

Soil fertility indices

Soils of Barnala district are Alkaline in nature having pH >7.5. Most of the soils require the application organic manures for improvement in physical condition of the soil and for improvement in soil health. EC(ds/m) is less than 0.8 which is normal. Very few soils are critical for salt sensitive crops.

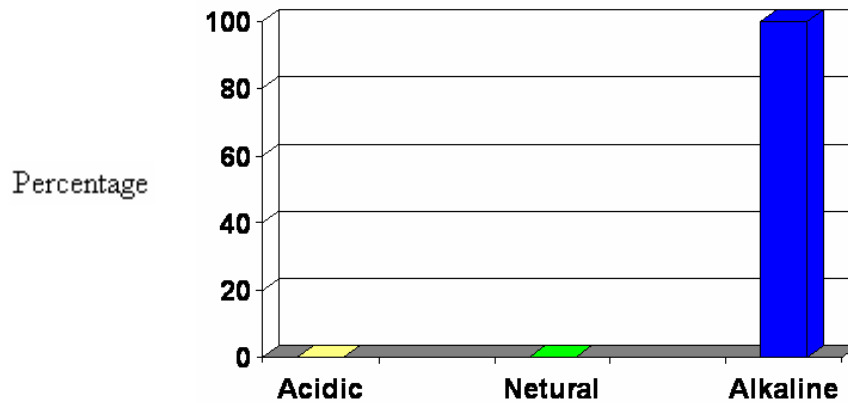


Fig.2.3 Soil reaction

Organic matter is low in 91% of soils, medium in 8.4% soils, high in 0.6% soils. Most of the soil properties including CEC, soil structure, water holding capacity, temperature, aeration and supply of some essential nutrients eg. N ,P, S, Zn ect. Are determined by the organic matter present in the soils. It is also a source of food energy for micro-organisms, which bring about number of biochemical transformation in soils. Generally 1% OM represents an increase of 2 me/100g CEC.(Table2.7)

Organic matter is also used as an index of Nitrogen supplying capacity of soils as it contains about 5% nitrogen. So 90% soils of our district are low in nitrogen and 10% soils are medium in nitrogen.

In case of phosphorus 14% soils are low in P. 76% soils are medium and 10% soils are high in P. In case of Potassium 7% soils are low in K,83.5% are medium and 9.5% are high in K. (Table 2.7)

So from the above indices it is very important to increase the Organic Matter content of the soils.

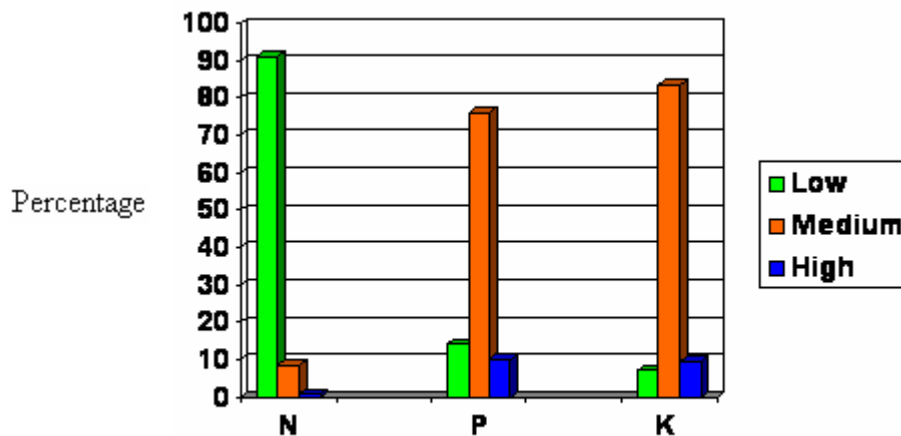


Fig. 2.4 NPK Soil status of Barnala distt.

Micronutrient Status

The district has no micronutrient testing laboratory. Some farmers got the soil tested for micronutrients from PAU Ludhiana. So data is not available. But on the basis of pH most of the soils are Alkaline in nature having pH more than 7.5. So the soils are deficient in Fe, Zn, Mn, Cu, CO. These fertilizers give good response when applied in soils as recommended by PAU. District needs one micronutrient testing laboratory also.

46% water samples tested in the district are having <math><2.5</math> RSC, which are considered safe for irrigation. 50% samples have RSC >2.5 to 5.0 which require application of Gypsum. Four percent water samples are not fit for irrigation. All the blocks are in dark zone in case of availability of underground water.(Table2.8)

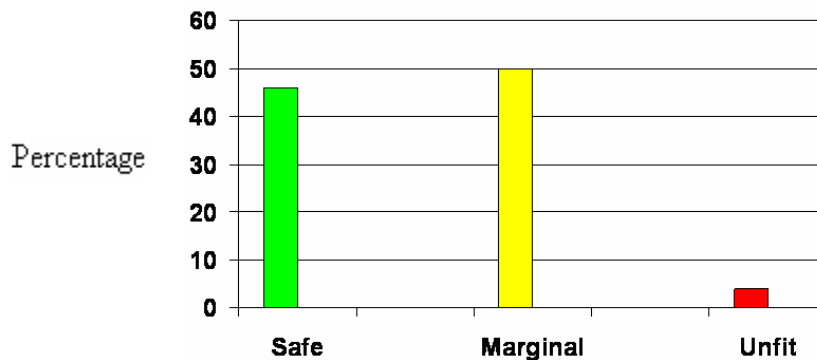


Fig. 2.5 Under ground Irrigation water quality

The quality and quantity of Gypsum calculated from soil testing lab. For each me/l of RSC the quantity of Gypsum (70% purity) works out 1.5 quintal/ha. for four irrigations. Gypsum should be applied on cumulative basic (calculated on the basic of no. of irrigations applied in one dose after harvest).