THE DETERMINATION OF REPLACEABLE HYDROGEN IN MANGANESE DIOXIDE-FREE HAWAIIAN PINEAPPLE SOILS

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An accurate yet simple method for routine determinations of replaceable hydrogen in soils is needed where agricultural practices are scientifically controlled. Such a method will enable one to follow, on a large scale, the changes brought about by the use of physiologically acid and alkaline fertilizers; will serve as a guide in liming practices; and will also enable one to compare one soil with another in respect to certain of its chemical and physical properties.

Since the determination of replaceable hydrogen is somewhat dependent upon its arbitrary definition, we have defined replaceable hydrogen as that quantity of hydrogen in a soil (expressed in milligram equivalents per 100 grams) which if replaced by calcium will cause the soil to have a reaction of pH 7.0.

Rarely in agricultural practice is a soil purposely brought to a pH value above 7.0. Analytical methods which determine the replaceable hydrogen between the original pH value and pH 9.0, for instance, are undesirable because the fraction of replaceable hydrogen liberated between pH 7.0 and pH 9.0 is not, on a series of soils, a constant fraction of the whole, nor is it the same on all soils from the same region. Calcium is selected as the proper cation to use in replaceable

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