

nual breaking of fresh soils the constant decline in the yield of older wheat fields is counteracted. The farmer of the Eastern and Northern States emigrates to the West.

A Michigan farmer, in a letter to the *N. Y. Tribune*, relates his experience in the successful treatment of worn-out land—a good, practical lesson for many. He bought a farm of 160 acres that had been given up and abandoned by its owner. Ninety acres of it had been called cleared, and some of it run over for fifteen years. His first study was to restore the land to a productive condition. Barn-yard manure could not be procured in sufficient quantities, but he had learned by experience the value in farming of land-plaster and clover on land such as his farm, and he expected that the profits from their use would be as great as he had known them to be. He had great difficulties to contend with. He was in debt, and on a worn-out farm; farm fences and farm houses wretched, and without money to purchase seed and other necessities; but he was not discouraged.

Having introduced the writer to our readers, we give the remainder of his experience as he tells it himself in the *Tribune* :—

The first year I worked as much of the land as I could with one team. As might have been and was expected, my crops were poor. But I succeeded in getting a few acres well caught to clover; on this I sowed the next spring about fifty barrels of plaster per acre, and a finer growth of clover I have seldom seen; of course I was encouraged, and began to see my way clear.

Field No. 1 was plowed in June for wheat, was kept clean by cultivation, and sown about September 15; yield 15 bushels per acre; it was seeded to clover in the spring. In the spring after the wheat, it was plastered and mowed twice during the season. The first sowing gave 1½ tons of hay, the next about 2 tons. The two years following the field was pastured, being plastered each year. It was then planted to corn, and the yield was 60 bushels per acre of ears. The corn was cut up at the roots, and placed in large shocks. The ground was then plowed and sowed to wheat; the yield was 25 bushels per acre.

Field No. 2 was in wheat when I came on the place; the yield was about 10 bushels per acre. The next spring it was sown to oats, with clover seed; the summer being very dry, the oats only turned 20 bushels per acre, and the clover did not catch well. The clover proved to be so thin that it was left the next year to go to seed on the ground. The next spring the clover came up as thick as it could grow, and having been plastered early, afforded a very great amount of feed. The next year it was left for seed, and 3 bushels per acre were taken off. It was then fall-plowed, and the next spring planted to corn. Plaster was sown on it broadcast in July; the yield was something over 100 bushels per acre of ears. Wheat was sown after the corn in this field, the same as in No. 1, but the yield was only 14 bushels per acre, as it was badly struck with rust.

Field No. 3 seemed hopelessly barren; this was the field that I offered to a neighbor to raise buckwheat on, but he only plowed the best part of it, so I did not get it seeded that year. The field was fallowed the next year, and sown to wheat in August; the yield was 8 bushels per acre. Clover seed was sown on the wheat in the spring, and a good catch obtained. The two following years the field was pastured, it being well plastered each year. It was then re-sowed for hay one year. The next year it was fallowed, plowed in June, kept clean by cultivator and sheep (we never plow but once for wheat), until sowing time. It was sown broadcast about the 15th of September, a boy following and sowing 75 pounds of plaster per acre. That was the handsomest field of wheat I ever raised, and averaged over 40 bushels per acre. I will not follow the fields separately any farther, but will state that they were all treated in about the same way, with like results.

There were some discouragements, of course; we cannot expect success always to attend us in anything. One year a hail storm reduced a fine crop of wheat to twelve bushels per acre; another year the midge cut down the yield to fifteen bushels per acre, when it should have been twenty-five; but the general tendency was to better crops each succeeding year. After the midge came we changed the rotation somewhat, and instead of sowing

wheat after corn, we left the ground for barley, to be followed by wheat, so that the rotation now is corn, barley, wheat, clover. We generally leave a field in clover two or three years; the first year it is mowed early for hay, then it is left for seed. The next year it is mowed again for hay, pastured the remainder of the season, then planted the next spring to corn. We plaster everything except wheat; formerly we plastered wheat in the fall with the best results, but of late it has caused too large a growth of straw. We do not plaster it now unless it shows, as it sometimes does, a sickly color in the fall; then a dressing of plaster, or plaster and ashes, proves very beneficial. The greatest trouble we have with wheat now is in the too large growth of straw, making expensive harvesting without increasing the yield. For a number of years past our average yield per acre has been twenty bushels, some years running up to thirty. Other crops have been proportionately good. All the other farms in the neighborhood have been improved proportionately; this whole region is now a fine farming country. No greater change was ever wrought in the agriculture of any country than has been wrought in this region. The most effective agents in producing this great change are clover and plaster; without them it would have been impossible to have brought this land up to its present state of productiveness.

Hungarian Grass.

As the cattle of the country increase in number it is evident that the quantity of winter feed must also increase, and also as the quality of our live stock is improved so must our winter provender increase in quantity, as well as improve in quality. Well-bred stock must be well fed to be profitable. If we have not a certainty that our hay crop will be amply sufficient for our winter stock we should prepare to add to it at once. Those who have not grown Hungarian Grass can have no idea how much fodder can be grown to the acre from this very valuable crop. No farmer should be without it or its kindred millet, of which it is a variety. For soiling, it will in the short season of its growth, yield two or even three heavy cuttings. For hay, it should be cut just before the seeds begin to form; if left later, it will become dry and hard, and have lost much of its nutrition in quality, but if cut green the hay is eaten greedily by farm stock. The present month (June) is the best time to soil it, though it is sometimes sown as late as the middle of July. The ground for it should be well cultivated; and the richer the soil the heavier the crop. From two pecks to a bushel of seed is usually sown. Sow evenly, harrow it in well and roll it. Rolling is the more necessary as it is sown in the dry season. In two months from the time it is sown you may have it saved as hay—in less time often. It may succeed an early soiling crop—fall rye, or oats and peas, so that there may be two well-paying crops in the same season. Hungarian Grass may be suffered to mature so that the seed may be saved, but by so doing the fodder is so much deteriorated as to be more worthless than ordinary straw, and if the farmers' object be to have fodder for his cattle, his aim should be to have it of good quality, regardless of the seed. Hungarian Grass and all the cultivated varieties of millet bears seed that, if saved for the purpose, would make a very nice flour, and for this it is used in some countries; but the object of the grower is the flour, not the fodder, and the nutrition that would be had in well saved hay has been taken from it by the maturing and ripening of the seed.

Though the crop seemed from its great bulk impoverishing, the ground for soiling or early cutting for hay is very heavy. The soil is not as much impoverished by it as might be supposed. Any crop, cereal or other, does not when cut, before being matured scourge the land as it would if permitted to ripen the seed.

Coal Ashes Applied to Fruit Trees.

Of our early recollections of gardening, one of the earliest was the application of coal ashes to the strawberry border. It was said to keep down the growth of weeds and to add to the productiveness of the crop, while improving the flavor of the berries. Coal ashes are generally looked upon as a nuisance about a place, quite useless for any purpose unless it be to raise some low spot that might otherwise be a pool of stagnant water. But they are greatly undervalued. Their value is not, as has been said, only that of the wood ashes among them from the wood used to set them on fire. We have for some years applied them as a mulch to our small fruits, and had very profitable results. We have had a very heavy crop of currants, black, red and white, large currants, ripening early and of very fine flavor, though there was a general failure of currants in the neighborhood. So was it also with the Houghton Seedling. We could not spare much coal ashes for our strawberries, but the little we used in dressing them proved their value. This season, in addition to top-dressing our borders of small fruit, we applied a liberal dressing of coal ashes to the surface around our plum trees. They are not as good a fertilizer as wood ashes, but we are so fully convinced of their value in the garden that we are careful to have them carefully preserved. A correspondent of the *Prairie Farmer* has applied to his vines coal ashes as a remedy for grape-rot. He had for years been experimenting to prevent the rot, but unsuccessfully till he tried the coal ashes. The treatment that has succeeded he thus describes: It was simply by scraping away the top soil from about the roots of the vines, and spreading upon them about a bushel of coal ashes (with which considerable wood had been burned). This was done in May, and the foliage received more or less dusting during the operation. The result was that the vines were entirely free from rot and mildew. Among several hundred bearing Concord vines treated in different ways, those only that had been so treated were free from rot. All others had few ripe grapes unaffected. This remedy needs to be further tried before we can place entire reliance on it. We hope grape growers will try the experiment.

The Advantage of Cultivating the Soil in Summer.

Soil cultivated regularly and frequently will cost the farmer nothing for weeding. This is one item of profit. The judicious saving of expense is clear gain. The frequent stirring of the soil effectually destroys such weeds as are annuals. Uprooted when they germinate, the tender germ perishes, and, hardly as many of them are, the injury to the germs is certain death to them. The roots of other weeds are also checked in their growth, if not killed. The general drouth of our Canadian climate makes the killing of weeds by the frequent stirring of the soil certain and comparatively easy work.

This continued disturbance of the roots destroys them, although by the same cultivation the soil is kept moister than it would otherwise be, and the growing crops are nourished, care being taken not to disturb their roots. During the driest weather it is most necessary that the cultivation between the rows of drilled crops be continuous, as the more you stir the soil during drouth the more moisture the growing crop imbibes. The freshly turned soil possesses the property of attracting the dew during the night; the dew rests heavy on it, while undisturbed soil around receives little benefit from it, and this dew sinks into the soil and nourishes the thirsting roots. Soils of every