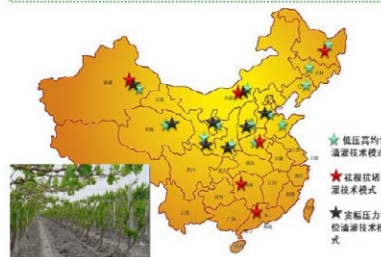


构建的3种精量滴灌技术应用模式已在新疆、甘肃、内蒙古、广西等16省市推广应用 1414万亩



## 产品类成果

# 精量滴灌系列产品研发及应用

### 【创新性】

研发了地表滴灌高均匀性灌水器、地下滴灌抗堵塞灌水器、低压压力调节器设计理论与方法，从根本上攻克了低压下灌水器灌水均匀度下降、地下滴灌作物根系入侵堵塞等国际技术难题，填补了我国精量滴灌产品设计理论与方法空白。创建的常压和低压高均匀性灌水器设计理论与方法，保证了灌水器流态指数始终处于0.44-0.49之间，流量偏差低于2.5%，达到国际上公认的高灌水均匀度范围。建立了低压压力调节器出口预置压力与各参数间的定量关系，首次构建了低压压力调节器结构优化设计方法，实现了压力调节器的低压启动及宽幅压力下的正常运行，使滴灌系统灌水压力均匀性提高到90%以上。相关技术成果拥有完全自主知识产权，授权国家专利108项，入选国家重点新产品10项。

主要完成人：许迪、龚时宏、王建东、高占义  
 获奖单位：水利所

### 【影响力】

以精量滴灌技术与产品为引领，形成了核心技术、产品和标准，带动国内节水灌溉产业发展并缩短与发达国家差距，实现国产节水技术产品在中国及全球市场的推广和应用，推动了行业创新能力建设和科技进步。构建起适合我国区域特色的低压高均匀性、宽幅压力补偿式、祛根抗堵型精量滴灌技术集成应用模式，在全国16个省区玉米、小麦、甘蔗、油橄榄、经济林等作物上推广应用1414万亩，辐射全国近3000万亩节水农田，实现直接经济效益62.23亿元，节水量297.78亿m<sup>3</sup>。

## R&D AND APPLICATION OF PRECISION IRRIGATION SERIES PRODUCTS

### 【 Innovation 】

The Department has developed the design concepts and methods for high-uniform irrigators under surface drip irrigation, anti-blockage irrigators under subsurface drip irrigation and low-pressure regulators, which has fundamentally overcome an international technical difficulty that the irrigation uniformity of irrigators will reduce under low pressure and the irrigation will be blocked due to the root intrusion of crops under subsurface drip irrigation, and filled in China's blank in the design theory and method for precision irrigation products. The design theory and method for irrigators with high uniformity under normal and low pressure has ensured the flow index of irrigators will be always within 0.44-0.49, with the deviation lower than 25%, reaching within the internationally-recognized scope of high irrigation

### 【 Influence 】

Guided by precision drip irrigation technology and products, the Department has formed core technology, products and standards, promoted the development of China's water-saving irrigation industry and narrowed its gap with developed countries, thus making homegrown energy-saving technology and products popularized and applied in the Chinese and international markets, and facilitating the building of innovation capacity and advancements in science and technology of the industry. It has created the integrated

application model for low-pressure high-uniform, wide pressure compensated and root-removing and anti-blocking type precision drip irrigation technologies, and popularized these technologies to 14.14 million mu of crops such as maize, wheat, sugarcane, olive and commercial forests in 16 provinces across China, which has covered nearly 30 million mu of energy-saving farmland nationwide, brought about direct economic benefits of RMB 6.223 billion, and saved water 2.9778 billion m<sup>3</sup>.

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 Award-winning Unit : Department of Irrigation and Drainage