

LIME

Optimum soil pH is 6.5, at this level the nutrients are most abundantly available to plants, (pH refers to the concentration of hydrogen ions in the soil). Acidic soil has a pH value ranging from 1 - 6.9, 7 is neutral and an alkaline soil has a value ranging from 7.1 – 14. By liming the soil you raise the soil pH, thereby reducing the acidity.

BENEFITS OF LIMING

- Raises soil pH
- Nutrients are most available to plants at pH 6.5
- Less fertilizer is needed
- Improves the structure of clay soils, improving drainage, air and root growth.
- Improves the decomposition of organic matter in the soil
- Improves the soil habitat for microbes, flora and fauna (earthworms) that live in the soil.

Before liming have the soil tested, to know what your soil is composed of (sand, clay, loam etc.), and it's existing pH value. Over liming can damage the soil environment.

PRODUCTS

- Limestone (Calcium carbonate, CaCO_3). This is naturally formed rock (marine deposited) that has been ground to a powder so it is a slow acting, easy to use and store, non-caustic material.
- Dolomitic lime (Calcium magnesium carbonate, $\text{CaMg}(\text{CO}_3)_2$). Dolomitic lime is a fresh water deposited rock that is ground to a powder, then used to raise soil pH. It acts more slowly than limestone lime.
- Wood ash from the fireplace, (CaO , MgO , K_2O , $\text{K}(\text{OH})$, etc). This caustic product supplies the essential nutrients that are not atmospheric gases (such as Oxygen (O_2) and Carbon dioxide (CO_2)). To drop the pH of a soil by half a point from 6.5 to 6 apply approximately 2 Kg/ 10m^2 (5pounds/ 100ft^2). An annual application of .5 Kg/ 10m^2 (1 pound/ 100ft^2) will maintain the soil pH.
- Gypsum (Calcium sulfate, $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) supplies calcium and sulfate without changing soil pH.

FACTORS AFFECTING LIMING

- **Plant requirements.** The soil test will indicate the present pH of the soil, but you need to find out what pH your plant needs before changing the soil. For example blueberries and rhododendrons need acidic soil (pH 4 - 5.5), while lettuce, cantaloupe and cauliflower like pH 6 – 7. Kentucky Blue grass likes near neutral soil, pH 7.
- **Buffering capacity of the soil.** Clay loam soil will require more lime to raise the pH than a sandy loam, because it has a greater ability to buffer itself against changes.
- **Liming material.** The chemical composition for each of the liming materials is different so they react differently in the soil.
- **Texture** The fineness of the liming material used will determine how rapidly it will change the soil pH.

HOW TO USE LIME

- Dig it into the soil in the fall when preparing the beds

- Sprinkle it on the lawn before winter especially where the snow banks form because it reduces the damage caused by road salt.