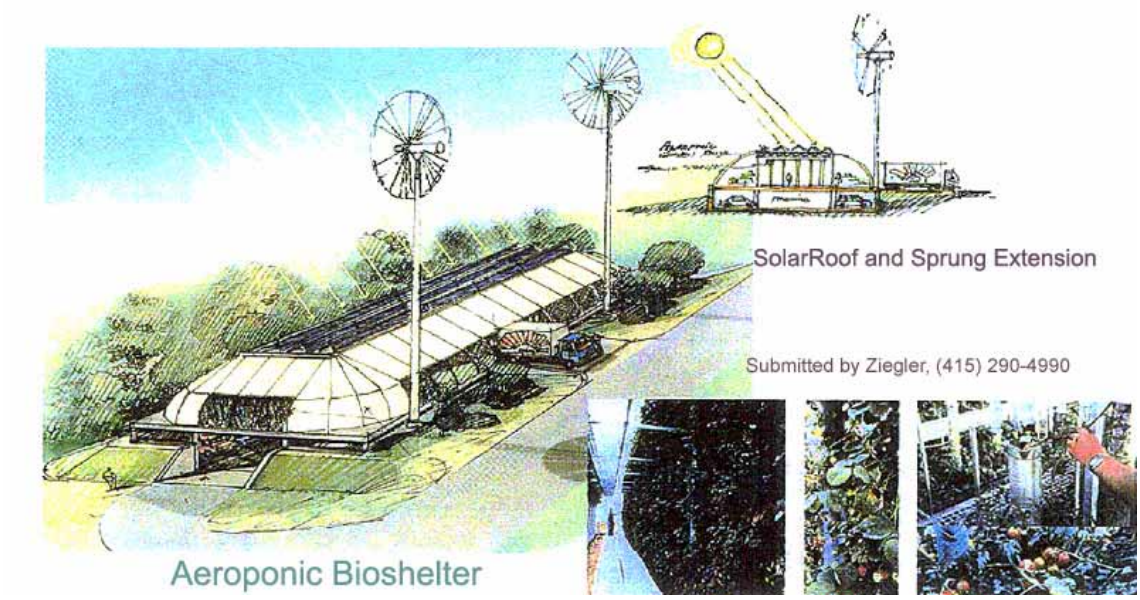
The Vertical Aeroponic Growing System



We are developers of a new agricultural growing system developed in Italy, the state of Hawaii and California. The system is a growing environment housed in an enclosure called a BIOSHELTER ®. Within this Bioshelter is a highly efficient growing system utilizing many vertical aeroponic growing tubes. Pumps powered by solar energy and monitored by a computer pumps water and nutrients to thousands of the growing tubes. These Bioshelters have 6 to 7 times the output of conventional greenhouses. Typical products include garden vegetables, berries, flowers, and specialty plants.

We are in the process of seeking investors who are interested in developing highly productive farms, and to distribute this high-tech growing system all over the world.

For further technical information and licensing agreements contact:

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The Aeroponic Growing System:

The principles of Aeroponics are based on the possibility of cultivating vegetables whose roots are not inserted in a substratum (the case with hydroponics) or soil, but in containers filled with flowing plant nutrition. In these containers roots can find the best condition regarding oxygenation and moisture. These conditions allow for better plant nutrition assimilation in a more balanced way, with consequential faster development of the cultivated plants.

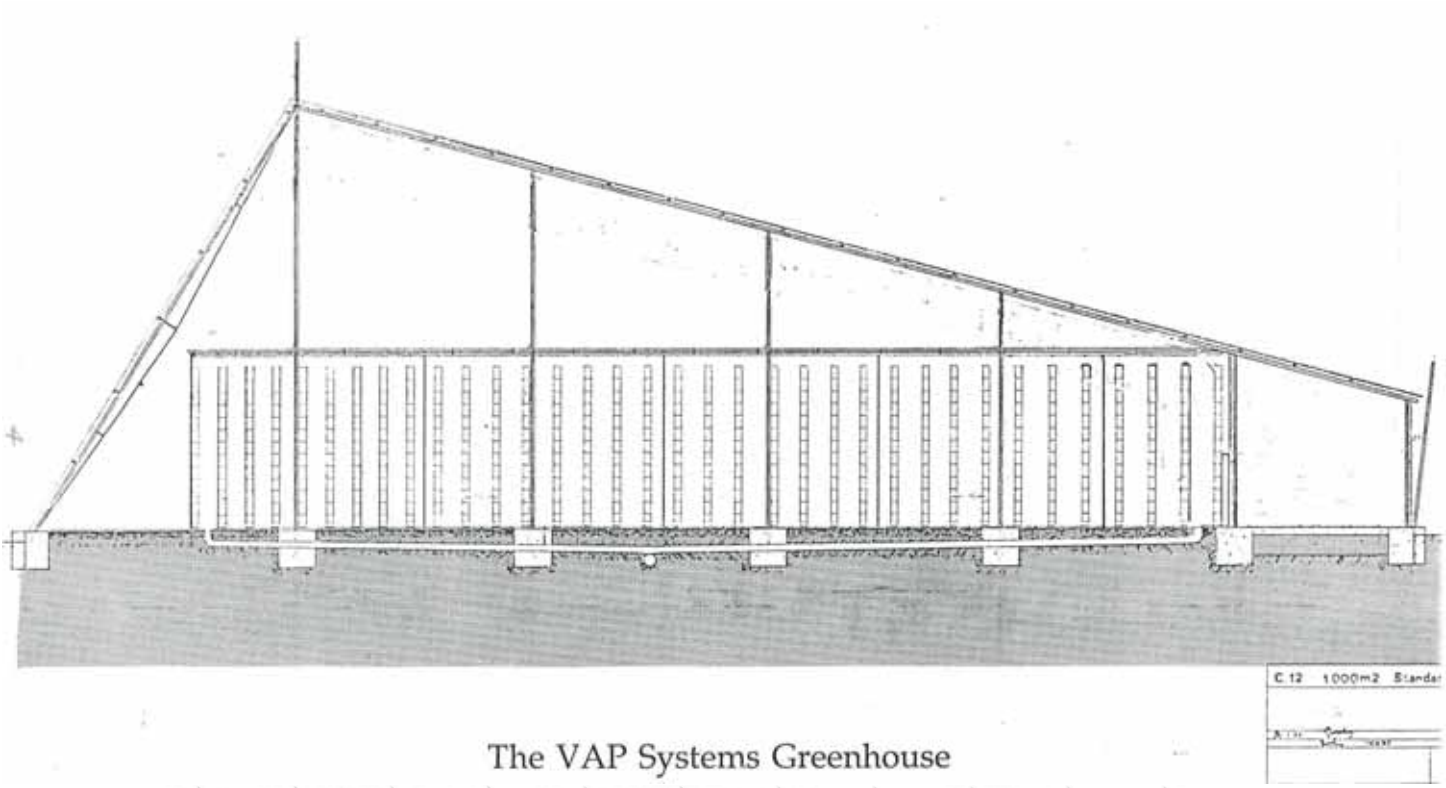
Plant containers can be mounted on top of one another and because they are light and handy, they can be easily moved according to agricultural needs. Numerous plants are mounted in vertical columns within a greenhouse or shade house space. Nutrients are allowed to trickle down through the growth columns.

Most agricultural plants need a direct exposure to the sun during the first vegetative development. Afterwards this direct exposure is no longer relevant. Based on this observation, plant containers are periodically displaced. Young plants are placed at the highest level of the growth column. Afterwards they are progressively lowered utilizing a rotational mechanical system. With the rotation periodically repeated, this permits constant production without any interruption. The Aeroponic system is agriculture with a non-stop production cycle.

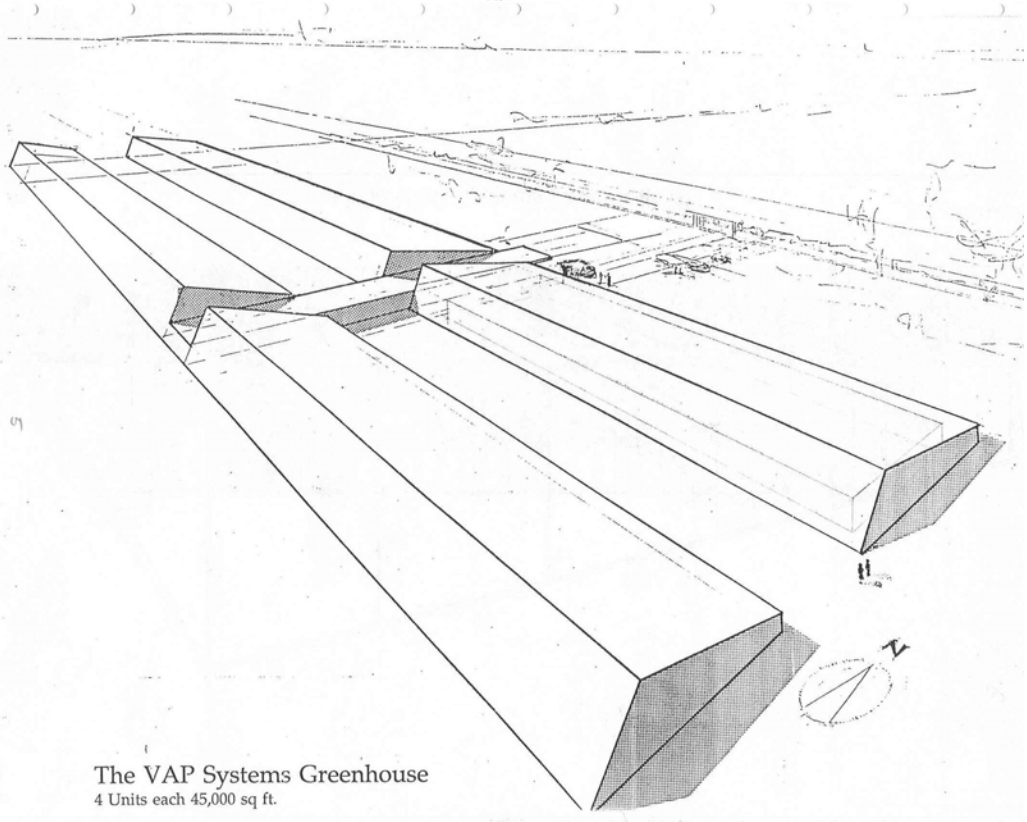
Plant nutrition is supplied into a closed circuit. Consumption is consequently limited to only the quantities absorbed by the plants, allowing for substantial water savings. For example: to produce a kilogram of tomatoes using traditional land cultivation requires 200 to 400 liters of water, hydroponics requires about 70 liters, aeroponics utilizes only about 20 liters.

Because the aeroponic system is a continuous-cycle in an enclosed space it reduces the agricultural labor into a series of mechanical routine operational tasks which are carried out daily and throughout the year. This enables workers to acquire considerable skill within a short period of time—a few months. In traditional agriculture commercial production is obtained only with skilled workers qualified by many years of experience.

The aeroponic equipment is sheltered within greenhouses or anti hail-storm coverings according to the latitude. Climate controls within the greenhouse ensure optimal growing conditions, assuring high yields.



The VAP Systems Greenhouse



The VAP Systems Greenhouse
4 Units each 45,000 sq ft.

The VAP Vertical Aeroponic Growing System

ON LAND WHERE NOTHING GROWS WE CAN WITH THE VAP SYSTEM GROW VEGETABLES, FRUITS, AND FLOWERS.

The basic local requirements to achieve this are:

a. Sunshine

b. A level area of land which is not shaded by mountains or high buildings. The area should be accessible by road.

c. Water of suitable quality for agricultural use. The quantity required is only 10% of that required for normal greenhouses.

d. A small amount of electric power. If necessary this can be provided by solar electric means.

If these requirements can be met a VAP System Bioshelter can be erected on the land, and within it cultivation of vegetables, fruits and flowers.

The VAP System Bioshelter will produce:

a. Annual crop yields of at least thirty times that of normal agriculture and six times that of a normal greenhouse.

b. Produce of quality and taste, equivalent to normal agriculture.

c. Produce which contains the minimum amount of fertilizer.

d. Crops all year round. There are no growing seasons in a VAP System Bioshelter.

e. A substantial annual operating profit.

Advantages of the Aeroponic Growing System:

In comparison with the traditional agriculture the most relevant advantages are the following:

1. Limited water consumption. This system has had commercial success in desert areas such as Saudi-Arabia and Israel.

2. Agricultural success independent of land and soil quality. Soil composition is not relevant because soil is never used in the process.

3. Intensive food production on a limited land surface area. The 3-dimensional growing system has the highest output per square foot of land per year of any system known.

4. The growing system can be constructed near consumers. The greenhouse can be constructed near urban centers and markets, with consequent reduction of freight costs and offering consumers freshly-cropped products.

5. Yields are independent from any seasonal adversity. This includes cold, hot windy, or dry weather, etc.

6. Non-stop production cycle ensures a constant market supply with more price stability.

7. Automation of most agricultural operations with a limited necessity of farm-labor and farm equipment investments. The simplicity and reliability of the mechanical system permits the employment of unskilled labor and the partially handicapped. It therefore possible to produce on a commercial basis in areas without any agricultural tradition.

8. Higher organic qualities of the products. Examination of “plateau” states of growing stock has shown a higher salt percentage of up to 30 %.

9. Social reevaluation of agricultural work which in the aeroponic system is planned. This agricultural scheme follows an industrial model: daily fixed working-hours, no more unsuitable back-breaking work in the environment but sheltered from the weather, no more seasonal or occasional work but uninterrupted activity during the whole year.

More Advantages of the Aeroponic Growing System:

The VAP System is a modern method of cultivation particularly suited to desert areas and island communities where land and fresh water is limited. Although the term "greenhouse" is used to describe the building in which the VAP System operates, by no means does the efficiency of a normal greenhouse compare with that of VAP System Bioshelter. The main advantages of a VAP System Bioshelter over a normal greenhouse are as follows:

- The annual yield per square foot of a VAP System Bioshelter is six times that of a normal greenhouse. Therefore; a VAP System Bioshelter of 5,000 sq. ft. is equivalent to a normal greenhouse of 30,000 sq. ft

- The VAP System Bioshelter is really independent of the seasons and will produce on a year-round basis. The environment of the interior is as near to a natural state as possible. In a normal greenhouse year-round production can only be achieved with full air-conditioning which, in fact produces a completely artificial environment. The necessary investment and operating costs make this a totally uneconomical proposition.

- The water consumption of a VAP System Bioshelter is only 10 % of that required for a normal greenhouse. With the VAP System there is no water wastage as the supply is contained within a closed circuit which permits recycling. The only water used is that taken by the plants.

- In a VAP System Bioshelter, the necessary nutrients for cultivation are contained in solution in the closed circuit water supply system referred to above. The composition of the nutrients is controlled automatically. The roots of the plants absorb only as much of the nutrients as they require. The resulting produce, therefore, contains the minimum of fertilizer and is consequently of the highest quality.

- In a VAP System Bioshelter fertile soil is not required. The nutrient solution is made of "compost tea" Any normal greenhouse requires large quantities of fertile soil.

- The personnel requirements of a VAP System Bioshelter are very low. For example a production bioshelter of 45,000 sq. ft. requires only 2 technicians and 6 unskilled workers. An equivalent size normal greenhouse of 270,000 sq.ft. would require at least 30 workers.

The VAP System is designed on a module of 12 ft x 6 ft x 10 ft. and can be supplied in multiples of this module. The minimum practical size, commercially viable, would be 10,000 sq. ft.

The VAP System: Vertical Aeroponic Planting System: Crop Yield:

The crop yield varies for each type of plant and is a function of the cultivation cycle of the particular plant in the Planting Tubes. For example;

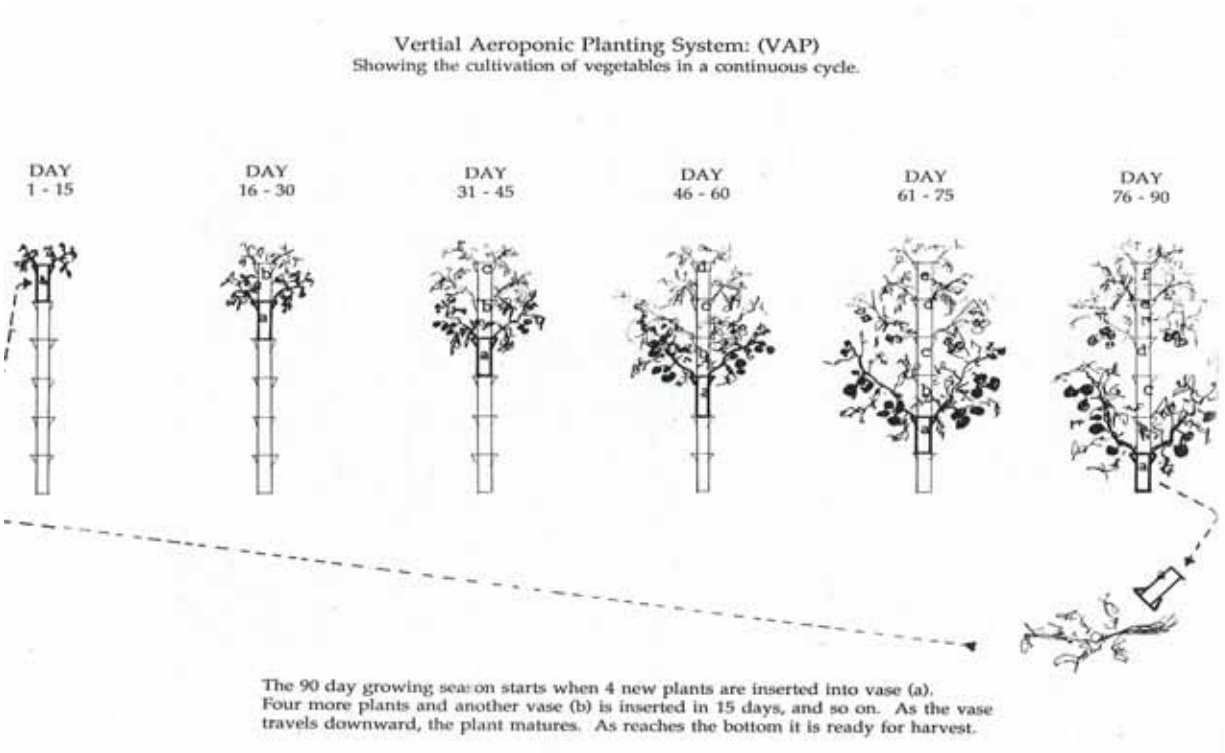
Production - Tomatoes
Density of planting Tubes is one every square yard of covered surface.
Each Tube has 6 cultivation levels - each with 4 plants.
The cultivation cycle is 90 days and in one cycle the average production is 3.3 lbs/ plant.
Therefore the crop yield is:

3.3 lbs x 4 plants = 13.2 lbs/level x 6 levels = 79.2 lbs/tube/cycle x 4 cycles/year
= 316.8 lbs/year/square yard
= 35.1 lbs/year/square foot

Examples of other plants with different cultivation cycles are:

Egg Plants *	77.4 lbs/sq.yd./year
	8.6 lbs/sq.ft/year
Cucumbers *	430.1 lbs/sq.yd./year
	47.9 lbs/sq.ft./year
Peppers *	152.5 lbs/sq.yd./year
	16.9 lbs/sq.ft./year
Strawberries *	77.4 lbs/sq.yd./year.
	8.6 lbs/sq.ft./year

* Note: These production figures are based on the European experience.



VAP: The Vertical Aeroponic Planting System

Technical Description:

1.1 Bioshelter Structure.
- Typical Covered Area - 10,000 sq. ft. modules
- A Membrane Stress Structure:
  - With 80% translucent ceiling membrane and netting side panels for cross ventilation.
- Internal precast concrete pathways or full slab

1.2 VAP System Equipment.
- Plastic plant holding pots forming planting tubes 96” high and fitted with vertical rotation equipment.
- Grid-Beam Support Structure
- Number of planting tubes - 1,250

1.3 Nutrient Solution Distribution System.
- Underground storage tank, capacity - 500 gallon
- Electric peristaltic pump, delivery and recovery piping.
- Flexible nutrient distributors and collectors fitted to each planting tube.

1.4 Environmental Control.
- Fixed ventilation extractor fans - 4 typical.
- Natural cross ventilation by means of netted walls.
- Optional Shading nets can provide 50% shade over roof area.

1.5 Electrical System.
- Central control panel with command and control equipment, visual and acoustic alarm signals.
- Internal wiring and cabling.
- Photovoltaic power system available for remote power application.
- Electrical energy required: 5 KW/ 10,000 sq. ft. Bioshelter.

1.6 Ancillary Areas.
- Storage and distribution of phyto medicines.
- Storage of fertilizer, tools, spare parts, etc.
- Offices, toilets, changing rooms, etc.
- Packing and shipping area.

1.7 Exterior.

Access road within site boundaries
Loading Bay
Parking area
Security Provisions

1.8 Construction Cost

Bioshelter and Ancillary Area structure (10,000 sq. ft.)	$135,000
Foundations, Pathways, Slabs, Drainage	$ 10,000
VAP System Equipment Nutrient Solution Distribution System	$ 25,000
Environmental Control Equipment	$ 10,000
and Solar Electric Power	$ 20,000
TOTAL:	$200,000

1.9 Annual Production Costs.

1 Technician x 12 months x $3,000
2 Workers x 12 months x $2,000
Fertilizer & Nutrients
Nursery Stock
Electrical Power
Water
Tools and Maintenance
Sales Costs:
Packing
Transport
Promotion
General Miscellaneous

TOTAL: $100,000

2.0 Site Requirements.

The following are general requirements for the installation of a VAP System Bioshelter of 10,000 sq. ft.

- Area of land — 15,000 sq. ft.
- Flat and level site, not shaded by mountains or high buildings, and not subject to air pollution.
- Soil conditions are not important except the soil should be uncontaminated and salt free. Clean desert sand or lava basalt is ideal.

The Vertical Aeroponic Planting System:

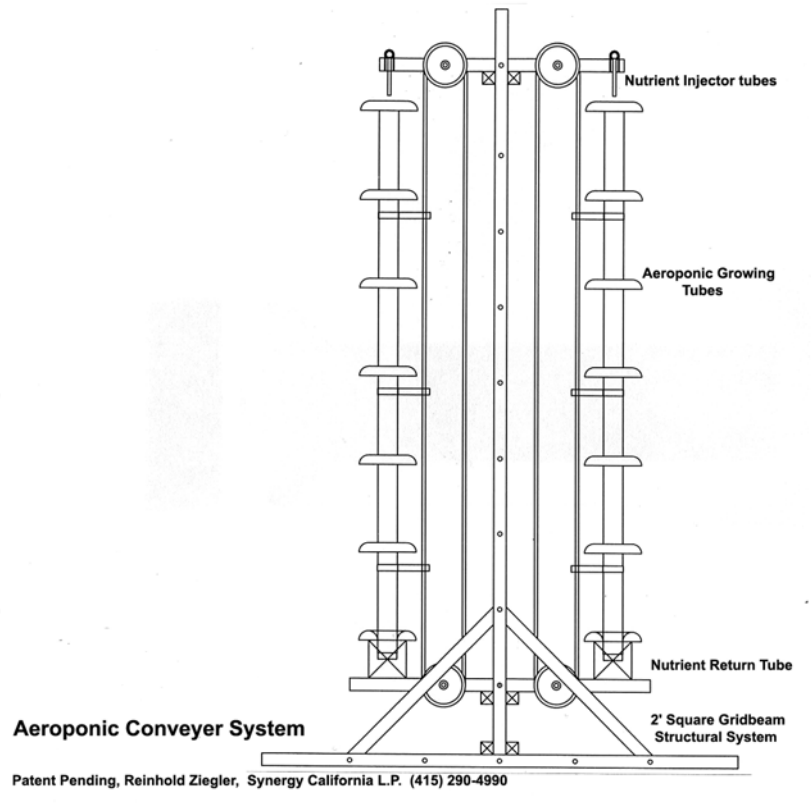
Production Income:

The income is directly related to the type of produce that is grown.

This business projection utilizes a 10,000 sq. ft. Bioshelter.
The dollar value is for 10,000 sq. ft of tomatoes, egg plant etc. respectively.

	Yields lbs/sq.ft./year:	**Wholesale** $/lb	**$ Value** 10,000 sq. ft.
Tomatoes	35.1	$ .75	$ 263,250
Egg Plant	8.6	$1.59	$ 129,000
Cucumbers	47.9	$ .40	$ 273,030
Japanese	47.9	$ .70	$ 335,000
Peppers	16.9	$ .63	$ 106,470
Strawberries	8.6	$ .80	$ 68,800

Note:
Vegetables will be mature for picking and distribution 90 days after beginning and continuously thereafter.

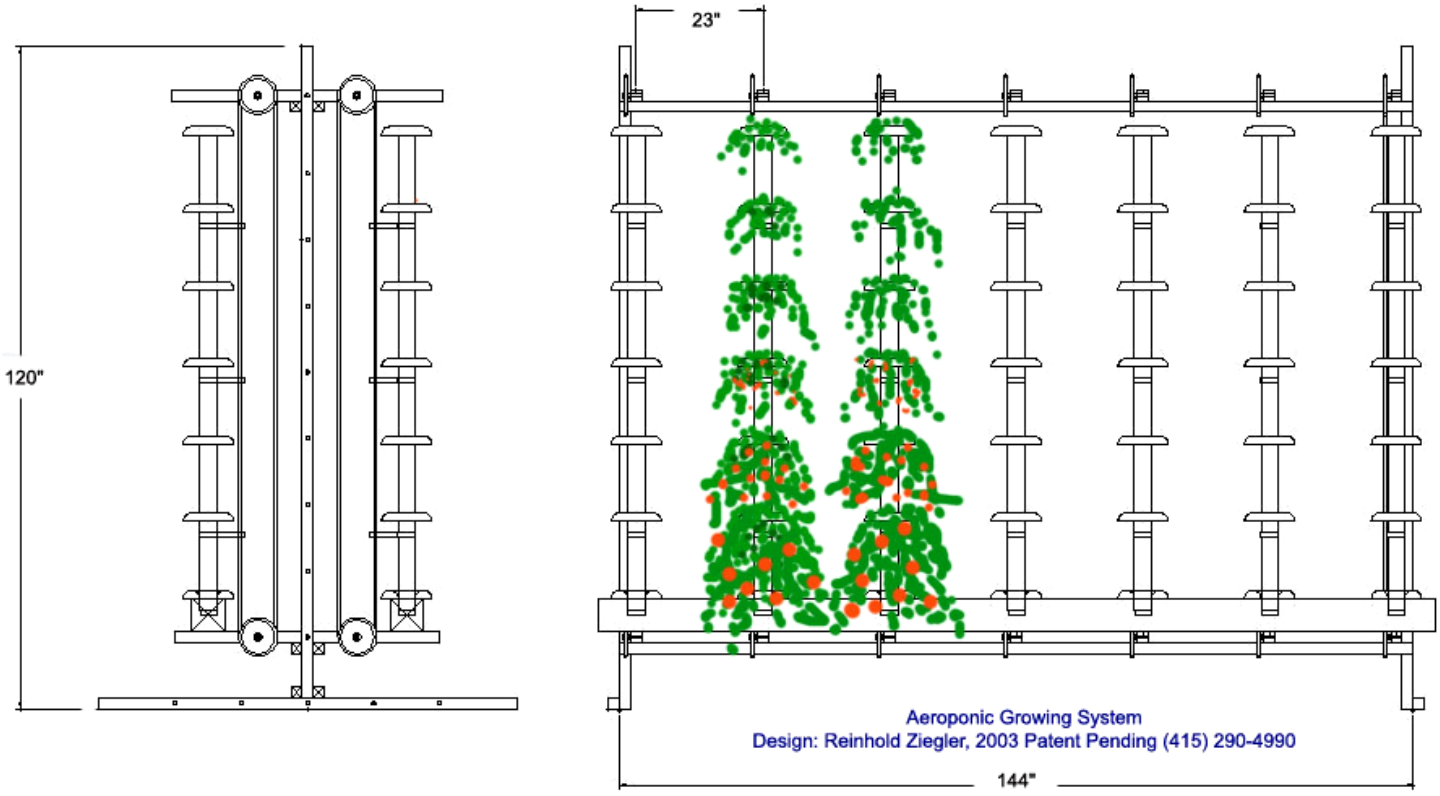


Cultivation of Tomatoes: Day One in the production cycle
Note the 4 lips in the growing vase.

Cultivation of Tomatoes: Day 90 in the production cycle.
Wire supports carry the extensive harvest.

Strawberries: Production in a continuous cycle

Romain Lettuce:



Please contact us for further information.