

The nutritive value and palatability of grasses are improved to some extent, also the health of stock, as the result of applications of lime to land. In general, a nutritious herbage results, and the increased supply of flesh- and bone-forming materials promotes thrifty, healthy animals.

Finally, there is the important function of lime in greatly stimulating the growth of legumes, particularly lucerne and clovers. These most valuable fodder plants, being nitrogen-gatherers, enrich the soil in that valuable constituent, and to a greater degree when they are well supplied with lime. (There is no plant that requires lime to a greater extent than lucerne.) Thus, lime is indirectly a nitrogen-gatherer, the soil-air being the source of supply and the bacteria in the nodules on the roots of legumes the direct agents in this gathering process. Lime also beneficially influences the few forms of non-symbiotic bacteria in the soil, or those that draw nitrogen from the air without the assistance of leguminous plants.

From the above-mentioned facts it will be seen that lime is indirect in its action. In itself it is not a manure, for it is assimilated by plants, except by lucerne and red clover, in only very small quantities. Its great function is not as a manure, but as a releaser or preparing agent of soluble plant-food constituents, and its action in connection with those processes is threefold—physical, chemical, and biological or bacteriological.

INDICATIONS OF THE NEED FOR LIME.

The presence in quantity of sorrel and of other acid-loving plants such as spurrey (yarr), moss, horsetails, blackberry, foxglove, bracken, manuka, and the inferior bent grasses (principally red-top and fiorin) are, as a rule, indicative of a sour soil and that applications of lime will be decidedly beneficial. Sorrel has, however, been known to thrive in a soil which has been heavily limed, due to other deficiencies in the soil preventing the grasses and clovers thriving sufficiently to crowd out the sorrel; but as a rule the liberal use of lime on the average soil will stimulate the grasses and clovers to such an extent as to crowd out or keep in check the sorrel. The presence of acidity encourages sorrel, while a liberal application of lime stimulates the valuable grasses and clovers to a much greater extent, the result being the ascendancy of the latter.

Where clovers and the better grasses, such as timothy and rye grasses, but especially clovers, will not thrive, lime as a rule is required. The clovers either become sickly-yellow or disappear.