Improving Agricultural Sustainability

Enhancing Resource-Use Efficiency of Crops

Wed., March 25, 3 p.m.

Student Union, Cooley Ballroom
ASU Polytechnic campus

Is agriculture sustainable in the face of climate change? Improving sustainability—environmental and economic—has become a top priority in agriculture research as challenges arising from climate change impact crop production.

Improving the resilience of crops and reducing resources used for crop production are essential to addressing these challenges. Dr. Tony Rho, a crop physiologist, has contributed to finding ways to increase efficiency of resource-use (e.g., water, nutrients, light, or carbon dioxide) of production systems of various crops. Understanding the relationship between environmental factors and plant physiological responses—such as photosynthesis, transpiration, and respiration—is the first step to evaluate resource-use efficiency of crops.

Rho’s research has focused on the physiological assessment of crops under protective or controlled environment production systems (e.g., high-tunnels or plant factories) and crops with plant growth-promoting microorganisms (e.g., N-fixing symbiotic bacteria or yeast) under a climate change scenario.

Rho envisions expanding his area by implementing symbiotic microorganisms into protective or controlled environment systems in specialty crop production under urban settings, and by developing crop modeling tools further to maximize resource-use efficiency of crops under such production systems.