

## Indoor Hydroponics Systems Overview

Hydroponics systems have gone from being a gardening fad, to being an all-out everyday gardening practice. While tending a backyard garden is a great way to enjoy fresh produce in the summer, making an indoor hydroponics system allows you to enjoy that summertime goodness, 365 days a year.

Hydroponics is nothing more than gardening without soil. Scientists have long known that plants could be cultivated in a medium other than soil, and devised a system to prove their theories. The resulting agricultural systems, like indoor hydroponics, require no soil at all to grow healthy, delicious plants and vegetables.

There are several compounds that can be used with indoor hydroponics systems:

### \* Inert Growing Materials

Some systems make use of inert growing materials like vermiculite, gravel or one of many other types of inert substances that permit water to flow through. The basic rule is that the more porous the material is, the better the growing conditions. Natural materials such as coconut fiber, bran, moss, and similar substances are ideally suited for indoor hydroponics systems.

### \* Nutrient Solutions

Plants need additional nutrient sources to grow and thrive. In the 1890s, Russian researchers first developed the right formula conducive for ideal plant growth. These primary nutrients are still used in virtually all fertilizer compositions today: nitrogen, phosphorous, potassium, and other trace minerals. In a hydroponics system, these nutrients are dissolved in water and allowed to flow throughout the growing area, delivering the necessary nutrients to the roots of the plants. One primary advantage to using an indoor hydroponics system is that it does not make use of standard fertilizers. Instead, the nutrient solution used is basically a specially designed fertilizer. Because of the concentration of nutrients in these growth solutions, the essential nutrients and elements are more readily available to the plants.

### Building Your Indoor Hydroponics System

It can be relatively easy to build an indoor hydroponics system. You may already have many of the materials on hand, so it's not necessarily an expensive job, either. Depending on the size of the indoor hydroponics system you wish to build, and the interior space you have available, you can even use an old aquarium to use as a tank to hold the nutrient solution.

Aside from the tank or reservoir, most indoor hydroponics systems consist of a growing tray or tube, a pump and a timer. It's also necessary to provide a source of light, particularly when natural sunlight is not available. This lighting should consist of bulbs specifically designed for growing plants. These are readily available in garden centers everywhere.

A reliable air pump is essential for keeping the oxygen levels in the nutrient water adequate to allow the plant roots to survive. Air stones, which are porous stones that produce air bubbles, are usually used to produce the oxygen necessary for plant growth.

It may be easier for you to purchase an indoor hydroponics system kit. This will include everything you need to build the system, including the design and instructions. Using a kit is probably the most convenient way to start your own indoor hydroponics system, especially if you know next to nothing about designing and building a hydroponics system. More advanced gardeners with some background in hydroponics prefer to design and build their own indoor systems.

Any type of plant can be grown indoors. Using your indoor hydroponics system, you can enjoy everything from green vegetables and tomatoes to mushrooms and flowers. Now you don't have to wait until summer to enjoy the fruits, and vegetables, of your labors.