

The Debate Over Organic vs. Chemical Fertilizers

By: Julie Day (<http://www.todayshomeowner.com/debate-over-organic-chemical-fertilizers>)

Ask most any gardener whether they prefer organic or chemical fertilizer, and chances are you'll spark a lively debate. However, if you could ask your plants the same question, you'd find out that at the most basic level, they really can't tell the difference - nutrients are nutrients.

Yet there ARE significant differences between organic and chemical fertilizers in terms of nutrient availability and the long-term effects on soil, plants, and the environment. So how does a conscientious gardener decide?

Terminology

To begin with, the terminology can be confusing, since labels and gardeners freely throw around words like organic, natural, inorganic, chemical, synthetic, artificial, and manufactured. The good news is that the choice can be reduced to either organic or chemical fertilizers.

Organic Fertilizers

The words "organic" or "natural" in this case simply means that the product is only minimally processed, and the nutrients remain bound up in their natural forms, rather than being extracted and refined. In the case of fertilizer, "organic" does NOT refer to the standards of processing associated with food.

Organic fertilizer is usually made from plant or animal waste or powdered minerals. Examples include manure and compost, as well as bone and cottonseed meal. They are usually sold as "soil conditioners" rather than as fertilizer, because the nutrient ratios are difficult to guarantee. Organic fertilizers may be processed in a factory, or, in the case of manure and compost, at a farm.

There is also a growing selection of more highly processed products now available, with labeled analysis of nutrients and contents. For example, Scotts Miracle-Gro Organic Choice Plant Food is a manufactured product composed entirely of chicken litter and ground up feathers, with an N-P-K ratio of 7-1-2. Garden Safe Organic Plant Food is made of poultry manure with a label very similar to chemical fertilizers.

Advantages of Organic Fertilizer

- In addition to releasing nutrients, as organic fertilizers break down, they improve the structure of the soil and increase its ability to hold water and

nutrients. Over time, organic fertilizers will make your soil-and plants-healthy and strong.

- Since they are the ultimate slow-release fertilizers, it's very difficult to over fertilize (and harm) your plants.
- There's little to no risk of toxic buildups of chemicals and salts that can be deadly to plants.
- Organic fertilizers are renewable, biodegradable, sustainable, and environmentally friendly.
- Although rather expensive in packages, you can make your own organic fertilizer by composting or find inexpensive sources—such as local dairy farms—that may sell composted manure.

Disadvantages of Organic Fertilizer

- Microorganisms are required to break down and release nutrients into the soil. Since they need warmth and moisture to do their job, the effectiveness of organic fertilizer is limited seasonally. The good news is that these microorganisms obtain energy from decaying plant and animal matter, so an application of organic fertilizer provides a complete package of nutrients for your soil.
- Organic fertilizers break down according to nature's rules, so they may not release nutrients as soon as you need them. You have to be patient - you won't see improvement overnight. In fact, you may actually see a deficiency in your plants during the first couple of months until the first application breaks down. Hang in there! You'll most definitely be rewarded.
- Nutrient ratios are often unknown, and the overall percentage is lower than chemical fertilizers. However, some organic products are actually higher in certain nutrients.

Chemical Fertilizers

Chemical fertilizers (also called inorganic, synthetic, artificial, or manufactured) have been refined to extract nutrients and bind them in specific ratios with other chemical fillers. These products may be made from petroleum products, rocks, or even organic sources. Some of the chemicals may be naturally occurring, but the difference is that the nutrients in chemical fertilizers are refined to their pure state and stripped of substances that control their availability and breakdown, which rarely occurs in nature.

Advantages of Chemical Fertilizer

- Since nutrients are available to the plants immediately, improvement occurs in days.
- They are highly analyzed to produce the exact ratio of nutrients desired.
- Standardized labeling makes ratios and chemical sources easy to understand.
- They're inexpensive.

Disadvantages of Chemical Fertilizer

- Chemical fertilizers are primarily made from nonrenewable sources, including fossil fuels.
- They grow plants but do nothing to sustain the soil. The fillers do not promote life or soil health, and even packages labeled "complete" do not include the decaying matter necessary to improve soil structure. In fact, chemical fertilizers don't replace many trace elements that are gradually depleted by repeated crop plantings, resulting in long-term damage to the soil.
- Because the nutrients are readily available, there is a danger of over fertilization. This not only can kill plants but upset the entire ecosystem.
- Chemical fertilizers tend to leach, or filter away from the plants, requiring additional applications.
- Repeated applications may result in a toxic buildup of chemicals such as arsenic, cadmium, and uranium in the soil. These toxic chemicals can eventually make their way into your fruits and vegetables.
- Long-term use of chemical fertilizer can change the soil pH, upset beneficial microbial ecosystems, increase pests, and even contribute to the release of greenhouse gases.

Making a Choice

If you wish to live in harmony with nature and make a lasting improvement in your own patch of earth for generations to come, organic fertilizers outweigh chemicals by leaps and bounds.

Can a shot of chemical fertilizer make your containers spill over with blossoms, and give you the biggest tomatoes and greenest lawn in the neighborhood? Absolutely. Just be sure you understand what's really happening to the earth under your feet, so that you'll make your choice consciously.