

gent workman can soon learn how to bring up his drains.

The best time for commencing draining operations is when the weather is dry, particularly where the soil is silty, as the workmen's feet in the grips would cause the silt to purge, and fill up the trenches as soon as they were cut; or the silt, not being dry, would get into the drains, and choke them up. The time for putting in drains ought to be regulated by the cropping and other circumstances. A good time would be as soon as spring has completely taken the frost out of the ground, and the land is sufficiently dry to allow operations to be carried on; or they might be put in when the crop has been taken off the land, about the end of August or beginning of September. They ought then to be slightly covered over with earth, and allowed to remain so for a month or six weeks, as thereby the operations will be greatly assisted, and the work of the drains advanced one season. It is a bad plan to cover up drains immediately after they are laid in. By keeping them open, the trenches or grips let the air get into the ground, which it can only do after they have been filled in, when the drain by its working has drawn out the water, which does not take place thoroughly, sometimes, for two or three years. Thus the action of the drain is retarded, and more especially on land that is only being broken in, and the return for the money is longer in coming in.

Seeding to Grass.

If we wished to have good pasture, and intended the land to be broken up by the plough at the end of two years from the time of seeding, we would sow nothing but clover at the rate of twelve to fifteen pounds per acre. We know many will say this is a heavy seeding, and it is about double the amount usually given by the generality of farmers; but it must be remembered that only a liberal seeding will insure success in obtaining a good stand with so uncertain and capricious a plant as clover, when it is sown alone. As soon as the young plants are well up, a dressing of one bushel of dry unleached wood ashes per acre, sown broadcast, will greatly help them to get established in the soil and resist the drought of summer. Some advise sowing plaster, but it is best to be applied the succeeding year, when the clover has got fairly rooted in the soil. Sown on any grain crop, especially barley, which is the best on which to seed down clover, plaster has the effect of retarding the ripening of the grain, and increases only the amount of straw produced.

For a permanent meadow—one that is to be mowed and pastured alternately for a number of years—there is nothing equal to timothy grass. This plant is perfectly hardy, and withstands the severest of our winters without injury, and if sound seed and enough of it is sown, there need be no fail-

ure to obtain a good stand of grass, at whatever time it may be sown. It is a question as to the proper amount of seed required per acre of timothy. It lasts for years, growing in stools of bulbs that are large and spread from year to year, somewhat after the manner of a potato onion, and should never be too closely cut or pastured down. Owing to the fact that timothy, if too closely seeded, will grow weak and spindling, and that it seldom produces a good crop until the stools have begun to form and spread, it is advantageous to sow clover in the proportion of three-fifths by weight, or some other grass, along with it, to fill up the ground for the first year or two. The clover soon gets winter-killed out; and if not, the timothy, as it spreads over the ground, displaces the clover. Red-top is sometimes sown with timothy, though more generally it springs up spontaneously. We, however, do not like red-top grass, and for hay alone we prefer the timothy only, or with a small admixture of clover. Timothy, although a very nutritious and fattening grass for stock, gives but little aftermath when mown for hay, and therefore, in seeding down land that is required for permanent pasturage, especially for sheep, other grasses must be introduced that will afford a constant succession of herbage throughout the season.

We think the English practice of sowing several kinds of grass seed together might be carried out here to advantage for permanent meadows. So little has been done in that respect here, that it becomes a difficult matter to know what grasses to recommend, with a certainty that they will succeed in our climate, and few farmers are inclined to try the costly experiment of procuring seed from England to test the matter. Probably the best grass we could obtain, as giving a large amount of nutritious herbage during the latter part of summer and through the autumn, is the *Poa pratensis*, known under the names of *Spear Grass*, *Smooth Meadow Grass*, *Green Grass*, and in Kentucky as *Blue Grass*. It is in a measure indigenous to the country, although said to have been introduced from Europe, and springs up spontaneously in old rich meadows. This is the most valuable natural grass of America, and its prevalence in pasturage is a sign of the land being in good heart and well tilled. On poor or badly tilled land it is rarely seen. The seed is very small and light, weighing about four pounds to the bushel, and difficult to obtain in any quantity. The farmers of Kentucky and Pennsylvania find it comes in of itself on land that has been limed and well manured before being seeded down, so they do not try to save the seed of it. It is of very luxuriant growth, forming a thick heavy sward when once it takes possession of the soil, driving out all other grasses, and lasting for many years, spreading out by means of its perennial creeping roots. Where seed can be procured of this grass, a bushel per acre is the quantity sown

—generally in the fall on winter wheat, or very early in spring, before the snow melts.

Of the English grasses, the best known here and most used at home is the Orchard Grass, *Dactylis glomerata*. Sown at the rate of one bushel per acre, this is one of the most valued and common of the pasture grasses, not only of Europe, but also of Asia and Africa. It grows rapidly, to a height of three feet, ripens earlier than timothy, and furnishes a rapidly-growing, dense and nutritive aftermath, and resists the effects of drought remarkably well, but should be closely cropped when used as pasture.

Italian Rye Grass, *Lolium Italicum*, is another European grass of value. It requires two bushels per acre, stands drought well, and is adapted to moist clayey soils, where it gives a heavy yield of herbage of good quality.

On the Application of Land Plaster.

Having been interested in the manufacture and practical uses of land plaster for over thirty years, and after studying its effects upon the various crops to which I have applied it from time to time, I am induced, for the benefit of the farming community, to submit the result of my experiments and experience with gypsum, as a top-dressing for clover, roots and barley, to which crops I have applied it with excellent results.

It is also a useful adjunct in barn-yards, stables, pigsties and cesspools, where it ought to be freely and constantly used, to prevent the escape of the ammonia evolved from decaying urine and animal matter.

There is no doubt that its action, when sown as a top-dressing upon growing crops, is wholly atmospheric, that its affinity for the ammonia, with which the common air is highly impregnated, by the gases constantly thrown off from decomposing matter, causes it to attract and fix those floating essences, for the use and benefit of the crops to which gypsum has been so applied; and though it may have no direct affinity for pure water, still I find that green crops, especially clover, which have received a top-dressing of gypsum, in attracting the ammonia during the night, also retain the dew in which it is embodied; for, in walking over a plastered clover field in the morning, I find my feet saturated with water, whereas, in an adjoining unplastered field, they would as surely come out perfectly dry.

My farm was originally a sandy loam. It has decreased in vegetable mould, and become more adhesive by arable culture for the last 35 years, to which latter effect the intermediate pasturing of sheep has also contributed.

On this soil, 100 lbs. of plaster to the acre is the maximum quantity required, and when applied in excess, no greater effect is produced.

Used on barley, especially in dry seasons, its effects are beneficial; but when mixed