

# Hydroponic Gardening

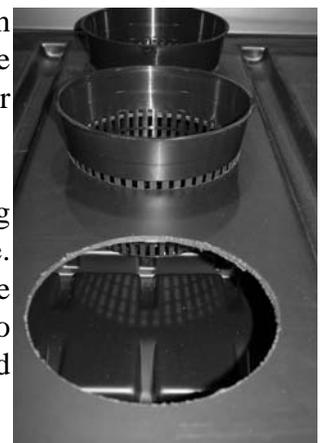
Hydroponic growing consists of keeping the root system moist with an enriched water solution holding the necessary mineral elements essential for plant growth. This can be done with or without a growing medium. If you use a growing medium, the growing medium should be inert and pH neutral so it can't interfere with the mineral elements being delivered to plants. The growth rate and yield will normally be higher when gardening with hydroponics, as long as you change the nutrient solution on a regular cycle.

With hydroponics a new nutrient solution is constantly being delivered to the growing medium, leaching away the old nutrient solution and bringing new mineral elements to the roots. The more frequent that the nutrient's are changed the more mineral elements will be available improving plant growth. Once the solution gets into contact with the root system, the mineral elements that have been dissolved into the water have begun to be absorbed. When you completely remove the old nutrient solution and make a fresh solution, you will see faster growth. When using the same nutrient solution over time, with each passing day you will notice a slow down in growth. Change the nutrient solution again and the speed in which the garden grows is faster. After 3-4 days you can see the slow down in growth from your garden. The longest that a nutrient solution should be given to a plant is about 4 days. When you top up a nutrient solution, always use plain pH adjusted water. Never use nutrient solution to top up the reservoir, even if it is deluted. By changing the nutrient solution often, it gives us the opportunity to grow our plants closer together. It also gives us healthier, larger plants and flower clusters with faster growth. Making much better use of our growing facility.



Ebb & Flow (Flood & Drian) Trays. Ebb & Flow tables have been designed to remove nutrient solution away from the growing medium. By creating slanted groves to pull away the water from the growing medium. Water sit on flat surfaces leaving a puddle for the roots to sit in, by sloping the drain grove it actually pulls water away from growing medium giving more oxygen to the root system. Why is the Ebb & Flow hydroponic system the greatest growing system; Very difficult to plug up the delivery tubing for the nutrients; plants can be planted very close together taking advantage of the available light; when you flood the table you push out the air from growing medium and allow the old nutrients to become deluted by the abodent nutrients in the reservoir and when you drain the table you will draw in new air and leave behind a film of minerals from the nutrient solution on growing medium.

Cut away view of the Top Plate. Protect the roots from light, light and roots do not belong together. By blocking out light, humidity will be considerably higher at the root zone. Because roots do not dry out they can expand further in their search for plant food. More roots bigger healthier plant. Great system for Airoponics. Just drill holes in top plate to insert misting lines. Can also be used for Nutrient Film Techneque, just slop table and apply water from one end of table gathering water at other end of Ebb Table.



Choose a reservoir that will hold at least 2 liters of water (minimum) per small plant (18" tall). The larger the reservoir the less the dulution will be on nutrient solution. And less chance for the plants to be depleting any nutrient out of the solution. Yes this will cost a little bit more in fertilizers but the health of the garden will yeild better, offsetting the cost of fertilizers.