, fifty cents per pound, was considerable—so he concluded to send to the parties offering the seed at the lowest price. The seed grew well, but the next year several stools of the white or ox-eye daisy blossomed out finely. They were dug out, of course, but new ones have appeared every year since, from seed which have hitherto remained dormant in the ground. That seed was not cheap at any price. The same person wished to sow some more last season. He was at the trouble and expense of taking a journey of sixty miles in order to personally examine, at a large seed store, the samples of Alsike seed. The seed purchased was previously examined with a magnifying glass, and no ox-eye could be detected. This Alsike seed cost more than advertised prices, but the purchaser will probably find it cheap.

It is wise to sow the best seed and to sow plenty of it. It is wise also to buy only of seedsmen who have an established reputation for accuracy, carefulness and responsibility. The reputation of such is worth more than the profits on a whole season's sales, and of course their goods can be relied upon. They also have a direct interest in selling only the best seed, since usually the result of such sales are "a standing local advertisement" in every section where sown.

It is necessary to sow plenty of seed. Ten cents saved in seed results usually in a dollar lost in the harvest. No one has ever reported that he had sowed too much seed. All errors have invariably been made the other way, so far as known. If the "penny wise but pound foolish" course—that of sowing as few pounds of seed is followed—the hay crop will be quickly gathered, and in winter soon be gone. Just as much seed must be sown as will stock every square inch of the ground with at least one growing plant. This will take more seed than just the number of square inches of surface in the field. Four or more times this amount should be provided, for much is inevitably lost. The seed should be scattered lavishly enough to secure a good stand, if it takes a good half bushel of seed to each acre to be seeded down.

Green Manuring.

Green manuring is a term under which is comprehended the application of plants and vegetables in a fresh state, as manure, but it is especially applicable to the system of plowing in certain crops, cultivated expressly for this purpose. This is a practice of very ancient date, but it fell into disuse on account of the facility with which other manures can be procured. It is a practice, however, from which much benefit may be derived, especially on soils that have been scourged by repeated cropping, without adequate manuring. But, although it has always been found to be an excellent method of temporarily enriching land, it is not sufficient, of itself, to keep up the permanent fertility of the soil.

The reason this is the case is that plants, especially such as penetrate the soil to the same depths, draw up those inorganic ingredients which had either sunk or naturally existed at a certain depth in the soil, and place them near the surface and within the reach of other crops when the plants are plowed in. But by the constant practice of green manuring, the inorganic food contained in the subsoil becomes gradually diminished, and ultimately the supply of such food becomes exhausted, both in the surface and subsoils.

Although green manuring may be occasionally of great service in drawing up inorganic food from the subsoil for the benefit of succeeding crops, yet other manures must, from time to time, be applied; otherwise the soil will become barren. When this system is followed, the plants, such as clover, buckwheat, etc., should be plowed in before coming into full flower, because the flowers give off

nitrogen; consequently when the operation of plowing is delayed until the plants are in full bloom, a considerable portion of this important constituent is lost. The depth of furrow should not exceed four inches, so that the air may have access to the plants, to promote their decomposition, but at the same time they must be properly covered to prevent any of their constituent parts from being lost.

The most important mode in which soils are enriched by the addition of vegetable matter, and which, from its effect on the soil, exceeds all others, is the laying down the land to grass, etc. It is well known that soils which have become impoverished by a continual course of cropping, conducted in an improper way, have their fertility restored by being laid down to pasture, and even those soils which are under a proper system of management, and have a liberal supply of manure allowed them, and a liberal course of cropping followed, are still much benefited by being laid down for two or three years in pasture.

The general opinion is that the good results of laying down land to grass for pasture are produced by the droppings of the animals enriching the soil, but the real cause is, probably, the large amount of organic matter added to the soil annually by the death of the roots and stems of the grass, and the decay of the roots when the field is plowed up for tillage.

Experiments have shown the large amount of vegetable matter contained in the roots of grasses, and that different varieties of grass, etc., vary considerably as to the amount of matter derived from them. It has been found that in old pasture or meadow, broken up, the living roots left are equal to four times the weight of that year's hay crop. If a ton and a half of hay have been mown, then about six tons of vegetable matter remain in the soil in the form of roots. If a field of clover is plowed up at the end of the second year, the quantity of vegetable matter left in the form of roots is equal to one-half of the whole hay that the clover has yielded.

It is a general rule that whatever causes an increased produce above ground, will cause a corresponding increase below the surface, in the shape of roots. Thus, nitrate of soda, which produces a large quantity of hay, also causes a great increase of roots, which, when plowed in, have a beneficial effect on the succeeding crop. The burying of vegetable matter in the soil is one of the ameliorating operations of nature, from which man has copied the practice, of green manuring.—*E. M., in Western Rural*

Queen Victoria as a Farmer.

There are three separate farms within the precincts of Windsor Forest—the Norfolk, the Flemish and the Prince Consort's Shaw Farm. The last mentioned is the Queen's favorite, though a large amount of capital has been expended upon the other two, and most of the stock which have won prizes at the recent agricultural shows are kept on them. The Shaw Farm consists of about 1,100 acres, more than nine-tenths of which are in pasture, nearly all in a ring fence. This is said to be as fine a specimen of a grazing farm as one could wish to see. Extensive operations are in progress for conducting all the sewerage of Windsor out to a farm a mile and a half distant. The farm buildings are convenient and well-arranged. The foot-and-mouth disease, which is quite as disastrous among royal cattle as among any others, has been so prevalent on this farm that no stock from there has been exhibited. The royal dairy is a gem. A large sum of money is represented in the majolica and mosaic of the walls, which are studded with medallions of the Queen, the Prince Consort and their children; the double roof and triple windows, the inner window being of stained glass; the milk pans in white and gold, and the curious inlaid floor. The butter made here is sent daily to the Isle of Wight and to Scotland three times a week, when the Court is there, and fruit and vegetables are sent at the same time. Among the bulls kept on the farm is King Coffee, an Ashantee bull, brought from Cremassie, and valued only as a curiosity. The poultry house near by contains some gold and silver pheasants, a few Andalusian fowls, and some Scotch greys. In the centre is a little cottage where the Queen used to take her 5 o'clock tea. The laborers on the farm are paid 14s. a week, but house rent, fuel and other advantages make their wages equivalent to a pound a week, and some of them have as much as £20 laid by.—*From our Exchanges.*