

## 目 次

## 作物学研究前沿

基于 CiteSpace 的华北冬小麦-夏玉米周年优化灌溉制度的节水潜力分析

..... 刘英博 周际 陈颖露 姚旭擎 杨晓琳 杜太生(1)

玉米抗倒伏能力评价方法研究进展

..... 杨今胜 张晓龙 郑培峰 徐文华 吕艳杰 王立春 王永军(21)

盐胁迫对稻米中矿质元素和抗氧化物质含量的影响

..... 许江环 杨善 王盼盼 郭海峰 周鸿凯(30)

谷子种质资源萌发期抗旱性综合评价及抗旱指标筛选

..... 樊瑀 董淑琦 原向阳 杨雪萍 姚翔 郭平毅 杨雪芳(42)

新疆长绒棉育成品种演变趋势及综合评价

..... 郑子漂 徐海江 林涛 郭仁松 王亮 崔建平  
张大伟 魏鑫 努斯热提·吾斯曼(55)

包衣棉种物性参数测定与离散元仿真参数标定

..... 王龙 贺小伟 胡灿 郭文松 王旭峰 邢剑飞 侯书林(71)

不同施肥模式对马铃薯光合特性及产量品质的影响 ..... 徐玉坤 薛龙飞(83)

甘薯响应蔓割病病原菌侵染的 *IbWRKY7* 基因克隆与表达分析

..... 刘意 刘泓江 陈培茹 杨新笋 雷剑 王连军  
柴沙沙 薛晓杰 杨圆圆 程贤亮 焦春海 张文英(91)

施钾对甘薯贮藏期腐烂率及碳水化合物变化的影响

..... 陈匡稷 宋建忠 林力卓 崔鹏 吕尊富 潘牧 陆国权(100)

不同绿豆品种籽粒形成过程中淀粉积累特性

..... 杨思敏 刘蓓蓓 王可心 高玉萌 李鑫 林瑞娟 高小丽(110)

1985—2018 年中国甘蔗生产时空变化及区域优势分析

..... 邹晓蔓 傅漫琪 王小慧 陈阜(120)

大型迪庆藏猪不同生长阶段肌肉生长差异基因及其调控通路分析

..... 聂靖茹 张博 马黎 张浩 李国美 严达伟 董新星(132)

- 略阳乌鸡开产日龄遗传参数估计和 *FSHR* 基因序列变异与开产日龄的关联性分析  
..... 张志远 吕鑫莹 赵家悦 王哲鹏(145)
- 梅花鹿 *KGF* 的基因克隆及在不同时期顶端茸皮组织的表达分析  
..... 郭梦雅 韩若冰 邢海华 张芙蓉 李和平(154)
- 细胞焦亡调控肿瘤免疫微环境的分子机制研究进展 ..... 董婧 王耀 黄小侠 李林(162)
- 基于深度神经网络及隐马尔科夫模型的生猪状态音频识别  
..... 彭硕 刘东阳 时国龙 李广博 慕京生 辜丽川 焦俊(172)
- 基于遥感影像和卷积神经网络的农田及道路信息提取  
..... 陈理 杨广 刘名洋 周宇光(182)
- 山东省土地利用变化的生态系统服务交叉敏感性评价  
..... 关梅 张文信 蒋海明 路昌 葛艺冰 董光龙(192)
- 襄垣县耕地资源价值核算及空间格局分析  
..... 谢立军 白中科 杨博宇 杜鑫 杨凯 付帅(204)
- 喷施羧甲基纤维素钾对宁夏引黄灌区土壤及其作物的影响  
..... 王永杰 颜鑫 王英 刘根红 杨世琦(215)
- 土壤质量评价中少量样本最小数据集的构建  
——以内蒙古杭锦旗黄河南岸灌区典型地块为例  
..... 周文涛 兰天 潘岳 公衍丽 高云悦 李品芳(225)
- 生产性服务外包是否促进了测土配方施肥技术采纳  
——以小麦为例 ..... 万凌霄 蔡海龙(236)
- 中国蔬菜种植化肥施用强度时空演变及影响因素 ..... 苏淑仪 周玉玺 周霞(248)
- 合作社社会化服务能促进农户病虫害综合防治技术的采纳吗  
——来自四川的经验证据 ..... 陈吉平 刘宇荧 傅新红(264)
- 中国农村集体产权制度改革政策的变迁与趋势  
——基于 2010—2020 年 76 份政策文本的量化分析 ..... 潘丹 周金龙 周应恒(278)
- 农村学龄儿童膳食多样性与营养状况关联性  
..... 陶畅 赵启然 李军(290)

## CONTENTS

### **Frontiers of Crop Science**

- Water-saving potential of optimized irrigation system for winter wheat-summer maize double cropping system in the North China Plain based on CiteSpace ..... LIU Yingbo, ZHOU Ji, CHEN Yinglu, YAO Xuqing, YANG Xiaolin, DU Taisheng(1)
- Research progress on the evaluation methods of maize lodging resistance ..... YANG Jinsheng, ZHANG Xiaolong, ZHENG Peifeng, XU Wenhua, LV Yanjie, WANG Lichun, WANG Yongjun(21)
- Effects of salt stress on the contents of mineral elements and antioxidant substances in rice ..... XU Jianghuan, YANG Shan, WANG Panpan, GUO Haifeng, ZHOU Hongkai(30)
- Comprehensive evaluation of drought resistance of foxtail millet germplasm resources during germination period and drought resistance index screening ..... FAN Yu, DONG Shuqi, YUAN Xiangyang, YANG Xueping, YAO Xiang, GUO Pingyi, YANG Xuefang(42)
- Evolution tendency and comprehensive evaluation of long-staple cotton bred varieties in Xinjiang ..... ZHENG Zipiao, XU Haijiang, LIN Tao, GUO Rensong, WANG Liang, CUI Jianping, ZHANG Dawei, WEI Xin, NUSIRAT Osman(55)
- Measurement of the physical parameters and calibration of discrete element simulation parameter of coated cotton seed ..... WANG Long, HE Xiaowei, HU Can, GUO Wensong, WANG Xufeng, XING Jianfei, HOU Shulin(71)
- Effects of different fertilization models on the photosynthetic characteristics, yield and quality of potato ..... XU Yukun, XUE Longfei(83)
- Cloning and expression analysis of *IbWRKY7* gene in response to *Fusarium oxysporum* f. sp. *batatas* infection in sweet potato ..... LIU Yi, LIU Hongjiang, CHEN Peiru, YANG Xinsun, LEI Jian, WANG Lianjun, CHAI shasha, JIN Xiaojie, YANG Yuanyuan, CHENG Xianliang, JIAO Chunhai, ZHANG Wenying(91)
- Effect of potassium application on the decay rate and carbohydrate of sweetpotato during storage ..... CHEN Kuangji, SONG Jianzhong, LIN Lizhuo, CUI Peng, LV Zunfu, PAN Mu, LU Guoquan(100)
- Starch accumulation characteristics of different mung bean varieties during grain formation ..... YANG Simin, LIU Beibei, WANG Kexin, GAO Yumeng, LI Xin, LIN Ruichang, GAO Xiaoli(110)
- Spatio-temporal changes and regional advantage analysis of sugarcane production in China from 1985 to 2018 ..... ZOU Xiaoman, FU Manqi, WANG Xiaohui, CHEN Fu(120)
- Screening of differential genes for muscle growth and regulatory pathways analysis in large Diquing Tibetan pig at different growth stages ..... NIE Jingru, ZHANG Bo, MA Li, ZHANG Hao, LI Guomei, YAN Dawei, DONG Xinxing(132)

- Estimation of genetic parameters and association analysis of *FSHR* gene sequence variation with age at the onset of egg laying of Lueyang black-boned chicken ..... *ZHANG Zhiyuan, LV Xinying, ZHAO Jiayue, WANG Zhepeng* (145)
- Cloning of *KGF* gene from sika deer and expression analysis of antler tip skin tissues at different stages ..... *GUO Mengya, HAN Ruobing, XING Haihua, ZHANG Furui, LI Heping* (154)
- Advances in molecular mechanisms of cell pyroptosis regulation of tumor immune microenvironment ..... *DONG Jing, WANG Yao, HUANG Xiaoxia, LI Lin* (162)
- Pig state audio recognition based on deep neural network and hidden Markov model ..... *PENG Shuo, LIU Dongyang, SHI Guolong, LI Guangbo, MU Jingsheng, GU Lichuan, JIAO Jun* (172)
- Extraction of field and road information based on remote sensing image and convolution neural network ..... *CHEN Li, YANG Guang, LIU Mingyang, ZHOU Yuguang* (182)
- Cross-sensitivity evaluation of ecosystem services based on land use changes in Shandong Province ..... *GUAN Mei, ZHANG Wenxin, JIANG Haiming, LU Chang, GE Yibing, DONG Guanglong* (192)
- Resource evaluation and spatial pattern analysis of the cultivated land in Xiangyuan County ..... *XIE Lijun, BAI Zhongke, YANG Boyu, DU Xin, YANG Kai, FU Shuai* (204)
- Effects of spraying carboxymethyl cellulose potassium on soil properties and crops in Ningxia Yellow River Irrigation Area ..... *WANG Yongjie, YAN Xing, WANG Ying, LIU Genhong, YANG Shiqi* (215)
- Construction of minimum data set with small number of samples for soil quality assessment: A case study of a typical land in the south bank of Yellow River irrigation area of Hangjin Banner, Inner Mongolia ..... *ZHOU Wentao, LAN Tian, PAN Yue, GONG Yanli, GAO Yunyue, LI Pinfang* (225)
- Does production service outsourcing promote the adoption of soil testing for formulated fertilization technology: Taking wheat as an example ..... *WAN Lingxiao, CAI Hailong* (236)
- Spatio-temporal evolution and influencing factors of chemical fertilizer application intensity of vegetable planting in China ..... *SU Shuyi, ZHOU Yuxi, ZHOU Xia* (248)
- Can cooperative social service promote farmers' adoption of IPM technology? Empirical evidence from Sichuan ..... *CHEN Jiping, LIU Yuying, FU Xinhong* (264)
- Evolution and trend of rural collective property rights system reform in China: A quantitative analysis based on 76 policy texts from 2010 to 2020 ..... *PAN Dan, ZHOU Jinlong, ZHOU Yingheng* (278)
- Correlation between the dietary diversity and nutritional status of rural school-age children ..... *TAO Chang, ZHAO Qiran, LI Jun* (290)