

Year-Round Gardening with Hydroponics

Today's farmers face brutal challenges. One season they deal with fierce drought, the next year it's torrential rain. Then there are diseased crops and insect infestations to worry about. One solution that has brought both peace and profit to the modern farmer is year-round gardening with hydroponics.

In times when natural rainwater, fertile lands or ideal growing conditions are scarce, hydroponics has been considered by farmers to be some kind of heaven-sent miracle. No longer are farmers completely at the mercy of the seasons. Now, they can grow crops throughout the year, and yield healthy harvests, no matter the season or the weather. That is the biggest benefit of gardening with hydroponics.

The earliest documentation of plants growing and surviving, without the benefit of soil as a nutrient source, can be traced to the 1699 records of a fellow named Woodward. It's believed, however, that hydroponics-style gardening was practiced in the Hanging Gardens of Babylon.

The roots of hydroponics methods in modern agriculture were evident in the 1840s. At that time, researchers discovered that by developing a formula containing all the essential nutrients that plants need for growth, including nitrogen, phosphorous, potassium, carbon dioxide, and hydrogen dioxide, the need for soil could be completely eliminated. A number of German botanists adopted this idea and soon developed the basic nutrient formulas and growing techniques, which are still in use today.

Hydroponics gardening requires as little as 10% of the land used in traditional farming, and less than 10% the amount of water. It's possible to reduce the amount of water further by re-circulating the water used for hydroponics gardening.

Many popular types of produce can be successfully grown using hydroponics gardening. Growers who practice year-round gardening with hydroponics enjoy broccoli, cabbage, celery, chard, cucumbers, eggplant, flowers, grapes, lettuce, melons, onions, peppers, pole beans, radishes, strawberries and tomatoes.

Rarely is produce grown hydroponically affected by the insects that typically thrive in soil, or the diseases caused by soil microorganisms. This is one of the main advantages to hydroponics gardening. In turn, farmers are less inclined to use insecticides to prevent pest infestations. As a result, the crops do not carry traces of insecticides. Further, the produce can be picked ripe and enjoyed immediately, eliminating the need for chemical preservatives. That's a huge benefit for people who like their produce pure and clean.

Water conservation is another attractive feature of hydroponics gardening. In dry climates, where precious water must be re-circulated, hydroponics systems can greatly improve harvest yields. It's also possible to grow a large yield of hydroponics produce quickly, in a relatively small area. In fact, it is not unusual to grow four heads of lettuce in the same amount of space that one head of lettuce would require using tradition soil gardening methods.

There are various techniques of year-round gardening with hydroponics:

* **Water Culture:** In this type of hydroponics system, the roots of the plants are held in a large waterproof tank. With mesh or string supporting the plants, the roots are able to hang in the water and obtain food from the nutrient formula contained in the tank.

* **Gravel Culture:** This is a more costly system to install and maintain. Hydroponics systems using gravel culture involve a waterproof bench that has been filled with inert pea-sized gravel. This is used to support the roots of the plants. A solution containing all the essential nutrients required by the plant is then pumped into the gravel from a holding tank. When the bench becomes filled with the solution, the pump is turned off and the solution drains back to the holding tank.

Despite the method of hydroponics chosen, it's important to replenish the nutrient solutions periodically. Of course, proper lighting is also required. A number of grow lights should be set with automatic timers to deliver the appropriate amounts of light to the plants.

It's easy to find the materials and supplies you need to build and maintain a hydroponics system. Visit your local gardening center and you'll quickly be on your way to year-round gardening with hydroponics.