

节水灌溉



2019 3

中国国家灌溉排水委员会 中国灌溉排水发展中心
武汉大学 国家节水灌溉北京工程技术研究中心

主 办

WATER SAVING IRRIGATION

天业节水
TIANYE DRIP IRRIGATION

股票名称：天业节水 股票代码：00840.HK
中国节水灌溉行业标准制定者

绿色高效
为农服务

(王梓林摄影)

ISSN 1007-4929



03>

9 771007 492082



企业信息



节水农业网



新疆天业节水灌溉股份有限公司
XINJIANG TIANYE WATER SAVING IRRIGATION SYSTEM CO.,LTD.

地址：新疆石河子市经济技术开发区北三东路36号
电话：0993-2623165 2623175
传真：0993-2623180
网址：www.tianyejieshui.com.cn
邮箱：tyjs@xjtymail.com

节水灌溉

2019年第3期 总第283期

目 次

□试验研究□

- 微喷带施肥灌溉对小麦玉米产量和水肥利用的影响 白珊珊 万书勤 康跃虎 等(1)
基于加速遗传算法的免耕农田土壤水分特征曲线分析 袁宏伟 汤广民 袁先江 等(8)
基于无人机热红外遥感的冬小麦水分胁迫研究 姚志华 陈俊英 张智韬 等(12)
农田土壤入渗不确定性组分分析 范欣瑞 王仰仁 孙小平(18)
城市背景下草地蒸散发及土壤水分变异特性——以扬州区域性草地植被为例 周钦 黄金柏 周亚明 等(22)
内蒙古扎赉特旗水稻节水灌溉试验研究 张瑞喜 宋日权 程争鸣 等(27)
双层秸秆不同层位覆盖对土壤水分蒸发影响 周长泉 赵文举 王珍珍 等(30)
水肥耦合对枸杞生长特性及光合作用的影响 刘宇朝 尹娟 耿浩杰 等(34)
水分胁迫条件下西红柿耗水规律及产量研究 李木子 杜秋月 孙书洪 等(38)
不同灌水量对马铃薯生长、耗水及产量品质的影响 耿浩杰 尹娟 吴娇 等(43)

□水环境与水资源□

- 三峡库区干—支流作用下草堂河氢氧同位素时空分布的环境意义 蔡爱民 王雨春 胡明明 等(48)
变化环境下新疆沙湾县灌区地下水动态趋势及驱动因素 刘婕 杨鹏年 阚建 等(53)
基于区间直觉模糊集的水环境治理 PPP 项目可持续性评价 李慧敏 吕乐琳 汪伦焰 等(59)
石佛寺水库叶绿素 a 浓度高光谱遥感反演 孙昊 周林飞(67)
不同灌溉模式稻田氮素淋失特征 吴蕴玉 张展羽 郝树荣 等(71)
托克逊两河流域地下水化学组分来源及同位素指示作用分析 李宁 吴彬 杜明亮 等(76)

□工程技术□

- 基于改进粒子群算法的精准农业无线传感器定位研究 程磊 刘勇军(82)
基于有限元分析的卷盘式喷灌机双喷枪支撑结构研究 刘一川 朱德兰 杨福慧 等(86)
基于 PSO 优化 Fuzzy-PID 精量灌溉控制系统设计 李嵩 周建平 许燕(90)

□工程管理□

- 基于 PSO-LM-RBF 温室温湿度预测 岳有军 权峻 王红君 等(94)
公共政策视角下农民用水合作制度创新路径 李武(98)
微灌设计中管道流量的实用计算方法 张中华 李鸣 朱登平 等(102)

Water Saving Irrigation

(Monthly)

March 2019

No.3(2019), Total No.283

Contents

Effects of Fertigation with Micro-Sprinkling Hoses on Yield of Wheat and Maize and Water and Fertilizer Use	BAI Shan-shan, WAN Shu-qin, KANG Yue-hu, et al.(1)
Analysis of Soil Moisture Characteristic Curve of No-till Farmland Based on Accelerated Genetic Algorithm	YUAN Hong-wei, TANG Guang-min, YUAN Xian-jiang, et al.(8)
Winter Wheat Water Stress Research Based on Thermal Infrared Remote Sensing of Unmanned Aerial Vehicle (UAV)	YAO Zhi-hua, CHEN Jun-ying, ZHANG Zhi-tao, et al.(12)
Analysis of Uncertainty Composition of Soil Infiltration in Farmland	FAN Xin-rui, WANG Yang-ren, SUN Xiao-ping(18)
Variation Characteristics of Evapotranspiration and Soil Moisture in Urban Grassland: A Case Study on the Regional Grassland Vegetation in Yangzhou City	ZHOU Qin, HUANG Jin-bai, ZHOU Ya-ming, et al.(22)
Study on The Water Saving Irrigation of Rice in Jalaïd County of Inner Mongolia	ZHANG Rui-xi, SONG Ri-quan, CHENG Zheng-ming, et al.(27)
Effect of Double Layer Straw Mulching on Soil Moisture Evaporation	ZHOU Chang-quan, ZHAO Wen-ju, WANG Zhen-zhen, et al.(30)
Effects of Water and Fertilizer Coupling on Growth Characteristics and Photosynthesis of Lycium Barbarum	LIU Yu-zhao, YIN Juan, GENG Hao-jie, et al.(34)
Study on Water Consumption and Yield of Tomato under Water Stress	LI Mu-zi, DU Qiu-yue, SUN Shu-hong, et al.(38)
Effects of Different Irrigation Amounts on Potato Growth, Water Consumption, Yield and Quality	GENG Hao-jie, YIN Juan, WU Jiao, et al.(43)
The Characteristic of Hydrogen and Oxygen Stable Isotope and Its Environmental Significance between The Mainstream and a Tributary of The Three Gorges Reservoir—a case study of Caotang River	CAI Ai-min, WANG Yu-chun, HU Ming-ming, et al.(48)
Dynamic Trend and Driving Factors of Groundwater in Shawan Irrigated District under Changing Environment	LIU Jie, YANG Peng-nian, KAN Jian, et al.(53)
Sustainability Evaluation of Water Environment Treatment PPP Project Based on Interval Intuitionistic Fuzzy Set	LI Hui-min, LÜ Le-lin, WANG Lun-yan, et al.(59)
Retrieval of Chlorophyll-a Concentration in Shifosi Reservoir by Hyperspectral Technology	SUN Hao, ZHOU Lin-fei(67)
Nitrogen Leaching Losses from Paddy Fileds under Different Irrigation Modes	WU Yun-yu, ZHANG Zhan-yu, HAO Shu-rong, et al.(71)
Analysis of Chemical Components Source and Isotopic Indices of Groundwater in Toksun River Basin	LI Ning, WU Bin, DU Ming-liang, et al.(76)
Research on Precise Agriculture Wireless Sensor Location Based on Improved Particle Swarm Optimization Algorithm	CHENG Lei, LIU Yong-jun(82)
Research on The Support Structure of Twin Spray Gun of Hard Hose Traveler Based on Finite Element Analysis	LIU Yi-chuan, ZHU De-lan, YANG Fu-hui, et al.(86)
Optimization of Fuzzy-PID Precision Irrigation Control System Design Based on PSO	LI Song, ZHOU Jian-ping, XU Yan(90)
Temperature and Humidity Prediction based on PSO-LM-RBF	YUE You-jun, QUAN Jun, WANG Hong-jun, et al.(94)
Innovation Path of Farmers Water Use Cooperation System from The Perspective of Public Policy	LI Wu(97)
Calculation Method of Pipe Flow for Micro Irrigation Design	ZHANG Zhong-hua, LI Ming, ZHU Deng-ping, et al.(102)

Competent Authorities: Ministry of Water Resources

Sponsor: Chinese National Committee on Irrigation and Drainage

China Irrigation and Drainage Development Centre

Wuhan University

National Center of Efficient Irrigation Engineering and Technology Research-Beijing

Publisher and editor: Editorial Department of Water Saving Irrigation

(Wuhan University, Wuhan, 430072, China)

Editor in Chief: CUI Yuanlai **Distribute Scope:** Worldwide

Domestic Subscription: Every Post Office in China

E-mail: jieshuiguangai@188.com

Homepage: <http://www.irrigate.com.cn>