第三十五卷

《中文核心期刊要目总览》收录 Ei Compendex(核心版)收录 百种中国杰出学术期刊 RCCSE 中国权威学术期刊

2019. **6** 第 35 卷 VOL. 35









ISSN 1002-6819 CN 11-2047/S

Russian State of the Coden ingoxed and the C

TRANSACTIONS OF THE CHINESE SOCIETY OF AGRICULTURAL ENGINEERING

NONGYE GONGCHENG XUEBAO









中国农业工程学会 主办

农业工程学报

2019年3月第6期 总第358期(第35卷)

目 次

・农业装备工程与机械化・

单行甘薯秧蔓回收机设计与试验 郑文秀, 吕钊钦, 张万枝, 刘正铎, 鹿 瑶, 李玉道(1)
电动方向盘插秧机转向控制系统设计何 杰,朱金光,罗锡文,张智刚,胡 炼,高 阳(10)
机收水稻留茬地紫云英双圆盘开沟撒播组合作业机设计
游兆延,吴惠昌,彭宝良,高学梅,胡志超,张玉岚(18)
揉碎玉米秸秆螺旋-气力耦合输送装置设计
四足机器人腿部并联机构末端位置误差分析与验证 王晓磊,金振林,李晓丹(39)
离心泵仿生减阻增效涂层的涂覆工艺参数优化 田丽梅,张吉祥,梁 颖,姚广海,商延赓(47)
基于路面激励自适应的液电馈能悬架动力学性能协调控制 汪若尘, 丁彦姝, 孙 东, 丁仁凯, 孟祥鹏(55)
考虑笼型转子趋肤效应的无轴承异步电机矢量控制优化 杨泽斌,包春峰,孙晓东,鲁 江,陈 浠 (65)
考虑趋肤效应和动态磁滞效应的电机旋转铁芯损耗模型 宋 泽, 李永建, 张长庚, 刘 洋 (74)
・农业航空工程・
基于轻量和积网络及无人机遥感图像的大豆田杂草识别 王生生, 王 顺, 张 航, 温长吉(81)
・农业水土工程・
平底悬链线形明渠水力最优断面求解 ······ 韩廷成,梁梦媛, Said M Easa,唐 伟,初萍萍,高学平(90)
大尺度冬小麦-夏玉米微喷灌精准自动施肥增产效应 邢素丽, 杜金钟, 刘孟朝, 贾良良, 刘学形, 赵士诚 (100)
基于近邻传播算法的茶园土壤墒情传感器布局优化 张 武,张嫚嫚,洪 汛,江朝晖,蒋跃林(107)
CT 扫描分析秸秆隔层孔隙特征及其对土壤水入渗的影响
张宏媛,逢焕成,卢 闯,刘 娜,张晓丽,李玉义(114)
斥水剂作用下非饱和土壤抗剪强度测定及其变化规律吴珺华, 林 辉, 周晓宇, 邓一超, 杨 松(123)
不同含水率黏重黑土与触土部件互作的离散元仿真参数标定
李俊伟, 佟 金, 胡 斌, 王虎彪, 毛春昱, 马云海 (130)
边界线法解析冀中南麦区基础地力产量的土壤养分影响因子黄少辉, 贯良良, 杨云马, 刘克桐(141)
新疆农作物生长期雹灾的时空分布及危害性评估王 昀, 王式功, 王 旭, 马 禹(149)
・农业信息与电气技术・
长时间序列气象数据结合随机森林法早期预测冬小麦产量刘峻明,和晓彤,王鹏新,黄健熙(158)
深度学习自编码结合混合蛙跳算法提取农田高光谱影像端元韩立钦,张耀南,秦其明(167)
基于连续语音识别技术的猪连续咳嗽声识别黎 煊,赵 建,高 云,刘望宏,雷明刚,谭鹤群(174)
基于全视域 GA-SVR 模型的鱼类行为双目视觉观测系统标定
刘世晶, 唐 荣, 周海燕, 刘兴国, 陈 军, 王 帅 (181)

· 农业生物环境与能源工程 ·

智能饲喂器对哺乳母猪采食量体况和生产性能的影响 ……………………………………………王美芝,安 涛,刘继军,张锦瑞,王文锋,易 路,田见晖,吴中红(190) 稻田土壤和稻米中重金属潜在污染风险评估与来源解析 严寒地区小型线性菲涅尔聚光集热器末端损失与补偿 电子设备封闭腔内自然对流冷却效果数值分析 ……………… 王 烨, 赵兴杰, 蔺虎相, 宋荣飞, 管国祥 (214) 适宜溶气量改善生物柴油/柴油混合燃油雾化质量……………………………………叶丽华,刘天宇,施爱平(222) · 农业资源循环利用工程 · 餐厨垃圾半连续乙醇型酸化两相厌氧消化产甲烷性能研究 基于能值分析的秸秆-羊-田循环系统生产效率与可持续性评估 …………朱冰莹,董 佳,沈明星,郑建初(235) 土地整理工程。 三江平原典型区水田时空变化及驱动因素分析 ………………………………………… 张文琦, 宋 戈(244) 不同农地整治模式对农户生态系统服务依赖度的影响 ………………张超正,杨钢桥,文高辉(261) 基于核密度函数的多尺度北京市休闲农业空间分布分析 ……………韩春萌,刘慧平,张洋华,王 娟(271) 基于 GIS 技术规划城市节水型绿地系统的研究 · 农产品加工工程 · GU-PCM2 型控温式相变蓄冷冷藏车设计与空载性能试验 温度和粉碎粒度对不同能量饲料原料热物理特性的影响 巴氏杀菌和超巴氏杀菌对牛乳清蛋白结构及热稳定性的影响 ······王喜波, 张云莹, 崔云莹, 崔云莹, 崔云莹, 崔云莹, 张云莹, 崔云莹, 崔云莹, 崔云莹, 崔云莹, 崔云寺, 王云珠(307) 掌叶木种子及其籽油性状综合评价模型构建和优选 …………………………………郭 松,李在留,薛建辉(314)

Transactions of the Chinese Society of Agricultural Engineering Vol.35 No.6 Mar. 2019 CONTENTS

• Agricultural Equipment Engineering and Mechanization •

Design and test of single row sweet potato vine recycling machine
Design of steering control system for rice transplanter equipped with steering wheel-like motor
······································
Design of double disc ditching and sowing combined working machine of Astragalus smicus for machine-harvested ric
stubble field · · · · · You Zhaoyan, Wu Huichang, Peng Baoliang, Gao Xuemei, Hu Zhichao, Zhang Yulan (18)
Design of screw-pneumatic coupling conveying device for crushed corn straw
Analysis and verification of terminal position error of leg parallel mechanism of quadruped robot
Optimization of coating process parameters for bionic drag reduction and efficiency increasing coating of centrifugal pumps
Tian Limei, Zhang Jixiang, Liang Ying, Yao Guanghai, Shang Yangeng (47)
Dynamic performance coordination control of hydraulic electrical energy-regenerative suspension based on road excitation
self-adaptation ······ Wang Ruochen, Ding Yanshu, Sun Dong, Ding Renkai, Meng Xiangpeng (55)
Vector control optimization of bearingless induction motor considering skin effect of cage rotor
Rotating core loss model for motor considering skin effect and dynamic hysteresis effect
······Song Ze, Li Yongjian, Zhang Changgeng, Liu Yang (74)

• Agricultural Aviation Engineering •

Soybean field weed recognition based on light sum-product networks and UAV remote sensing images
• Soil and Water Engineering •
Optimal hydraulic section of horizontal-bottom catenary channel
Han Yancheng, Liang Mengyuan, Said M Easa, Tang Wei, Chu Pingping, Gao Xueping (90)
Yield increasing effect of precision automatic fertilization and micro-spray irrigation for winter wheat-summer maize in
large-scale · · · · · · · Xing Suli, Du Jinzhong, Liu Mengchao, Jia Liangliang, Liu Xuetong, Zhao Shicheng (100)
Layout optimization of soil moisture sensor in tea plantation based on affinity propagation clustering algorithm
Pore characteristics of straw interlayer based on computed tomography images and its influence on soil water infiltration
Zhang Hongyuan, Pang Huancheng, Lu Chuang, Liu Na, Zhang Xiaoli, Li Yuyi (114)
Measurement of shear strength and its change in unsaturated soils modified by hydrophobic agent
Calibration of parameters of interaction between clayey black soil with different moisture content and soil-engaging
component in northeast China · · · · · Li Junwei, Tong Jin, Hu Bin, Wang Hubiao, Mao Chunyu, Ma Yunhai (130)
Analysis on soil nutrient influencing factors of winter wheat yield gaps of basic soil productivity by boundary line method in
central and southern Hebei province
Temporal and spatial distribution and hazard assessment of hail disasters during crop growth period in Xinjiang
• Agricultural Information and Electrical Technologies •
Early prediction of winter wheat yield with long time series meteorological data and random forest method
Liu Junming, He Xiaotong, Wang Pengxin, Huang Jianxi (158)

Endmember extraction of farmland hyperspectral image using deep learning autoencoder and shuffled frog leaping algorithm
······································
Pig continuous cough sound recognition based on continuous speech recognition technology
Li Xuan, Zhao Jian, Gao Yun, Liu Wanghong, Lei Minggang, Tan Hequn (174)
Calibration for fish behavior binocular visual observation system based on GA-SVR full vision field model
Liu Shijing, Tang Rong, Zhou Haiyan, Liu Xingguo, Chen Jun, Wang Shuai (181)
• Agricultural Bioenvironmental and Energy Engineering •
Effect of intelligent feeder on feed intake, body condition and production performance of lactating sows
Evaluation of potential pollution risk and source analysis of heavy metals in paddy soil and rice
End-loss and compensation for small linear Fresnel collectors in severe cold area
······Yan Suying, Chen Zhuang, Zhao Xiaoyan, Ma Jing, Wu Yuting, Tian Rui (206)
Numerical analysis of natural convection cooling effect in closed cavity of electronic equipment
Suitable dissolved gas improving atomization quality of biodiesel/diesel mixed fuel
• Agricultural Resource Recycling Engineering •
Methane production performance of semi-continuous alcoholization/acidification type two-phase anaerobic digestion
Evaluation of production efficiency and sustainability for straw-sheep-cropland recycling agroecosystems based on emerge
analysis ····· Zhu Bingying, Dong Jia, Shen Mingxing, Zheng Jianchu (235)

• Land Consolidation and Rehabilitation Engineering •

Spatial-temporal variations and driving factor analysis of paddy fields in typical regions of Sanjiang Plain	
	1)
Land cultivation suitability evaluation of agro-pastoral ecotone in northern China based on aspects of ecology, production a	and
life	3)
Impact of different rural land consolidation modes on farmers' dependence on ecosystem services	
·····Zhang Chaozheng, Yang Gangqiao, Wen Gaohui (261)
Multi-scale spatial distribution analysis of leisure agriculture in Beijing based on kernel density estimation	
)
City water-saving green space system planning based on GIS technology	
Liu Huimin, Gong Siyu, Zou Tiean, Pei Yingxin, Pu Jie, Jiang Shan, Wang Xuena, Fu Xingyuan (279))
• Agricultural Produce Processing Engineering •	
Design and no-load performance test of GU-PCM2 temperature controlled phase change storage refrigerator	
Liu Guanghai, Wu Junzhang, Alan Foster, Xie Ruhe, Tang Haiyang, Zou Yifeng, Qu Ruigui (288	3)
Effect of temperature and particle size on thermophysical properties of different energy feedstuffs material	
Effect of temperature and particle size on thermophysical properties of different energy feedstuffs material **Kong Dandan, Fang Peng, Jin Nan, Duan Enze, Chen Jiyuan, Wang Hongying (296)	5)
	5)
Kong Dandan, Fang Peng, Jin Nan, Duan Enze, Chen Jiyuan, Wang Hongying (296	
Effect of pasteurization and ultra-pasteurization on structure and thermal stability of fresh milk whey protein	")