



## “Lettuce” Use Hydroponics

### Addressing drought in Worcester by improving agricultural water use

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Cause:  
Meteorological conditions

Cause:  
Inefficient agricultural water use

Problem:  
Worcester is in a stage 3 drought

Impact:  
Government has to import more water

Impact:  
Lower yields for urban farmers

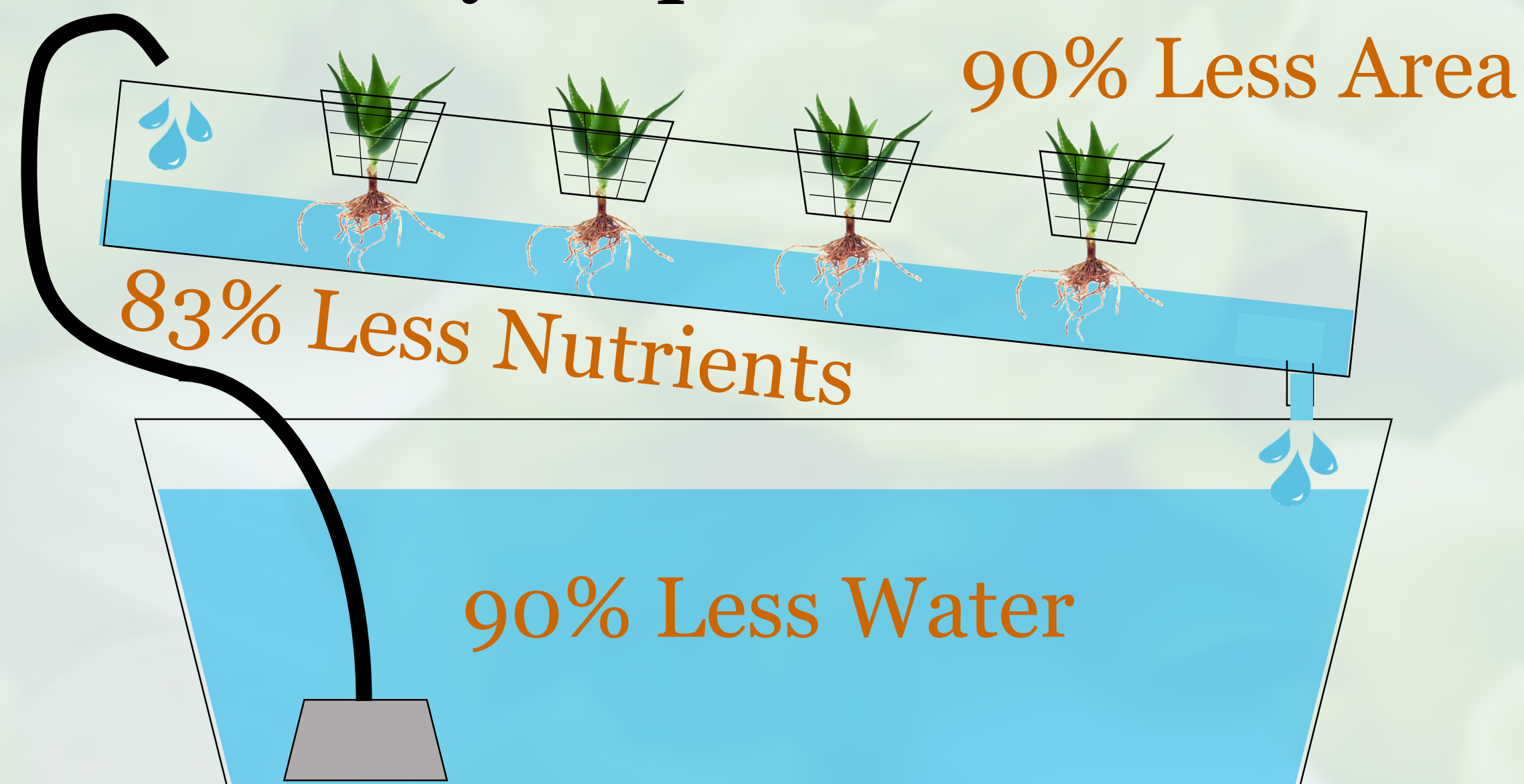
### Problem Case: Worcester Agriculture

- 2 organic farms
- 62 community gardens
- Inefficient sprinkler and hose irrigation



### Solution: Hydroponics

Compared to traditional growing methods, hydroponics use:



Implementing hydroponic systems at Worcester farms and gardens would conserve water and help mitigate drought conditions

### Evaluating Hydroponic Systems

#### Systems for Comparison



Commercial AmHydro System

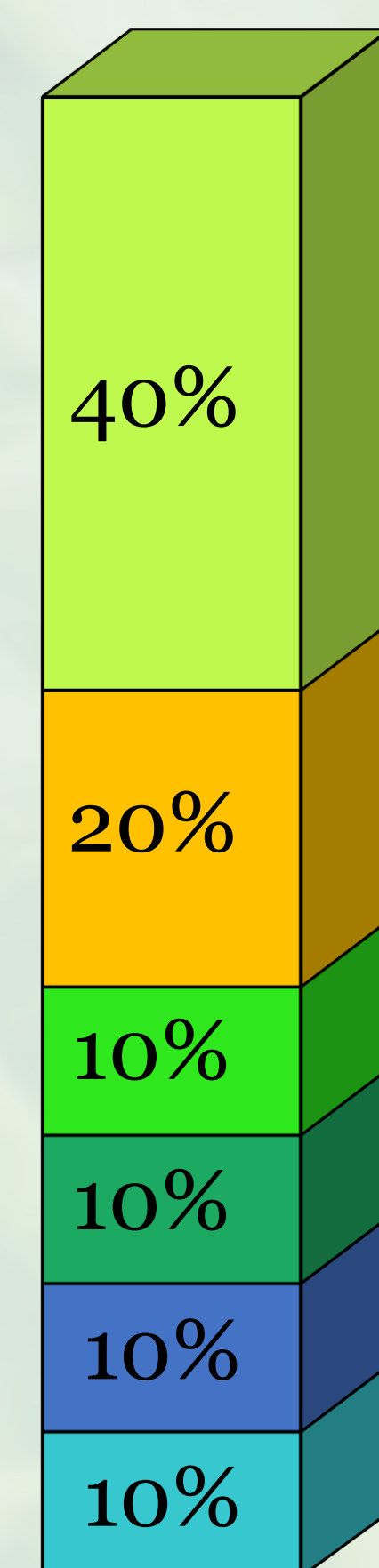


Homemade System

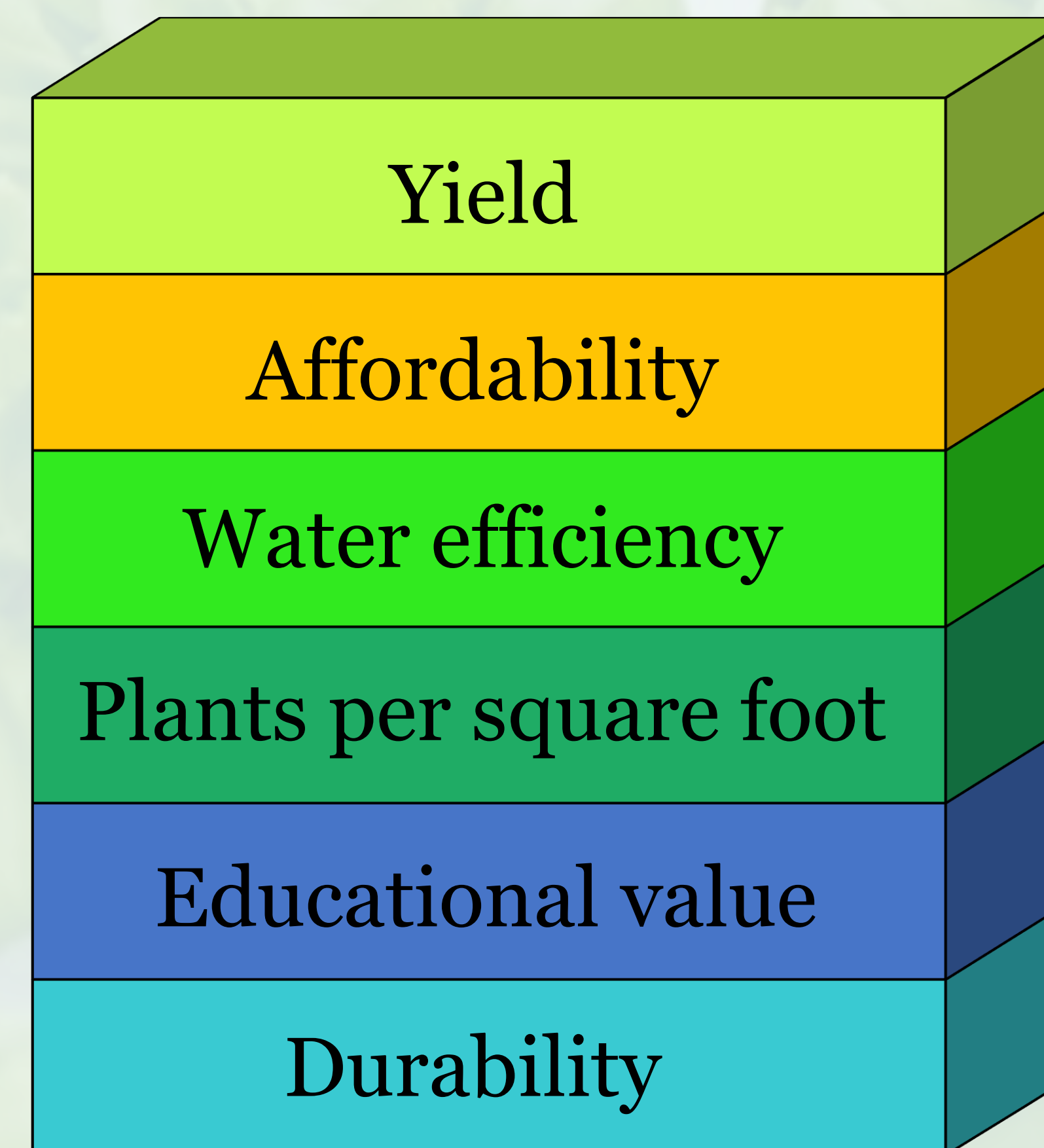
- 288 plants per week
- \$3,495 initial cost
- extremely water efficient
- 4.8 plants per ft<sup>2</sup>
- harder to build/replicate
- extremely durable

- 0.5 plants per week
- \$40 initial cost
- fairly water efficient
- 0.5 plants per ft<sup>2</sup>
- easy to build/replicate
- not very durable

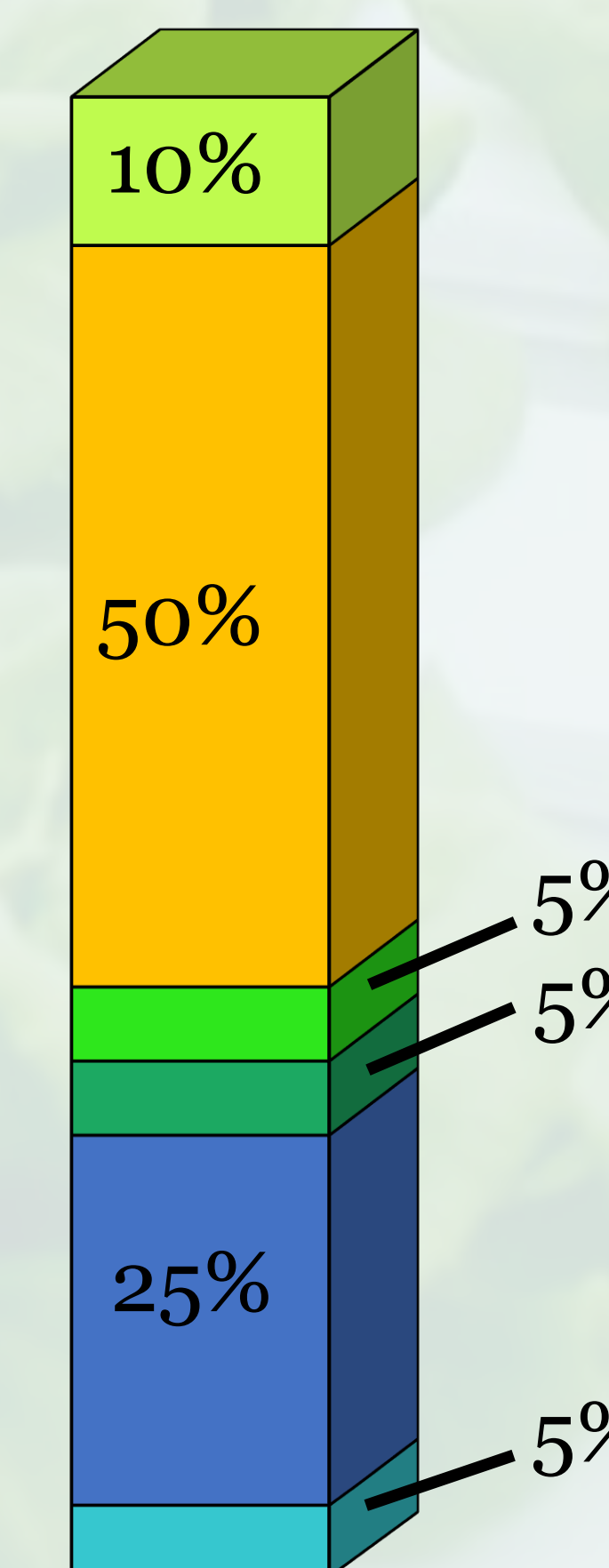
#### Weighting for Farms



#### Weighted Criteria



#### Weighting for Gardens



**Farms:**  
AmHydro  
Commercial system

**Gardens:**  
Homemade  
System

### Implementation in Farms

- Utilize existing infrastructure
- Apply for SARE Grants
- Create a sustainable business model

### Implementation in Gardens

- STEM education curriculum
- Simple fundraising efforts
- Adapt for home use

We would like to thank Joe Swartz of American Hydroponics, Betty Mazur of the Worcester REC, and Friends of the Greenhouse Schenectady for providing their time and expertise to help us with our project

### References

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