

LIME IN AGRICULTURE

BY

FRANK T. SHUTT, M.A., D.Sc.

THE NATURE OF LIME AND LIME COMPOUNDS USED IN AGRICULTURE.

Lime.

Lime, known also as quicklime, burnt lime, caustic lime, stone lime, etc., is produced from the burning of limestone (carbonate of lime) with wood or coal. The burning may be performed either in a specially constructed kiln or by the simpler method of heap-burning. The intense heat decomposes the carbonate, carbonic acid gas being driven off and caustic or quicklime remaining.

Slaked Lime.

Slaked lime, known also as hydrated lime, results from the union of water with quicklime. The process of slaking, or adding water to the lime, is commonly practised by builders in the making of mortars, and is accompanied by the generation of a considerable amount of heat. The result is a whitish-grey or greyish-white (according to the quality of the lime) powder having properties that are distinctly caustic and alkaline. The heap of lime in slaking swells to nearly double its original bulk and a bushel of freshly-slaked lime will weigh approximately 40 pounds, as compared with 70 pounds per bushel, which may be taken as the average weight of lime. The weight of lime, however, may vary between 60 and 100 pounds per bushel, according to its degree of purity and the thoroughness of burning. This fact furnishes an argument in favour of purchasing lime and lime compounds by weight rather than by measure.

Air-slaked lime results from the long exposure of quicklime to the air. The lime first absorbs moisture, being converted into the hydrate (slaked lime), which then takes up and combines with the carbonic acid gas of the atmosphere to form the carbonate. Slaked lime, therefore, is variable in composition; it may be essentially slaked lime with a small percentage of carbonate, or largely carbonate of lime with traces only of slaked lime, depending chiefly upon the duration of the exposure.

Limestone, Marl.

These are essentially carbonate of lime. Limestones are not all identical in composition; some contain notable amounts of carbonate of magnesium and are known as magnesian limestone or dolomite; others contain varying proportions of inert rock material. Hence the higher grades of limestone used in agriculture may be almost pure carbonate of lime, while the lower grades may contain less than three-fourths of their weight of carbonate.

DOMINION EXPERIMENTAL FARMS.

J. H. GRISDALE, B.Agr.,
Director.

FRANK T. SHUTT, M.A., D.Sc.,
Dominion Chemist (Assistant Director).

EXHIBITION CIRCULAR No. 86.

(January, 1916.)

93332

003 10-700