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...World leader in crop nutrition...

SOIL pH ... THE FOUNDATION OF A CROPPING PROGRAM

Probably no other items in crop production have been as thoroughly researched as the effects of soil pH. It is generally recommended that for all non-acid loving crops, the soil pH should be between 6.4 and 6.8.

On acid soils the pH can be maintained by the use of calcium carbonate (limestone) or Calcium-Magnesium carbonate (dolomite). Both of these products are called "buffering compounds". In other words, they dissolve until they reach a pH of about 6.8 and then they will only dissolve as acid compounds are introduced to the soil ... fertilizer, biological decomposition, products of root respiration, acid rain.

Since limestone is only slowly soluble at higher pH (above 6.4) they are good sources of calcium and/or magnesium only if soils are acid. As the soil pH rises, they are less dependable sources of calcium and/or magnesium for crop production.

Why do we want to raise the soil pH?

In acid soil, all of the divalent and trivalent metals like to "swim" in the soil water solution. This makes them very available for plant root abortion. They can become toxic to the plant. The worse offenders to the plant's health are Aluminum and Manganese. Under some conditions, Zinc, copper, and iron can become toxic.

When the pH of acid soil is raised, the divalent and trivalent metals tend to leave the "swimming pool" water and go back to sit on the clay particles. They are no longer so available for plant root absorption.

Also, in acid soil, the anions such as phosphate, boron, and molybdenum do not like to "swim". Acid soil may cause a deficiency of these nutrients.



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Acid soil will also have toxic effects on biological activity. This is especially costly when legumes cannot nodulate properly.

There are many reasons why people do not use adequate amounts of either limestone or dolomite

- Lack of knowledge
- Lack of funds
- Lack of accessibility to fields
- Cost
- Disagreement between landlords and tenants.

Is there anything that can be done in order to help crop production where limestone or dolomite is not used on acid soil?

Is there a "poor man's limestone"?

Yes ... if you understand The Language of The Plant.