Introduction (5 minutes)

1. Welcome participants and introduce the workshop's topic.
2. Emphasize the importance of pest, disease, and environmental management in passive hydroponic urban farming for successful plant growth and a healthy environment.

Integrated Pest Management Strategies for Passive Hydroponics (15 minutes)

1. Define Integrated Pest Management (IPM) as an environmentally friendly, cost-effective approach that focuses on long-term prevention of pests or their damage in passive hydroponic systems.
2. Explain the principles and objectives of IPM, such as reducing pest populations to manageable levels, minimizing pesticide use, and promoting sustainable urban farming practices.
3. Discuss various IPM strategies for passive hydroponic systems:
    - Cultural control: Focus on maintaining healthy plants by selecting pest-resistant varieties, practicing proper sanitation, and providing optimal growing conditions.
    - Physical control: Use barriers, traps, and manual removal of pests to prevent infestations or damage.
    - Biological control: Encourage natural predators, parasites, and pathogens to manage pests in the growing environment.
    - Chemical control: Apply pesticides as a last resort and in a targeted, responsible manner to minimize adverse effects on the environment and human health.
4. Share examples of IPM implementation in passive hydroponic urban farming settings, such as rooftop gardens, community gardens, and vertical farms.

Common Diseases and Their Control Methods in Passive Hydroponics (15 minutes)

1. Identify common plant diseases found in passive hydroponic urban farming settings, including fungal (e.g., powdery mildew), bacterial (e.g., bacterial leaf spot), and viral diseases (e.g., mosaic viruses).
2. Discuss symptoms, causes, and prevention strategies for each disease in passive hydroponic systems:
    - Fungal diseases: Prevention includes adequate air circulation, proper nutrient and water management, and avoiding overcrowding of plants.
    - Bacterial diseases: Prevention focuses on avoiding overhead irrigation, practicing crop rotation, and using pathogen-free planting materials.
    - Viral diseases: Prevention involves controlling insect vectors, such as aphids or whiteflies, and using virus-resistant plant varieties.
3. Explain various control methods for passive hydroponic systems:
    - Cultural control: Practice crop rotation, remove infected plant material, and avoid overwatering.
    - Physical control: Use protective barriers and remove infected plant parts to prevent the spread of diseases.

    - Biological control: Encourage beneficial microorganisms, such as Trichoderma or Bacillus subtilis, to suppress disease-causing pathogens.
    - Chemical control: Apply fungicides, bactericides, or other disease-specific treatments as necessary, following label instructions and safety precautions.

Environmental Controls for Healthy Plant Growth in Passive Hydroponics (15 minutes)

1. Discuss the importance of maintaining a suitable growing environment in passive hydroponic systems to prevent pests and diseases.
2. Describe various environmental controls for passive hydroponics:
    - Temperature and humidity control: Monitor and maintain optimal levels for plant growth and pest/disease prevention using temperature and humidity sensors, heaters, or humidifiers.
    - Ventilation and air circulation: Ensure proper airflow in passive hydroponic systems by using fans or opening vents to reduce the risk of disease and improve plant health.
        - Light management: Provide adequate light for plant growth using natural sunlight, supplemental lighting, or reflective materials, while preventing excessive heat and stress.
3. Share examples of environmental control implementation in passive hydroponic urban farming settings, such as greenhouses, indoor gardens, and container farms.

Conclusion (5 minutes)

1. Recap the key points covered in the workshop, emphasizing the importance of integrated pest management, disease control, and environmental management for successful passive hydroponic urban farming.
2. Provide participants with resources for further learning, such as fact sheets, guides, and online forums related to pest and disease management in passive hydroponic urban farming.
3. Encourage participants to apply the knowledge and skills gained in the workshop to their urban farming projects and share their experiences with others in the urban farming community.
4. Thank the participants for attending the workshop and invite them to attend future workshops in the series for continued learning and skill development.