

# APRU Food Security Webinar Series 2024

▾ Precision Agriculture and Food Shelf Life Extension in Asia-Pacific

**Webinar 2** May 1 Wednesday at 6pm (Vancouver, Los Angeles)

/ May 2 Thursday at 9am (Singapore, Taipei)

**Speakers**



**Dr. Shih-Fang Chen**

National Taiwan University

“AI in Agriculture: From Field Plant Monitoring to Postharvest Quality Evaluation”



**Dr. Matthew Wilson**

The University of Adelaide

“Sensory Tools to Improve Food Shelf-Life Evaluation”

# Dr. Shih-Fang Chen

## AI in Agriculture: From Field Plant Monitoring to Postharvest Quality Evaluation



### Abstract

In crop production, harvesting, and post-harvest handling, there is often heavy reliance on human labor for monitoring, recording, and decision-making. Yet, with a shortage of experts and declining labor availability, integrating IoT sensors, autonomous vehicles, image processing, and AI algorithms can emulate expert decision-making. We'll illustrate this approach using examples such as tea, asparagus, and melons, demonstrating how deep learning can assist in pest identification, autonomous patrols, harvest prediction, and quality assessment. By enhancing monitoring precision, we anticipate achieving the objectives of securing yields, reducing resource consumption, and improving quality.

### Biography

Dr. Shih-Fang Chen is an associate professor in the Department of Biomechatronics Engineering at National Taiwan University. Her research focuses on applying image processing and spectral techniques to monitor plant status and evaluate quality. Specific research topics include plant growth monitoring, pest and disease identification, harvest time prediction, agricultural product grading, pesticide residue detection, and flavor prediction.

# Dr. Matthew Wilson

## Sensory Tools to Improve Food Shelf-Life Evaluation



### Abstract

Food waste is a growing challenge for global food security, leading not only to a loss of available sustenance, but also to poor environmental outcomes. However, improvements in sensory evaluation offer an opportunity to better utilise available foods by maximising their storage life. Using instrumental sensory approaches, we can more precisely define the quality-based shelf-life of foods, and better understand the factors that influence the deterioration of food quality.

### Biography

Dr Matthew Wilson is a senior lecturer with a research background in food quality and preservation, horticulture, new crop development, plant physiology and sustainability. His research focuses on understanding how environmental conditions influence primary production, and the resulting effects on food chemistry and sensory perception. He is interested in further investigating the factors determining food quality, as measured by microbiological, instrumental and human based means.