Homer Farms

**CITY OF PHOENIX, AZ and Homer Farms, Inc.**
**GardenPHX home hydroponic system**

Welcome to the world of hydroponic gardening sponsored by the City of Phoenix! The extreme summer heat makes most outdoor garden production nearly impossible. With your hydroponic system you can have a steady supply of healthy, leafy vegetables at your fingertips all year long.

The following is forwarded in conjunction with the slide presentation and answers the most frequently asked questions (FAQs) from home gardeners. CAUTION: Do not allow pets or children to play on or near the system. Climbing on the rack could be dangero**us and the system** utilizes fertilizer and diluted acids**.** Use netting if appropriate.

System set-up

The hydroponic system consists of the rack, special LED lights, growing tubs and rafts, reservoir, water pump, air pump and stones, and the liquid nutrient solution your produce uses in lieu of soil. The system should run at all times and may cost $15-18 per month in electricity.

A starter kit of seeds is provided along with the rock wool (your hydroponic dirt), fertilizer, pH Down (system acid), and electronic water test equipment. A climate controlled room less than 80 degrees Fahrenheit with air movement is essential for growth.

Lighting

The LED lights used for hydroponic growing are exceedingly bright and do generate a bit of warmth. Many gardeners choose to hang a shield on their rack in line with the lights and operate during sleeping hours. Lighting is required 12-18 hours per day depending how aggressively one chooses to grow.

Nutrient Solution

Do not add any fertilizer or chemical not compatible with hydroponic systems. Add as little organic material as possible. For example, you could use acetic acid (white kitchen vinegar) to control pH although it adds organic material – and smells like vinegar. The ultimate make-up of your system nutrition is up to you based on your desired plant selection. No soil.

Arizona tap water is very ‘hard’ water and resistant to change when balancing your system for optimal production. A Reverse Osmosis (RO) water system is not required although it will help considerably if you already own one. Electronic probes (and instruction) are provided at set-up. Make changes slowly until you learn how much of each input is required. Initially this requires frequent checking and adjustments, but you will soon learn how your system responds. After set-up, the gardener is responsible for purchasing the fertilizer, acids, and chemicals required for the specific crops they want to grow.

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pH – The ideal acidity of your hydroponic garden is between 5.5 - 6.5.
EC – Electrical Conductivity is a measure of the nutrients. *1.5 - 2 mS/cm, which is the same as 1.5 - 2 dS/m or 1500 - 2000 µS/cm.*

Algae and system cleaning

Algae is natural and considered the 'weeds' of your hydroponic garden. Keeping algae growth at bay is a combination of a clean system and avoiding excessive light. Any portion of your system not actively growing should be covered from light including the individual holes in the rafts.

There are many types of treatments available to inhibit algae growth including Hydrogen Peroxide. Simply wipe out the algae from ALL surfaces in the system with a clean, soap free rag, including the inside of all tubs, reservoirs, and on the hoses. A strainer or net is also helpful for debris. Always keep the system full of pH & EC adjusted water at the proper level.

Keeping the system clean will allow you to go many, many months without needing to 'reset' or completely empty and wash the components. If the system smells or the solution becomes cloudy then drain, undue the swivel fittings, scrub all surfaces, and rinse well after using 5% bleach or full strength white vinegar.

Planting and Harvesting

Nearly any leafy green can be grown in the system and seeds are widely available for sale and often free at your local library. This part is personal and entirely up to you. Do you want just lettuce? Basil? Kale? Feel free to educate yourself and experiment with different plant varieties.

Seeds are initially planted in the rock wool moistened with non-fertilized water at pH 5.5-6.5. Once they sprout, use lightly fertilized, pH adjusted water to keep the rock wool moist. In about two weeks, or when the seedlings begin to touch each other, separate the rock wool and place in the holes on the raft in the grow tubs. Make sure the rock wool or roots are touching the nutrient bath and keep the lights on 12-18 hours per day. Your planting and harvest rotations are entirely up to you. Feel free to harvest [weigh and report] and consume at any point.

Wrap-up

The City of Phoenix representatives can answer any administrative questions and will gather your production data. Technical questions may be referred to your Growing Specialist at Homer Farms. A check-in happens at six weeks and twelve weeks after set-up as well as monthly calls each of the first three months. Please share your photos, frustrations, and successes at any point. You are probably helping your fellow gardeners, too.

Happy Gardening!