

2023年 第13卷 第10期 (总第122期)

目 次

装备与机械化

混合动力农业机械研究现状及展望	·高瑞遥	李	睿	李广宇	徐峰	孟长伊	李玲玲	(5)
自走式智能花叶类工业大麻收获机用柴油机抱瓦分析						· 李厚贵	曹海峰	(10)
设施栽培宜机化试验设计及效益分析						· 刘家涛	薛 平	(17)
信息与电气化								
基于图像识别技术的北京市设施温室动态监测研究								
肖 帅 郭 嘉	芦天罡	唐	朝	张辉鑫	刘胤池	赵志强	李响	(21)
基于双目视觉的农药喷洒机器人识别系统		・张	谋	蒲烨锋	江 雯	王 鹏	李心怡	(27)
北京市农机大数据平台建设与应用							· 陈 华	(32)
新疆棉花气象服务平台功能设计与服务应用		· 孔于	名	胡启瑞	张山清	火勋国	吉春容	(37)
生物环境与能源								
丹东市蓝莓种植气象影响及发展建议				董海涛	单璐璐	李如楠	谭丽静	(42)
苹果树修剪枝条直燃发电系统生命周期评价		· 李萸	7字	黄梦婷	王 英	陈文强	王 伟	(49)
风电叶片用芯材应用进展 梁小杰	杨文涛	游恚	责鹏	谢宇飞	刘宏伟	张朝锋	郑 冰	(56)
农副产品加工与贮藏								
基于物联网的空气源热泵式谷物干燥机试验研究	· 缪 磊	赵	荣	吕 虎	黄毅成	陈坤杰	王 硕	(60)
食品科学与工程								
香梨褐色酸奶工艺优化 孙玉田 刘平稳	铁生	于淮	事华	张福钊	韩 赟	梁茵瑜	刘峰	(65)
运输密度和时间对单环刺螠保活运输品质的影响								
	胡丁月	徐	莉	孙 浩	刘峰	刘春娥	张小栓	(72)
水土工程								
北方缺水地区农业智慧灌溉应用与发展		· 刘	丽	张玉翠	张小帅	黄欣莉	黄彩霞	(78)

设计制造与理论研究		
高速低阻防过载犁耕装备设计与试验 刘进宝 郑 炫 杨怀君 张鲁云 李 帆	王子龙	汤智辉 (84)
多源激励对联合收获机螺栓连接处振动特性试验研究顾庭伟 钱鹏飞 李鹏程	顾新阳	唐 忠 (91)
大型高地隙喷雾机喷杆减振试验与优化 庄腾飞 杨学军 张 铁 尚德林 靳文停	孙 星	韦博翰 (98)
隧道式食品油炸机槽体热变形研究高英山 于 洋 姚庆宇 李 岩 谢文巍	张奎彪	柴 宇 (104)
科研与教学		
我国碳排放研究进展——基于 Vosviewer 和 Citespace 知识图谱分析		
	王影娴	兰维娟 (108)
工程优化设计方法课程案例库建设探索与实践	张开兴	宋月鹏 (115)
基于校企合作模式的生物工程专业实践教学改革 龚利娟 周丽洪	王风青	马振兵 (119)
食品微生物学课程中思政元素挖掘与解析	鞠 健	赵方圆(123)
-t- 2// [cl. alc. lt. 15		
农学与生物技术		
2011—2021 年安徽省区域试验高密度组参试玉米品种产量及相关性状演变分析		
	马桂美	张 建 (128)
沼液和菌菇渣多年施用对日光温室番茄生长发育及根际土壤环境的影响 樊铭玺 周永馨	马宇阳	陈晓峰(134)
-t- 11. /7 >> 66 m		
农业经济管理		
新疆生产建设兵团杏种植布局综合评价 赵 威 王民敬 韩 萌 李 健 冯 伟	赵 毅	周丹丹 (141)
基于产业链视角的海洋牧场品牌建设模式——以好当家集团为例	··胡婉儿	李梅芳 (146)
基于人与自然和谐共生的生态农业振兴模式与实践	·· 袁合涛	殷兆霞(150)

农业文化遗产挖掘带动产业发展路径——以莱阳梨产业为例 …… 田小雨 王煜皓 徐 赫 崔 杰 李 军 (155)

AGRICULTURAL ENGINEERING

Vol. 13 No.10 2023

Contents

Equipment and Mechanization	
Research Current Status and Prospects of Hybrid Power Agricultural Machinery	
Analysis of Diesel Engine Bearing Pads for Self-propelled Intelligent Flower Leaf Industrial Hemp	(5)
Harvesting Equipment LI Hougui, CAO Haifeng	(10)
Design and Benefit Analysis of Mechanized Experiment for Facility Cultivation · · · · LIU Jiatao, XUE Ping	(17)
Information and Electrification	
Dynamic Monitoring of Facility Greenhouse in Beijing City Based on Image Recognition Technology	
XIAO Shuai, GUO Jia, LU Tiangang, TANG Chao, ZHANG Huixin, LIU Yinchi,	
ZHAO Zhiqiang, LI Xiang	(21)
Identification System of Pesticide Spraying Robot Based on Binocular Vision	
ZHANG Mou, PU Yefeng, JIANG Wen, WANG Peng, LI Xinyi	(27)
Construction and Application of Beijing Agricultural Machinery Big Data Platform · · · · · · CHEN Hua	(32)
Functional Design and Service Application of Xinjiang Cotton Meteorological Service Platform	
KONG Ziming, HU Qirui, ZHANG Shanqing, HUO Xunguo, JI Chunrong	(37)
Biological Environment and Energy	
Meteorological Impacts and Development Suggestions on Blueberry Cultivation in Dandong City	
DONG Haitao, SHAN Lulu, LI Runan, TAN Lijing	(42)
Life Cycle Assessment of Pruned Apple Tree Branches Direct Combustion Power Generation System	
LI Yining, HUANG Mengting, WANG Ying, CHEN Wenqiang, WANG Wei	(49)
Progress on Application of Core Materials for Wind Turbine Blades · · · · · LIANG Xiaojie, YANG Wentao,	
YOU Huipeng, XIE Yufei, LIU Hongwei, ZHANG Chaofeng, ZHENG Bing	(56)
Processing and Storage of Farm and Sideline Products	
Experimental Research on Air Source Heat Pump Grain Dryer Based on Internet of Things	
MIAO Lei, ZHAO Rong, LV Hu, HUANG Yicheng, CHEN Kunjie, WANG Shuo	(60)
Food Science and Engineering	
Process Optimization of Fragrant Pear Brown Yogurt ······ SUN Yutian, LIU Pingwen, TIE Sheng,	
YU Haihua, ZHANG Fuzhao, HAN Yun, LIANG Yinyu, LIU Feng	(65)
Effect of Transportation Density and Time on Quality of Urechis unicinctus During Live Transportation	
FAN Hongbo, HU Dingyue, XU Li, SUN Hao, LIU Feng, LIU Chune, ZHANG Xiaoshuan	(72)
Water-soil Engineering	
Application and Development of Agricultural Intelligent Irrigation in Northern Water Shortage Areas	
LIU Li, ZHANG Yucui, ZHANG Xiaoshuai, HUANG Xinli, HUANG Caixia	(78)
	(78)

Design, Manufacture and Theoretical Research Design and Test of High Speed and Low Resistance Anti-Overload Ploughing Equipment ····· LIU Jinbao, ZHENG Xuan, YANG Huaijun, ZHANG Luyun, LI Fan, WANG Zilong, TANG Zhihui (84) Experimental Study on Vibration Characteristics of Bolt Joint of Combine Harvester under Multi-source Excitation GU Tingwei, QIAN Pengfei, LI Pengcheng, GU Xinyang, TANG Zhong (91) Vibration Damping Test and Optimization of Spray Boom in Large-scale High Clearance Sprayer ····· ZHUANG Tengfei, YANG Xuejun, ZHANG Tie, SHANG Delin, JIN Wenting, SUN Xing, WEI Bohan (98) Thermal Deformation of Tunnel Type Food Fryer Tank GAO Yingshan, YU Yang, YAO Qingyu, LI Yan, XIE Wenwei, ZHANG Kuibiao, CHAI Yu (104) Scientific Research and Teaching Progress of Carbon Emissions Research in China: Based on Vosviewer and Citespace Knowledge Graph Analysis ······ YIN Dongxue, ZHONG Naining, CHEN Dongdong, QIN Jiajun, WANG Yingxian, LAN Weijuan (108)Exploration and Practice of Case Base Construction of Engineering Optimization Design Method Course SHI Guoying, LI Tianhua, ZHANG Kaixing, SONG Yuepeng (115)Practical Teaching Reform on Bioengineering Major Based on School Enterprise Cooperation Model GONG Lijuan, ZHOU Lihong, WANG Fengqing, MA Zhenbing (119)Excavation and Analysis of Ideological and Political Elements Contained in Course of Food Microbiology ------JU Jian, ZHAO Fangyuan (123)Agronomy and Biotechnology Evolution Analysis of Yield and Related Traits of Maize Varieties in High Density Group of Regional LIU Xingzhou, CHEN Ruiji, MA Guimei, ZHANG Jian Growth and Development of Tomato and Changes of Rhizosphere Soil Microorganism under Application of Biogas Slurry and Mushroom Residue in Solar Greenhouse FAN Mingxi, ZHOU Yongxin, MA Yuyang, CHEN Xiaofeng Management of Agricultural Economy Comprehensive Evaluation of Apricot Planting Layout in the Xinjiang Production and Construction Corps ZHAO Wei, WANG Minjing, HAN Meng, LI Jian, FENG Wei, ZHAO Yi, ZHOU Dandan (141)

Brand Construction Mode of Marine Ranching from Perspective of Industrial Chain: Taking Homey Group

Revitalization Model and Practice of Ecological Agriculture Based on Harmonious Coexistence Between

Industrial Development Path Driven by Agricultural Cultural Heritage Excavation: Taking Laiyang Pear

Industry as an Example TIAN Xiaoyu, WANG Yuhao, XU He, CUI Jie, LI Jun (155)

(146)