Manuring of Hay and Pasture.

THE following is an abstract of Leaflet No. 37 on Manuring of Hay and Pasture, issued by the Department of Agriculture, Dublin, August, 1927 :—

In the Irish Free State the economic importance of the proper treatment of Meadow and Pasture Lands has been readily recognized by the fact that there is a vast acreage of land under old meadow and rotation hay. The yield and quality of the herbage of the hay crop saved on a large area of the meadow land are extremely poor. Even in the case of rotation hay much could be done to increase production and improve the quality of the crop. A crop of hay removes a considerable amount of manurial ingredients from the soil and in the absence of manure the land can continue to produce successive crops in reduced quantity at the cost of soil deterioration. In view of the scanty yields obtained in many cases from much of the land under meadow hay and the beneficial results which a moderate dressing of manure will almost invariably produce on the quality and yield of the hay, as well as on the after grass, the proper manuring of this crop calls for no less attention than does the manuring of roots, potatos or grain crops.

Experiments were carried out with farm-yard manure and artificial manures and the most satisfactory results were obtained from a complete dressing consisting of—1 cwt. Nitrate of Soda, 2 cwt. Superphosphate, 3 cwt. Kainit per Statute Acre. On most farms the available supply of farm-yard manure is, as a rule, required for root crops and in such circumstances artificial manure is to be relied upon. In the experiment just referred to the superphosphate and Kainit were applied about the end of February, and the Nitrate of Soda about the beginning of April.

In subsequent tests a dressing was used consisting of 1 cwt. Sulphate of Ammonia, 2 cwt. Superphosphate, 3 cwt. Kainit per Statute Acre. The three manures were mixed together and applied on adjoining plots, at intervals of a month, from early January to early April. The mixture with sulphate of ammonia may, under average conditions, be substituted for the standard mixture with Nitrate of Soda, and its use obviates the necessity for applying the nitrogenous manure as a separate dressing.

With regard to the use of liquid manure for meadow hay in winter and early spring experiments showed that a dressing of 16 tons per statute acre have produced an average increased yield of 17 cwt. of hay per statute acre, an increase exceeding that produced by the application of an equal weight of farm-yard manure.

Experiments with the principal phosphatic manures now available and the three mineral phosphate Gafsa, Algerian and Naura, and the different kinds of basic slag have shown a distinct increase over the unmanured plots. The increased yield of hay and the enhanced value of the after-grass during the first season following the application of artificial manures will, in almost every case, be sufficient to pay the cost of the manures.

For many years past the raising of store cattle for export and the production of milk and butter have been the chief branches of the Irish livestock industry. The farmer has learnt from experience that tillage crops cannot be raised successfully without the aid of manures. He has failed, however, to realize that the raising of cattle for export for generations past has been a serious drain on the fertility of the land on which the stock is pastured and, on large areas of such land, no steps whatever have been taken to restore the fertility which has been lost. To make matters worse the pasture on which store cattle are raised are, for the most part, those on which dairy cows are pastured and have to be maintained during the period of maximum milk production.

Phosphate of lime, the most valuable mineral manurial constituent of soils, is required in comparatively large quantities by growing animals for the building up of their bodies, and by dairy cattle for the supply of the requisite mineral matter for the production of milk. This explains the reason why stock farming, as it is commonly practised, "wears out" pasture land in the course of time unless some of the plant food constituents have been restored. It also indicates the nature of the treatment which such lands should receive in order to maintain their stock carrying capacity.

What has just been written makes it clear that the surest method of restoring and maintaining the fertility of pasture land is the application, in some form or other, of phosphate of lime. Superphosphate, basic slag and ground mineral phosphates are the principal fertilisers which supply phosphate of lime. While good results have been obtained from the use of all these fertilisers on Irish pastures, high grade, high soluble basic slag has hitherto been the most extensively used throughout the country. The remarkable improvement which follows its application to poor grass lands is convincing evidence of the extent to which the reserves of phosphate of lime in the land has been depleted.

Farmers sometimes allege that repeated dressing of slag do not act as well as first applications and will eventually have no effect whatever. This is not borne out by the results of experiments extending over twenty years at, among other places, Cockle Park, England.

The importance of improving the milking-strain of dairy herds and the quality of store and beef cattle and sheep is fully recognized at present, and determined efforts are being made to effect improvements in those directions. Unfortunately it is not so clearly realized that in order to achieve the fullest possible measure of success in the improvement of livestock it is essential to restore and maintain at a high level the fertility of second and third class grazing lands. No animal, however well bred, can economically produce milk, beef, or mutton on impoverished pastures. Poor pastures are incapable of supplying, at any period of their growth, the necessary food constituents for the maintenance of a cow producing three gallons of milk daily. As a result of the information gained from more than twenty years' experimental and demonstration work on the improvement of pastures, the means whereby the returns from live stock can be increased to an appreciable extent are now definitely known. It will be found that the money spent on phosphatic manures for application to poor pastures will give a much greater return in the production of natural food for live stock than if the same amount was expended in the purchase of feeding stuffs.