

For Students of Our Earth & Stars...



"Food for people we can grow anywhere we go," says Dr. Gene Giacomelli, director of the Controlled Environment Agriculture Center at The University of Arizona. "And that includes across the universe," he adds.

He and his colleagues use hydroponics and controlled environments to yield better food and plant-factory production. With renewed support from NASA and the National Science Foundation, USDA & Arizona, among others, the Center team continues to demonstrate that their future is both in the stars and for people across the planet. "Our message is multifaceted," says Giacomelli. "What we learn for space travel bio-regeneration systems helps our students know more to grow food, save water, and improve life for increasing areas challenged by conditions around the Earth, our home. We are looking for the brightest and the best from around the world to work with us."





How to Build Your Own Hydroponic Garden

Contact

Dr. Gene Giacomelli Director, Controlled Environment Agriculture Center College of Agricultural & Life Sciences The University of Arizona 1951 E Roger Rd., Tucson, Arizona 85719 520-626-9566 | giacomel@ag.arizona



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How to Build Your own Hydroponic Garden

Tools and Materials:

- Black plastic heavy-duty trash liner bag
- Styrofoam ice chest with deep lid cover
- 6 gallons distilled water/nutrient mix
- A plant nutrient mix, such as you'll find from the J.R. Peters company. Follow their instructions here: http://www.jrpeters.com/ hydroponics.html
- 6 Lettuce seedlings Craft knife
- Sphagnum moss Marking pen
- Perlite 6 Styrofoam cups

Directions:

1. Line Styrofoam ice chest with black liner bag. Fill with nutrient water mix to

just below the bottom of your plant cups.





2. Using the top of Styrofoam cups as a template, trace 6 evenly spaced circles on Styrofoam chest's deep lid cover. With

a craft knife, cut out circles 1/6 inch smaller than Styrofoam cup lid circles.





What is Hydroponics?

Hydroponics is a specialized type of gardening that grows plants in soilfree nutrient solutions. An economical, environmentally friendly, and sustainable way to produce food, hydroponic gardens are grown in a controlled environment, so require only basic agriculture skills.



When did Hydroponics Start?

The earliest food production in greenhouses was probably for off-season cucumbers under "transparent stone" for Roman Emperor Tiberius. The technology was rarely employed, if at all, until the 1600's. Then, crops were protected against the cold, including glass lanterns, bell jars, cold frames and hot beds covered with glass.



What is Hydroponics' Future?

Proposals are for glasshouses in Earth's deserts to serve multi-purposes: Antenna embedded in the glass could receive energy radiation from arrays of earth-orbit energy collectors, while hydroponic tomato & crop production also operate. Energy & water savings, high-growth productivity and even air-purification are potential futures for hydroponics. (see: http://ag.arizona.edu/ hydroponictomatoes/future.htm)

4. Insert lettuce seedling into perlite, and fill in perlite around seedling.







6. Water seedlings each day with nutrient mix, making sure that the water level in the container is not too high:

There should be about an inch of room between the water line



and the bottom of the Styrofoam cups. After a week to 10 days, roots from the seedlings should begin entering the container. As the plants grow, pick leaves as desired, but do not overharvest.

Place Sphagnum moss in cups and top with perlite,

filling to just under rim of cup.

water.