Saline and alkali confusion

Sometimes it is easy to confuse terms when you are describing soils. This is especially true when terms have evolved over the years.

Saline soils contain excess soluble salts in the root zone. This is yield limiting. In Alberta salts occur naturally in bedrock. Groundwater flows through the bedrock dissolving some of these salts. If this water discharges at the surface, it will evaporate leaving the salts behind. Over time the salts accumulate. The surface may turn white from the accumulated salts. Only salt tolerant plants are able to grow in areas that are severely saline.

Sodic soils are those that are affected by an excess of exchangeable sodium.

People sometimes refer to both saline and sodic soils as alkali soils. Alkali is an outdated term that described soils that had sodium levels high enough to affect crop growth.

To add to the confusion, some people mistake alkali soils with alkaline soils.

Soil pH is a measure of the acidity or alkalinity of soil. On a scale of 1-14 with 7 being neutral, soils under 7 are acidic and soils over 7 are alkaline. Most of the soils around here are close to 7 or a little above-alkaline. Peat soils and forest soils are naturally acidic with a pH of less than 7.

So to recap. Saline soils have high levels of soluble salts and low sodium. This can be determined through a soil test which measures the EC (electrical conductivity).

Sodic soils are those that have high levels of sodium and this can be determined through a soil test measuring sodium levels. Alkali is an outdated term that referred to sodic soils.

Alkalinity and acidity are terms related to pH. pH can be measured through a soil test.

Saline soils, sodic soils, and soils with a very high or very low pH can be detrimental to plant health. The ability of your plant to uptake water and nutrients is affected.

The results of all this confusion can be mismanagement of your soil. Practices are different for dealing with sodic vs. saline soils and alkaline vs. acidic soils. It is important to know what your soil is.

Around here most soils with these issues are saline or alkaline. This is not the rule though!

If you are more confused now than you were when you began reading this article and want more information, phone Shilo at 485-3122.

Shilo Andrews November 30, 2005