



中国核心期刊(遴选)数据库全文收录期刊
中国学术期刊综合评价数据库统计源期刊
中国学术期刊(光盘版)全文收录期刊
中文科技期刊数据库全文收录期刊

ISSN 1674-1161

CN 21-1559/S

农业科技与装备

AGRICULTURAL SCIENCE&TECHNOLOGY AND EQUIPMENT

2018年第5期

nongye keji yu zhuangbei



主管单位: 辽宁省农村经济委员会
主办单位: 辽宁省农业机械化研究所
协办单位: 辽宁省农机学会 辽宁省农学会
辽宁省农业工程学会

ISSN 1674-1161



9 771674 116083



农业科技与装备

NONGYE KEJI YU ZHUANGBEI

2018 年第 5 期
(总第 287 期)
9 月 20 日出版
双月刊
(1979 年 4 月创刊)

主管单位 辽宁省农村经济委员会
主办单位 辽宁省农业机械化研究所
出版发行 农业科技与装备杂志社
印刷单位 沈阳市东实印刷厂
主 编 高希君
副主编 刘欣 王帅
地 址 沈阳市东陵路 90 号
邮政编码 110161
电 话 024-88416286(传真)
电子邮箱 nykjyzb@163.com
网 址 <http://www.lnsnjs.com.cn>
国内统一出版物号 CN 21-1559/S
国际标准连续出版物号 ISSN 1674-1161
发行范围 国内公开发行
订 阅 全国各地邮局
邮发代号 8-211
每期定价 15.00 元

如需转载本刊文章及图片, 请注明摘自《农业科技与装备》杂志, 并寄样刊。

中国核心期刊(遴选)数据库全文收录期刊
中国学术期刊综合评价数据库统计源期刊

目 次

品种与栽培

沙地赤松育苗技术 郭文伟(01)

土肥与环境

施肥对山药品质及产量的影响 巴 特(03)

农业工程

洋马插秧机机械化侧深施肥装置改进设计
..... 刘 宝, 车 刚, 万 霖, 张贵宏(05)

基于 PLC 的自动分拣装置设计 许晓东, 雷福祥, 马雪亭(07)

基于 MCGS 的液体自动混合装置模拟监控软件设计
..... 孙雪蕾, 赵焕鑫, 党丽峰, 朱和军, 李玉兰(10)

电力系统不良数据的检测与辨识算法研究——基于 IEEE33 含光伏
系统仿真计算 周嘉伦, 刘可一, 刘晓伟(13)

基于傅立叶变换的电能质量分析 王贵波, 马洪峰(17)

东北自然发酵酸菜中耐低温优良乳酸菌菌种的筛选
..... 张晓黎, 吴兴壮, 高 雅(20)

姜粉喷雾干燥工艺研究 叶春苗(23)

红枣热风干燥单因素试验分析 徐浩楠,
靳 伟, 裴春然, 杨天奇, 刘 鑫, 赫荣彬, 沙亚·沙里木江(25)

鲜糯玉米粒保藏工艺研究 陈景鑫, 王笑可(28)

吐温-80 与米糠蛋白质相互作用对蛋白质界面性质影响研究
..... 杨思英, 高育哲, 任建军, 王 娜, 张一凡, 张 倩(31)

不同添加剂对马铃薯重组米品质影响研究
... 李 迪, 赤列旺姆, 索朗普尺, 胡永奎, 马天文, 肖志刚, 朱旻鹏(35)

响应面法优化小米麸皮中黄酮物质提取工艺研究
..... 陶 睿, 张一凡, 高育哲, 刘绮梦, 杜明珠, 赵 迪(39)

欢 迎 订 阅

中国学术期刊(光盘版)全文收录期刊
中文科技期刊数据库全文收录期刊

MU CI

紫薯全粉馒头的研制

..... 李宁宁,韦璐,李志,范春颖,闫云梦,高路(45)

“靠山红”红小米色素提取工艺条件优化及其稳定性研究

..... 赵迪,张一凡,高育哲,杨晓琼,李月,李樟萍(48)

五谷杂粮养生糊的研制

..... 公丽艳,许青,杨平,张仕诗,徐彩红,王若宁(51)

基于预熟化技术对黑豆与大米同煮同熟工艺优化的研究

..... 杜明珠,张一凡,付亮,李樟萍,李月,赵迪(54)

营养膳食纤维夹心饼干的研制

..... 俞才荣,安甜甜,赵秀红(58)

黄瓜咀嚼片粉末直接压片法工艺研究

..... 迟晓君,岳凤丽,徐兆伟,张鲲,齐子和(62)

南瓜蜂蜜戚风蛋糕配方及工艺研究

..... 董晓颖(65)

日光温室灌溉技术及装备研究

..... 董向辉(69)

玉米免耕播种机播种深度控制系统研究分析

..... 钱巍,马世榜(71)

外源物质对灵芝液体发酵的影响

..... 任奕(74)

绞股蓝皂苷的提取方法研究进展

..... 王金丹(76)

农业机械智能化的发展现状与前景

..... 陈福云(78)

辽宁省农业机械化现状及存在问题研究

..... 郭芳齐,施雯(80)

电力企业招标投标管理策略研究

..... 王昕,王洋(82)

电子技术基础课程教学改革探索

..... 车壮(84)

职业技能大赛引领下的中药专业课程教学改革

..... 田洋(86)

地方应用型本科高校食品免疫学课程教学改革

..... 彭蕊,李志涛,朱冰清(89)

创新创业教育与食品专业教育深度融合的人才培养体系构建与实践

..... 张卉,张万忠,岳静(91)

AGRICULTURAL SCIENCE & TECHNOLOGY AND EQUIPMENT

NO.5,2018
(Total NO.287)
September 20
Bimonthly
(Started in April 1979)

Administered by

Liaoning Province Rural Economy
Committee

Sponsored by

Liaoning Province Agricultural
Mechanization Institute

Published and Distributed by

Journal of Agricultural S&T and
Equipment

Printed by

Shenyang DongShi Printing House

Editor in Chief

GAO Xijun

Deputy Editor in Chief

LIU Xin,WANG Shuai

Address

No.90,Dongling Road,Shenyang 110161

Telephone(Fax)

024-88416286

E-mail

nykjyzb@163.com

<http://www.lnsnjs.com.cn>

CN 21-1559/S

ISSN 1674-1161

For reproduction of any articles and pictures
from AGRICULTURAL SCIENCE&TECHNOLO-
GY AND EQUIPMENT,please indicate the
source and send us a sample book.

欢 迎 赐 稿



Contents

Variety and Cultivation	
Seedling Technology of Pinus Densiflora in Sandy Land	GUO Wenwei(01)
Soil-fertilizer and Environment	
Effect of Fertilization on Quality and Yield of Chinese Yam	BA Te(03)
Agricultural Engineering	
Improved Design of Mechanized Side Deep Fertilization Device of Yangma Rice Transplanter	LIU Bao, CHE Gang, WAN Lin, ZHANG Guihong(05)
Design of Automatic Sorting Device based on PLC	XU Xiaodong, LEI Fuxiang, MA Xueting(07)
Design of Simulation Monitoring Software for Liquid Automatic Mixing Device based on MCGS	SUN Xuelei, ZHAO Huanxin, DANG Lifeng, ZHU Hejun, LI Yulan(10)
Study on Detection and Identification Algorithms of Power System Bad Data—Based on IEEE33 including Photovoltaic System Simulation Calculation	ZHOU Jialun, LIU Keyi, LIU Xiaowei(13)
Power Quality Analysis based on Fourier Transform	WANG Guibo, MA Hongfeng(17)
Screening of Lactic Acid Bacteria Resistant to Low Temperature Pickled Cabbage by Natural Fermented in Northeast China	ZHANG Xiaoli, WU Xingzhuang, GAO Ya(20)
Study on Spray Drying Technology of Ginger Powder	YE Chunmiao(23)
Analysis on Single Factor Experiment in Hot Air Drying of Red Jujube	XU Haonan, JIN Wei, PEI Chunran, YANG Tianqi, LIU Xin, HE Rongbin, SHAYA·Shalimujiang(25)
Study on Preservation Technology of Fresh Waxy Corn Grain	CHEN Jingxin, WANG Xiaoke(28)
Research Progress on Effect of Interaction between Tween-80 and Rice Bran Protein on the Protein Interface Properties	YANG Siying, GAO Yuzhe, REN Jianjun, WANG Na, ZHANG Yifan, ZHANG Qian(31)
Research on Effect of Different Additives on the Quality of Potato Recombinant Rice	LI Di, TINLEY Wangmo, SOLON Puchi, HU Yongkui, MA Tianwen, XIAO Zhigang, ZHU Minpeng(35)
Reaction Surface Method Used to Determine the Extraction Conditions of Flavonoids from Millet Bran	TAO Rui, ZHANG Yifan, GAO Yuzhe, LIU Qimeng, DU Mingzhu, ZHAO Di(39)
Study on Steamed Bread with Purple Sweet Potato Whole Powder	LI Ningning, WEI Lu, LI Zhi, FAN Chunying, YAN Yunmeng, GAO Lu(45)
Study on Extraction Process Optimization of “Kaoshaohong” Red Millet Pigment and Its Stability	ZHAO Di, ZHANG Yifan, GAO Yuzhe, YANG Xiaoqiong, LI Yue, LI Zhangping(48)
Development of Coarse Cereals Health Maintenance Paste	GONG Liyan, XU Qing, YANG Ping, ZHANG Shishi, XU Caihong, WANG Ruoning(51)
Optimization of Black Beans and Rice Co-cooking Process based on Pre-curing Technology	DU Mingzhu, ZHANG Yifan, FU Liang, LI Zhangping, LI Yue, ZHAO Di(54)
Development of Nutrition Dietary Fiber Sandwich Biscuit	YU Cairong, AN Tiantian, ZHAO Xiuhong(58)
Research on Technology of Cucumber Chewable Tablet with Direct Compression Method	CHI Xiaojun, YUE Fengli, XU Zhaowei, ZHANG Kun, QI Zihe(62)
Study on the Recipe and Technology of Pumpkin Honey Chiffon Cake	DONG Xiaoying(65)
Technology Extension	
Research on Solar Greenhouse Irrigation Technology and Equipment	DONG Xianghui(69)
Research Status of Seeding Depth Control System of Maize No-Tillage Seeder	QIAN Wei, MA Shibang(71)
Effects of Allogenic Material on Liquid Fermentation of Lucid Ganoderma	REN Yi(74)
Research Progress on Extraction Methods of Gypenosides	WANG Jindan(76)
Forum and Communication	
Present Situation and Prospect of Intelligent Development of Agricultural Machinery	CHEN Fuyun(78)
Research on Agricultural Mechanization Status and Existing Problems in Liaoning Province	GOU Fangqi, SHI We(80)
Research on Bidding and Tendering Management Strategy of Electric Power Enterprises	WANG Xin, WANG Yang(82)
Attempt to Reform the Teaching of Basic Electronic Technology Courses	CHE Zhuang(84)
Curriculum Reform of Traditional Chinese Medicine Under the Guidance of Vocational Skills Competition	TIAN Yang(86)
Teaching Reform of Food Immunology Course in Local Application-Oriented Colleges and Universities	PENG Rui, LI Zhitao, ZHU Bingqing(89)
Construction and Practice of the Talent Cultivation System that Integrates Innovation and Entrepreneurship Education and Food Specialty Education in Depth	ZHANG Hui, ZHANG Wanzhong, YUE Jing(91)