

with two barrels of common salt per acre, the combination keeps the soil moist, strengthens the straw, and produces a better and heavier grain.

On turnips and carrots, a mixture of 100 pounds each of plaster and wood ashes, with two barrels of salt to the acre, applied as a top dressing, will greatly improve the crop both in quantity and quality, and will enable the roots to stand a drought such as they were subjected to last year, and keep green and growing all the time.

In the township of Waterloo the German farmers are applying it in the fall, upon their winter wheat, as they inform me, with good effect. I have not as yet tried it myself, but as they have used it more extensively last season, I presume the experiment is satisfactory.

The evaporation and escape of gases from manure heaps, stables, &c., &c., can be prevented by frequent sprinklings of gypsum, which absorbs these subtle elements, and precipitates them into a fixed salt of ammonia (hartshorn) for the use of the crops to which it may be afterwards applied.

The annual loss to farmers by the waste of evaporation is enormous, as the best and most subtle elements of their manure heaps, and urinal washings, are lost from want of proper economy and care, and, like the riches of a spendthrift, are dissipated to the wind for the benefit of others, and to the ultimate ruin of himself. In manure, upon which plaster has been from time to time applied, decomposition is retarded; but its whole strength is retained intact, and afterwards, when turned out in the field, effluvia is hardly perceptible. This proves that gypsum acts on the gases and ammoniacal matter alone, that it is an effective chemical agent in adapting these elements to the use of growing crops, and that it exerts no influence whatever on the soil itself.

T. W. C.,
Paris.

Liquid Manure.

In Holland, Belgium, and to some extent in England, one of the great elements of success in obtaining heavy and continuous crops of grass, and green forage for soiling milch cows, from the same piece of land for several successive years, is found in the judicious and extensive use of liquid manures, applied to the land by means of water-carts or force-pumps. This liquid manure is not merely such as can be saved in the drainings of the urine from the stables and farm-yards, but much of it is obtained by dissolving the solid excrements of animals in tanks constructed for the purpose. The tanks are so situated as to drain the urine from the yards and buildings, and from time to time the solid excrements are added. The whole mass undergoes fermentation, becoming a thick mud, to which water is added and stirred in, to make it thin at the time it is to be applied to the land.

Our farmers have not yet experienced the great benefits to be derived from this mode of using manure, which would be so peculiarly applicable in our hot, dry summers, and we hope at no distant day to see tanks for the purpose of collecting manure for distribution in this manner become a necessary appendage to every well cultivated farm. But, while we think this mode of applying manure to the soil, especially to grass crops, would be highly advantageous, and repay many times over the cost of tanks, water carts, &c., we imagine that the construction of tanks or cisterns in the farm-yard, in order to collect the liquid drainings of the stables, cow byres, and even the rain from the roofs of the farm buildings, in order afterwards to pump out the contents and spread them over the manure heap, at intervals during the dry weather of summer, would prove of signal advantage to the cultivator of the soil. Ordinary farm-yard manure, as made in Canada, contains a large admixture of vegetable matters, such as straw, cork stalks, &c., which, becoming dried in summer, resist the decomposing powers of the small amount of excrements incorporated with them, so that by the time the farmer wants to haul the manure out on his fallow or plough it in for root crops, he finds the undecomposed vegetable matter greatly in the way of the efficient incorporation of the manure with the soil. Dried up manure heaps are also greatly liable to become fire-fanged, which destroys their value.

In Belgium these manure tanks are usually constructed by bricklayers, at a price proportioned to their capacity—the larger they are the less the price in proportion, the usual size of a tank or cistern being a capacity to hold 35,000 gallons. In Switzerland they make square holes in the ground, and line the sides with brick set in clay mortar. Where the soil is a tenacious clay, and there is no danger of the liquid manure percolating out at the sides or bottom, it is only necessary to construct the tank in such a way as will keep the sides from falling in, either from the effects of the action of frost or the trampling of animals near it. Where the soil is porous, it becomes necessary to make the bottom of stone flags, with the joints cut square, set on a puddling of strong clay. The wall is then to be built from and on this bottom, and hydraulic cement used instead of common mortar.

The cost of a tank containing, say 25 square yards of brickwork, would be about \$50.

Harrows and Harrowing.

There are quite a number of patterns of harrows in use, but a really good harrow is yet a desideratum. There should be two classes of harrows used on every farm: a heavy, square-toothed harrow, to drag over newly turned soil and render the surface level, mellow, and at the same time deeply stir the soil; and a lighter and sharper-

toothed harrow to cover in seed and break the crust on the surface, after the young plants have got a start.

We believe harrows might be used with more advantage than is usual among farmers, and we think that a round-toothed harrow, so constructed that the teeth may be raised or lowered by means of screws, to suit the depth they are required to penetrate the soil, would be a great advantage. Besides the usual work done by the harrow, it ought to be used more on fall wheat in early spring, to break the crust left by the washing of the fall and spring rains. Also, barley, or other spring grain, would be greatly benefited by a light stirring of the surface soil before the young plants get too high. Potatoes ought to get a light harrowing, lengthwise of the drills, as soon as the tops are through the soil.

But one of the most neglected uses of the harrow is that of scoring the surface of meadows and clover leys in early spring. It is very generally done in England, and has a wonderfully good effect in giving grass an early start. In old meadows, a little fresh grass seed is usually sown after the harrow has scored the surface, and this fresh accession of grass from seed keeps them in constant herbage to better advantage than trusting to a growth of natural and often inferior grasses, to take the place of those that run out through being too closely cropped by stock. To perform the operation of scoring the surface soil either on meadows or other crops, the teeth of the harrow should be slender and sharp, and so set as not to penetrate deeply enough to tear up the soil, and with it the roots of the plants; and we think that a round toothed harrow would be best for this purpose, being of lighter draft, offering less resistance to the soil, and, as it were, being self-cleaning. The work should be well done by harrowing twice, the one across the other.

Raising Early Vegetables.

Few farmers take the trouble to make a hotbed, or understand its management when made; but any one can obtain early plants of choice varieties of tomatoes, squash, cucumber, melon, cauliflower, &c., with little trouble and at small expense, in various ways. The most common is to sow seeds in boxes filled with rich soil that can be kept in a sheltered place exposed to the sun during the day, and in the house at night, to avoid danger from frosts. This plan, however, seldom produces stocky plants, and, besides, many are lost in transplanting, or from too much crowding.

A better plan is to procure a hundred or two of the smallest sized flower-pots, known as thumb-pots among gardeners. They cost \$1 per hundred. Make a large shallow box, capable of holding from twenty-five to fifty of these pots, put a little coarse gravel for