

《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

2017. 3
第 33卷 VOL. 33



ISSN 1002-6819
CN 11-2047/S
CODEN NGOXEO

农业工程学报

TRANSACTIONS OF THE CHINESE SOCIETY
OF AGRICULTURAL ENGINEERING

NONGYE
GONGCHENG
XUEBAO



ISSN 1002-6819



9 771002 681177



万方数据

中国农业工程学会 主办

农业工程学报

2017年2月第3期 总第305期(第33卷)

目次

· 综合研究 ·

京津冀秸秆养分资源及秸秆焚烧气体污染物排放定量估算

.....方放,王飞,石祖梁,郑向群,邵宇航,李想,邱凌(1)

· 农业装备工程与机械化 ·

正反转组合式水稻宽苗带灭茬播种机设计与试验.....张银平,杜瑞成,刁培松,杨善东,王振伟(7)

气力滚筒式水稻直播精量排种器排种性能分析与田间试验

.....张顺,夏俊芳,周勇,伍德林,曹成茂,夏萍(14)

光电漫反射式联合收割机谷物产量计量系统研发与性能试验

.....付兴兰,张兆国,安晓飞,赵春江,李晨源,于佳杨(24)

基于响应曲面法的非道路用高压共轨柴油机设计点优化标定.....王俊,申立中,杨永忠,毕玉华,万明定(31)

负载敏感变量泵结构建模与性能分析.....陈随英,赵建军,毛恩荣,宋正河,朱忠祥,杜岳峰(40)

潜水泵缩比模型的相似性验证与内部流场分析.....施卫东,杨阳,周岭,陆伟刚,潘波(50)

混流式水轮机主轴中心孔补水对尾水管性能的影响.....冯建军,李文锋,席强,朱国俊,罗兴镒(58)

销栓型竹-混凝土组合结构的力学性能.....魏洋,纪雪微,周梦倩,赵龙龙,端茂军(65)

机械旱直播方式对水稻氮磷钾吸收转运及分配的影响.....孙永健,郑洪帧,杨志远,王海月,张绍文,马均(73)

烷基聚葡萄糖苷液滴在黄瓜叶面的润湿状态及动态铺展行为.....张红涛,陆军,魏德云,胡玉霞(81)

· 农业航空工程 ·

农田信息采集用多旋翼无人机姿态稳定控制系统设计与试验.....廖懿华,张铁民,兰玉彬(88)

· 农业水土工程 ·

滚移式喷灌机喷头优选及水力性能优化.....孙文峰,王艳花,王腾,侯守印,种保中(99)

微灌鱼雷网式过滤器全流场数值模拟

.....阿力甫江·阿不里米提,虎胆·吐马尔白,木拉提·玉赛音,木克然·阿娃(107)

考虑滴头堵塞位置的灌水均匀系数模型优化.....张若蝉,牛文全,段晓辉,李元(113)

基于地下水埋深的江汉平原冬小麦除涝渍排水指标确定.....吴启侠,朱建强,程伦国,晏军,徐笑笑(121)

冻融状态和初始含水率对土壤力学性能的影响.....张惠忍,李法虎,吕威(128)

坡面水流滚波特征参数超声波自动测量系统构建与试验.....杨苗,龚家国,张宽地,范典,赵勇,王浩(134)

基于非均匀性和分形维数的黄土优先流特征定量分析	潘网生, 许玉凤, 卢玉东, 高礼安, 姚兴 (140)
脱硫石膏对土壤磷流失的阻控效应及机制试验	陈小华, 钱晓雍, 李小平, 张 辉, 胡双庆, 贺 坤, 李 静 (148)
雨滴击溅对耕作层土壤团聚体粒径分布的影响	付 玉, 李光录, 郑腾辉, 李柏桥, 张 腾 (155)
黄土丘陵区小流域淤地坝泥沙沉积特征	李 勉, 杨 二, 李 平, 鲍宏喆, 李 莉, 申震洲, 焦 鹏 (161)
不同风化年限的淮南矿区煤矸石理化性质变化规律	严家平, 陈孝杨, 蔡 毅, 黄 河 (168)
· 农业信息与电气技术 ·	
基于三维点云数据的苹果树冠层几何参数获取	郭彩玲, 宗 泽, 张 雪, 刘 刚 (175)
分辨率实时可调的无线图像传感器节点设计与试验	殷建军, 张铁民, 潘春华, 叶耀文, 肖克辉, 肖德琴 (182)
基于 Mallat 算法的谷物流量信号小波去噪方法	陈 进, 王 坤, 李耀明 (190)
融合面向对象与缨帽变换的湿地覆被类别遥感提取方法	罗开盛, 陶福祿 (198)
· 农业生物环境与能源工程 ·	
土壤蓄热-放热过程中地埋管周围土壤温度特性模拟	吴 暄, 刘 卫, 路子业, 梁盼龙, 金 光 (204)
基于鹅舍气流场 CFD 模拟的通风系统结构优化与验证	姚家君, 郭彬彬, 丁为民, 邵西兵, 施振旦 (214)
小球藻对不同沼液添加量培养液的适应性及净化效果	王忠江, 隋 超, 王泽宇, 王丽丽, 张 琪, 吴 婧, 李 岩 (221)
秸秆热解炭化多联产技术应用模式及效益分析	霍丽丽, 赵立欣, 姚宗路, 孟海波, 丛宏斌 (227)
· 土地整理工程 ·	
农村劳动力转移对中国耕地种植结构的影响	齐元静, 唐 冲 (233)
基于压力-状态-响应模型的土地整治空间格局及障碍诊断	曲衍波, 朱伟亚, 郦文聚, 张 勇, 高 宇 (241)
· 农产品加工工程 ·	
基于 LabVIEW 的蔬菜切碎机性能测试及工作参数优化	许 顺, 佟 金, 李 默 (250)
仿生敲击式山核桃破壳机的设计与试验	丁 冉, 曹成茂, 詹 超, 姜帅帅, 孙 偲 (257)
鸡蛋电子称量分级包装生产线自动控制系统设计与试验	王树才, 吴曼琳, 吴 闯 (265)
基于计算机视觉的稻谷霉变程度检测	潘磊庆, 王振杰, 孙 柯, 贾晓迪, 都立辉, 袁 建, 屠 康 (272)
用于山核桃陈化时间检测的电子鼻传感器阵列优化	徐克明, 王 俊, 邓凡霏, 韦真博, 程绍明 (281)
纳米 TiO ₂ 改性低密度聚乙烯包装保持山核桃贮藏品质	路洪艳, 李 莉, 罗自生 (288)
基于纸基微流控芯片的农药残留光电检测方法	杨 宁, 李 振, 毛罕平, 王 盼, 项昌华, 孙 俊 (294)
三聚体纳米颗粒自组装过程的分子动力学模拟	冯 涛, 王 珂, 周进杰, Deepak Bhopatkar, 陈 枫, Osvaldo Campanella, Bruce R. Hamaker, Marcelo Carignano, 庄海宁 (300)
不同品种小麦粉的粉质特性对速冻熟制面条品质的影响	潘治利, 田萍萍, 黄忠民, 王娜, 索 标, 艾志录 (307)

**Transactions
of the Chinese Society of Agricultural Engineering
Vol.33 No.3 Feb. 2017
CONTENTS**

• Comprehensive Research •

Quantitative estimation on straw nutrient resources and emission of pollutants from straw burning in Beijing-Tianjin-Hebei region *Fang Fang, Wang Fei, Shi Zuliang, Zheng Xiangqun, Shao Yuhang, Li Xiang, Qiu Ling* (1)

• Agricultural Equipment Engineering and Mechanization •

Design and experiment of wide band seeding rice seeder with reversed stubble cleaning and anti-blocking
..... *Zhang Yinpeng, Du Ruicheng, Diao Peisong, Yang Shandong, Wang Zhenwei* (7)

Field experiment and seeding performance analysis of pneumatic cylinder-type precision direct seed-metering device for rice
..... *Zhang Shun, Xia Junfang, Zhou Yong, Wu Delin, Cao Chengmao, Xia Ping* (14)

Development and performance experiment on grain yield monitoring system of combine harvester based on photoelectric diffuse reflectance *Fu Xinglan, Zhang Zhaoguo, An Xiaofei, Zhao Chunjiang, Li Chenyuan, Yu Jiayang* (24)

Optimizing calibration of design points for non-road high pressure common rail diesel engine base on response surface methodology *Wang Jun, Shen Lizhong, Yang Yongzhong, Bi Yuhua, Wan Mingding* (31)

Structural modeling and performance analysis of load-sensing variable pump
..... *Chen Suiying, Zhao Jianjun, Mao Enrong, Song Zhenghe, Zhu Zhongxiang, Du Yuefeng* (40)

Verification of comparability and analysis of inner flow fields on scaling models of submersible well pump
..... *Shi Weidong, Yang Yang, Zhou Ling, Lu Weigang, Pan Bo* (50)

Influence of water admission through main shaft central hole on performance of Francis turbine draft tube
..... *Feng Jianjun, Li Wenfeng, Xi Qiang, Zhu Guojun, Luo Xingqi* (58)

Mechanical properties of bamboo-concrete composite structures with dowel-type connections
..... *Wei Yang, Ji Xuwei, Zhou Mengqian, Zhao Longlong, Duan Maojun* (65)

Effects of mechanical dry direct-sowing modes on absorption, translocation and distribution of nitrogen, phosphorus and potassium in rice *Sun Yongjian, Zheng Hongzhen, Yang Zhiyuan, Wang Haiyue, Zhang Shaowen, Ma Jun* (73)

Wetting state and dynamic spreading behavior of alkyl polyglycoside drop on cucumber leaf surface

..... Zhang Hongtao, Lu Jun, Wei Deyun, Hu Yuxia (81)

• Agricultural Aviation Engineering •

Design and test of attitude stabilization control system of multi-rotor unmanned aerial vehicle applied in farmland information acquisition Liao Yihua, Zhang Tiemin, Lan Yubin (88)

• Soil and Water Engineering •

Spray head selection and hydraulic performance optimization of roll wheel line move sprinkling irrigation machine

..... Sun Wenfeng, Wang Yanhua, Wang Teng, Hou Shouyin, Chong Baozhong (99)

Numerical simulation on flow field of screen filter with torpedo in micro-irrigation

..... Alifujiang·Abulimiti, Hudan·Tumaerbai, Mulati·Yusaiyin, Mukeran·Awa (107)

Optimization of drip irrigation uniformity model considering location of clogged emitters

..... Zhang Ruochan, Niu Wenquan, Duan Xiaohui , Li Yuan (113)

Determination of groundwater depth-based drainage index against waterlogging and submergence for winter wheat in Jiangnan Plain Wu Qixia, Zhu Jianqiang, Cheng Lunguo, Yan Jun, Xu Xiaoxiao (121)

Effects of freeze-thaw status and initial water content on soil mechanical properties Zhang Huiren, Li Fahu, Lü Wei (128)

Establishment and experiment of ultrasonic measuring system for characteristic parameters of roll waves on slope surface

..... Yang Miao, Gong Jiaguo, Zhang Kuandi, Fan Dian, Zhao Yong, Wang Hao (134)

Quantitative determination of preferential flow characteristics of loess based on nonuniformity and fractional dimension

..... Pan Wangsheng, Xu Yufeng, Lu Yudong, Gao Li'an, Yao Xing (140)

Inhibiting effects and mechanism experiment of flue-gas desulfurization gypsum on soil phosphorus loss

..... Chen Xiaohua, Qian Xiaoyong, Li Xiaoping, Zhang Hui, Hu Shuangqing, He Kun, Li Jing (148)

Effects of raindrop splash on aggregate particle size distribution of soil plough layer

..... Fu Yu, Li Guanglu, Zheng Tenghui, Li Baiqiao, Zhang Teng (155)

Characteristics of sediment deposition in check dam in small watershed in Loess Hilly Area

..... Li Mian, Yang Er, Li Ping, Bao Hongzhe, Li Li, Shen Zhenzhou, Jiao Peng (161)

Physicochemical property change regularities of coal gangue with different weathering ages in Huainan minging area
..... *Yan Jiaping, Chen Xiaoyang, Cai Yi, Huang He* (168)

• **Agricultural Information and Electrical Technologies** •

Apple tree canopy geometric parameters acquirement based on 3D point clouds
..... *Guo Cailing, Zong Ze, Zhang Xue, Liu Gang* (175)

Design and experiment of wireless image sensor node with real-time adjustable resolution
..... *Yin Jianjun, Zhang Tiemin, Pan Chunhua, Ye Yaowen, Xiao Kehui, Xiao Deqin* (182)

Wavelet denoising method for grain flow signal based on Mallat algorithm *Chen Jin, Wang Kun, Li Yaoming* (190)

Method for wetland type extraction using remote sensing combing object-oriented and tasseled cap transformation
..... *Luo Kaisheng, Tao Fulu* (198)

• **Agricultural Bioenvironmental and Energy Engineering** •

Simulation on temperature variation characteristics of soil around buried pipe in process of heat storage and release
..... *Wu Xuan, Liu Wei, Lu Ziye, Liang Panlong, Jin Guang* (204)

Structure optimization and validation of goose house ventilation system based on airflow field simulation by CFD
..... *Yao Jiajun, Guo Binbin, Ding Weimin, Shao Xibing, Shi Zhendan* (214)

Adaptation of *chlorella* to culture liquid with different biogas slurry adding proportion and its purified effect
..... *Wang Zhongjiang, Sui Chao, Wang Zeyu, Wang Lili, Zhang qi, Wu Jing, Li Yan* (221)

Utilization model and its efficiency analysis of biochar-gas-oil polygeneration by straw pyrolysis
..... *Huo Lili, Zhao Lixin, Yao Zonglu, Meng Haibo, Cong Hongbin* (227)

• **Land Consolidation and Rehabilitation Engineering** •

Effect of labor migration on cultivated land planting structure in rural China
..... *Qi Yuanjing, Tang Chong* (233)

Land consolidation spatial pattern and diagnosis of its obstacle factors based on pressure-state-response model
..... *Qu Yanbo, Zhu Weiya, Yun Wenju, Zhang Yong, Gao Yu* (241)

• Agricultural Produce Processing Engineering •

Performance testing of vegetable chopping machine based on LabVIEW and operation parameter optimization

.....*Xu Shun, Tong Jin, Li Mo* (250)

Design and experiment of bionic-impact type pecan shell breaker

.....*Ding Ran, Cao Chengmao, Zhan Chao, Lou Shuaishuai, Sun Si* (257)

Design and test of automatic control system for egg electronic weighing and grading packaging production line

.....*Wang Shucui, Wu Manlin, Wu Chuang* (265)

Detection of paddy mildew degree based on computer vision

.....*Pan Leiqing, Wang Zhenjie, Sun Ke, Jia Xiaodi, Du Lihui, Yuan Jian, Tu Kang* (272)

Optimization of sensor array of electronic nose for aging time detection of pecan

.....*Xu Keming, Wang Jun, Deng Fanfei, Wei Zhenbo, Cheng Shaoming* (281)

Nano-TiO₂ modified low-density polyethylene packaging preserving storage quality of Chinese hickory (*Carya cathayensis Sarg.*).....*Lu Hongyan, Li Li, Luo Zisheng* (288)

Pesticide residue photoelectric detection method based on paper-based microfluidic chip

.....*Yang Ning, Li Zhen, Mao Hanping, Wang Pan, Xiang Changhua, Sun Jun* (294)

Molecular dynamics simulation of self-assembling process of ternary nanoparticle*Feng Tao, Wang Ke, Zhou Jinjie, Deepak Bhopatkar, Chen Feng, Osvaldo Campanella, Bruce R. Hamaker, Marcelo Carignano, Zhuang Haining* (300)

Effects of flour characteristics of different wheat cultivars on quality of frozen cooked noodles*Pan Zhili, Tian Pingping, Huang Zhongmin, Wang Na, Suo Biao, Ai Zhilu* (307)

《农业工程学报》2016 年再次入选 (Top5%) “中国最具国际影响力学术期刊”

2016 年 11 月 22 日 CNKI 等机构发布中国期刊影响数据,《农业工程学报》入选 (Top5%) “2016 中国最具国际影响力学术期刊”,国际影响力指数 CI 在入选的 3 种农业类中文期刊中名列第一。《农业工程学报》2016 年国际影响力指数 CI、国际他引总被引频次和国际他引影响因子分别为 95.531、1445、0.136。

TOP 期刊分为两档,国际影响力指数 CI 值 TOP5%为“中国最具国际影响力学术期刊”(自然科学与工程技术)包括 175 种科技期刊,其次再按 CI 值遴选出 TOP10%为“中国国际影响力优秀学术期刊”(自然科学与工程技术)也有 175 种科技期刊入选。

同时还发布了《中国学术期刊影响因子年报》。《农业工程学报》的影响力指数 CI 值、复合总被引频次、复合影响因子分别为 1414.214、35803、2.942,在 19 种农业工程类期刊中排名第一。

《农业工程学报》位列 2016 年 Google Scholar 评出的高被引中文期刊第 8 名

2016 年 6 月 Google Scholar 评出的 h5 指数前 100 名高被引中文期刊中,《农业工程学报》的 h5 指数位列第 8 名,为 37, h5 中位数为 44,排名较 2015 年提前 1 名。Google Scholar 评出的 h5 指数前 10 名高被引中文期刊见下表。《农业工程学报》在 Google Scholar 中的高被引论文及引用次数见封三。

2016 年 Google Scholar 评出的 h5 指数前 10 名高被引中文期刊

排名	出版物	h5 指数	h5 中位数
1	经济研究	49	71
2	中华护理杂志	43	53
3	中国机电工程学报	40	52
4	电力系统自动化	39	57
5	会计研究	39	55
6	中华医院感染学杂志	38	52
7	煤炭学报	37	52
8	农业工程学报	37	44
9	地理学报	36	47
10	中国全科医学	35	42