



# Hydro Greenhouse 2

Table-top Hydroponic Mini Greenhouse

**Uncle Milton**®

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**⚠ WARNING:**

**PLANT FOOD HAZARD** - PLANT FOOD COULD BE HARMFUL OR FATAL IF SWALLOWED. READ CAUTIONS ON INDIVIDUAL CONTAINER CAREFULLY. NOT TO BE USED BY CHILDREN EXCEPT UNDER ADULT SUPERVISION.



**WARNING:**

**PLANT FOOD IS AN EYE IRRITANT - KEEP OUT OF EYES.**



**WARNING:**

**CHOKING HAZARD** - Small Parts. Not for children under 3 years.

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# Chapter 1

## What is Hydroponics?

Hydroponics is the science and practice of growing plants using a solution of water and nutrients instead of soil. The term is a combination of two Greek words roughly meaning water working. It was coined by Dr. W.F. Gericke of the University of California in 1936. In that year, Dr. Gericke successfully grew plants on a large scale in a solution of water and mineral salts. Due to lack of better equipment, he used his bathtub for the growing bed.

Today, modern hydroponic greenhouses produce high yields of fresh, nutritious crops for distribution to many parts of the world. They are located in places where it is not possible to grow crops with soil, because it is too arid or there is not enough room for fields.

Scientists are currently testing the use of hydroponic cultivation in space. As our world's population expands and as we explore new frontiers, the primary method of food production will be hydroponics.

## Welcome to the World of Hydroponics

Your new Hydro Greenhouse will provide your plants with ideal growing conditions. You'll be able to grow from seed to seedling stage fresh vegetables, herbs, fruit, flowers and plants in a controlled growth environment. You'll have total confidence in what your plants are fed, because Hydro Greenhouse's unique Auto-Feed feature automatically supplies plants with complete, balanced nutrition.

Hydro Greenhouse is absolutely safe to operate indoors or out because it is non-electric. What's more, there is never a fear of soil-borne diseases, insects, weeds or odors since Hydro Greenhouse uses no soil.

### Your new Hydro Greenhouse includes:

**Planting Bed**—Space-saving table-top size can be placed almost anywhere for your convenience.

**Greenhouse Cover**—Transparent and vented. Provides a warm, protected, humid climate perfect for healthy germination and early growth.

**Reservoir Bottle**—600 ml easy-access bottle automatically dispenses nutrient solution. Includes cap for easy mixing.

**Nutrient Transfer Strip**—Absorbant feeding wick transfers nutrient from the Reservoir Bottle and evenly disperses water and nutrient into the Growing Medium.

**Growing Medium**—Inert, pH-controlled mixture provides a clean, odorless support for roots. Excellent moisture-retention capability. Course-grade aggregate provides uniform aeration.

**Nutrient Mix**—Year supply balanced formula provides your plants with all the essential minerals and trace elements in their purest form. Mixes instantly in water. pH-balanced and odorless.

**Gardening Tools**—Includes shovel for digging holes for seeding, fork for leveling Growing Medium and Nutrient Spoon for measuring Nutrient Mix.

## How to Start Your Hydro Greenhouse

### Preparing the Planting Bed

Place Nutrient Transfer Strip into the bottom, middle of the Planting Bed. Be sure to insert one end of the Nutrient Transfer Strip into the groove under where the Reservoir Bottle rests. Open sealed bag containing Growing Medium and pour into Planting Bed to a level of 1/2 inch below rim.

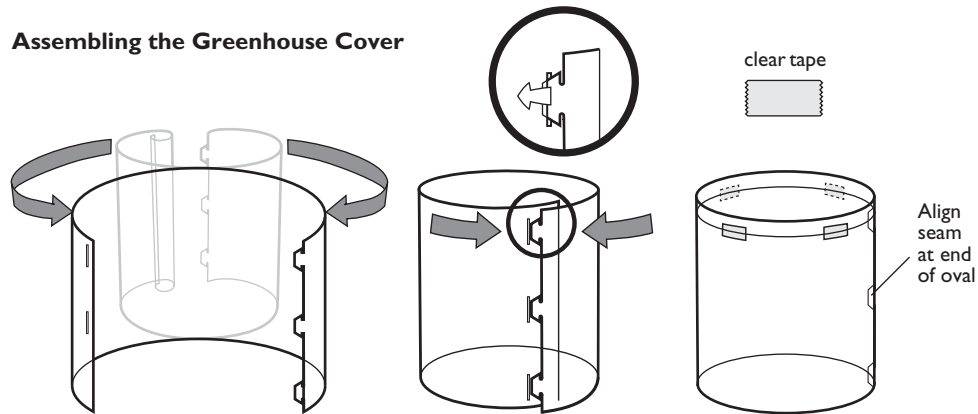
Growing Medium is dry and dusty at this time, so be sure room is ventilated. Slowly pour one Reservoir Bottle of clear water over Growing Medium.

### Preparing Nutrient Solution

Fill Reservoir Bottle with 2 1/2 cups of warm water. Add one level nutrient spoonful (1/12 tsp) to the Reservoir Bottle. Screw cap on bottle and shake until nutrient has dissolved. Remove cap. Carefully, yet quickly invert bottle, place into the Reservoir Bottle Holder in the Base.

The amount of nutrient solution your Hydro Greenhouse uses will depend on the temperature the number of plants. Never let your Reservoir Bottle empty completely. Normally, a weekly water change will be necessary.

### Assembling the Greenhouse Cover



#### 1. Unroll the clear cylinder.

Bend the plastic in the opposite direction from the way in which it was rolled up in the box and insert the tabs into the slots as shown.

#### 2. Tape lid onto clear cylinder with clear tape

## Chapter 2

### Hydroponic Gardening Technique

#### What You Can Grow:

- **Herbs**
  - Chives
  - Dill
  - Fennel
  - Parsley
  - Rosemary
  - Sage
  - Sweet Basil
  - Tarragon
  - Thyme
- **Vegetables**
  - Chili Peppers
  - Cucumber
  - Tomatoes
  - Zucchini
- **Outdoor Flowers**
  - Asters
  - Ageratum
  - California Poppies
  - Candy Tuft
  - Chrysanthemums
  - Dianthus
  - Dwarf Zinnias
  - Forget-me-nots

#### • **Fruit**

Strawberries are the most popular fruits to grow hydroponically. Be sure Planting Bed does not become waterlogged. The best strawberries will grow in the second and third years.

### Planting Instructions

A seed is actually a miniature plant—root, stem and a pair of leaves—encased in a hard coat filled with nutrient. When placed in moist surroundings suitable for growth, the seed coat softens and the tiny seedling sprouts. Its root grows down in search of nutrients while its stem and leaves grow upwards, in search of light. There is enough nutrient inside to feed the plant until it develops a second pair of leaves. This period of initial growth is called germination. Hydro Greenhouse is an ideal environment for healthy germination since it is free of soil-borne disease and insects, is protected from dust particles, provides ample humidity, and can be placed indoors where the temperature is warmer.

Refer to the seed packets for proper planting instructions.

Plant more seeds than you want to grow. After they have germinated, keep only the healthiest plants and remove the rest.

### Caring for Your Hydroponic Garden

The most important requirements in a plant's life are nutrition, light, humidity and temperature. You can provide all of this with your Hydro Greenhouse. Lets take a look at each requirement one at a time.

#### • **Nutrition**

Plants require specific mineral and trace elements in proper proportions whether they come from soil or from hydroponic nutrient solutions. Nutrient Mix contains all the mineral and trace elements a plant needs for healthy growth. These include nitrogen for the manufacture of protein in leaves, phosphorus for development of roots and flowers, and potassium for synthesis of plant starches and prevention of disease.

**IMPORTANT:** After plants have grown to 3-4 inches in height, increase the concentration of Nutrient Mix to two (2) Nutrient Spoonfuls per Reservoir Bottle.

**CAUTION:** Only use the recommended concentration of Nutrient Mix. Too much will burn the roots of your plants.

### Monthly Backflushing

As a result of continued feeding with Nutrient Mix, salt deposits will begin to accumulate in the Growing Medium. This is a natural occurrence and may inhibit the free flow of nutrients to the roots. However, this is easily remedied. Once a month, sprinkle one Reservoir Bottle of clear water (without Nutrient Mix) over the Planting Bed.

**IMPORTANT:** Do not begin monthly back-flushes until plants have reached maturity, since flooding can wash away seeds and seedlings.

#### • Light

The energy contained in light is used to make the plant grow, blossom and reproduce. Place the Hydro Greenhouse where it can receive plenty of sunlight. During summer, place in indirect sunlight.

You can also use artificial light to stimulate growth. For an automatic lighting system, suspend one or more fluorescent lamps or grow lights about a foot over plants and connect to a timer. Set the timer to allow between 10 to 18 hours of light a day.

#### • Humidity

Humidity is the amount of moisture present in the air. Plants, especially young one's, need a certain amount of humidity. It's no wonder that the humid tropical areas of the world are so lush with vegetation. The Greenhouse Cover produces the same kind of climate on a smaller scale. As your plants grow, you will be able to observe moisture condensing on the inside surfaces. The air vents control humidity by allowing fresh air to pass in and out. On warm humid days, remove the top for a few hours to allow additional ventilation.

#### • Temperature

Plants grow only when their environment is the appropriate temperature in your Hydro Greenhouse. Should be located in an area having a daytime temperature range of 65°F to 76°F (18°C to 24°C). Nighttime temperature should not exceed daytime temperature, as often occurs in air-conditioned rooms.

#### • General Care

As your plants grow, pinch off and discard all dead and dry leaves. Remove any fallen leaves and debris from the Planting Bed. Algae that may have grown inside the Reservoir Bottle can be removed with household rubbing alcohol, followed by rinsing with hot water.

Be careful not to use household chemicals on or around your greenhouse. Over-spray of cleaning agents can cause damage to plant life.

## Chapter 3

### How to Order More Supplies

You can order refills for your Hydro Greenhouse directly from Uncle Milton at 818-707-0224. The refill kit includes Growing Medium, Nutrient Mix and Nutrient Transfer Strip.

## Trouble Shooting Chart

<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>REMEDY</b>
<b>Slow or no growth Wilting</b>	<ul style="list-style-type: none"><li>• Too cold; frost</li><li>• Low humidity</li><li>• Too hot</li><li>• Waterlogging</li><li>• Nutrient solution too strong</li></ul>	<ul style="list-style-type: none"><li>• Move to warmer area</li><li>• Replace Greenhouse Cover</li><li>• Move to cooler area or remove Greenhouse Cover</li><li>• Drain Planting Bed</li><li>• Dilute with water</li></ul>
<b>Dropping of leaves or flowers</b>	<ul style="list-style-type: none"><li>• Sudden temperature change</li><li>• Sudden light change</li><li>• Cold nighttime temperature</li><li>• Low humidity</li><li>• Waterlogging</li><li>• Poor pollination</li><li>• Old age</li></ul>	<ul style="list-style-type: none"><li>• Move indoors; Adjust temperature</li><li>• Use artificial lighting</li><li>• Move indoors</li><li>• Replace Greenhouse Cover</li><li>• Drain Planting Bed</li><li>• Hand pollinate</li><li>• Replace with new planting</li></ul>
<b>Rotting of leaves and stems</b>	<ul style="list-style-type: none"><li>• Disease or fungus</li><li>• Weak nutrient solution</li><li>• Waterlogging</li><li>• High humidity</li></ul>	<ul style="list-style-type: none"><li>• Use insecticide, fungicide</li><li>• Add nutrient mix</li><li>• Drain Planting Bed</li><li>• Remove Greenhouse Cover</li></ul>
<b>Pale leaves; lean growth</b>	<ul style="list-style-type: none"><li>• Not enough light</li><li>• Too hot</li><li>• High humidity</li><li>• Weak nutrient solution</li></ul>	<ul style="list-style-type: none"><li>• Move to sunny area or use artificial lighting</li><li>• Move to cooler area</li><li>• Remove Greenhouse Cover</li><li>• Add nutrient mix</li></ul>
<b>Multi-colored leaves turned all green</b>	<ul style="list-style-type: none"><li>• Not enough light</li></ul>	<ul style="list-style-type: none"><li>• Move to sunny area or use artificial lighting</li></ul>
<b>Yellowing of leaves, leaf fall</b>	<ul style="list-style-type: none"><li>• Weak nutrient solution</li><li>• Waterlogging</li><li>• Low humidity</li><li>• Cold draft</li></ul>	<ul style="list-style-type: none"><li>• Add nutrient mix</li><li>• Drain Planting Bed</li><li>• Replace Greenhouse Cover</li><li>• Move to warmer area</li></ul>
<b>Yellowing of leaves, no leaf fall</b>	<ul style="list-style-type: none"><li>• pH of water supply too high</li><li>• Very hard water supply</li></ul>	<ul style="list-style-type: none"><li>• Add one aspirin or 1/2 tsp. white vinegar</li><li>• Use distilled water</li></ul>
<b>Brown margins and spots on leaves</b>	<ul style="list-style-type: none"><li>• Too hot</li><li>• Low humidity</li><li>• Waterlogging</li><li>• Too much sun</li><li>• Nutrient solution too strong</li></ul>	<ul style="list-style-type: none"><li>• Move to cooler area</li><li>• Replace Greenhouse Cover</li><li>• Drain Planting Bed</li><li>• Move to shady area</li><li>• Dilute with water</li></ul>
<b>No yield</b>	<ul style="list-style-type: none"><li>• Not enough light</li></ul>	<ul style="list-style-type: none"><li>• Move to sunny area or use artificial lighting</li></ul>