

## Slide 1: Introduction

- Welcome the participants and introduce the workshop's topic
- Importance of nutrient and water management in passive hydroponic systems [Include a picture of a thriving passive hydroponic system]

Speaker Notes: Welcome to Workshop 4 of our urban farming series on passive hydroponics! Today, we will discuss nutrient, water, and energy management in passive hydroponic systems. Proper management of these resources is essential for successful plant growth and resource conservation in urban farming.

## Slide 2: Nutrient Management for Passive Hydroponic Systems

- Essential nutrients for plant growth
- Macronutrients and micronutrients
- Functions and roles of each nutrient [Include a picture of essential nutrients for plant growth]

Speaker Notes: Plants require essential nutrients to grow and thrive, which are divided into two categories: macronutrients and micronutrients. Macronutrients include nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur. Micronutrients are iron, manganese, zinc, copper, boron, molybdenum, and chlorine. Each nutrient plays a specific role in plant growth, such as contributing to cell structure, energy production, and photosynthesis.

## Slide 3: Nutrient Solutions for Passive Hydroponic Systems

- Pre-mixed nutrient solutions
- Mixing individual nutrients
- Pros and cons of each option [Include pictures of nutrient solution options]

Speaker Notes: Nutrient solutions used in passive hydroponic systems can be purchased pre-mixed or mixed individually. Pre-mixed nutrient solutions offer convenience and ease of use, while mixing individual nutrients allows for more precise control over nutrient levels. Consider the pros and cons of each option when choosing the best nutrient solution for your urban farm.

## Slide 4: Monitoring and Adjusting Nutrient Levels

- Signs of nutrient deficiency or toxicity
- Tools for measuring nutrient concentration (EC meters, TDS meters)
- Adjusting nutrient levels based on plant requirements [Include pictures of tools for measuring nutrient levels]

Speaker Notes: Monitoring and adjusting nutrient levels in passive hydroponic systems are crucial for plant health. Be aware of signs of nutrient deficiency or toxicity, such as yellowing leaves or stunted growth. Use tools like EC meters and TDS meters to measure nutrient concentration. Adjust nutrient levels based on plant requirements, taking into account factors like plant species, growth stage, and environmental conditions.

## Slide 5: Water Requirements and Quality in Passive Hydroponics

- Importance of water quality
- Water sources (tap water, rainwater)
- Water treatment methods and filtration [Include pictures of different water sources and filtration systems]

Speaker Notes: Water quality is crucial for passive hydroponic systems. Factors to consider include pH, hardness, salinity, and contaminants. Maintaining optimal water quality ensures that plants have access to the nutrients they need. Different water sources, such as tap water and rainwater, may require treatment methods or filtration to ensure adequate water quality.

#### Slide 6: Monitoring Water Usage and Adjusting Passive Hydroponic Systems

- Varying water requirements among plants
- Monitoring water usage
- Adjusting passive hydroponic systems [Include picture(s) of plants with different water requirements]

Speaker Notes: Different plants have varying water requirements, influenced by factors like plant species, growth stage, and climate. It's essential to monitor water usage in your passive hydroponic system and adjust it accordingly to ensure optimal plant growth.

#### Slide 7: Water Conservation in Passive Hydroponic Systems

- Inherent water conservation
- Water conservation strategies (efficient irrigation, reusing water, rainwater harvesting)
- Challenges and solutions in urban farming [Include pictures of water conservation strategies]

Speaker Notes: Passive hydroponic systems inherently conserve water compared to traditional soil-based systems. However, additional water conservation strategies can be employed, such as efficient irrigation scheduling, reusing and recycling water, and rainwater harvesting and storage. These strategies are especially important in urban farming, where water access may be limited or costly. By implementing water conservation measures, you can overcome these challenges and maintain a thriving urban farm.

#### Slide 8: Energy Conservation

- Importance of resource efficiency
- Passive solar design, renewable energy sources, and energy-saving technologies [Include pictures of energy conservation solutions]

Speaker Notes: Resource efficiency is crucial for achieving self-sufficiency in passive hydroponic urban farming. Some energy-efficient solutions for urban farming include passive solar design, which utilizes the sun's energy to regulate temperature and light, renewable energy sources like solar panels or wind turbines for generating electricity, and energy-saving technologies such as energy-efficient lighting, heating, and cooling systems. By implementing these solutions, you can reduce your urban farm's energy consumption and environmental impact.

#### Slide 9: Conclusion

- Key takeaways from the workshop
- Encourage participants to apply the knowledge gained
- Provide resources and support [Include a picture of a successful passive hydroponic urban farm]

Speaker Notes: In conclusion, proper nutrient and water management is essential for successful passive hydroponic urban farming. We have discussed essential plant nutrients, nutrient solutions, water quality and conservation, and energy-efficient solutions for urban farming. We encourage you to apply the knowledge gained in this workshop to your urban farming projects using passive hydroponics. As you continue your urban farming journey, we will provide resources and support to help you succeed. Thank you for attending this workshop, and we hope to see you in future workshops as well!