CATION EXCHANGE CAPACITY CEC (+) (-)

CEC

Cation exchange capacity refers to the total number of cations a soil can hold (the amount of its negative charge) is called CEC. CEC is expressed in terms of milligrams equivalent per 100 grams of soil (meg/100g). It is also expressed as centimoles per kilogram of soil (cmol/kg). These two units of measurements are equal. Clay minerals usually range from 10-150 meg/100g in CEC values. Organic matter ranges from 200-400 meg/100g. The kind and amount of clay organic matter content can greatly influence the CEC in the soil.

Cations (+)

Cations are nutrient ions and molecules that are positively charged i.e. Calcium (Ca+), Magnesium (Mg+), potassium (P+), sodium (Na+), hydrogen (H+) and ammonium (NH_4+).

Clay and organic matter particles are in the soil and are negatively charged. These negatively charged colloids attract, hold, trade, release positively charged ions (cations). Low organic matter and sand particle carry little to no charge and does not react with cations.

Anions (-)

Anions are negatively charged ions. i.e. chloride (Cl-), Nitrate (NO_3-), sulfate (SO_4-) and phosphate (H_2PO_4-).

IONS

Ions are elements with an electrical charge.

What is pH?

The reference to pH defines the relative acidity or basicity of a substance. The pH scale ranges from 0-14, with 7.0 being the neutral. Values below 7.0 are said to be acid (acidity). Values above 7.0 are said to be basic (Alkalinity). Most productive soils generally range from 4 - 10 in pH. Most crops are grown in slightly acid soils ranging from 6.0-6.8 pH. The amount and kind of clay and organic matter in the soil can help buffer the pH changes that can occur. Buffering refers to processes that constrain or reduce the shift in pH when acid or base materials are added. In more general terms buffering refers to its ability to absorb toxic substances or to detoxify them. CROPMASTER® SUPER HUME® is also known to buffer pH in the soil and to raise the CEC level with regular use.

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