

BASIC SOIL TEST INTERPRETATIONS

Percent Organic Matter – This is a loss of weight by ignition. The soil is dried so there is no remaining moisture. The sample is then burned at a high temperature to burn off the organic matter. The weight loss from this ignition source is the percent organic matter. It should contain a minimum of field residues visible to the eye. For herbicides, consider visible residues in addition to the % O.M. reading.

ENR - Estimated nitrogen release from the O.M. to the next crop. It is used as an adjustment on nitrogen recommendations. The amount used varies by geographic area and Cation Exchange Capacity.

ppm P1 - P2 - P1 is the standard Bray phosphorus extraction showing the most readily available P on pH's 5.8 - 7.5.

P2 is a stronger extraction which picks up phosphorus loosely held in O.M. and Ca-P reserves. The difference between P1 and P2 is considered active reserve.

P1:P2 ratios greater than 1:3 indicate increasing amounts of free calcium and relate to unpredictable herbicide activities. (See Capsules #106 and #134).

ppm K - Uses a standard ammonium acetate extraction with a five minute agitation time. We find this procedure gives the most consistency over variations in environment, wet to dry and frozen samples.

K-ratings (H, M, L) reflect the relative availability of K and are related to C.E.C.

K₂O recommendations will be increased on higher % Mg soils.

Soil pH - is the pH we use when referring to crop response (see Capsule #123) and general pH references. It relates to the concentration of hydrogen ions in the soil solution. More hydrogen relates to lower pH's or more acid soils.

Some sources of hydrogen are O.M. decomposition, root absorption of cations (K, Ca, Mg, etc.), leaching of calcium and magnesium and fertilizers containing ammonia and ammonium sources of N.

Buffer pH - is only used for lime recommendations. It is an index of the lime requirement which measures a soil's resistance to pH change. On soil reports, the M.E. of hydrogen and % hydrogen reflect the hydrogen concentration related to buffer pH.

C.E.C. - is a soil's relative holding capacity for water, nutrients and chemicals. For a given area, the higher numbers are relatively heavier soils than small numbers (see Capsule #102). The concentration of cations or ppm of K, Ca, Mg, Na on western soils and hydrogen on buffer pH's 7.0 and less are used in calculation of the C.E.C.

Percent Base Saturation - The percent saturation of each cation element represents the proportion of that element within a given soil system. A 70% base saturation calcium tells us that 70% or 7/10 of the cations in that soil system are calcium. The % saturation of all the measured cations add up to 100%.

It is not possible to create a perfect soil in the field. We can, however, use the information the laboratory can supply to make the proper decisions on the soil we have to work with (i.e., as percent saturation Mg increases, several conditions are indicated which should be checked out (see Capsule #104).