

FERTILIZERS 101

Nutrients in Fertilizer

Plants need several types of nutrients. **Macronutrients** are necessary in large quantities. Those that may not be easily available in soil in the right amount are the primary nutrients you find in fertilizer:

- **Nitrogen** for plant growth, leaf development and the production of vivid, green color
- **Phosphorous** for root growth and the creation of fruit, seeds and flowers
- **Potassium** — sometimes called potash — for root development and resistance to drought and disease

Secondary nutrients — oxygen, carbon, hydrogen, calcium, magnesium and sulfur — are also necessary macronutrients, but are often available in soil or air. **Micronutrients** — including boron, chlorine, cobalt, copper, iron, manganese, molybdenum, nickel and zinc — are needed only in small amounts.

How to Read Fertilizer Numbers

Three prominent numbers on a fertilizer package — known as the NPK value, guaranteed analysis, or fertilizer grade — tell you the percentage of available primary macronutrients by weight in the package:

- Nitrogen (N) content is the first number.
- Phosphorous (P) content is the second number.
- Potassium (K) content is the third number.

A bag marked 16-4-8 contains 16% nitrogen, 4% phosphorous and 8% potassium. To determine how much of each is in the bag, multiply the percentage by the weight of the bag.

Example: For a 50-pound bag: $0.16 \times 50 = 8$, $0.04 \times 50 = 2$, $0.08 \times 50 = 4$

The bag contains 8 pounds of nitrogen, 2 pounds of phosphorus and 4 pounds of potassium.

The remainder is typically inert material which helps distribute the fertilizer evenly and prevent chemical burn. There may also be secondary nutrients or micronutrients in the formula.




Types of Fertilizer

Liquid fertilizers are fast-acting. Plants absorb them quickly through the leaves or roots, so you need to apply them every two to three weeks. Most are concentrates you mix with water. Some are available as hose-end bottles that create the mixture as you apply them, others you mix yourself and apply with a watering can. Liquid fertilizers work well for container plants, but you can also find liquid lawn fertilizers.

You apply **granular fertilizers** dry — with a mechanical spreader or from a shaker container — and water them in. Fertilizer for lawns and gardens are often in granular form. They're easier to control because you can see how much you're using and where you're dispersing them. There are two formulations of granular fertilizers:

- **Quick-release** — known as water-soluble nitrogen (WSN) — fertilizers provide nitrogen to plants immediately. They generally last for 3 to 4 weeks, depending upon temperature and rainfall.
- **Slow-release** or water-insoluble nitrogen (WIN) fertilizers are available in sulfur-coated varieties, which last for about 8 weeks, and polymer-coated varieties, which can last for about 12 weeks. The time estimates may vary depending upon the amount of rainfall. You don't need to apply these fertilizers as often, and they produce more even growth. In addition, burning caused by nitrogen is less of a concern with slow-release fertilizers.

Plant food spikes are a solid form of fertilizer you drive into the soil to dispense nutrients over time. They provide a simple means to feed houseplants, trees and shrubs.

 <p>NITROGEN Helps with leaf development and makes your lawn green</p>	 <p>PHOSPHOROUS Aids in root growth</p>
 <p>POTASSIUM Vital for disease resistance and root development</p>	<p>Numbers on the bag are percentages. For example, 16-4-8 is 16% nitrogen, 4% phosphorous, and 8% potassium.</p>

For balanced professional fertilizer and Microelement mixes, check TopTropicals.com for:

**TopTropicals Slow Release Fertilizer for potted plants
SUNSHINE-Micro, SUNSHINE-Super-Iron - Microelement boosters**