

## **Introduction (5 minutes)**

1. Welcome and introductions
  1. Welcome, everyone! We're glad you could join us today.
2. Overview of the workshop
  1. Today, we'll learn about urban farming, its importance, and the basics of passive hydroponic systems.
  2. We'll also have a hands-on activity to set up a simple passive hydroponic system using the Kratky method.
3. Importance of urban farming and passive hydroponics
  1. Urban farming is a sustainable and innovative way to grow food in urban environments.
  2. Passive hydroponics offers an efficient and low-maintenance approach to urban farming.
  3. The focus of this workshop and everyone in this series will be focused specifically on passive hydroponics

## **Urban Farming Benefits and Challenges (10 minutes)**

1. Benefits
  1. Improved food security: Urban farming can increase access to fresh and nutritious food, especially in food deserts.
  2. Local economic growth: Urban farms can create jobs and stimulate local economies.
  3. Increased access to fresh produce: Urban farming can help provide affordable and locally grown produce.
  4. Reduced food miles and carbon footprint: Locally grown food reduces transportation distances and the associated emissions.
2. Challenges
  1. Limited space: Urban farms often have limited space, so it's essential to optimize the available area.
  2. Soil contamination: Urban soil may contain contaminants, making it unsuitable for growing food.
  3. Water and nutrient management: Efficient use of water and nutrients is crucial for sustainable urban farming.

## **Passive Hydroponics Principles and Advantages (10 minutes)**

1. Principles
  1. Nutrient delivery in water: In passive hydroponics, plants receive nutrients from a water-based solution.
  2. Oxygen availability for roots: Plant roots access oxygen directly from the air, which is essential for healthy growth.
  3. Absence of soil: Passive hydroponics eliminates the need for soil, reducing the risk of soilborne diseases.

4. Importance of the growing medium: A suitable growing medium provides support, moisture
2. Advantages
  1. Water efficiency: Passive hydroponics uses less water than traditional soil-based growing methods.
  2. Less labor-intensive: Passive systems require less maintenance and monitoring.
  3. Space optimization: Passive hydroponics can be adapted to various spaces.
  4. Improved control over nutrient delivery: Nutrient levels can be precisely adjusted to meet plant needs.

## **Types of Passive Hydroponic Systems (10 minutes)**

1. Wicking systems
  1. Principle and design: Plants receive water and nutrients through a wick that connects the growing medium to a nutrient reservoir.
  2. Advantages and disadvantages: Wicking systems are simple to set up and low-maintenance, but can be limited in scalability.
  3. Examples of wicking systems: Wicking beds and small-scale wicking containers.
2. Floating raft systems
  1. Principle and design: Plants are supported by floating platforms with their roots submerged in a nutrient solution.
  2. Advantages and disadvantages: Floating rafts are easy to maintain and energy-efficient, but can be less suitable for larger or heavy plants.
  3. Examples of floating raft systems: Floating gardens and small-scale DIY raft systems.
3. The Kratky method
  1. Principle and design: Plants are grown in containers with their roots partially submerged in a nutrient solution, allowing them to access both water and oxygen.
  2. Advantages and disadvantages: The Kratky method is simple, low-cost, and low-maintenance, but may not be suitable for all types of plants or large-scale production.
  3. Examples of the Kratky method: Mason jar systems and larger container setups.

## **Hands-on Activity: Set up a Simple Passive Hydroponic System (25 minutes)**

1. Materials and tools
  1. Mason jar or similar container
  2. Net pot or small plastic cup with holes
  3. Growing medium (e.g., perlite or coco coir)
  4. Romaine lettuce seeds
  5. Nutrient solution
  6. Water
  7. Cloth, sock, paint, or anything to obstruct the
2. Steps
  1. Prepare the container: If using a transparent container like a mason jar, cover the outside with aluminum foil or paint to block light and prevent algae growth.

2. Fill the net pot or small plastic cup with the growing medium.
3. Plant the romaine lettuce seeds in the growing medium.
4. Mix the nutrient solution with water according to the manufacturer's instructions.
5. Fill the container with the nutrient solution so that it reaches the bottom of the net pot or cup. The growing medium should be in contact with the solution but not fully submerged.
6. Place the net pot or cup with the planted seeds into the container's opening.
7. Place the setup in a location with adequate light and temperature for plant growth.
8. Monitor the water level and top off the nutrient solution as needed.

## **Conclusion (5 minutes)**

1. Recap of the workshop
  1. Today, we learned about urban farming, passive hydroponics, and various passive hydroponic systems.
  2. We also set up a simple passive hydroponic system using the Kratky method to grow romaine lettuce.
2. Next steps and resources
  1. Encourage participants to continue learning and experimenting with urban farming and passive hydroponics.
  2. Provide resources, such as books, websites, and community forums, to further support participants' urban farming journey.
3. Closing remarks
  1. Thank you for attending today's workshop.
  2. We hope you found it informative and inspiring, and we look forward to seeing you at future workshops.