

MANURE AND LABOUR.

The two great problems in American agriculture are in regard to manure and labour. The need of the former is increasing, and the cost of the latter is not diminishing. We are finding to our cost that we cannot forever depend on our "virgin soil," and we have long known to our cost that farm wages are immensely higher here than in foreign countries. And the only way we have borne up under this immense cost of labour has been by drawing on the fertility of centuries stored in our low-priced lands. Plainly hereafter our manure must be carefully saved, used to the best advantage, and handled at the least possible cost. It can be all saved only by having watertight stable floors and manure gutters, as recommended by W. T. S. and F. P. Root. It can be handled at least cost by constructing our stables so that we can drive our waggon or sled through, and load up directly from the manure gutter, and daily in winter drawing it directly to the spot where it is to be used. This saves once or twice extra hauling, and it brings the work in winter, when labour is cheap and teams and men are apt to be idle. It cuts the fields less to draw on snow or frozen ground, and it advances the spring work wonderfully. As soon as the ground is dry enough, it may be ploughed without delay for hauling manure. As to the value of the manure (for clayey soil) when ploughed under unrotted in spring I agree fully with both the writers referred to, in thinking that the soil is more enriched even for the second or autumn crop than if the same manure had been fermented in yard or large heap, and applied fine as a top-dressing. I am convinced by repeated and faithful trials of both methods that this is so. I have uniformly had better results with the wheat and grass seeding in the fall, when the manure has been ploughed under green in the spring and drawn upon by a spring crop, than when it had been rotted in a large pile, even with every precaution against waste, and applied in the fall with the wheat. Mr. Root's explanation is no doubt the true one. The manure, when turned under green in a heavy soil, will, in fermenting, supply ammonia to the soil, instead of to the air; and the decaying manure supplies humus to the soil and helps to loosen it and make it porous. It has in this respect the same beneficial effect as that produced by ploughing under a crop of clover. A shrewd Ohio Dutchman was lately asked why he always ploughed under his stable and yard manure green. His reply was: "Vell, may pe I can't exhlain him till you onterschandt him already, but I exhlain him to onterschandt him mit myself, dish vey. Venefer I slows dot fresh manure under dot furrow, don't you see, vanden dot furrow schmells him all summer, und der roots dey schmells him too." This is almost identical in thought with Mr. Root's more scientific language—"When turned under in a heavy soil, all the solvent (or soluble) and gaseous elements are absorbed by the soil and used by the crops."—W. J. Chamberlain in *Country Gentleman*.

THE INFLUENCE OF LIME ON GERMINATION.

We have lately referred to several investigations upon the influence of the steep water on malting, and it has been conclusively shown that the presence of certain salts, more especially the lime salts and the nitrates, exert a beneficial effect. The fact that lime is essential to germination has been recently fully confirmed by some interesting experiments made by Dr. Liebenberg, and which have recently been published in the journal of the Vienna Academy of Sciences. It appears that the seeds of many plants require the presence of

lime in the soil during the germinating process, or the seedlings die for the want of it. It is shown also that many other plants do not fail to germinate freely and well without the presence of lime in the soil. Dr. Liebenberg also points out that plants which fail to grow through the absence of lime in the soil do not fail in consequence of the injurious effects of any other matters that may be present, but because lime is essential to their healthy growth. These investigations have a practical interest for maltsters, and confirm the opinion of many who consider the quality of the steep water has considerable influence on germination, and therefore on the quality of the resulting malt.—*Breuters' Guardian*.

HARVESTING IN A BAD SEASON.

Quite a number of years ago the Royal Agricultural Society of England, says *The Farmer*, offered a prize for an essay on the best mode of getting in the harvest in a bad season. The prize was won by Mr. Edwin Eddison, who wrote: "My experience began in the wet year 1816, when the blackened straw of the barley looked like smoked stubble in the month of March." He adds, "Any suggestions I make are given not from theory, but practice, and my own observation. My directions will be reduced to the following heads. I am not aware that I ever had a stack on fire or was compelled to pull one to pieces." His directions are—

- 1—Reap early.
- 2—Make small sheaves.
- 3—Use single bands—i.e., one length of straw only.
- 4—Leave sheaves open as long as you can before binding.
- 5—Never allow the sheaves to lie all night on the ground.
- 6—Make small shocks.
- 7—Do not use hoods.
- 8—Rather let the wheat be muck in the shock than muck in the stack.
- 9—Carefully watch it.
- 10—When dry, carefully cart it.

He also adds, that in stacking, he cuts a grip nine or ten inches deep all round the stack bottom, about a foot from it, and takes care at the lowest point to have a clear opening or watercourse, and throws all the cuttings into the middle, so as to make the bottom convex; then puts a layer of straw, as much as would be a very good bedding for a tired horse. Upon that he builds the stack."

SPRING RYE FOR HAY.

Spring rye should be sown as early in spring as the ground can be well worked. It is not well to plough any land while it is too wet, so that the furrows will dry in lumps. From three to four bushels of rye is enough seed for an acre. The fodder should be cut as soon as it is fully grown, but before it comes into bloom. Rye grows hard, tough, and woody very rapidly after it begins to blossom. We cannot recommend it in preference to oats for a hay crop, but it is valuable for filling in the gap between winter rye and oats for green feed. It is a little later than winter rye, and a little earlier than oats.

POTATOES.

An important item in growing potatoes, which some of us do not heed, is the selection of seed. This must be done while digging, taking the seed from hills or vines that produce perfect potatoes, and throwing into separate piles or baskets. In saving Peachblow seeds, save the potato that is like the Peachblow in shape, or, to cut the matter short, a perfect Peachblow, Early Rose, Vermont,

etc., and not from hills or vines that produce its shape, or forty or fifty varying in size from a pea to a hen's egg, which you will get if you throw into heaps, barrels, or waggon, and sort seed from the lot. Try this, and see if it does not improve the quantity and quality of your potatoes, as well as of your corn or any crop where you make a choice of seed.

SOWING GRASS SEED.

A rough wind prevents the regular spreading of seeds, therefore choose a still day for sowing grass seeds. Instead of mixing clover and grass seeds together, the practice is recommended of going twice over the land, sowing the light grass seeds first, passing up and down the furrows, and subsequently crossing the land at right angles with the mixture of clover and other heavy seeds. The brush-harrow should be applied immediately before and after sowing, thereby covering the seeds before the birds or a change of weather can interfere with them. After harrowing, the whole should be carefully rolled.

HOP RAISING.

The poles being set, I commence ploughing between the hills, pulverizing the soil as fine as I can. When the vines are large enough, I go through the yard and tie them to the poles. The tying is somewhat tedious, requiring constant care until they reach the tops of the poles. About the last of June I put cultivators in the yards, giving them a thorough cultivation. Then I hoe them as I do corn. About the 1st of July I plough them again, this time turning the soil towards the hill. Then I hill them, making quite large hills. About July 15 they begin to blossom, and 45 days from blossoming they will be ripe and fit to pick.—*Cor. Rural New Yorker*.

In the purchase of seeds the Royal Agricultural Society of England recommends that purchasers should require a guarantee in accordance with the following standard:—1. That the bulk be true to the species ordered. 2. That it contain not more than five per cent. of seeds other than the species ordered. 3. That the germinating power shall be, for cereals, green crops, clovers, and timothy grass, not less than ninety per cent.; for foxtail not less than twenty per cent., and for other grasses not less than seventy per cent. The Society also recommends that the purchase of prepared mixtures be avoided, and that the different seeds to be sown should be purchased separately.

The Highland Agricultural Society of Scotland has ascertained by experiments that an ounce of red top seed contains 425,000 grass, and of timothy 74,000. Of more practical importance was the fact shown that the greatest number of seeds of timothy germinate at a depth of one-fourth of an inch. "Only one-half of the number sown," says the report, "germinated at a depth of one inch, and none at a depth of two inches. Orchard grass seed failed at 2½ inches. The proper depth was indicated at one-fourth of an inch. The result of the experiments in determining the germinating power of common field grasses corroborates experience and militates against the practice of some farmers, who sow their grass seed with the grain and harrow in. The proper way to sow grass is: After the grain has been harrowed in, cover with a light bush, or by passing over it with a roller, or if left upon a seed bed it will germinate if not bushed at all."

A PATIENT and humble temper gathers blessings that are marred by the peevish and overlooked by the aspiring.