Foothill Hydroponics News!

Dedicated to: Education • Research • Fun!

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Hydroponics is news!

One of our local newspapers, the Daily News, *recently had many nice things to say about our favorite topic: Hydroponics.*

Kitchen Gardens

You only need a tiny space, such as a small patio, to grow spices, herbs or vegetables that you can use as you cook. Small containers work great for herbs, but what about tomato plants that want to spread out?

Make tomato plants grow up, not out, by trimming lower branches. As plants grow, hook them to strong string or twine hung from above, using plastic hooks. As the photo shows, you'll have a feast for the eyes, as well as your table.

This gives "house plant" a whole new meaning!

You can use decorative or recycled pots and containers to make an attractive "kitchen garden" almost anywhere. Ledge space provides a perfect place for edible flowers, herbs, spices and small vegetables. They look attractive, and add a pleasant aroma to boot!

Instead of soil, use clay pebbles and rockwool to hold the water-nutrient mixture, and to support the growing plants' roots.

Your hydroponically-grown edibles will grow dramatically faster than soil-grown plants. For example, a tomato plant can grow to maturity in only 60 days. The reason plants grown hydroponically develop so quickly is due to the presence of water and nutrition around the roots at all times, and because the plants do not have to spend so much energy sending roots deep into the soil in search of nutrient.

We want to thank the *Daily News* for their careful and thoughtful explanation of raising plants for the kitchen hydroponically.

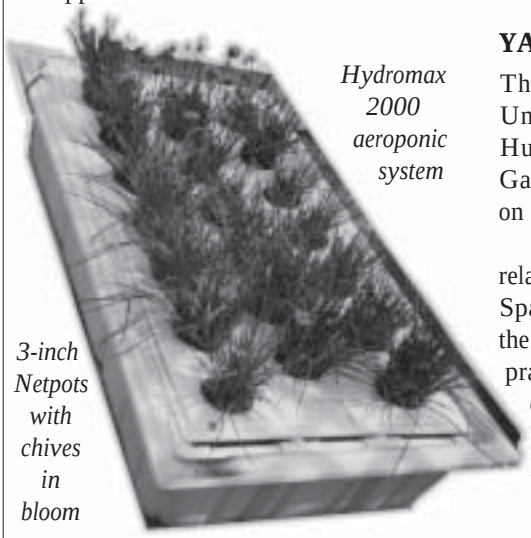
No matter what your interest and experience in hydroponics, rest assured that Foothill Hydroponics has the equipment, supplies and free advice in abundance to help you succeed. Please stop by, or call, or visit our website at www.foothill-hydroponics.com.

--summarized from the Daily News

School news

• **Polytechnic High School** in Sun Valley purchased a Hydrofarm Agrosun full-spectrum fluorescent light, a Hydromax Mini-Ebb & Flow system and a Hydroponic Plant Factory Aeroponic system for their ongoing science department upgrades.

• The **Orange County Farm Bureau** toured our facility (Sep. 19, 2001) as part of their investigation of using "hands on" hydroponics to teach high school students applied science.



Hydromax 2000 aeroponic system

3-inch Netpots with chives in bloom

Kathy Nakase, (bureau manager) and Gayle Cory came to see what hydroponic systems would be best for their purpose.

They decided to go with Hydromax 2000 systems in the Ebb & Flow configuration, with the 12-plant deluxe tray liner insert. The plant holder provides additional support for taller plants and helps keep the system cleaner. The high school students will eventually help younger students with their own mini-hydroponic projects.

The student projects will be on display next spring at a Water Resources Fair in Orange County

YAMS IN SPACE!

The University of Kentucky, the Tuskegee University NASA Center for CELSS, the Huntsville Madison County Botanical Garden and NASA have all collaborated on a series of educational materials.

The one we find most interesting as relates to hydroponics is called "Yams in Space!" and asks the students how would the astronauts grow food in space? Then practical lessons and experiments are conducted to examine the possibilities.

Dr. Kim Ragland-Gray and Brandy Blame are the main authors of the material.

Why is hydroponics useful as an educational tool?

Hydroponics is an ideal teaching tool because small table top demonstration units use the same principles as full-scale commercial hydroponic agriculture installations.

Many of the principles of conventional soil agriculture do not scale down very well. Tilling soil with tractors and aerial insecticide spraying for example are not suitable for elementary school projects!

Various growing media used in a student hydroponic project

Garden tips

PLANTS THRIVE ON NEGATIVE IONS

Indoor air is often nearly devoid of negative ions. Air conditioning, carpets and dust all give a highly positive charge. Without an amount of negative ions in the air to balance the electrical state an unhealthy biological condition exists for both plants and people.

The air right after a thunderstorm is clean and charged with a very high amount of negative ions. Specifically, for plants, negative ions are thought to increase both the rate of iron assimilation and the production of iron containing enzymes (cyclochrome). High negative ion levels stimulate both the metabolism of the ATP molecule (adenosine triphosphate) and cell oxygen intake.

Plants grown in high negative ion environments are remarkably resistant to disease compared to identical plants grown in otherwise identical conditions. We have several types of negative ion generators available. Call for product brochures.

HYDROPONIC MEDIA SALT BUILD UP

Remember that when trying to maintain correct nutrient TDS (Total Dissolved Salts) or Parts Per Million in the solution, that the actual TDS of the media will be higher. Burned leaf tips are one sign of excess nutrient toxicity. Slow hard growth is another.

The classic root response is to die off and then regenerate new roots from near the stem, which in turn die off as they grow into the salty media. This results in a root ball of short stunted roots which cannot supply the water needs of the plant.

You need to measure both the TDS going into the media and the TDS after flow through the media. About once a week, flood-and-drain systems should be rinsed with fresh tap water from the top of the media. Keep rinsing until the leach water has a lower TDS reading than the nutrient tank solution.

Remember to readjust the pH of the nutrient tank after the rinse, although usually people just drain out the whole tank at the same time to save labor.

MIRACLE MINERAL

Zeolite is a mineral with very unusual properties. It has the ability to exchange constituent cations without a gross change in structure. Zeolites are also able to gain or lose water reversibly. The crystalline structure is formed by aluminum silicates of alkaline earth cations which bond together to form infinite three-dimensional matrices.

Many cities are now using Zeolite for water purification. The Zeolite adsorbs ammonium from the water like a sponge. The ZeoTech company even ships Zeolite to China! ZeoTech also supplies us with organic worm castings that have been enriched with Zeolite powder. Mr. Jack Troinoff is the owner of the Zeo-Tech company which has been working with us for over 16 years now.

Mr. Jack Troinoff, owner of Zeo-Tech

New products

GROWCUBES FROM GRODAN

A new Hydroponic growing media is the familiar rockwool fiber made into small cubes or rectangles about ½ inch in size (8 to 13mm). The advantage over loose rockwool products is the ease of use. It does not have to be packed by hand into the containers, it can just be poured right out of the bag, without even touching it.

The new media normally maintains a 30% air space volume when wet. The increased air space helps growth rates and allows long irrigation cycles without root drowning. One large 20" x 36" bag fills 22 one-gallon pots.

"FUNGUS KILLER"

Strepomyces lydicus strain WYEC 108 is a beneficial microbe, which is an all-organic natural bio-fungicide. It produces enzymes that attack disease causing fungi, but does not harm the host plant at all. The "fungus killer" inhibits and attacks predatory fungi such as Pythium, Rhizoctonia Fusarium, Phytophthora, Sciertinia, Phanerchaete, Geotrichum candidum, and Verticillium dahliae.

It is being used in some of the largest flower production greenhouses in the US with the near elimination of synthetic fungicides. Plants grown with the help of the beneficial "Fungus Killer" exhibit larger root structures, robust vegetative growth and larger flowers at harvest. This microbe also naturally chelates iron into a form that plants assimilate readily.

Test gardeners who are using it report deeper green leaves and sturdy growth. The advantage of biological versus normal chemical fungicides is that normal fungicides are nonselective and *Strepomyces lydicus strain WYEC 108* only attacks bad fungi. It has no effect on the other normal beneficial bacteria that exist both in hydroponics and soil.

It has finally been EPA approved for hobby garden applications. Use just 1 gram per gallon as a preventive, or l oz. per gallon as a curative dosage. A 16 oz. container sells for $69.95. We have special 3-gram trial packets available for just $4.95 with free shipping. Call and ask for the newsletter "Organic Fungus Killer" special trial offer.

NEW IFF GREENHOUSE

Dr. Braja Mookherjee, Global Director of Natural Products Research for IFF, has been in charge of investigating fragrances and pheromones produced by natural flowers. The IFF company sells fragrance and flavor products around the globe. They have been using Hydroponics since 1995, and in 2001 broke ground on a new Hydroponic greenhouse research facility.

They grow over 700 types of plants, some grown nowhere else in North America! Dr. Mookherjee says the Hydroponic plants have larger blossoms and richer colors than identical plants grown in soil. He adds, "The fragrances are also better."

(from Spray Technology & Marketing, August 2001, pages 30 and 31.)

SCIENCE ALIVE CONFERENCE

January 2-5, 2002
Tucson, Arizona

- Hydroponics
- Aquaponics
- National Experts
- Workshops!

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http://ag.arizona.edu/science_alive

Who is . . .?

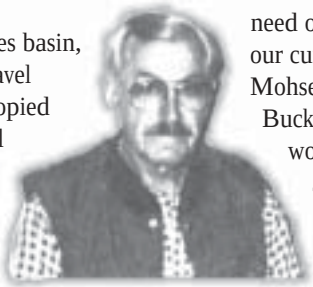
Foothill Hydroponics

The early days

Hydroponics is an industry where individual entrepreneurship thrives. The exciting and entrancing concept of growing food without soil, indoors, on rooftops, or on cement slabs, brings out the imagination and creativity of all participants.

Back in 1961, Lawrence (Buck) Isham, a Syracuse University graduate in civil engineering, started Foothill Hydroponics (on Foothill Blvd., in La Crescenta – hence its name). He also developed his first hobby-size Hydroponic system.

Across the Los Angeles basin, his "Double Bathtub" gravel system was a hit. It was copied and modified by others all over the west coast. All over the U.S. individuals have engineered hundreds of Hydroponic systems. We at Foothill Hydroponics have established and modified nearly three dozen systems, culminating in our best: the Hydromax 2000.



"Buck" Isham

Marlin Meier, a chemical engineer, became Buck's partner in 1971 and together they engineered other changes, as well as systems and hydroponic nutrient formulas to meet the needs of their customers.

By 1975, classes in Hydroponics were helping customers grow better plants and a much wider range. Twice a year, classes helped customers until 1982 when Marlin left the business to work in the aircraft industry. By this time Foothill was in need of larger facilities so Buck moved to our current location in North Hollywood. Mohsen Daha assumed the business from Buck in 1983, but Buck continued to work in the store until his death in January, 1992.

When Mohsen Daha took over the business, he brought 25 years of horticultural and Hydroponic experience from the Middle East, and several European countries. He quickly established his ideas and knowledge for growth of the business.

From our free booklet, "Easy Gardening."
You can get a free copy by calling, writing or e-mailing us!

What is . . . ?

Flood and Drain

(Ebb & Flow)

A waterproof growing container is placed on a bench and sloped to an outlet to which a hose is connected. The other end of the hose is connected to a bucket or drum which contains the nutrient solution.

When the container is held above the level of the growing container, the nutrient solution will flow out and soak the growing medium. When the bucket or drum is lowered, the excess nutrient solution will drain out of the medium back into the bucket. The size of the container should be limited to approximately 18 liters, as any larger will make lifting difficult for students.

The container is then topped off with water for the next irrigation. Completely renew the solution every 1-2 weeks. The medium must not be left totally flooded during hot weather because this will cause rapid root death. It is advisable to retain a small reservoir of solution in the bottom of the container to carry plants over a weekend or during periods of hot weather A pump and timer could be used to automate this system. The normal recommendation is to water every 2 hours during daylight. The tray should fully drain within 30 minutes after the pump shuts off.

"Flood and drain is super simple. You raise the container to feed, and lower it to drain."