

GARDENING BASICS - Fertilizer

Nutritional needs differ throughout the plant's lifecycle or environmental changes. You may need to help your plants by adding nutrients through soil amendments and/or fertilizer. A soil analysis will provide information on many nutritional deficiencies.

Basic Nutrients

Fertilizers usually contain varying proportions of the three macronutrient groups:

N (Nitrogen) = Promotes leaf and stem growth; greens up plants.

P (Phosphorus) = Promotes flower, seed, root and fruit production.

K (Potassium) = Promotes stronger immune system, helps fruit ripen.

Simple fertilizers may contain just one macronutrient, while complete fertilizers contain all three in varying proportions, as well as micronutrients. Many organic fertilizers also contain beneficial bacteria and fungi.

Nutrient Sources

Many different substances are used to provide the essential nutrients needed for an effective fertilizer. These compounds can come from naturally occurring sources or chemically synthesized from basic raw materials.

Fertilizers are broadly divided into **organic** fertilizers or **inorganic/synthetic** fertilizers.

Organic: Organic fertilizers include naturally occurring organic materials, (e.g. manure, worm castings, compost, seaweed, guano, bone meal), or naturally occurring mineral deposits (e.g. saltpeter, potash, phosphate rock). Leguminous cover crops are also grown to enrich soil as a green manure through nitrogen fixation from the atmosphere.

Organic fertilizers must first interact with soil microorganisms to break down into inorganic chemicals and become accessible to plant roots. Because they continue to work within the soil, nutrients are gradually released and can better meet plant needs. Their NPK numbers/levels are usually lower than the synthetics.

Synthetic: Produced from chemical sources (e.g. ammonia, urea, nitric acid, ammonium phosphate) Nutrients are directly accessed by plants more rapidly since they are not required to interact with soil microbes, however, synthetic fertilizers do little to improve the life of soil. Artificial nitrogen fertilizers are typically synthesized using fossil fuels such as natural gas and coal, which are limited resources.

Chemical does not mean BAD.

Overuse of any amendment over a prolonged period throws the nutrients in soil out of balance and has harmful effects to plants and other living things. Follow label directions carefully to avoid excess chemical build up/run-off and "fertilizer burn".

GARDENING BASICS - Fertilizer (continued)

Formulations

Fertilizers are usually available in dry or liquid formulas.

Dry: Powders, granules, spikes or pellets that you spread on the ground or dig into the soil. Some pelletized fertilizers such as Osmocote are sold as "slow-release" and are temperature activated.

Liquid: Crystals, granules or concentrates that you dissolve in water and apply with a watering can or sprayer.

Amount and frequency of fertilization depends on the plant's growth cycle and nutritional needs, frequency of watering, the amount of light and the condition and amount of growing medium. When in doubt, use half the recommended dosage/frequency listed on the fertilizer package, especially synthetic fertilizers.