二〇二二 年十二月

第 三十七卷

第二十四期(卷终)

《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





## NONGYE GONGCHENG XUEBAO

TRANSACTIONS OF THE CHINESE SOCIETY OF AGRICULTURAL ENGINEERING



# 农业工程学报

#### 2021年12月第24期 (总第424期) 第37卷(卷终)

#### 目 次

#### 农业装备工程与机械化。

旋耕刀 Fe/WC/CeO2等离子堆焊层制备及其组织性能

#### ・农业航空工程・

基于无人机多光谱遥感的台风灾后玉米倒伏信息提取

......赵静, 闫春雨, 杨东建, 温昱婷, 黎文华, 鲁力群, 兰玉彬 (56)

#### ・农业水土工程・

农业信息与电气技术。

盐渍化灌区玉米施氮量阈值 DNDC 模型模拟 ……………戴嘉璐,李瑞平,李聪聪,鲁耀泽,华智敏(131)

#### ・农业生物环境与能源工程・

日光温室栽培基质有效导热系数预测模型 …… 朱建龙,张潇丹,颉建明,韩康宁,马 宁,毛尔晔,李丽娟(199)

病死猪辅热好氧发酵尾气中的恶臭物质分析 …………………………………………"谭鹤群,黄忠浩,李亚苹(208) 反光膜对育肥羔羊生理指标和生长性能的影响

…………赵俐辰,孙新胜,刘爱瑜,赵心念,李晓宇,李永亮,张伟涛,郭建军,周英昊,高玉红(216) 微生物响应 PBAT-PLA 生物降解膜袋工业需氧堆肥降解机制

#### 土地保障与生态安全・

・农产品加工工程・

Π

# Transactions

# of the Chinese Society of Agricultural Engineering Vol.37 No.24 (Total No.424) Dec. 2021(End-of-Volume) CONTENTS

## • Agricultural Equipment Engineering and Mechanization •

Preparation and microstructure properties of Fe/WC/CeO <sub>2</sub> plasma surfacing layer for rotary blades
$\cdots$ Hao Jianjun, Zhan Zhiguo, Hou Junying, Zhao Jianguo, Liu Jingchun, Yin Changfeng (1)
Gradient throwing characteristics of oscillating slat shovel for rhizome crop harvesters
Wan Lipengcheng, Li Yonglei, Zhao Hu, Xu Guanghao, Song Jiannong, Dong Xiangqian, Zhang Chao, Wang Jicheng (9)
CFD simulation and test of unconventional pollutant emissions in tractor cab
Study on the inner flow characteristics of an inside unshroud impeller centrifugal pump under gas-liquid two phase condition
Si Qiaorui, Guo Yongsheng, Tian Ding, Ma Wensheng, Zhang Haoyang, Yuan Shouqi (30)
Flexural performance of the vertical joints of steel plate-concrete composite wall for underground granary
Purchase behavior of agricultural green production machinery based on different agricultural operation entities
Zhang Zhaotong, Xiong Yanhua, Li Yingzhuo, Peng Lu (46)

### Agricultural Aviation Engineering •

Extraction of maize lodging information after typhoon based on UAV multispectral remote sensing

## • Soil and Water Engineering •

Construction of agricultural drought monitoring model based on crop water stress index

...... Song Tingqiang, Lu Xueli, Lu Mengyao, Liu Dehu, Sun Yuanyuan, Yan Jun, Liu Luming (65)

Method for detecting soil total nitrogen content and characteristic optimization based on pyrolysis and electronic nose
Li Mingwei, Xia Xiaomeng, Zhu Qinghui, Liu He, Huang Dongyan, Wang Gang (73)
Post-effects of waterlogging on the rice growth at the jointing-booting stage
Wu Fengyan, Wang Huang, Zhu Rui, Zhai Lini, Hu Tiesong (85)
Partitioning evapotranspiration using the water-carbon flux coupling in a paddy field in the Middle and Lower Reaches of the
Yangtze River in China
Effects of sprinkler uniformity and irrigation volume on the water distribution below the canopy of winter wheat
Li Hong, Guo Xin, Chen Rui, Wang Jian (102)
Effects of various irrigation and fertilization schedules on the transformation and availability of phosphorus in paddy fields
Tian Cang, Yu Yijun, Wu Longlong, Zhang Lu, Huang Jing, Zhu Lianfeng, Zhang Junhua, Zhu Chunquan,
Kong Yali, Wu Meiyan, Cao Xiaochuang, Jin Qianyu (112)
Comparison and improvement of estimation models for the reference evapotranspiration using temperature data
Li Long ´an, Qiu Rangjian, Liu Chunwei (123)
Simulation of the threshold of maize nitrogen application using a DNDC model in salinized irrigation areas
Dai Jialu, Li Ruiping, Li Congcong, Lu Yaoze, Hua Zhimin (131)
• Agricultural Information and Electrical Technologies •
Development of the early pregnancy diagnosis device for female rabbits based on spatial diffuse light
Yuan Hao, Liu Cailing, Wang Hongying, Wang Liangju, Dai Lei (141)
Skeleton extraction method of single tillers rice based on stacked hourglass network
Wang Minjuan, Liu Xiaoya, Ma Xiaoxiao, Chang Tiangen, Song Qingfeng (149)
Recognition of the overlapped honey pomelo images in natural scene and experiment
Lin Yaohai, Lyu Zhongliang, Yang Changcai, Lin Peijie, Chen Fangyu, Hong Jiawei (158)

..... Liang Chenxin, Huang Qiting, Wang Si, Wang Cong, Yu Qiangyi, Wu Wenbin (168)

Identification of citrus orchard under vegetation indexes using multi-temporal remote sensing

Edge electromagnetic field analysis of soil profile moisture sensors

*Zhao Yandong, Li Bo, Liu Weiping, Song Runze, Mi Xue* (177)
Field growth parameter estimation system of winter wheat using RGB digital images and deep learning
*Li Yunxia, Ma Juncheng, Liu Hongjie, Zhang Lingxian* (189)

## • Agricultural Bioenvironmental and Energy Engineering •

Prediction models for the effective thermal conductivity of cultivation substrates in solar greenhouses Analysis of odor pollutants in the exhaust gas from thermophilic aerobic fermentation of dead pigs ..... Tan Hequn, Huang Zhonghao, Li Yaping (208) Effects of reflective film on the physiological parameters and growth performance in fattening lambs ...... Zhao Lichen, Sun Xinsheng, Liu Aiyu, Zhao Xinnian, Li Xiaoyu, Li Yongliang, Zhang Weitao, Guo Jianjun, Zhou Yinghao, Gao Yuhong (216) Microorganism responded biodegradation mechanism of PBAT-PLA biodegradable packaging under industrial aerobic composting ...... Ma Yichao, Liu Jun, Zhang Ruohong, Zhu Jiahuan, Du Huanzheng, Lu Sha (224) Photocatalytic hydrogen generation by TiO<sub>2</sub>/Pt/biochar composite catalyst with maize stovers as sacrificial agents Source apportionment of soil heavy metals in abandoned mining areas in Dafan Mountain of Anhui Province based on the UNMIX model ······Zhou Beibei, Guo Jiang, Chen Xiaopeng, Yang Qiang, Zhu Hongyan, Duan Manli, Li Xiaoqing, Zhou Dehua, Yang Yang (240) Abnormal detection of aquaculture water quality data stream using an improved SVDD in pond Process optimization of cultivation of Kirchneriella obesa in cattle farm wastewater Regulation of modern "straw-sheep-cropland" agro-pastoral system using life cycle assessment 

Jin Meijuan, Zhou Xinwei, Shen Mingxing (266)

# • Land Security and Ecological Safety •

Changes of cultivated land pattern and its spatial driving factors in the typical regions of Lower Liaohe Plain
Wang Quanxi, Song Ge (275)
Classification system for county-level territorial space using spatiotemporal heterogeneity and dynamic coupling of land use
and functionality
Xia Jianguo, Bian Jinhu, Gao Xuesong (284)
Exploring the new routes of animal husbandry on the Qinghai-Tibet Plateau based on enclave economy
Sun Zhipeng, Liu Qingqing, Meng Zhu, Chen Jiahong, Zhang Yan, Cheng Xiao,
Huang Yafeng, Ren Chunhuan, Dong Quanmin, Zhang Zijun (297)
Health evaluation of the modern ecological irrigation district using multisource data in Helan County, Ningxia, China
Wang Zhenfeng, Tian Juncang, Feng Kepeng, Gong Xue (307)
Agricultural Produce Processing Engineering •
Quality changes and its mechanism of conditioned pork jerkys under different drying methods
Wang Hengpeng, Wang Yinlan, Jiang Songsong, Xu Shuangyi, Wang Jipan,
Gao Ziwu, Wu Danxuan, Meng Xiangren (317)
Influence of improved structure of drying kiln on the uniformity of wind velocity flow field
Zhu Yifeng, Sun Liping, Li Jicheng (327)
Screening lipidmolecular markers of flaxseed oils by UHPLC-QTOF-MS technology
Liao Minhe, Ren Haowei, Jin Ritian, Kang Jiaxin, Shang Jiaqi, Ning Xuenan, Yao Sihan, Liu Ning (338)
Removal of phosphine from grain storage environment via non-thermal plasma combined with Fe <sub>2</sub> O <sub>3</sub> catalyst
······Pan Di, Song Hua, Kang Kai, Ma Tingjun, Bai Shupei (347)