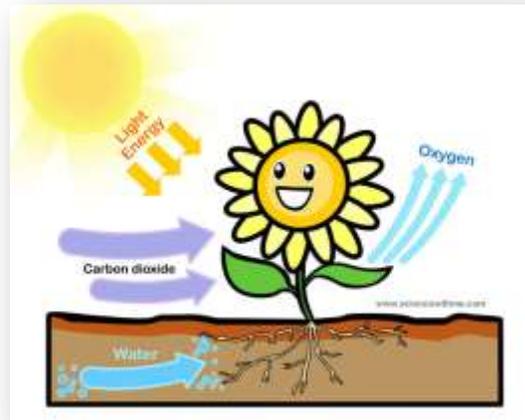


# Soil Nutrients and Plant Health

## How do Plants Grow?

Green leaves make their own food through a process called photosynthesis. Chlorophyll found in green leaves interacts with water from the soil, carbon dioxide from the air, and sunlight to produce food.

Nutrients (soil minerals), although not “plant food”, are essential for plant growth and health. Nutrients and water are absorbed through plant roots. Nutrients required in large quantities include nitrogen (N), phosphorous (P), potassium (K), and several others. Micro-nutrients (trace elements) are equally important, but required only in small amounts.



## The Secret is the Soil!

The ability of soil to release nutrients to plant roots is influenced by a number of factors including:

- Water
- Air
- Soil structure and aggregation
- Organic matter content
- Soil PH (acidity/alkalinity)
- Microbial life, including mycorrhizal fungi

Healthy soil gradually makes nutrients available to plants and is the basis of a fertile, productive garden.

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**Natural mulches** (such as compost or grass clippings) contribute organic matter to soil.

**Humus** (compost) in the soil serves as a reservoir of plant nutrients, available in times of need.

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**Organic matter** decomposes into humus (compost)

**Earthworms** aerate and enrich the soil.

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**Soil testing** helps the gardener determine the type and amount of fertilizer needed (if any).

**Living microbes** make nutrients available to the feeder roots of plants.

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# Healthy Lawn Guide

## Recycle Grass Clippings into Your Lawn

Grass clippings are composed of 85% water. Short clips quickly decompose, adding valuable nutrients to the soil; grass recycling can reduce the need for fertilizers by 30% or more. Grass clippings do not cause thatch. Thatch is the layer of living and dead roots and stems growing between the green layer and the soil. Troublesome thatch is typically caused by improper use of lawn chemicals, compacted soils, excessive watering and other factors.

## How to Feed Your Lawn with Grass Clippings

- Set mower blade at the highest setting, leaving grass blades 3” tall. Tall grass encourages deep roots and shades out crabgrass and some weeds.
- Remove no more than the top 1/3 of the grass blade.
- Let the short grass blades fall back onto the lawn.
- Use a sharp mower blade. A dull mower blade will tear grass and provide an entry port for diseases.
- Mow when the grass is dry.
- Keep the mower deck clean.

If you have extra clippings:

- Mix grass clippings with leaves and soil to make a backyard compost pile.
- Use clippings as garden mulch.

Compost improves soil structure, retains water, encourages root penetration, aerates soil, releases nutrients slowly, supports beneficial microorganisms and earthworms, and suppresses some soil-borne diseases.

## Mower Options

- Retrofit your present mower with a mulching blade designed to fit the model of your mower. For a rear discharge mower, the discharge chute should be covered for safety.
- Some older mowers can be used to mulch by raising the mower blade and cutting more frequently. Warning: be alert for possible hazards from rear discharge mowers. Before attempting to use the mower you own to recycle grass, consult your owner’s manual or local equipment dealer.
- Purchase a new mower. Mulching mowers powered by battery, electricity, and gasoline are popular choices. Manual push mower with easy-roll wheels are also available, and do not emit pollution.

