

tea ponics

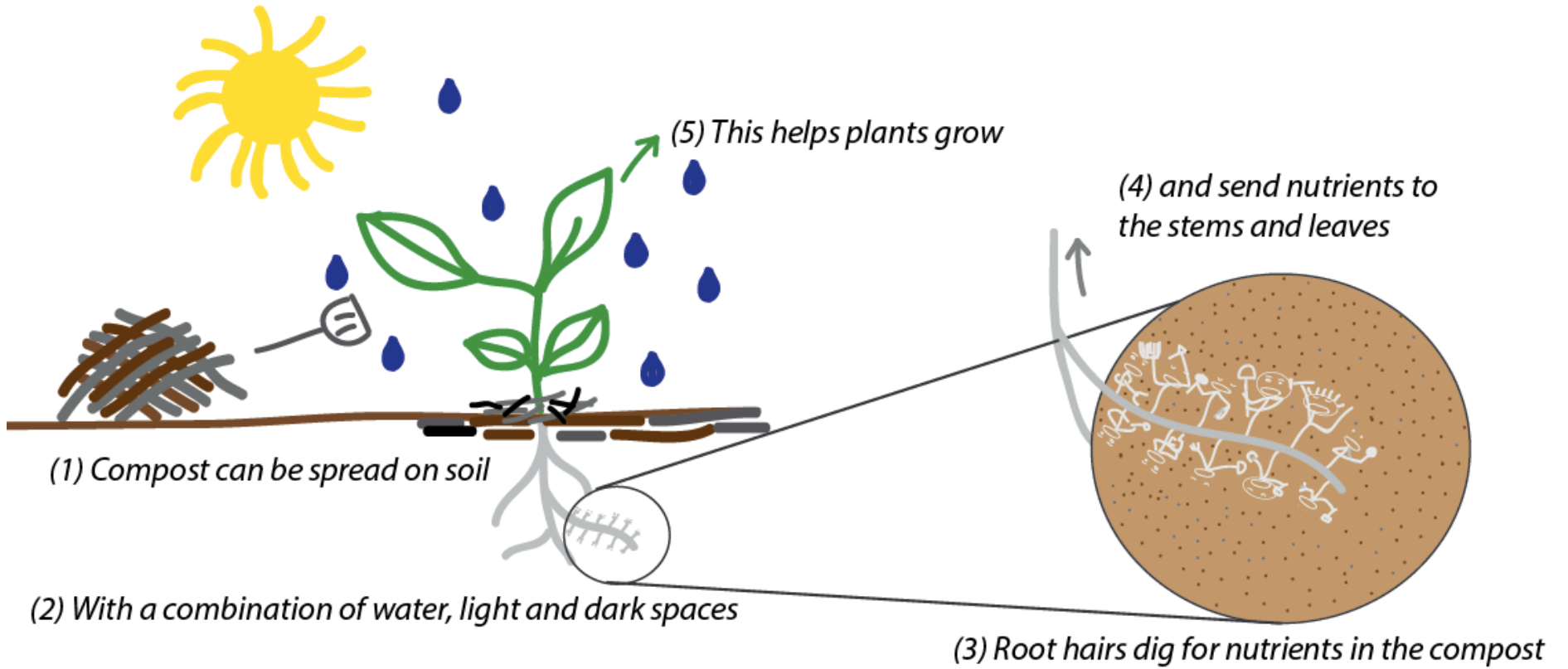
650 dollars can buy a growing system that can produce
4 heads of lettuce a day, everyday

Here's how:



This is compost.
Compost is made mostly of old plants.
Compost contains nutrients needed to grow new plants.

Compost helps plants grow



Soil is a difficult environment for plants to grow

Above ground, plants deal with:



Below ground, roots deal with:



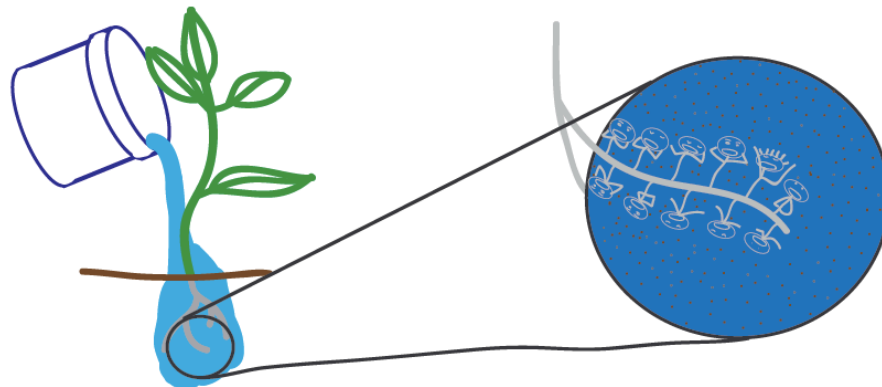
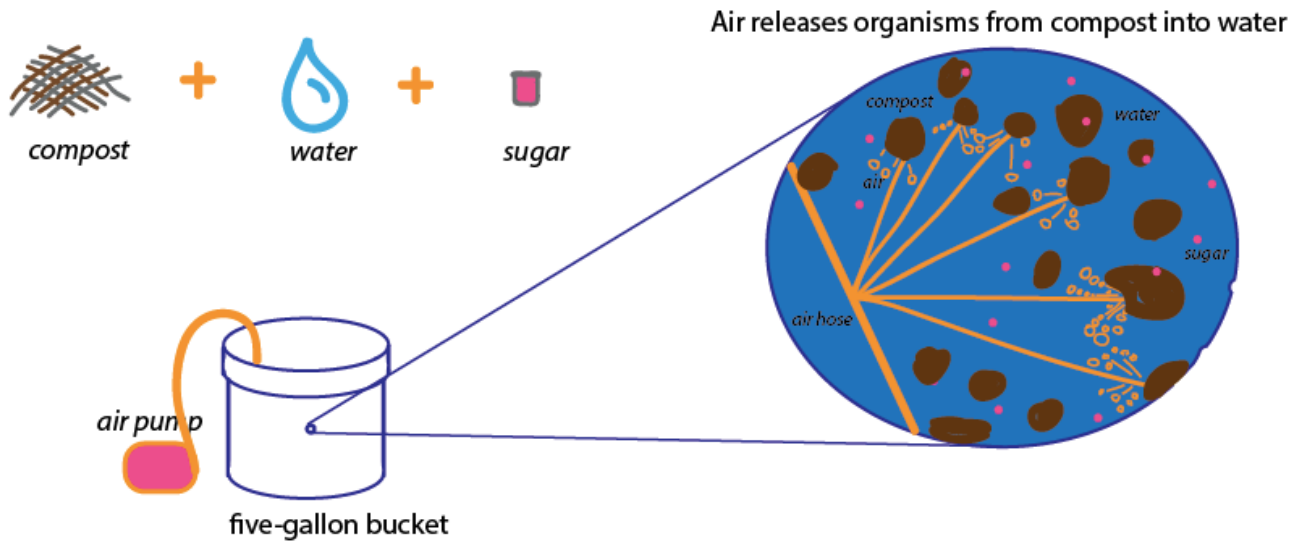
It's a jungle

Optimal conditions for plants

Compost tea collects nutrients from old plants.
Hydroponics distributes nutrients to new plants.
Results show higher yields and faster harvest times.

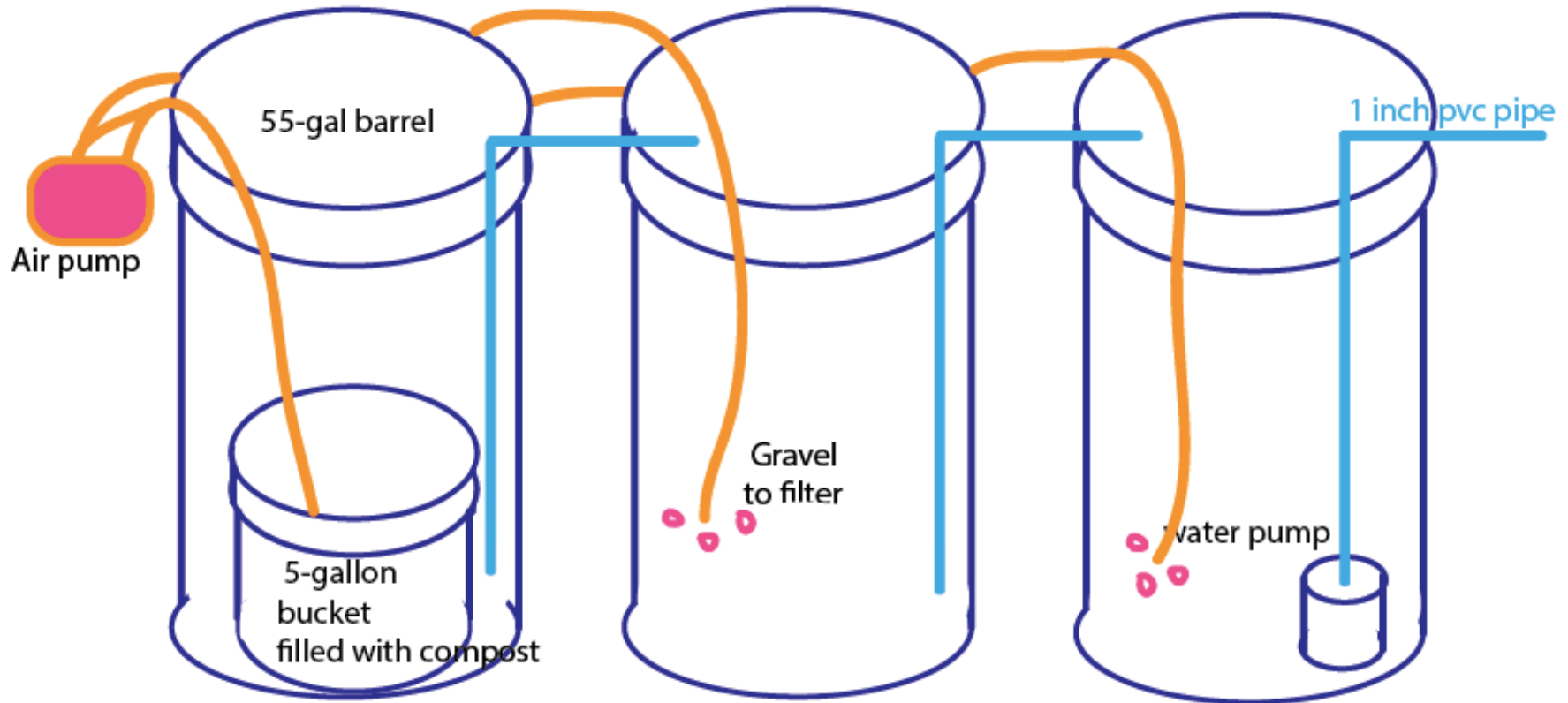
COMPOST TEA

A method to extract **nutrients from compost** using water and air



When applied to plants, root tips can more easily absorb nutrients

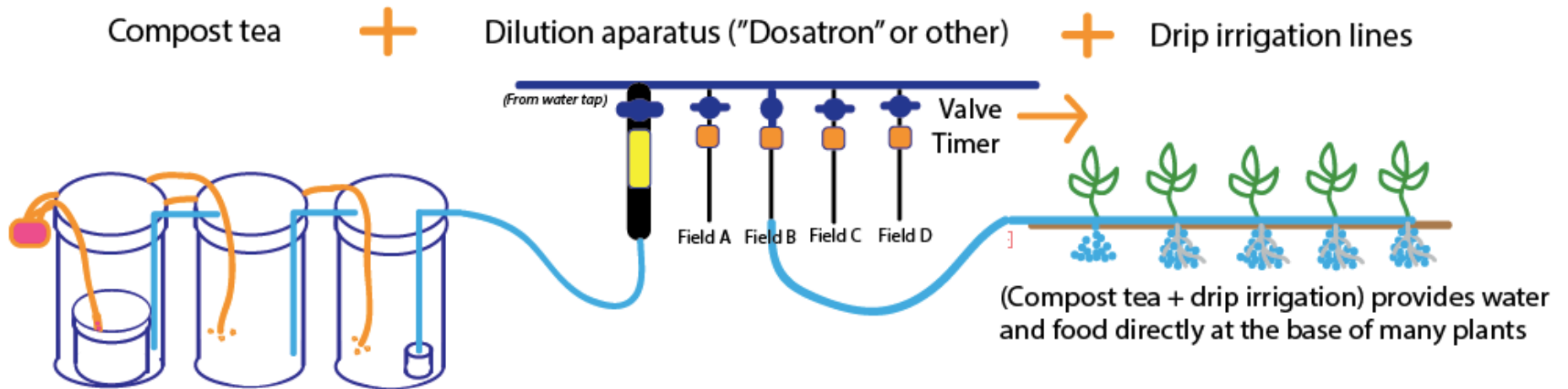
COMPOST TEA-MAKER HIGH OUTPUT



Need more nutrients, add more compost barrels
Need more filters, add more gravel barrels
Need more storage, add more empty barrels

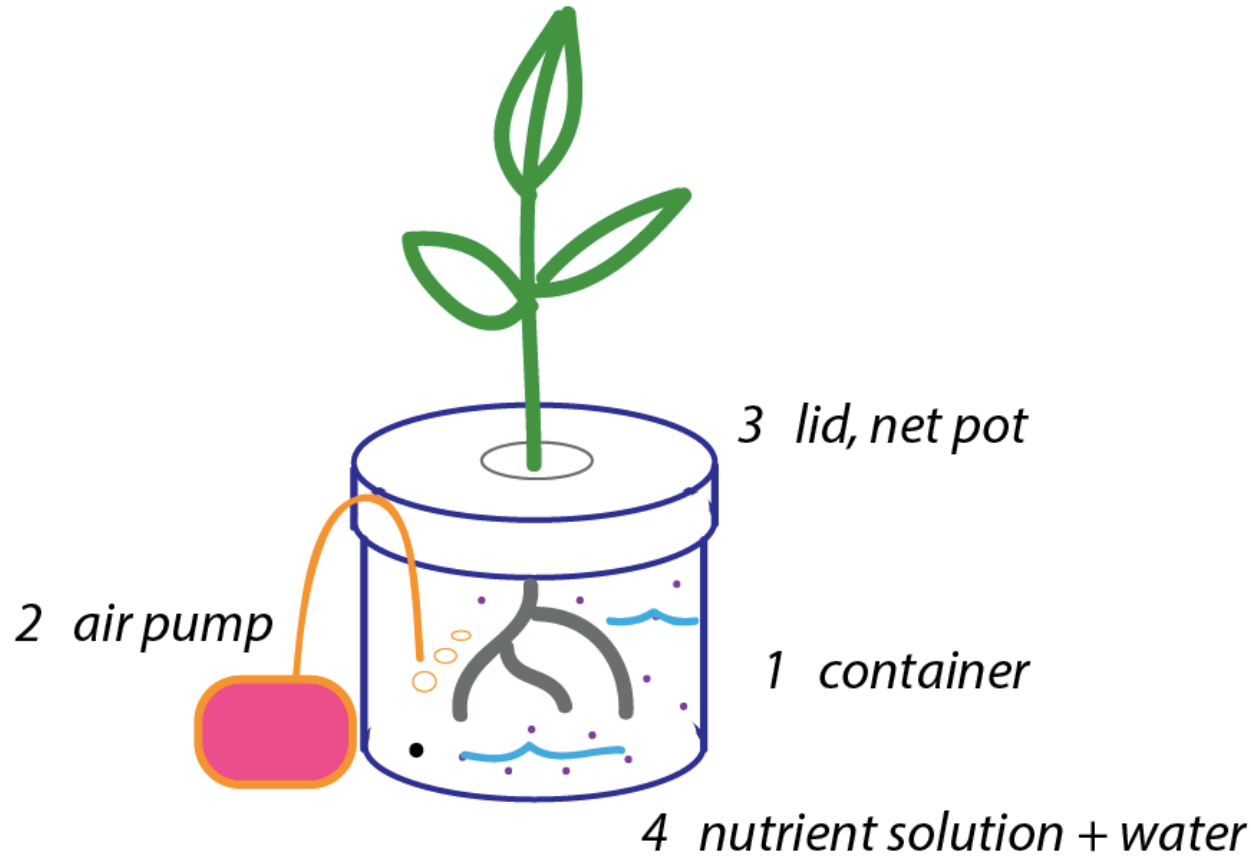
COMPOST TEA MAKER + DRIP IRRIGATION

Connecting compost tea unit with drip irrigation makes it easy to distribute tea to plants in rows



HYDROPONICS

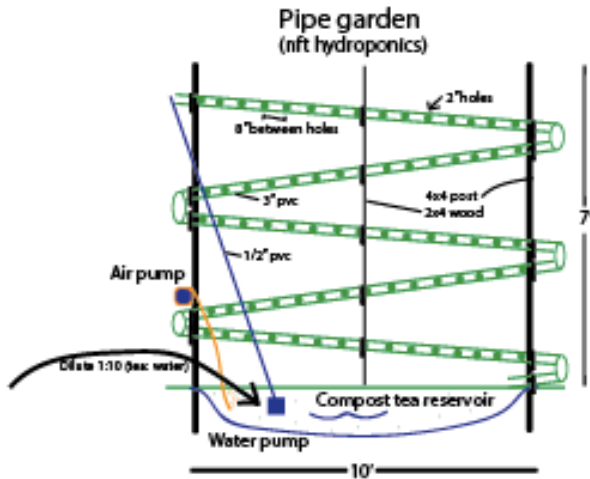
Provides a protected growing environment and continuously hydrates roots in a nutrient rich solution



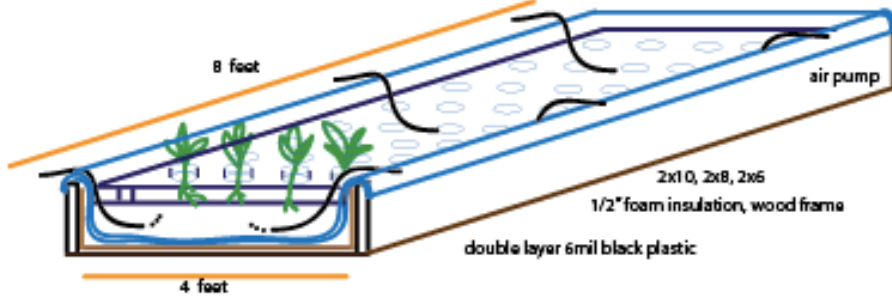
The main components of a hydroponic system can be identified in this 5-gallon bucket system:

- 1 **Container** to hold or move water through roots (must be a dark space)
- 2 **Air pump** to continuously pump oxygen into the water, 24/7
- 3 A **platform** to set the plant so roots can dangle in water and the plant can grow in a 360 direction
- 4 **Nutrient solution.** Compost tea or fish waste

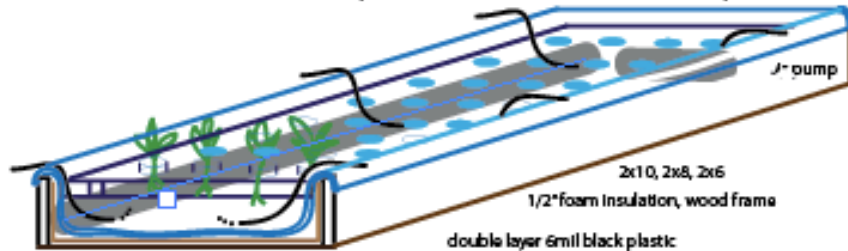
*This bucket method is one way of growing one plant at a time.
How can we grow many hydroponic plants at a time?*



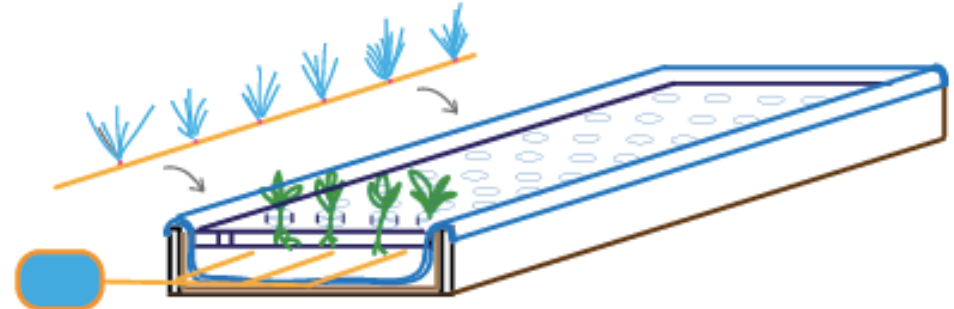
1 Tubes *pvc pipes, best for using vertical space*



2 Panels *insulation panels, best for horizontal space*



3 In media *gravel, best for root crops*

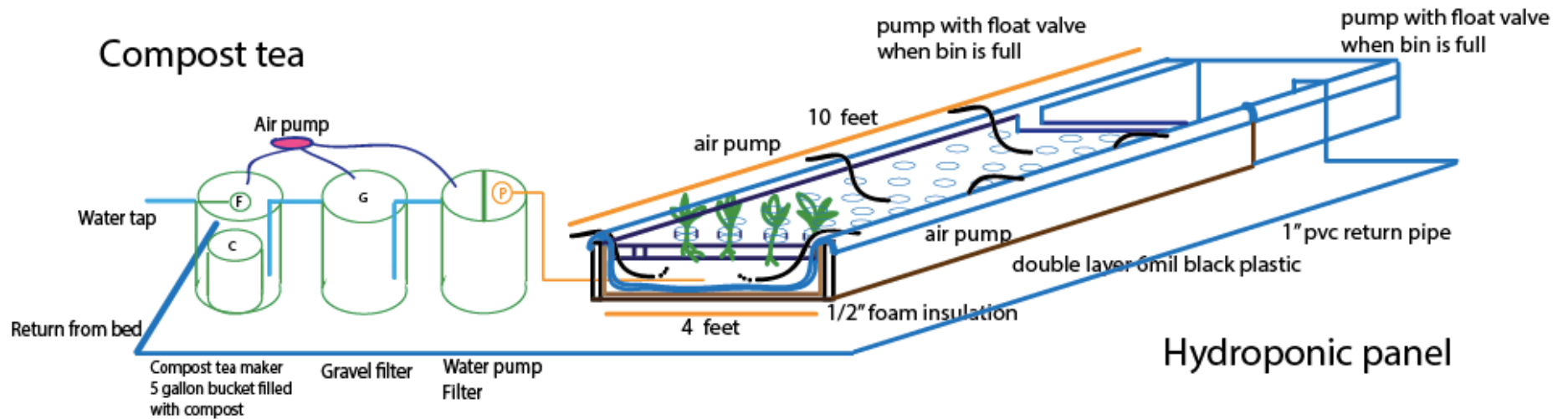


4 Aeroponics *sprays root tips with nutrient solution 24/7 instead of submerging the roots in water. uses less water*



5 Aquaponics *Using fish waste*

Model Compost tea unit and hydroponic panel system



Compost tea + hydroponic foam panel system

Number of panels	Number of plants	Space	Produce per week*	Weekly sales*	Cost to build
1	32	5' x 10'	5 heads of lettuce	10	300 + 100

**Estimated seed to harvest in six weeks, \$2 per head*

List of materials

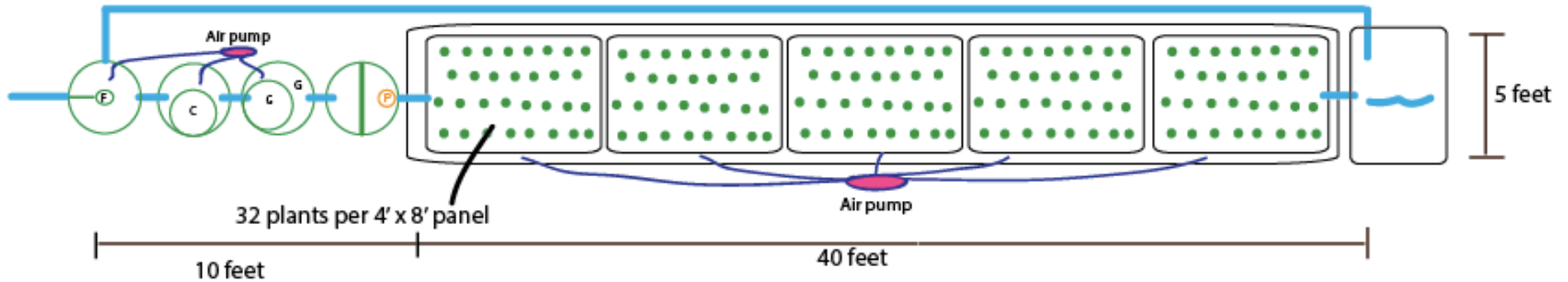
Compost tea		
Barrels	4	60
1" PVC tube, parts	80'	40
5-gallon bucket	1	8
Air pump	2	80
Water pump	1	40
Float valve	2	30
Gravel	1 cubic yard	25
Filter pads	1 sq meter	20
Cost		303

Hydroponics system		
		1 foam panel
Wood 2x6<	100 feet	50
Insulation panel	1	20
Net pots	32	15
Black plastic	10x100	20
Cost		105

Larger designs

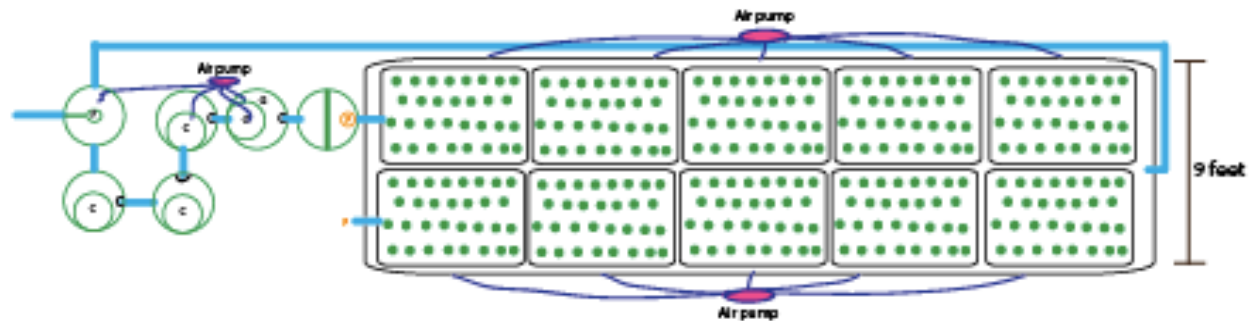
10 x 50 hoophouse

160 plants, 27 plants per week
54 dollars per week, 650 in materials



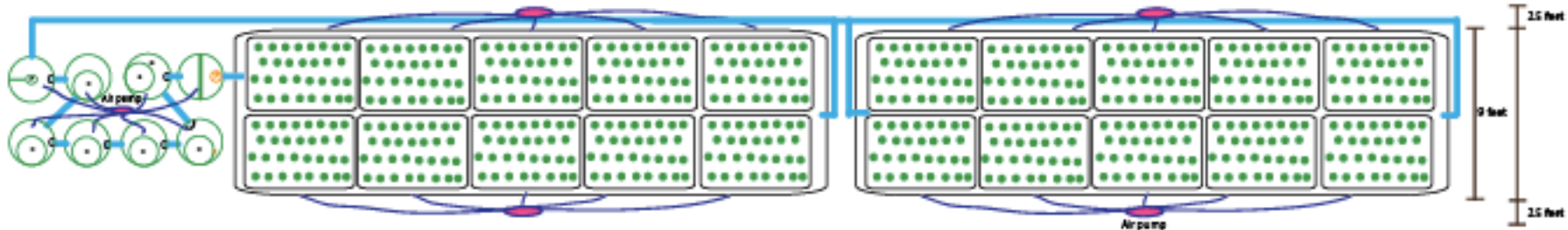
14 x 50 hoophouse

320 plants, 54 plants per week
108 dollars per week, 990 in materials



14 x 100 hoophouse

640 plants, 108 plants per week
216 dollars per week, 1800 in materials



Stats

tea + hydroponic foam panel

Panels	Plants	Space	Produce per week*	Sales per week*	Cost to build (CT+HY)
1	32	10' x 10'	5 heads of lettuce	10 dollars	300 + 105 dollars
5	160	50' x 10'	27	54	320 + 325
10	320	50' x 14'	54	108	340 + 650
20	640	100' x 14'	108	216	380 + 1300

*Estimated harvest in six weeks, two dollars per head

Prototype

Build a prototype compost tea system and 5-panel pond system

Cost compost tea 320 + 5-panel system 325 = 625

Potential produce 27 heads per week / 52 dollars per week

Find best method, build larger model