

# SOIL AND SOIL AMENDMENTS FOR ROSES

## Central Florida Rose Society

A good soil for roses consists of 1/3 clay loam or any other type of good topsoil, 1/3 organic matter, and 1/3 coarse gritty sand (concrete sand will do) or instead of pure sand, superior is a mixture of sand, perlite and calcinated clay (Turface, Kitty litter with no deodorants).

If your soil is just very fine, powdery sand, with almost no useful topsoil, it is better to discard the excavated soil and replace with a specially prepared growing mix. A very important part of the soil ingredient is organic matter (1/3 by volume), because:

1. it improves the tilth and condition of the soil;
2. it improves the ability of the soil to hold water and nutrients;
3. it improves the buffering capacity of the soil by mitigating the impact of chemical fertilizers, imbalance of fertilizers and changes of pH;
4. it supports the soil microbiological activity;
5. it contributes nutrients (major, minor, and trace);
6. it releases nutrients more slowly;
7. acids, released when organic matter decomposes, help convert insoluble natural mineral additives into forms usable by the plants.

Nutrient holding capacity is expressed as CEC (cation exchange capacity). That means that the negatively charged soil (or soil amendment) particles hold positively charged elements, such as: Ca, Mg, Mn, NH<sub>4</sub>, Fe, Zn, and others. Elements held in this manner are available to the plant roots and cannot be washed out with gravitation water.

## SOIL ADDITIVES - ORGANIC

**COMPOST** - A partially decomposed form of organic matter. Actually, it is impossible to make an overall standard evaluation of compost because there are too many variables in its content and also in how it is made. However, it is a very valuable addition to the planting hole. Its average nutrients are approximately 0.5N, 0.26P, 0.2K, plus minor and trace elements. Its greater benefit is improving soil characteristics and biological activity.

**SPHAGNUM PEAT MOSS** - One of the most valuable soil amendments, has good drainage and improves soil structure. Very good buffering characteristics and nutrient holding capacity (CEC). It can hold water 10-15 times its own weight. Even if saturated with water, it still can hold about 40% air. This good air holding capacity, however, lasts about two years. Later on, the air holding capacity goes down and water capacity rises. All these good traits last about five years. No nutrients, pH 3.5-4.5.

**GROUND PINE BARK** - Sold as soil conditioner. Improves drainage, holds water well and eventually breaks down to humus. Used in A.R.S. Shreveport Garden as 1/3 additive to the soil. It has a deterrent and even curative effect against nematodes.

**SAW DUST** - Use only aged (at least 1-3 months old). Fresh saw dust has some toxicity to the plants. Needs extra nitrogen added. Here in Central Florida, sawdust stable bedding with horse manure is used as mulch.

**COTTONSEED MEAL** - Contains 7-8% Nitrogen. Acidifies the soil.

**COW MANURE** - Dehydrated has 2%N, 1%P, 2%K. Composted 0.5-0.5-0.5. Dehydrated is now available only heat treated. Composted is also good for encouraging microbiological activity in the growing media.

**ALFALFA MEAL or PELLETS** - Contains triacanthanol, which promotes growth, vigor and bloom. Influences the plant's ability to take and efficiently use the nutrients.

**MILORGANITE** - Contains 6%Nitrogen, 3%Phosphorus, and some minor elements.

## **SOIL ADDITIVES - INORGANIC**

**CALCINATED CLAY** - (Turface, Kitty Litter) Neutral pH, no nutrients. Aerates the soil, absorbs 85% of its own volume in water, without reducing aeration. Has nutrient holding capacity. It is a root level reservoir for nutrients and moisture. Promotes good drainage and keeps soil loose and pliable.

**VERMICULITE** - A sterile mica type material. It has high air, water holding capacity, adequate CEC and good buffering characteristics. Contains less than 1% nitrogen, about 0.25% potassium, 20% magnesium and calcium as a slow release supply (pH 6.0-8.0). Not recommended to add in a planting hole, because after a time it gets soggy and loses all its good qualities. However, it is good to mix in the potting soil for temporary potted plants.

**PERLITE** - Volcanic mineral, provides excellent drainage, while trapping air and water on its irregular surface. Does not get soggy and remains unchanged for a very long time, pH 6.0-8.0. No nutrients, no buffering, no CEC.

**DOLOMITIC LIME** - Raises pH (1.2 lbs. for 25 sq. ft. to raise 1.0 points) and supplies calcium and magnesium.

**GYP SUM** ( $\text{CaSO}_4$ ) - Provides calcium without raising pH. Helps to flush out sodium from the soil, which cannot be flushed out by just watering.

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