

persistence and hardiness. With respect to all our pasture plants, however, the call for the plant-breeder is insistent, and unquestionably there is scope in our grasslands for an immense amount of selection work. Strains of seeds, also, from all over the world should be tried out and the best perpetuated by an efficient mother-seed-growing establishment. The plant-breeder alone is of comparatively little use; there must also be some seed-growing organization to carry the strain on from the nursery stage.

PREPARATION OF THE SEED-BED AND METHOD OF APPLYING THE SEED TO THE LAND.

It may be claimed almost without exception that our pasture plants prefer a well-consolidated seed-bed for their establishment, and as a rule they do not require to be deeply buried, particularly the clovers. It may be put down as a fairly general rule that the optimum depth for most seeds varies according to size, and as a rule the seeds should be buried some two and a half times their longest axis, neglecting the external appendages such as the husks and glumes of grasses and cereals. In the case of rye-grass and cocksfoot, &c., this would give a depth of between $\frac{3}{8}$ in. and $\frac{1}{2}$ in., and with oats, prairie-grass, &c., 1 in. to $1\frac{1}{4}$ in.; while with the finer grasses like crested dogstail and timothy approximately $\frac{1}{4}$ in. would suffice. In the case of the clovers, white clover and seeds of a similar size would be buried $\frac{1}{8}$ in. to $\frac{3}{16}$ in. deep, while red clover, lucerne, &c., would vary from $\frac{3}{16}$ in. to $\frac{3}{8}$ in. A good deal, however, depends on the soil. In heavy soil the depths specified should not be much exceeded, but on lighter sandy or loamy soils a greater depth can be approached with advantage. In a mixed sowing it is only possible to regulate the depth to suit in an average way the whole mixture, but the necessity of not burying the seed too deeply must here be stressed. In spring sowings on light land likely to dry out in the early summer fairly deep sowings should be made; up to $\frac{1}{2}$ in. or even $\frac{3}{4}$ in. is not too deep. The land should be well worked and a good tilth prepared, but this must be consolidated by the roller before the seed is applied.

There are several methods of applying the seed. The old-fashioned broadcasting by hand is still in vogue, and is about the only successful method for the sowing of bush-burns and the like. Undoubtedly the most efficient broadcasters on ploughable country are the specially constructed grass-seed distributors or the drill, the spouts having been removed and the seed dropping from the box on to the land. Special grass-seed boxes are attached to the better and more modern makes of drills. Whether the seed is broadcasted by hand or sown by the drill or distributor it should fall on a Cambridge-rolled surface, or else the roller should follow the drill. Often the seed sown is simply rolled in, but the hard-rolled bare surface is not good from a moisture-conservation point of view, and undoubtedly this surface should be roughened by the use of the chain harrow. If the seed is sown on a Cambridge-rolled surface the chain harrow should be used to cover, and is usually quite sufficient. The tine harrow is frequently used to cover the seed, but there can be little doubt that the tine harrow does bury a large proportion of the seeds too deeply.