

**Cation Exchange Capacity  
1/26/09**

**What is Cation Exchange Capacity or CEC?**

It is a Permanent Soil Property that is a measure of the relative number of negative electrical charges in soils.

**What does that mean and why does it matter?**

The greater the number of negative electrical charges in a given amount of soil, the more ability the soil has to hold onto positively charged nutrients such as (K+) or (Ca++). This means a soil has more ability to hold onto these nutrients and prevent them from leaching beyond the roots.

**Does CEC mean anything else?**

CEC is also an indicator of soil texture. This is probably the one of the more useful things about CEC.

Soil Texture	CEC (m.e./100gm.)
Clay loam	20-30+
Silt loam	15-20
Loam	12-15
Sandy loam	10-12
Loamy fine sand	less than 10

Chart from George Rehm

**How do we get our soils to hang onto these positively charged soils so they have all these nutrients? And how do we change CEC so that we have a more desirable soil texture?**

Since CEC is a soil property, a characteristic of the soil. Therefore, it is very difficult to change. Generally speaking clays have a very negative charge, so CEC increases as % clay content increases (is there any Fargo Clay around our area?!). Also, soil organic matter has a negative charge, and generally the more organic matter in a soil, the more CEC increases.

So, there is no way of changing your soil cation exchange capacity. It is more of a characteristic of soil to help you better understand the soil that you are working with.

If you have any questions about this, please stop by and visit with Adam, Barry or myself.

(Information from George Rehm Presentation at Agvise Meeting on 1/8/2009 and notes from University of Minnesota Soil class 2125; Fall Semester 2008; Dr. Terry Cooper)