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SOILLESS CULTURE

Liu Wei, Ph.D. Vegetable Science, Professor

WFP Centre of Excellence for Rural Transformation
Beijing Academy of Agriculture and Forestry Sciences

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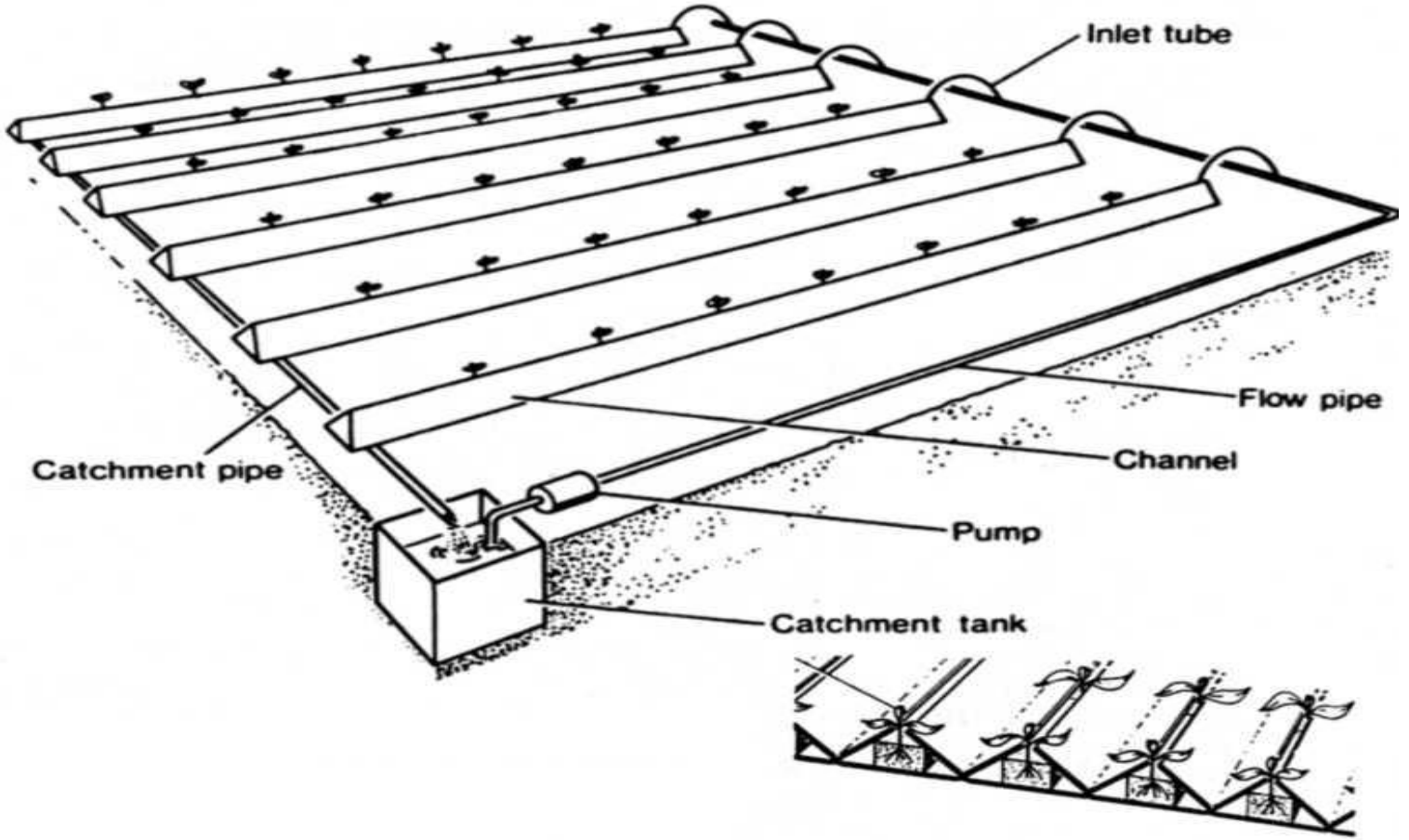
Systems and Methods

Systems and Methods of Soilless Culture

- Soilless Culture (Hydroponics)
  - Water Culture (Solution Culture)
    - NFT (Nutrient Film Technique)
    - DFT (Deep Flow Technique)
    - Aeroponics
    - Others
  - Medium Culture (Substrate Culture)
    - Natural media
      - Inorganic
        - Sand
        - Gravel
      - Organic
        - Peat
        - Sawdust
        - Wood fibre
        - Rice chaff
        - Coir
    - Artificial media
      - Pellet-shaped
        - Ceramsite
        - Perlite
      - Fiber-shaped
        - Rock wool
        - Mineral wool
      - Others
        - Polypropylene
        - Vermiculite
        - Polythene

Allen Cooper's Nutrient Film Technique (NFT)



NFT

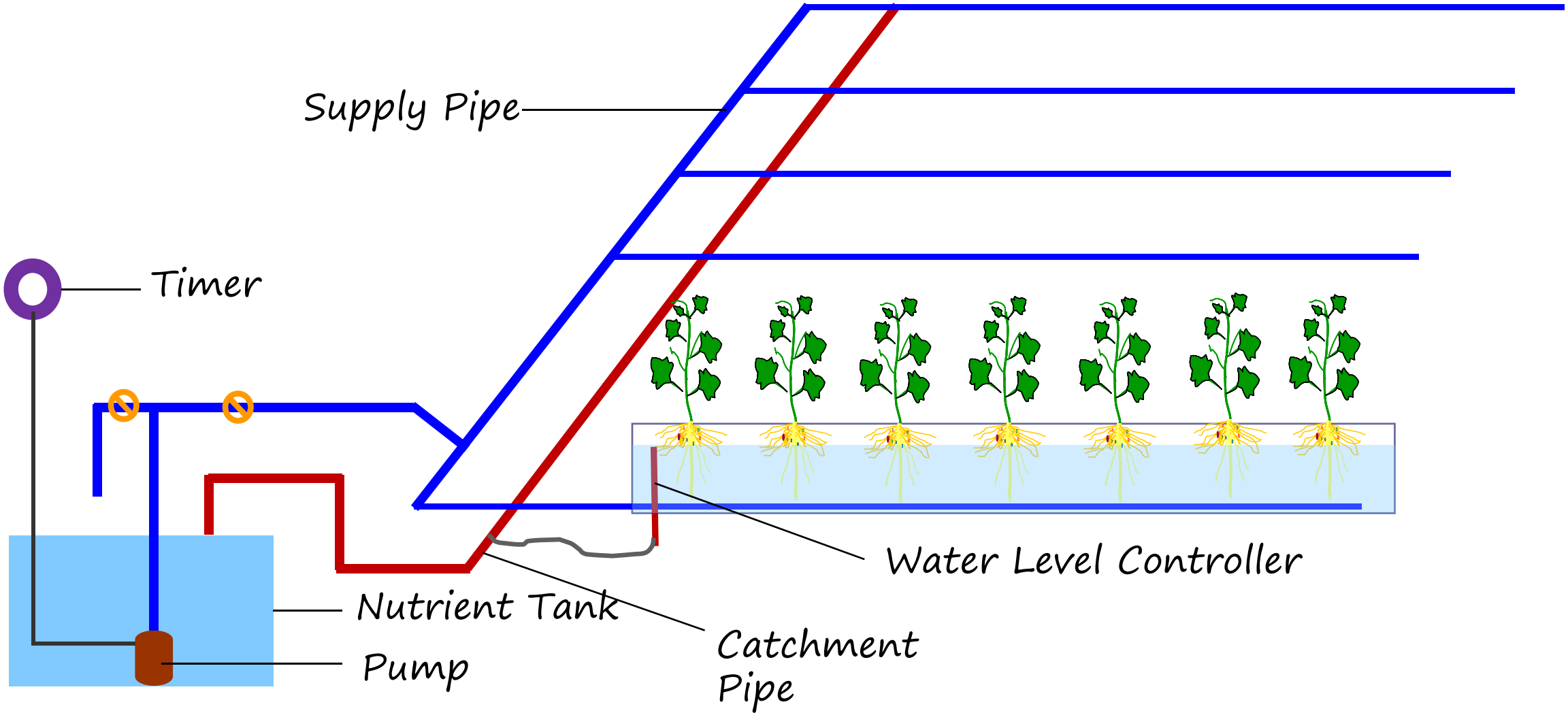
Advantages:

- Ease of establishment
- Low capital cost

Disadvantage:

Root zone temperature is affected by air temperature greatly.

Deep Flow Technique (DFT) System



DFT

The biggest difference of DFT system from NFT is that the growing bed can not have a slope.

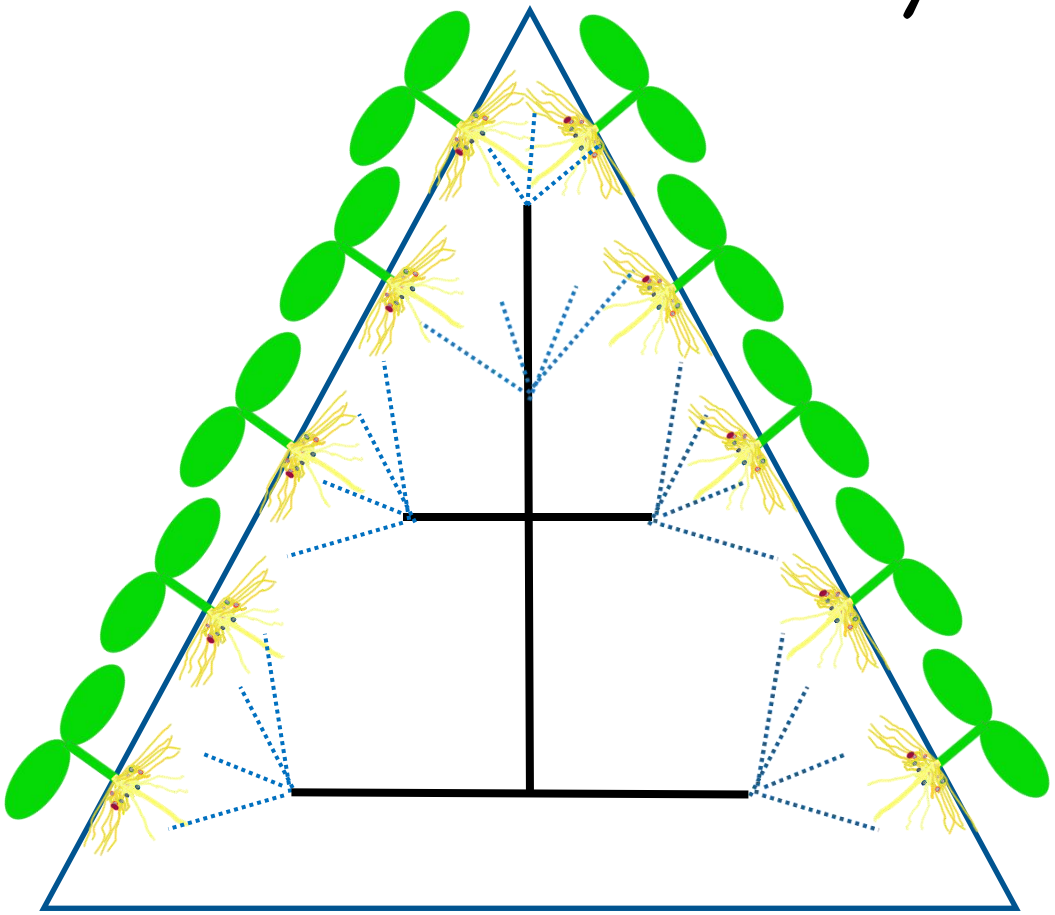
Tube culture

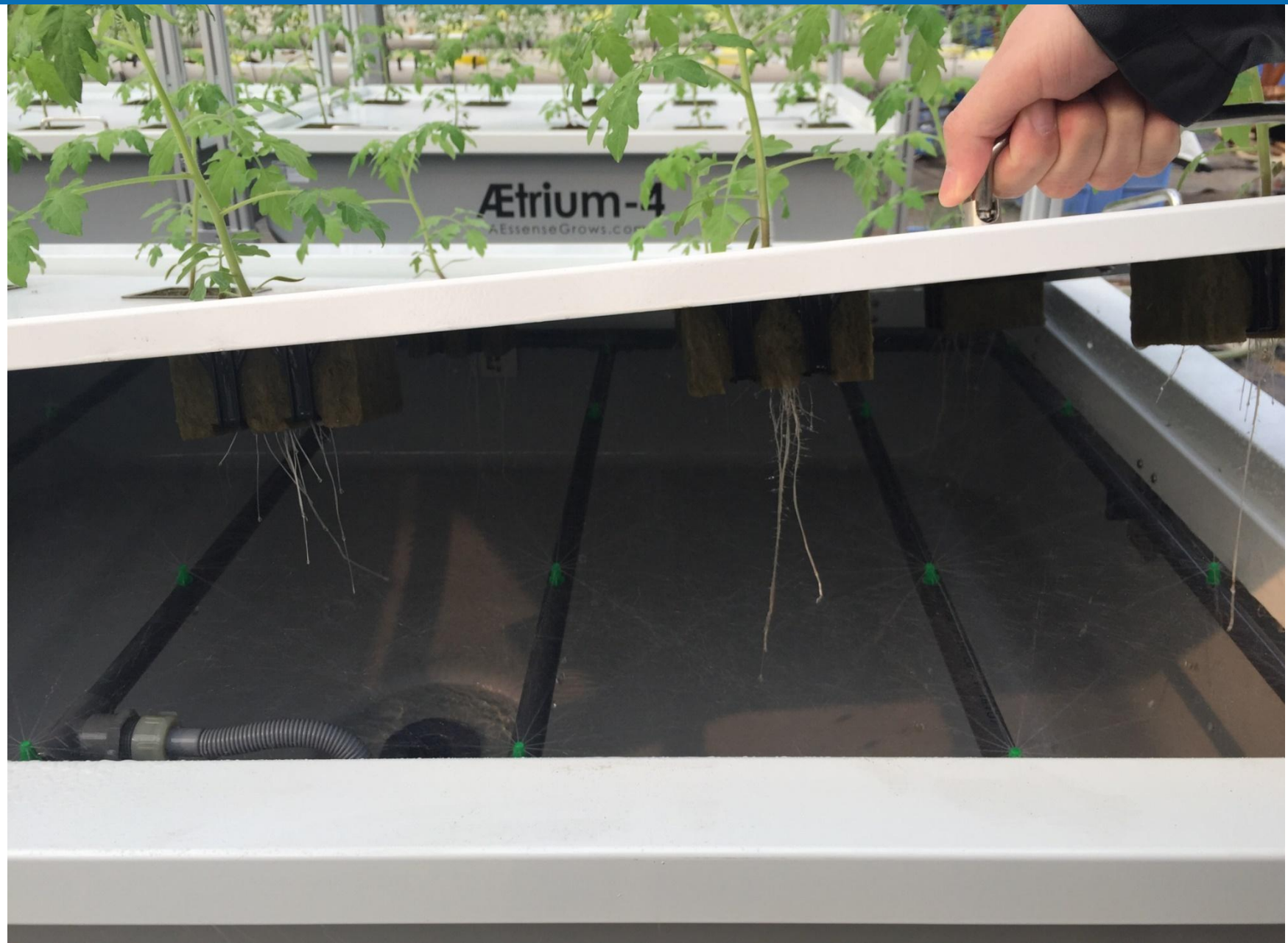
Tube culture is a modification of NFT.

Tube culture

Bamboo Tube culture

Aeroponics (Spray culture)

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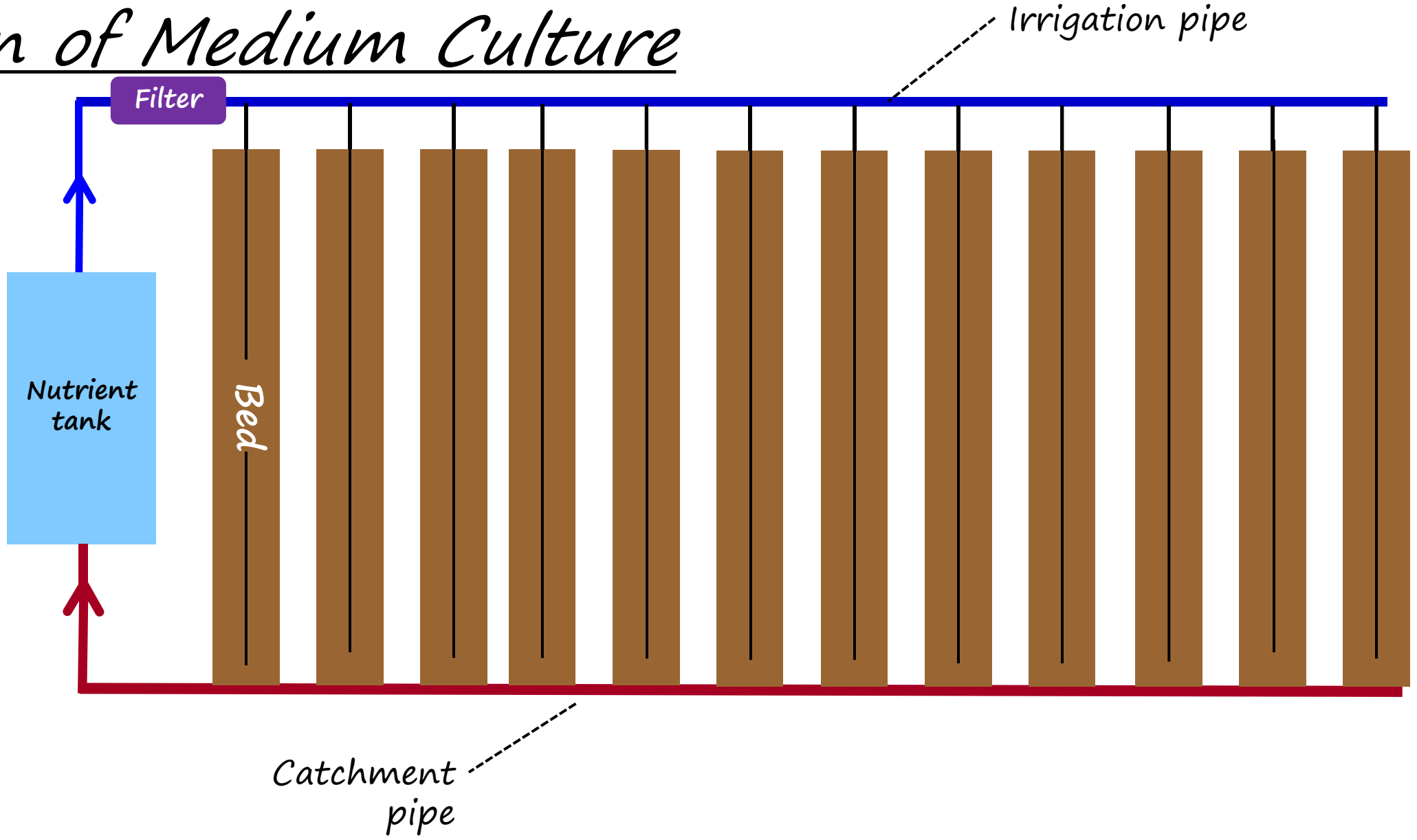
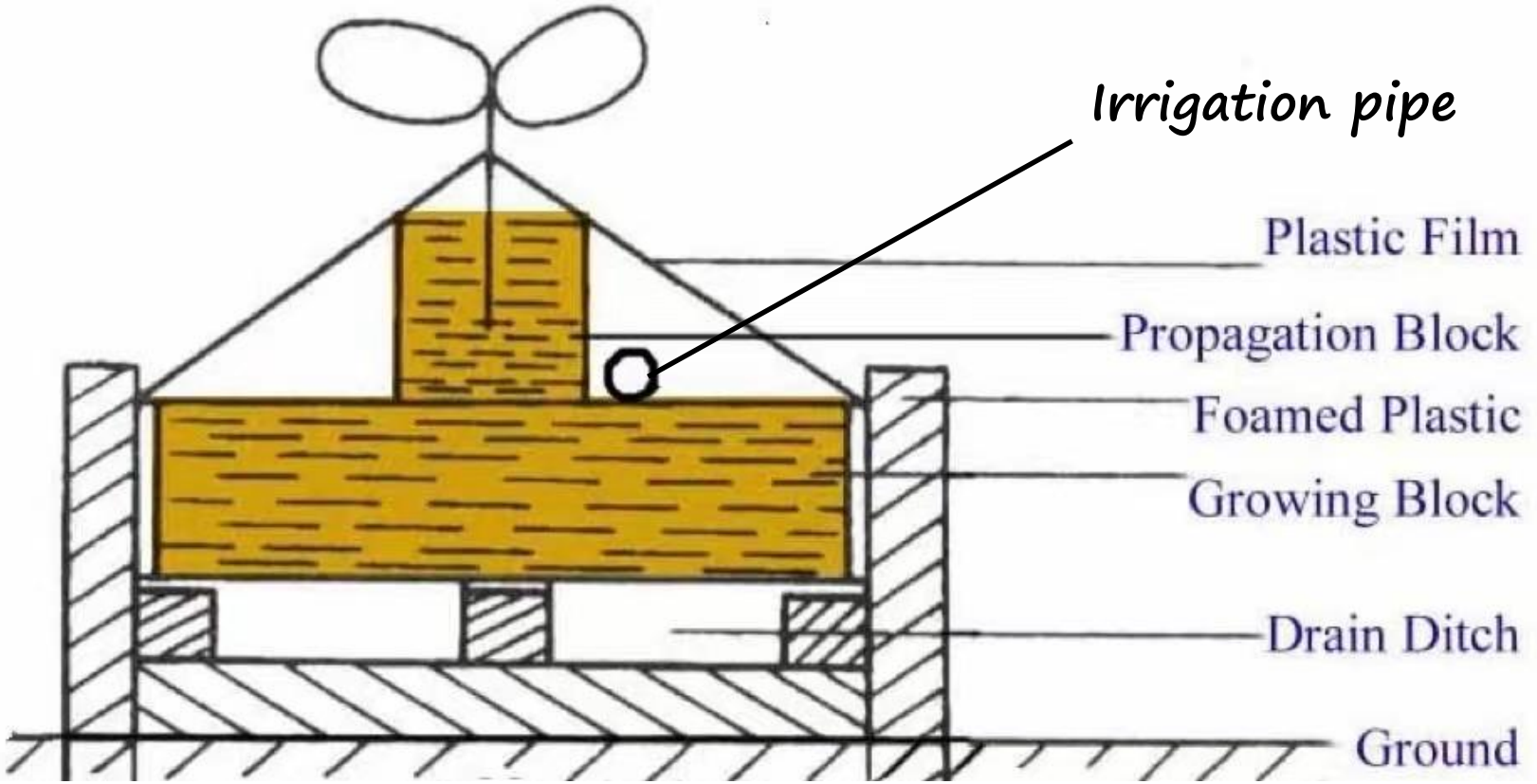
Aeroponics

Plan of Medium Culture



Cross Section of Medium Culture Bed



Medium culture bed

Bag culture

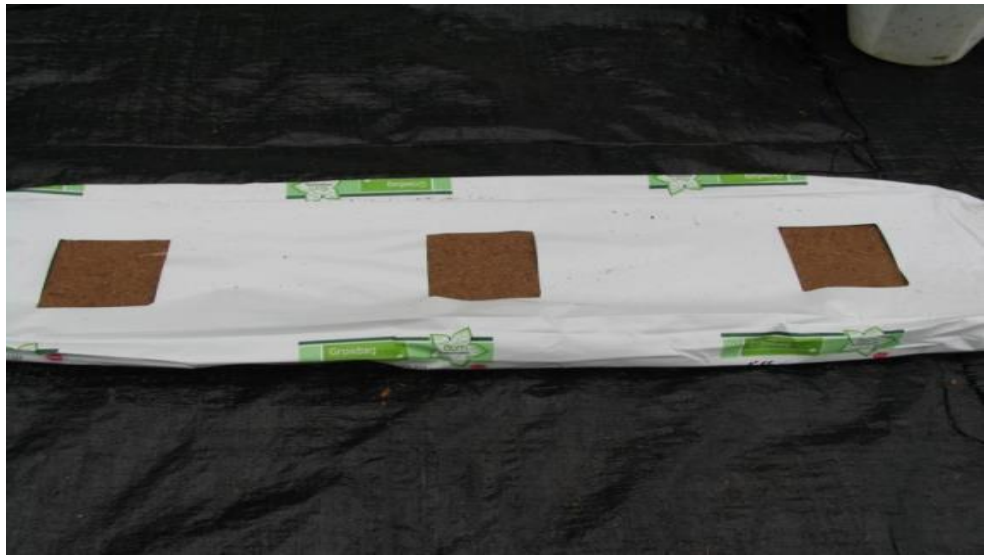
Vegetables are grown in substrate contained in a polyethylene bag.

Box Culture

Box Culture

1) Saving the use of substrate.
2) Convenient to use

Coir Growbag



Coir

Column Culture

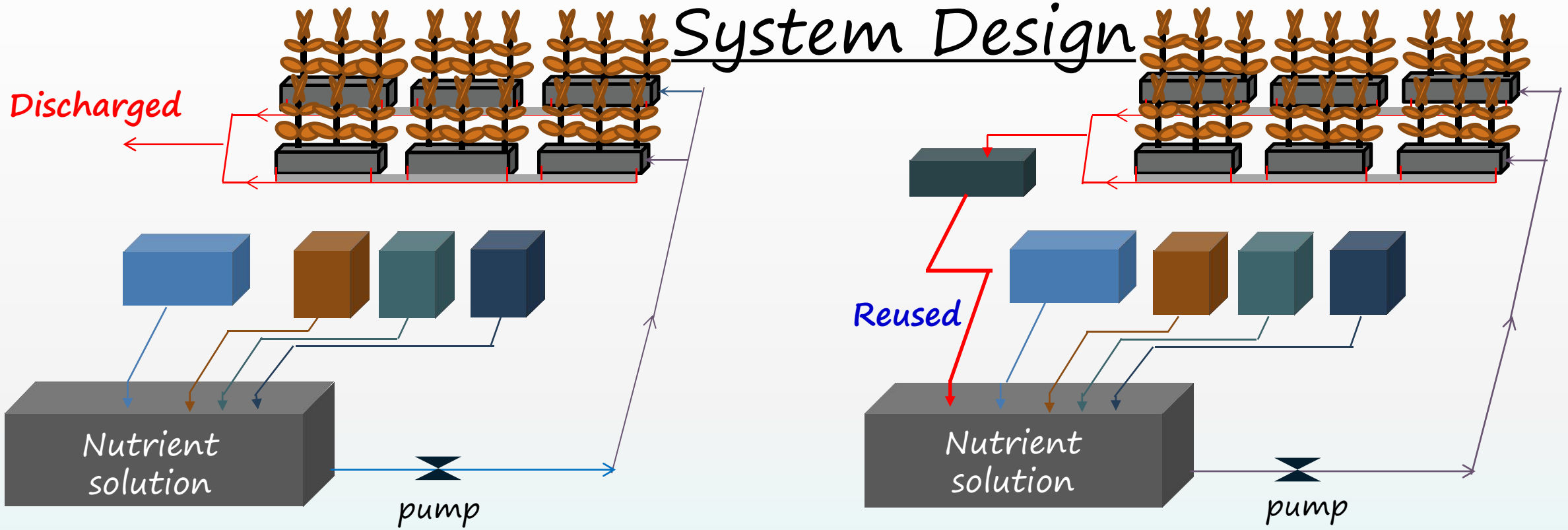
Plant factory

Micro-garden

Beneficiaries: landless people in urban areas

Purpose: daily availability of fresh vegetables for home consumption and neighborhood marketing

System Design



Open system

Closed system

- Closed system saves the use of water and nutrients.
- Closed system is more friendly to the environment.
- The construction and management of closed system are more complicated.
- Closed system increases the risk of disease.

Thank You

Contact info:

Beijing Academy of Agriculture and Forestry Sciences

Beijing 100097, China

E-mail: liuwei@nercv.org

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