

Until it becomes so, all of its inorganic matter, its compounds of lime, potash, soda and magnesia, are entirely useless to the crop, being, in reference to it, so much inert matter. Whatever can so act as to bring these inert materials into actual use must benefit the soil even independent of its own direct use.

All vegetable matter contains these constituents, which are essential to its very existence, and when set free, they serve as food for cultivated plants. This is the only material advantage that caustic lime has over that which is slaked, as it all becomes slakened after exposure to the atmosphere. Lime should always be applied to the soil in as dry a condition as possible, for when it is wet it becomes cemented into lumps which becomes very hard, and a long time elapses before they are broken down and mixed with the soil. While it remains in lumps it is of no use to the crops, and those who apply it in this condition not only loose actually the lime, but also its effect on their crops; each a matter of great consideration. Magnesian limes should not be spread on the land until the lime in them becomes slakened. If put on in the caustic state, water will cause the magnesia and lime to form a cement and small balls will be formed which require a long time to fall to pieces. There is a custom prevalent in some sections of the State, of mixing caustic lime with stable and barn yard manure. This cannot be too strongly reprobated. If those who use it in this way were to try to injure there manure as much as possible, they could not adopt a better plan. Ammonia, one of the most valuable constituents of stable and barn yard manure, is expelled from the heap by caustic lime, and escapes into the air.

This plan should therefore *never* be followed. It is no proof in its favor, that the manure, after being treated in this manner, still does good, a part of its valuable constituents, fire will not destroy; but one of the things which give it its peculiar distinctive value, is entirely dissipated when mixed with either caustic lime, (oxide of calcium,) or water slaked lime, (hydrate of lime.) It is indeed one of the means by which chemists determine the quantity of ammonia in a compound, so thoroughly and entirely does it drive it all away.

Upon grass lands, when they fail to produce well, and that failure is owing to deficiency of lime in them, it may with great advantage be spread on the surface and have a light harrow run over it.

This will not only insure to the crop the full benefit of the lime, but will materially improve the texture of soil by loosening the surface, and from the long absence of cultivation becomes *bound*, and frequently covered with moss, and unfitted to produce a good crop of hay. The full benefit of the lime can be obtained without the trouble and expense of breaking the land from its "setting" in grass, and no intermission need be had in the crop. When it is intended to supply the deficiency of lime in a soil by the medium of marl, it should always be applied *as long a time as possible* before the culture of the soil. Atmospheric influences,