Lecture 8
Calcareous soil

Calcareous soil that contains enough free calcium carbonate ($CaCO_3$) and give effervescence visibly releasing CO_2 gas when treated with dilute 0.1 N hydrochloric acid. The pH of calcareous soil is > 8.5 and it is also regarded as an alkaline (Basic) soil.

Formation

The soil are formed largely by the weathering of calcareous rocks and fossil shell beds like varieties of chalk, marl , lime stone and frequently a large amount of phosphates. Soils are often very fertile. Soils also can become calcareous through long term irrigation with water contains small amounts of dissolved $CaCO_3$ that can accumulate with time. Calcareous soils can contain from 3% to >25% $CaCO_3$ by weight with pH values with a range of 7.6 to 8.3.

Management of Calcareous soil

Fertilizer management in calcareous soils is different from that of non calcareous soils because of the effect of soil pH on soil nutrient availability & chemical reactions that affect the loss or fixation of some nutrients. The presence of $CaCO_3$ directly or indirectly affects the chemistry & availability of nitrogen (N) Phosphorus(P), Magnesium(Mg), Potassium (K), Manganese (Mn), Zinc (Zn) and iron (Fe). The availability of copper (Cu) also is affected. Application of acid forming fertilizers such as ammonium sulphate and urea fertilizers, sulphur compounds, organic manures and green manures considered as effective measures to reduce the pH of soil to neutral pH value.