



## Yunkai Li

**Yunkai Li** is the recipient of the 2025 Netafim award for Advancements in Microirrigation for research advancing the development and application of drip irrigation technologies and integrated equipment for field crops.

As the dean of the College of Water Resources and Civil Engineering at China Agricultural University, Li is responsible for the administrative management and academic advancement in these critical fields. Li also leads the efficient water-saving irrigation technology and equipment team. The college is home to two national-level research platforms: the state key laboratory of efficient utilization of agricultural water resources and the national field scientific observation and research station on efficient water use of oasis agriculture.

Li's comprehensive innovations span fundamental theories, crucial technologies, advanced equipment, intelligent management strategies, and regionally adapted models. His pioneering research and leadership have been instrumental in advancing drip irrigation practices in field crops across China. Li's work involves a systematic and quantitative analysis of drip emitter clogging under diverse conditions. This in-depth investigation elucidated the mechanisms behind clogging and led to the development of comprehensive anti-clogging solutions tailored for China's typical irrigation water. Furthermore, Li developed a multi-field, multi-phase coupling theory for the internal flow within drip irrigation emitters, coupled with a digital design and optimization methodology. Notable

innovations include efficient anti-clogging fractal flow path emitters, self-cleaning and low-pressure osmotic filters, high-flow water-fertilizer integrated machines, and nanobubble generators, which have seen widespread adoption throughout China. Li also made breakthroughs in key technologies for field crop variety selection, wide-narrow row and high-density cultivation, full-process agricultural mechanization, and integrated drip irrigation technologies for water-fertilizer-gas-pesticides-biocontrol. He proposed 21 comprehensive solutions for water-saving and high-yield drip irrigation tailored, leading to scaled water-saving and yield-increasing results.

A 1-year member of ASABE, Yunkai is also involved in several other societies including the Chinese Hydraulic Engineering Society and the Chinese Society of Agricultural Engineering. He is also chair of the Beijing Agricultural Engineering Society, director of the Plastic Water-Saving Equipment Professional Committee of China, and associate editor of *Irrigation Science*.

Li's extensive scholarly output includes 160 SCI-indexed publications in journals including *Nature*, *Nature Communications*, and *Water Research*, along with two monographs. He has three U.S. patents and 56 P.R. China patents. In 2024, Li's impactful research garnered the ICID Water-Saving Technology award, and before he was awarded the Second-Class National Prize for Progress in Science and Technology, and eight first-class provincial and ministerial awards.