

is universally recognized, yet the fact of the value of properly conserving farmyard manure continues, in many instances, to be neglected.

Much as we appreciate the value of an organic manure, it is often argued that the average New Zealand soils are not yet really deficient in humus, and that the necessity for the proper care and use of farmyard manure can quite easily be left in abeyance meantime. In answer to this statement it has to be remembered that the stables, cow-sheds, and yards must of necessity be kept cleared of manure, but there can be no real reason why it should be dumped in untidy heaps in odd corners and left lying at the mercy of heavy, washing rains, which remove in a liquid form to the nearest drain the most quickly soluble and available plant-foods. Even if it has to be looked upon as a necessary evil it must be handled and, sooner or later, the accumulation carted out and spread on some field. There appears to be no valid reason why a little extra care should not be taken to save the best of the material and utilize it as a fertilizer and soil-improver, while at the same time reducing annual expenditure on artificial fertilizers.

The ideal method would be to spread the manure daily and plough it in; but this may be prohibitive on account of the labour involved, so that storage under reasonably good conditions will be the more convenient method. Where this can be accomplished under cover the value of the manure is greatly enhanced; but this may also be too expensive, so that the manure-heap in the open is likely to be more general. At the outset every attempt must be made to avoid drainage running from the heap, and if a concrete floor with shallow sides is out of the question, then a shallow depression should be scooped out, and if the bottom consists of an impervious clay all the better, as the object is to conserve all liquid. If the subsoil is loose, then a few loads of clay puddled on the bottom of the depression will answer. Should the circumstances prevent the scooping-out of a depression, then a ridge of loose soil can be spread round the outskirts of the heap, and as the moisture becomes absorbed it can be thrown on top of the manure-heap and replaced by more soil. In building the heap it should be kept evenly spread and level on top, consolidating the mass as much as possible in order to avoid undue heating. Horse-manure will heat readily if air is not excluded, especially if combined with too much straw. This causes a great loss of ammonia, and must be avoided as far as possible by mixing with alternate layers of cow or pig manure, or by pumping liquid manure on to the heap. Where none of these methods is practicable, and overheating occurs, a layer of soil should be spread on top of the heap. The soil will absorb most of the ammonia, and by consolidating the heap assist to prevent heating. It has often been suggested that gypsum, superphosphate, or kainit should be used as preventives against loss of ammonia in stables, but though good results have occasionally followed their use it is now recognized that all are open to objection, and they are not recommended. It is preferable to rely on straw or hay as a litter to absorb the moisture.

As an indication of the loss sustained by uncovered manure-heaps compared with those kept under cover, a few experiment-station