

### **3rd International Conference on Crop Improvement**

#### **Keynote Speaker: Professor Chungui Lu**

**Title:** Increased food productivity & sustainable products by vertical farming & urban agriculture

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**Abstract:** An increasing world population combined with climate change and pressure on the nature resources threaten global food security. Rapid urbanisation is a global phenomenon that is occurring in most countries. How can we produce more food on less land with less water, less energy, and less chemicals? It has been identified that vertical farming, if designed appropriately, will be a sustainable solution.

Vertical farming is an indoor agricultural method for growing fresh food year-round in protected environment (buildings, glasshouse) using advanced technologies. It does not require soil, saves space, energy and multiplies crop yield. However, to increase efficiency and sustainability, vertical farming requires highest possible degree of precision over plant resource capture and growth, quality of the product and permits the recycling of waste products and nutrients. The application of precision agriculture technologies has clear benefits to optimise production efficiency and to increase quality for sustainable agriculture & food security.

In this talk, Chungui will present some of his research in this new area. He will start with a brief of history of farming from field farm to protected cropping and future vertical farm. He will introduce the sustainable and efficient system which is employing various innovative technologies including automated subsystems, environmental control, systems performance, LED light use and plant growing system. The talk will finish with recent case studies on vertical farming and future of farming for food.