

Hydroponics Gardening Systems Explained

Many people have taken up hydroponics gardening as the modern way to harvest fresh produce, but there's nothing modern about this age-old gardening method.

Also known as soil-less gardening, hydroponics has long been a part of human civilization. Although scientists did not officially study and document their findings on hydroponics methods until the late 1890s, there are indications that the practices were used as far back as the era of the Hanging Gardens of Babylon.

The word hydroponics was derived from two Greek words: 'hydros', meaning, "water" and 'ponics', meaning "method." Scientists initially believed that plants could only grow in water or soil, but this myth was soon dispelled when it was found that growth could occur in other media as well.

Today, there are a few basic types of hydroponics growing systems, as well as several variations on these basic systems. Among them are the two most common systems, water or aqua culture, and aggregate culture.

Aggregate Culture Hydroponics Systems

One of the most popular basic hydroponics gardening systems uses aggregate culture. The aggregate used may be sand, gravel or other natural materials.

The aggregate culture system utilizes two tanks. The first tank holds an aggregate and water culture system, and the second holds a nutrient solution. The nutrients, which are essential to the health of the plant, are pumped into the aggregate tank to moisten the roots as needed. After the aggregate has been flooded, it is then drained to provide aeration. There is enough water and nutrients supplied to cling to the aggregate and roots, feeding the plants until the next flooding. .

Water or Aqua Culture

When people hear about hydroponics, most of them will probably think of water culture as the hydroponics growing system used.

On the most basic scale, the water culture method of creating a hydroponics growing system is the simplest form to set up. This system allows the plant roots to be totally immersed in the nutrient solution. The main drawback to using this type of hydroponics growing system is that you need a large amount of water to supply each plant. It's also necessary to provide continuous aeration to the solution.

Only the imagination can limit the design of these water-based hydroponics growing systems. If you are thinking of building your own water culture system, there are a few basic elements that you'll need to prepare:

* **Support:** You'll need to provide support for the plants. Using mesh or string is often enough support for young, tender plants. The plants should be held with the roots hanging freely the nutrient solution.

* **Aeration:** All living things, including plants, need oxygen to survive. Therefore, you must have a system in place to create aeration, or incorporate oxygen into the water.

* **Shade:** When exposed to light, liquids are prone to developing algae. By providing shade and keeping light out of the solution tank, you can lessen or prevent the growth of algae.

Of course, the prominent feature of a water culture method of hydroponics is the water tank itself. You can use virtually any type of leak-free tank to act as a reservoir for the nutrient solution. Concrete vessels, plastic or plastic-lined tanks, old aquariums and even asphalt-lined wood tanks may be used. If you use asphalt to seal the tank, be sure that there are no creosotes or tars present, and check to ensure that the asphalt doesn't leave an oily film on the surface of the water.

Your reservoir or tank should be about 6 to 12 inches deep, 2 to 3 feet wide. The tank can be as long as you need it to be. Plant supports are then placed above the tank. An easy method of installing plant holders is to lay a plywood top or piece of one-inch thick Styrofoam over the top of the tank. Drill holes through this tank top, and place the plants through the holes.

As mentioned, the nutrition solution must be continuously aerated by pumping air through a perforated hose or pipe immersed in the solution. A simple aquarium pump and porous stone is perfect for small hydroponics growing systems. Be careful that the aeration doesn't bubble too vigorously, as excessive movement can damage the tender roots and impair the plant growth.

Hydroponics systems provide a smart alternative for people who simply don't have the land or the energy needed for a traditional soil garden. Best of all, it's an easy and inexpensive way to enjoy freshly picked produce any time of the year.

