

10
2023

第45卷

ISSN 1003-188X

农机化研究

Journal of Agricultural
Mechanization Research

日本 JST 数据库收录
中国农林核心期刊（A类）
全国中文核心期刊



黑龙江省农业机械工程科学研究院
黑 龙 江 省 农 业 机 械 学 会

主 办

ISSN 1003-188X



9 771003 188224

农业发展新视点

水平摘锭式采棉机采摘系统研究现状与展望 肖 霄 孙 奎 谢方平 等(1)

我国变量施肥技术的研究现状与发展分析 任灵杰 田 敏 李江全 等(10)

理论研究与探讨

大载重农用无人机静力学分析与优化设计 徐金明 尚书旗 王东伟 等(16)

基于 EDEM 的平贝母覆土部件仿真试验研究 赵建秋 赵 伟 田 帅 等(24)

小区域爆破式植保弹的控制策略与运动仿真研究 刘玉闯 王东伟 何晓宁 等(32)

基于 CFD 的六旋翼植保无人机构力效耦合分析 李永超 王东伟 何晓宁 等(40)

基于误差修正模型的日光温室温度预测模型 龚健林 何 斌 张亦博 等(47)

基于 GNSS 和激光雷达的果园机器人导航系统研究 魏逸飞 李青龙 孙宜田 等(55)

不同挖掘方式对半夏机械化收获的效果分析 孔曼曼 张富贵 郑 乐 等(62)

基于深度学习的重叠柑橘分割与形态复原 黄磊磊 苗玉彬(70)

基于数控技术的智能插秧机结构参数优化研究 张 明(76)

基于 EDEM 的花生秧清选装置筛分性能仿真试验 石智文 陈学庚 刘海山 等(81)

基于数学轨迹算法的采摘机器人精准化作业 马爱华(86)

设计制造

丘陵山区牵引式前胡收获机设计与试验 张 远 曹成茂 刘 权 等(91)

往复式葡萄叶幕修剪装置设计与试验 薛春林 陈春皓 吕林硕 等(99)

热能循环式热风滚筒杀青机的设计与仿真 刘世雄 曹成茂 葛 俊 等(107)

基于 Winform 的农机导航终端监控系统设计与试验 黄修炼 迟瑞娟 董乃希 等(115)

小麦小区联合收获机连续集粮系统的设计 石绍滨 杨 薇 李建东 等(121)

面向智能制造的多种作物收割机效率优化研究 贾聪平(126)

基于 AMR 技术的秧苗移栽机结构设计 尹巧灵 轩 卉(130)

试验研究

猕猴桃株间机械避障除草机作业性能优化与试验 赵诗建 卢彩云 李守忠 等(134)

不同作业参数对覆膜机培土量的影响研究 王 震 吴长兵 李再军 等(143)

- 基于 ANSYS 和 EDEM 的巨菌草茎秆力学特性试验研究 郑邵秋 张彩虹 王国强 等(151)
苜蓿种子柔性梳脱装置的设计与试验 陈海霞(159)
剪切式红花采摘装置的设计与试验 罗丹 郭辉 高国民 等(166)
马铃薯挖掘机摆动筛振动测试与分析 赵祥 蒙建国 曲丹萍 等(171)
智能管道种菜机的设计与试验研究 黎斌 李强 胡鑫 等(177)

新技术应用

- 基于嵌入式 S3C6410 的采摘机器人自动导航控制系统 王娜 孟庆辉 魏宏飞 (182)
基于深度学习的水果识别系统设计 李赟 刘思雨 朱川 等(187)
VR 沉浸式三维交互技术在农机虚拟设计中的应用 胡威 周俊 李婷(192)
采摘机器人识别技术—基于深度图像和人工智能协同处理 李世锦(197)
面向数据安全的农机设备管理平台设计 夏晶晶(202)
基于光谱特性的植保机智能图像识别研究 王秀珍(207)
基于模糊 PID 控制的采摘机器人行走系统设计 杨旭(211)
基于虚拟现实平台的通用型农业零部件设计 马晓丽 么伟伟(215)
基于 NDVI 指数的夏玉米中耕施肥模型设计与试验 徐恒玉 (219)
三维仿真及 Java 在播种机作业环境创设上的应用 王宏斌(223)

环境与能源动力工程

- 基于离散元法的船式拖拉机叶轮转向性能研究 张超 瞿兆杰 黑晓涛 等(228)
山地果园行间运输车减振系统优化设计 戚得众 阮晓松 吴云志 等(237)
生物质热风炉传热过程的数值分析及结构优化 王文博 王彦 刘娜(243)
电动拖拉机驱动电机的多目标优化及试验研究 陈高丽(250)
拖拉机复杂部件模具成型曲面参数化设计—基于 UG 和 Pro/E 张玉华 刘清文 刘保军(256)
基于 CAXA 的轮式拖拉机液压悬挂系统设计 张雪文(261)
拖拉机发动机润滑管路系统优化 轩卉 尹巧灵 (265)

Journal of Agricultural Mechanization Research

Vol. 45 No. 10 2023

Contents

New View of Agricultural Development

- Horizontal Spindle Type Cotton Picker Picking System Research Status and Prospects Xiao Xiao et al. (1)
Research Status and Development Analysis of Variable Fertilization Technology in China Ren Lingjie et al. (10)

Theory Study and Discussion

- Statics Analysis and Optimization Design of Heavy Load Agricultural UAV Xu Jinming et al. (16)
Simulation Test of Soil Covered Parts of Fritillaria Ussuriensis Maxim Based on EDEM Zhao Jianqiu et al. (24)
Small Area of Blasting Type Plant Protection Control Strategy and Motion Simulation Liu Yuchuang et al. (32)
Force Effect Coupling Analysis of Six Rotor Plant Protection UAV Based on CFD Li Yongchao et al. (40)
Temperature Prediction Model of Solar Greenhouse Based on Error Correction Model Gong Jianlin et al. (47)
Research on Orchard Robot Navigation System Based on GNSS and Lidar Wei Yifei et al. (55)
Effect of Different Excavation Methods on Mechanized Harvest of Pinellia Ternata Kong Manman et al. (62)
Overlapping Citrus Segmentation and Morphological Restoration Based on Deep Learning Huang Leilei et al. (70)
Research on Optimization of Structural Parameters of Intelligent Rice Transplanter Based on Numerical Control Technology
..... Zhang Ming (76)
EDEM-based Simulation Test of Peanut Seedling Cleaning Device Sieving Performance Shi Zhiwen et al. (81)
Precision Operation of Picking Robot Based on Mathematical Trajectory Algorithm Ma Aihua (86)

Design and Manufacture

- Design and Test of Traction Front Peucedanum Harvesting Machine in Hilly Area Zhang Yuan et al. (91)
Design and Experiment of Reciprocating Grap Eleaf Curtain Trimming Device Xue Chunlin et al. (99)
Design and Simulation of Heat Energy Circulating Hot Air Tea Cylinder Fixation Machine Liu Shixiong et al. (107)
Design and Test of Monitoring Software System for Agricultural Machinery Navigation Terminal Based on Winform
..... Huang Xiulian et al. (115)
Design of Continuous Grain Collection System of Combine Harvester in Wheat Plot Shi Shaobin et al. (121)
Research on Efficiency Optimization of Crop Harvester for Intelligent Manufacturing Jia Congping et al. (126)
Structure Design of Seedling Transplanter Based on AMR Technology Yin Qiaoling et al. (130)

Experiment and Research

- Optimization and Experiment on the Performance of Kiwi inter-plant Mechanical Obstacle Avoidance Weeding Machine
..... Zhao Shijian et al. (134)

Research on the Influence of Different Operating Parameters on the Soil Cultivation of Film Covering Machine	Wang Zhen et al. (143)
Study on Giant Fungus Grass Stalk Mechanical Properties of ANSYS and EDEM	Zheng Shaoqiu et al. (151)
Design and Experiment of the Flexible Combing- Stripping Device of Alfalfa Seed	Chen Haixia et al. (159)
Design and Experiment of Shearing Safflower Picking Device	Luo Dan et al. (166)
Vibration Test and Analysis of Swing Screen of Potato Excavator	Zhao Xiang et al. (171)
Design and Experimental Research of Intelligent Pipe Vegetable Planter	Li Bin et al. (177)

Application of New Technology

Automatic Navigation Control System of Picking Robot Based on Embedded S3C6410	Wang Na et al. (182)
Design of Fruit Recognition System Based on Deep Learning	Li Yun et al. (187)
Application of VR Immersive 3D Interactive Technology in Virtual Design of Agricultural Machinery	Hu Wei et al. (192)
Recognition Technology of Picking Robot —Based on Collaborative Processing of Depth Image and Artificial Intelligence	Li Shijin (197)
Design of Data Security Oriented Agricultural Machinery and Equipment Management Platform	Xia Jingjing(202)
Research on Intelligent Image Recognition of Plant Protection Machine Based on Spectral Characteristicsy	Wang Xiuzhen(207)
Design of Walking System of Picking Robot Based on Fuzzy PID Control	Yang Xu (211)
Design of General Agricultural Parts Based on Virtual Reality Platform	Ma Xiaoli et al. (215)
Design and Experiment of Summer Maize Intercropping Fertilization Model Based on NDVI Index	Xu Hengyu(219)
Application of 3D Simulation and Java in the Creation of Working Environment of Seeder	Wang Hongbin(223)

Environment and Energy Power Engineering

Research on the Steering Performances of Boat Tractor Impeller Based on the Discrete Element Method	Zhang Chao et al. (228)
Optimal Design of Vibration Damping System for Transport Vehicles Between Rows in Mountain Orchards	Qi Dezhong et al. (237)
Numerical Analysis and Structure Optimization of Heat Transfer Process in Biomass Hot Blast Stove	Wang Wenbo et al. (243)
Multi-objective Optimization and Experimental Study of Electric Tractor Drive Motor	Chen Gaoli(250)
Parametric Design of Die Forming Surface for Complex Tractor Parts —Based on UG and Pro / E	Zhang Yuhua et al. (256)
Design of Hydraulic Suspension System for Wheeled Tractor Based on CAXA	Zhang Xuewen (261)
Optimization of Engine Lubrication Pipeline System of Tractor	Xuan Hui et al. (265)

Basic Parameters of the Journal: CN 23-1233/S * 1979 * m * A4 * 268 * zh * P * ¥ 20.00 * 1500 * 44 * 2023-10