



Zinc in Soils

Zinc deficient soils are fairly common throughout North America. They are especially common in areas of high soil pH. High pH soils are naturally occurring and pH can influence the availability of most nutrients, including Zn. (Figure 1) In acid soils with low pH's, a Zn deficiency can be induced by heavy applications of lime. In both cases Zn compounds are formed at higher pH's which are less soluble and less available to the plant.

Plants growing on soils testing very high in phosphorus (P) and low in Zn have been noted to suffer even more from Zn deficiency. This syndrome is sometimes mistakenly considered as a P tie-up of Zn. Applying P to a soil with sufficient Zn levels will not produce a Zn deficiency.

Consultants and laboratories caution that when P soil tests are high and annual P applications are still needed for high yields, one pound of Zn should be applied for every 20 pounds of P.

Much of the soil's available Zn is associated with the organic matter in the topsoil. Land leveling, tiling and erosion can cause Zn deficiencies in crops by exposing subsoils low in organic matter, low in native Zn, or with a higher pH.

The following are some rules of thumb you can use...sandy soils are frequently more deficient in Zn than heavier soils...high pH (alkaline) soils, regardless of texture, are more likely to be Zn deficient than low pH (acid) soils. However, remember that acid soils may also be zinc deficient. Soil test to be sure you're not overlooking this important nutrient!

